The Short-run and Long-run Theoretical Inconsistency of the Expansionary Austerity Theory

[Very preliminary version. Please, do not quote]

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Abstract: In this paper, we provide a critical analysis of the theory of the expansionary austerity (EAT). Differently from most of the existing critique to EAT, here the attention is on its *theoretical* weaknesses, say the extreme circumstances and assumptions under which expansionary consolidations might actually take place, rather than on the solidity of the econometric techniques used by the supporters of the EAT to validate it. We first present a short-run model through which we outline some relevant factors that can crucially determine the impulse response of economic activity and public deficit to austerity measures. We stress that short-run expansionary outcomes would hardly emerge in the context of expected protracted and long-lasting consolidation plans (i.e. when adjustment plans are supposed to reduce very high debt-to-GDP ratios); when the so-called 'financial channel' is not operative (i.e. in the context of monetarily sovereign economies); when the degree of trade integration or export responsiveness to internal devaluation is low. Even in the context of non-monetarily sovereign countries (see Eurozone countries), the effectiveness of expansionary measures crucially depends on their highly disputable capacity to immediately reduce the debt-to-GDP ratio by stimulating economic activity. We then move to the long-run economic dynamics. We emphasize the high degree of instability that characterizes austerity-based adjustments plans. Path-dependence and cumulativeness make the short-run impulse effects of fiscal consolidation even more determinant to (hopefully) obtain any medium-to-long run reduction in the debt burden and recovery in economic activity. Should these effects be contractionary on the onset, an endless spiral of recession and ballooning debt could likely emerge, debt forgiveness being as the ultimate necessary solution to restore economic soundness. In this paper, we dedicate special attention to the analysis of austerity policies when implemented in Eurozone countries. We do this by considering how austerity measures might lead to different outcomes in the context of non-monetarily sovereign economies (i.e. a peculiar trait of nowadays Eurozone countries) with respect to fully monetarily sovereign economies (the USA, the UK, or, hopefully, a still-to-come EMU with a full-fledge European Central Bank).

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1. The expansionary austerity theory and its (empirical) critiques: A brief overview

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 monetary policy). 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-

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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).

The supporters of the expansionary austerity stress that 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 immediately foster economic activity through three main mechanisms. First, successful fiscal corrections may positively affect the behavior 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.

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 balances [2] (henceforth CAPB), and take significant shifts [3] in countries' CAPBs as signs of discretionary expansionary or restrictive fiscal policies. The authors then use the identified episodes of fiscal adjustments to econometrically explain

[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.

[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 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 eat least three points of the Balance/GDP ratio (Alesina and Ardagna, 2012, pp. 5 – 6)".

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 follow[4]. 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, whist it is the endogenous one.

In order to address such estimation problems, 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. When this alternative approach is applied, the authors find a clearly negative effect of budget cuts and/or tax hikes on current economic activity, and state that such a finding also "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)". These results are in turn consistent with an expanding and rather transversal (among different economic theories) body of literature that has recently rescued from oblivion the concept of fiscal multiplier, and stressed that the size of fiscal multiplier may vary over the business cycle and it may be particularly large and positive during recessions (Auerbach and Gorodnichenko, 2012; Qazizada and Stockhammer, 2015). It is easy to see how this evidence is radically at odds with the concept of a negative fiscal multiplier implicitly advocated by the expansionary austerity doctrine.

The aim of this paper is not to provide another piece to the over-raging debate on the econometric reliability of the expansionary austerity literature. Rather, we want to move the focus of the analysis to the theory, and enquire the theoretical solidity of the

[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.

expansionary austerity viewpoint. At the best of our knowledge, so far only a few works have tried to *analytically* underline the theoretical weaknesses of the expansionary austerity doctrine from a heterodox perspective. And in our view these contributions do not appear completely satisfactory, either because they rely on ad-hoc assumptions or because they do describe austerity too roughly and superficially, without considering the specific policy measures composing austerity packages.

In this paper we try to fill such a gap through a simple post-Keynesian model that takes inspiration from previous contributions, but tries to extend them by tackling with the shortcomings just outlined. The final goal of our paper is twofold.

First, through the short-run part of our model, we critically investigate the well-known and highly influential assertion by Alberto Alesina (at least for the design of austerity measures in the Eurozone in the last five years) 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)". In this sense, we stress that the economic mechanisms at the basis of the expansionary austerity hypothesis are far from being automatic, and that the theoretical fundamentals of the expansionary austerity hypothesis are extremely fragile and, to say the least, state- or institution-contingent. Actually, they fundamentally depend on three core aspects: first, the highly *uncertain* favourable 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 specific 'monetary regime' characterizing an economy (i.e. the degree of monetary sovereignty); third, the high sensitiveness of net exports to internal devaluation and improving exchange rate.

Second, we try to analyze the long-run dynamics possibly set in motions by austerity measures. Here the attention is on the idea that fiscal consolidations might imply short-term costs in terms of stagnating or contracting economic activity, but such costs are more than outweighed by medium-to-long-run benefits in the form of safer and sounder public finances, stable or decreasing public debt-to-GDP ratios, revived economic activity as stimulated by more confident private sector investments[5]. We critically enquire this standpoint by noting that short-run costs should not be interpreted as the necessary price to pay in order to achieve long-term benefits. Actually, short-run costs and long-run benefits may not be 'complement goods' at all. On the contrary, they may be intrinsically at odds each other if (even mild) recessionary short-run responses to adjustments programs give rise to instable rather than stable evolutions in the public debt-to-GDP ratio. Should this be the case, short-run costs might bring in and even larger long-run costs to come.

[5] In some recent contributions, Alesina et al. (2015) put forward such a perspective by emphasizing that expenditure-based fiscal adjustments "have been associated on average with mild and short-lived recessions, in many cases with no recession at all (Alesina et al., 2015, p.4)". Even if this in not clearly stated, Alesina et al. (2015) likely attribute such a (at least in the) medium-to-long-run expansionary outcome of fiscal consolidations to their capacity bring under control public finances, and therefore to the possibility that "business confidence picks up immediately after the start of an expenditure-based adjustment (Alesina *et al.*, 2015, p.4)". This logic is instead pointed out very clearly in a recent ECB Occasional Paper, according to which "the medium to longer-term benefits of well-designed fiscal consolidation are typically accompanied by short-term costs in the form of output losses, [but] since sound government finances are a prerequisite for price and macroeconomic stability and, consequently, for strengthening the conditions for sustainable growth, the long-term benefits of achieving such goals outweigh the short-term costs (Warmedinger *et al.*, 2015, p.1)".

In doing this, we dedicate special attention to the analysis of austerity policies when implemented in Eurozone countries. We show how austerity measures might lead to different outcomes, both in the short run and in the long run, in the context of non-monetarily sovereign economies (i.e. a peculiar trait of nowadays Eurozone countries) with respect to the case of fully monetarily sovereign economies (the USA, the UK, or, hopefully, a still-to-come EMU with a full-fledge European Central Bank). The degree of monetary sovereignty characterizing an economy, or the way central banks intervene to stop mounting financial distress, turns out to be a decisive factor in order to tame macroeconomic instability. In non-monetarily sovereign countries, debt forgiveness may eventually emerge as the ultimate solution to restore economic soundness.

The paper is organized as follows. Section 2 develops the short-run part of our model. We model the kind of *well-designed* consolidation packages advocated by the supporters of the EAT and try to detect their impact on current economic activity, the deficit-to-GDP ratio, and the debt-to-GDP ratio. Section 3 moves to the long run and shows how fiscal variables may evolve through time on the basis of the short-run effects assessed before. Section 4 concludes.

2. Short-run expansionary/contractionary effects of fiscal adjustments in a simple open economy

The vast majority of the critiques to the expansionary austerity theory focus on the debatable and questionable economic concepts (i.e. the CAPB), and the related econometric techniques used by austerity supporters to validate their non-Keynesian perspective of fiscal policies. To the best of our knowledge, only a few non-mainstream studies have aimed at analytically showing the intrinsic theoretical or logical fragility of the expansionary austerity doctrine.

Robert Boyer (2012), for instance, surveys the specific conjunctures and circumstances under which, in the past, austerity measures might have been expansionary in a few small open economies. In doing this, he highlights in an *argumentative* way the theoretical weaknesses of the expansionary austerity perspective by noting that there is “no general theoretical reason to guarantee the success of any austerity policy (Boyer, 2012, p.297)”. Boyer’s analysis is interesting and detailed. Yet, it does not provide any formal treatment of its point. In a way, it does not frame its arguments into a perhaps simple model through which one can juxtapose expansionary and contractionary effects of austerity programs, and quantitatively assess 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. In our view, however, this contribution is affected by a relevant shortcoming. Indeed, Palley’s theoretical exercise leads to *in-built* results, according to which austerity measures inevitably lead to economic contraction. 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.

Foresti and Marani (2014) 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 their work, Foresti and Marani (2014) define austerity as a temporary and/or permanent reduction in public deficit[6]. By adopting this simplistic definition, 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. Even further, they implicitly take the positive effect of fiscal measures on public deficit as granted. With respect to Foresti and Marani (2014), here 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 perhaps rough and ungrounded identification of austerity measures with reductions in public deficit. As to the second point, our model allows for a wider range of outcomes of 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 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 abovementioned contributions, our paper shows more explicitly the interaction between economic activity and public finance's variables.

Differently from Palley (2010), let assume an open economy. Further, let 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 supply-side channels[7] and demand ones (i.e. by stimulating private consumption, private investments and export demand). This fact notwithstanding, most of its emphasis is on demand-side channels, perhaps in order to stress its non-Keynesian perspective on the effects of fiscal policies. Alesina *et al.* (2015), for instance, clearly point out that a decisive aspect of successful austerity packages lies in their capacity to stimulate investment demand from the private business sector by fostering its confidence in the solidity of the domestic macroeconomic environment. In turn, such a peculiar component of (successful) expenditure-based fiscal consolidations versus (unsuccessful) tax-based adjustments "cannot be explained by (accompanying) supply side reforms (Alesina et al., 2015, p.37)", but it rather (and implicitly) relies upon the existence of a 'negative' Keynesian multiplier (at least as far as investment decisions are concerned). In line with this logic, and with the attempt to show its shortcomings, in

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

[7] For instance, Alesina and Ardagna (2010) 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 reduce trade unions' bargaining power and to increase individual labor supply. In the context of supply-side driven mainstream models, it is easy to see hose these effects may eventually stimulate growth by leading to an expanding aggregate supply.

this paper we focus on the operativeness of the demand-side levers of expansionary fiscal austerity only.

Our economy is composed by seven sectors: working households; rentiers; (non-financial) firms; the government; commercial banks; the central bank and, ultimately, the 'Rest of the World' (RoW henceforth). The transaction Matrix 1 below shows how these sectors are connected each other.

[Matrix 1 here]

Working households get wages (W) by contributing with their labor services to production activity. They consume domestic goods (C), import foreign-made products (XM), and pay taxes (T) on their income. They also receive transfer payments (Tr^G) and unemployment benefits ($\bar{w}U$) from the government as provisions of the domestic social safety system. Working households' savings take the form of new deposits (dM) to commercial banks.

Rentiers get dividends from commercial banks[8], as well as interest payments on their holdings of foreign financial assets, i.e. RoW's liabilities (iFA). For the sake of simplicity, we assume rentiers not to consume. Rentiers use their savings in order to accumulate new foreign financial assets (dFA) according to a sort of Panama papers-type investment fashion.

Non-financial firms pay wages to workers and make interest payments ($i_H L$) on the stock of loans from commercial banks. They get revenues through workers' consumption expenditures, exports to the RoW (XE), and domestic gross capital formation (I). Realized profits (Π) are fully retained[9] in order to finance, together with new loans (dL) from commercial banks, desired capital accumulation (I).

Commercial banks provide loans (dL) to domestic firms and buy domestic government' bonds in an amount equal to (dD^{H_b}). Accordingly, they get interest payments ($i_H L$) from domestic firms and ($i_D D^{H_b}$) from the domestic government. Commercial banks receive deposits (M) from households and, consequently, hold an amount (H) of reserves to the central bank. We assume interest rates on households' deposits (M) to be equal to zero. Commercial banks' profits (Π_b) are fully redistributed to rentiers. New equity issuances are not considered in the present paper.

The domestic government undertakes current consumption expenditures G and makes transfer to working households. It also levies taxes on working households' income. Indeed, taxes on households' income represent a crucial component of 'well-designed' austerity packages. Alesina and Perotti (1997), for instance, argue that successful fiscal consolidations ('type-1 adjustments' in the jargon of the authors) "rely primarily on expenditure cuts, in particular, cuts in transfers, social security, government wages, and employment [whilst] tax increases are a small fraction of the total adjustment, and, in particular, taxes on households are not raised at all or are even reduced (Alesina and

[8] We assume rentiers to be the ultimate owners of commercial banks themselves by holding commercial banks' equities (E) in their own balance sheet.

[9] In the age of financialization of non-financial firms and increased shareholder value orientation, this represents a strong assumption. Yet, it is fully consistent with the focus of this paper on the macroeconomic effects of austerity measures rather than on the intrinsic dynamics and evolution of modern capitalist economies. Indeed, this assumption does not reduce in any way the degree of generality of our analysis, whilst it makes it simpler and more tractable from a mathematical point of view.

Perotti, 1997, p.211)". On the contrary, contractionary "type-2 adjustments rely mostly on broad-based tax increases, and often the largest increases are in taxes on households and social security contributions (Alesina and Perotti, 1997, p.211)"[10]. Consistently with this logic, in our model we will critically enquire whether, and under which conditions, spending cuts could be successfully matched with (expected) reductions in households' taxes in order to make fiscal consolidations expansionary. For the sake of simplicitly, we do not include in our model taxes on rentiers' income or firms' profits (or indirect taxes).

The difference between government's revenues and total expenditures (i.e. public consumption and public investment expenditures plus interest payments on the previously accumulated public debt stock (i_dD)) gives public surplus (or deficit). In the case of a public deficit, it is financed by issuing new government bonds ($B=dD$). Both commercial banks and the RoW buy domestic government bonds.

As to trade and financial relations with the RoW, imports (XM) from and exports (XE) to the RoW jointly define the trade balance account. When we add net interests payments on foreign assets/liabilities, we get the RoW current account balance, i.e. foreign savings (S_{RoW}). The financial account is given by the difference between financial inflows (new home government bonds purchased by the RoW, i.e. ($B_{RoW} = dD^H_{RoW}$)) and financial outflows, i.e. domestic rentiers' accumulation of new assets abroad (i.e. dFA)). In this regard, the decision of foreign investors to buy home government bonds (rather than 'keeping their money abroad') obviously relies upon an arbitrage rule such as the well-known uncovered interest rate parity (UIP). Exchange rate fluctuations, and the ensuing exchange rate risk, constitutes a relevant factor, among several others, economic actors have to take into account in order to define the UIP. For the sake of simplicity, here we depart from this complication and do not explicitly take into account exchange rate dynamics (and exchange rate risk) in determining, through the UIP, the interest rate on home government bonds (see below). In the specific case of Eurozone countries, this assumption can be also justified by the fact that intra-Eurozone financial flows are not affected by any consideration (or concern) about exchange rate dynamics.

In this paper, we are particularly interested in analysing the effectiveness of austerity measures in the context of Eurozone countries. We assume that most part of international trade and financial relationships take place among Eurozone countries. Accordingly, any discrepancy between the current and the financial account of our economy is matched by a compensating entry in the home economy central bank's balance sheet. We label this entry as ($dT2$). This is a clear reference to the well-known Target 2 system connecting Eurozone countries' own central banks to the ECB.

2.1 The model

Consistently with the theoretical framework just described, assume the economy to produce according to a fixed-coefficient production function. Equation (1) defines the current level of economic activity (Y) as a function of the level of capacity utilization ($y=$

[10] Alesina and Perotti (1997) also stress that spending cuts matched with (expected) reductions in households taxes may lead to expansionary outcomes by reducing workers' wage claims, by inducing wage moderation, and hence by increasing the external competitiveness of homemade goods.

Y/Y^*)[11], the output-capital technological coefficient β (=Y^*/K), and of the available capital stock (K)[12].

(1) $Y = \frac{Y}{Y^*}\frac{Y^*}{K}K = y\beta K$

Given labor productivity (α) – at least in the short run, and the total labor force (N), equations (2) and (3) define the level of unemployment (U) and the unemployment rate (u), respectively, with (δ) as the ratio of potential output over the maximum amount of goods producible according to labor productivity and the available total labor force[13].

(2) $U = N - E = N - (Y/\alpha)$

(3) $u = \frac{N-(Y/\alpha)}{N} = 1 - \frac{Y}{Y^*}\frac{Y^*}{\alpha N} = 1 - \delta y$

As far as the labor market is concerned, we assume workers and trade unions to target a desired real wage rate and therefore, given labor productivity, a desired wage share ($1-\tau_w$) on total output ('τ_w' being the profit share implicitly consistent with trade unions' target). We assume the bargaining power of trade unions to positively depend on the degree of regulation and protection of workers on the labor market, say the generosity of unemployment benefit $\overline{w}$ among other factors. Accordingly, we assume ($1-\tau_w$) to be a positive function (and, correspondingly, τ_w a negative one) of the 'labor market regulation variable' (z). Equation (4) defines the nominal wage rate (w) bargained by trade unions on the basis of their targeted wage share and their price expectations (P^e):

(4) $w = (1 - \tau_w(z(\overline{w}))P^e\alpha$

Firms, on their side, target a desired profit rate (r^d). Given their expectations about the level of capacity utilization (y^e) – see more on this below, they set the mark-up (m) on variable costs and the ensuing profit share (τ) on domestic income consistently with their goals. Equations (5) and (6) mathematically express the above firms' behavior and its implications in terms of the price setting-rule of the home-good price (P^H):

(5) $r^d = \tau(m)y^e$ hence $m = \tau(r^d/y^e)^{-1}$ with $(\partial\tau/\partial r^d) > 0$; $(\partial\tau/\partial y^e) < 0$

(6) $P^H = (1 + m)w/\alpha$

In the context of an open economy, equations (5) and (6), together with foreign prices (P^F) and the nominal exchange rate (e) concur to determine the real exchange rate (q), see equation (7) below:

[11] Y^* stands for as potential output, i.e. the maximum amount of output the economy could produce by fully utilizing the available capital stock.
[12] In equation (1), Y^* stands for full-capacity output.
[13] In this model, we assume that possible bottlenecks taking place on the supply side of the economy take the form of shortage of productive capital rather than, strictly speaking, shortage of labor. Therefore, the economy will be always characterized by a certain, say, *structural* degree of unemployment.

(7) $q = \frac{eP^F}{P^H} = \frac{eP^F}{(1+m)(1-\tau_w)P^e}$

Once described the production side of the economy, let skip to the demand side and to the description of the four components of aggregated demand: domestic private consumptions (C_w), private investment (I), government purchases (G), and net exports (NX)[14].

As to domestic consumptions, let fist assume that they are a positive function of working households' disposable income. Disposable income in turns depends on the total wage bill W ($=wE$), on public transfers (Tr^G) and on unemployment benefits ($\overline{w}U$). Once paid taxed taxes according to the taxation rate (t), a proportion (s) of disposable income is saved. Consumption expenditures are then allocated on domestic goods and imported ones according to the spending shares $\eta(q)$ and (1-η) respectively, η being a positive function of the real exchange rate q. Equation (8) eventually defines the consumption demand for home-made goods normalized by the domestic capital stock:

(8) $\frac{C}{P^H K} = (1-s)(1-t)\eta\left[\frac{\beta}{\alpha}(\omega - \overline{\omega})y + \frac{\beta}{\alpha}\overline{\omega} + \rho\right]$

With $\omega(= w/P^H)$ and $\overline{\omega}\,(= \overline{w}/P^H)$ as the real wage rate and the real unemployment benefit (in terms of the price of the home-made good) – with $\omega > \overline{\omega}$, and $\rho(= Tr^G/P^H K)$.

Importantly, directly following the literature on expansionary austerity, we also assume that, in an intertemporal time framework and according to, say, a permanent income argument, households' saving propensity (s) depends positively on the expected future tax rate t^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 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 tomorrow[15]. Equation (9) below put the above considerations in formal terms:

(9) $s = f(t^e, Tr^G)$ with $(\partial s/\partial t^e) > 0$; $(\partial s/\partial Tr^G) < 0$

Equation (10) gives public purchases, once again normalized for the existing capital stock K, as an exogenous policy variable γ.

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

Equation (11) defines the current growth rate of the capital stock. For the sake of simplicity, following Taylor (2012), let assume that in the short-run investment demand is

[14] Even though not explicitly stated, in this model (NX) are given by the difference between exported goods (XE) and imported consumption goods (XM) (i.e. a share (*1-*η) of total consumption expenditures).
[15] The same logic may apply in presence of a reduction of public benefits to unemployed people that perhaps makes average *expected* income lower.

purely exogenous. Perhaps consistently with a traditional Keynesian perspective, and in order to captures some of the crucial argumentations of the EAT, imagine entrepreneurs to define the desired increased in the available capital stock according to their expectations about capacity utilization (y^e)[16], and on the base of the cost of external financing (i_H). Entrepreneurs will reasonably increase investments should they expect capacity utilization to be high, whilst they will scale down investment projects should the costs of external financing be particularly high.

(11) $\frac{I}{K} = g(y^e, i_H)$

With $g_{y^e} > 0$ and $g_{i_H} < 0$.

Finally, in equation (12), we assume normalized exports to be a simple linear positive function of the real exchange rate q.

(12) $\frac{EX}{P^H K} = \epsilon q$

As to the 'financial' side of the economy, let first consider how private firms finance their desired investment expenditures. In this model we assume that non-financial firms retain all their profits in order to fund capital accumulation. Additionally, they take loans from commercial banks (dL) for the part of investments not covered by internal funds (see equation (13) below). In real life, it is obviously possible that commercial banks ration available credits so that not all investment projects are considered creditworthy and eventually financed. For the sake of simplicity, in the present model we do not take this eventuality explicitly into account. Yet, commercial banks fix the interest rate (i_H) charged on loans to non-financial firms. In periods of financial distress, commercial banks very likely increase the mark-up rate through which they determine i_H (see more on this below). By doing this, the increase the cost of external financing perceived by non-financial firms (see equation (11)), and therefore implicitly cut and reduced the total amount of financed investment projects[17].

(13) $\frac{I}{K} = \frac{\Pi}{P^H K} + \frac{dL}{P^H K} = r + \frac{dL}{P^H K}$

With (r) as the non-financial firms 'realized' profit rate.

Commercial banks holds two types of assets on their balance sheet. On the one hand, they buy domestic government bonds (D_b). On the other hand, they concede loans to firms (L). Government bonds are considered as 'relatively' safe assets. Indeed, they constitute the collateral commonly used by commercial banks in possible refinancing operations with the central bank in order to get fresh liquidity, even in periods of financial turbulences on

[16] See again the recent contribution by Alesina *et al.* (2015) on the crucial role entrepreneurs' expectations, and hence investment may play in giving rise to what they interpret as examples of (spending-based) expansionary fiscal consolidations.

[17] Other way around, we might say that commercial banks do not ration financed project by changing the position of the effective demand for credit on the credit market, but by moving along the effect demand for credit by fixing a higher interest rate on available credit.

the market for sovereign bonds[18]. On the contrary, loans to firms are considered as 'relatively' riskier. In fact, following Mehrling (2011), they could not be easily shifted (or less easily shifted) on the balance sheet of the central bank or of other financial institutions. Once created, loans will likely remain on the balance sheet of commercial banks until maturity, and commercial banks will have few margins of maneuver to manage (i.e. remove or reduce) the corresponding creditor risk. Accordingly, we assume commercial banks to set the interest rate (i_H) on loans to the private sector by applying a mark-up (μ) on the interest rate (i_d) got on government bonds (see equation (14) below)[19].

(14) $i_H = (1 + \mu) i_d$

In matrix 1, the home government budget deficit and, hence, new bonds' issuances are given by the difference between outlays, i.e. government purchases, public transfers, the total amount of unemployment benefits and interest payments on the accumulated public debt stock (Ψ), and tax revenues. The following expression defines the public deficit in nominal terms, whilst equation (15) normalizes it by the capital stock:

$$dD = G + Tr^G + \bar{w}U - t[wE + Tr^G + \bar{w}U] + \Psi$$

Hence:

(15) $\frac{dD}{P^H{}_K} = \gamma + (1 - t)\left(\rho + \bar{\omega}\frac{\beta}{\alpha}\delta\right) - [t\omega + (1 - t)\bar{\omega}]\frac{\beta}{\alpha}y + \psi = \xi + \psi$

With (ξ) as the primary deficit-to-capital stock ratio, and (ψ) as the costs of debt servicing over the capital stock.

Finally, equations (16) formalizes in the simplest way possible how the interest rate on government bonds is determined on international financial markets by financial transactions among financial operators, and with monetary institutions.

(16) $i_d = i + \sigma(b, \Omega)$

With:

$\sigma > 0$ and $(\partial\sigma/\partial b) > 0$ if $\Omega = 1$;

$\sigma = 0$ and $(\partial\sigma/\partial b) = 0$ if $\Omega = 0$

Given the supply of new bonds according to public sector financing needs, bids for bonds by domestic commercial banks and foreign investors likely depend on the perceived degree of soundness of public finances, and the level of safety of the corresponding financial liabilities. In turn, the riskiness of government bonds likely relies upon the 'monetary

[18] Of course, it goes without saying that sovereign bonds issued by fully monetarily sovereign countries are perceived by financial operators as far safer than bonds issued by non-monetarily sovereign governments (see Eurozone countries).

[19] Alternatively, one can also interpret such a mark-up rate (μ) as the natural spread dividing interest rates on riskier assets (i.e. private loans) from those charged on safer ones (i.e. government bonds).

framework' in which government bonds are issued. Following De Grauwe (2011), in monetarily sovereign countries, governments issue bonds denominated in their own currency, which is in turn controlled by the corresponding domestic central bank. Even more importantly, the domestic central bank will likely intervene any time it likes on financial market in order to prevent default risks to emerge by buying government bonds and by releasing newly printed liquidity in exchange. Accordingly, in monetarily sovereign countries, government bonds are usually considered as safe risk-free assets. Of course, this is not the 'monetary regime' characterizing non-monetarily sovereign countries like Eurozone economies. Indeed, Eurozone governments issue bonds denominated in a "foreign supranational currency" outside their own (direct or indirect) control. On top of this, 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. In a way, the solidity of eurozone national finances is in the hands of financial operators' will. Accordingly, financial operators perceive them as intrinsically riskier assets.

In equation (16) we formalize this logic by setting the interest rate on government bonds as established by financial markets' behavior according to the well-known interest rate parity. In equation (16), (i) stands for the interest rate on risk-free assets, i.e. bonds issued by monetarily sovereign governments. Parameter (σ), instead, represents the country factor risk, which jointly depends on relevant public finance variables and institutional arrangements. In particular, we assume σ, and hence i_d, to depend positively on the current public budget deficit over GDP ratio $b=(\xi+\psi)/\beta y$[20]. 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. This relationship, however, holds true only in the case of non-monetarily sovereign economies, i.e. when the bivariate 'institutional variable' Ω is equal to 1 in our model. In fact, following De Grauwe and Ji (2013), in the case of monetarily sovereign economies, i.e. when $\Omega=0$, this relationship breaks down, and government bonds yields get insensitive to economic fundamentals such as the solidity of public finances, the growth rate of the economy and the net external investment position of the economy[21]. Accordingly, government bonds get the 'status' of risk-free assets, and their interest rate is exogenously set equal to (i).

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

On the base of the above list of equations, equation (17) defines the level of capacity utilization y that ensures the equilibrium in the goods market:

$$(17)\ y = \frac{(1-s)(1-t)\eta(q)\left(\bar{\omega}\frac{\beta}{\alpha}+\rho\right)+\gamma+g(y^e,i_H)+\epsilon q}{\left[\beta-(1-s)(1-t)\eta\frac{\beta}{\alpha}(\omega-\bar{\omega})\right]}$$

[20] 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.

[21] 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 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)".

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 advices 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 $b^* = \frac{1}{\beta}\left[\gamma + (1-t)\left(\rho + \bar{\omega}\frac{\beta}{\alpha}\delta\right) - [t\omega + (1-t)\bar{\omega}]\frac{\beta}{\alpha}\right]$, we get:

(18) $db^* = -\theta = \frac{(1-t)}{\beta}d\rho = \frac{(1-t)}{\beta P^H K}dTr^G$, so that: $dTr^G = -\frac{Y^*}{(1-t)}\theta$

With $\theta > 0$.

In our model, such a fiscal adjustment has a direct and simultaneous short-run effect on both current capacity utilization y and the overall public balance over GDP, b. In fact, totally differentiating y and b, and taking into account the sign of equation (18), we get a system of 2 simultaneous equations for dy and db:

(S.1) $$\begin{cases} dy = \frac{-\left[f_{t^e}(1-t)\eta\left(\bar{\omega}\frac{\beta}{\alpha}+\rho\right)dt^e - f_{Tr^G}\eta\left(\bar{\omega}\frac{\beta}{\alpha}+\rho\right)Y^*\theta\right] - (1-s)\eta Y^*\theta - g_{i_H}(1+\mu)\sigma_b db}{\left[\beta - (1-s)(1-t)\eta\frac{\beta}{\alpha}(\omega-\bar{\omega})\right]} \\ \\ db = -\frac{Y^*}{\beta y}\theta - [t\omega + (1-t)\bar{\omega} + b]\frac{dy}{y} \end{cases}$$

With $f_{t^e} > 0$; $f_{Tr^G} < 0$; $(\sigma_b|\Omega) \geq 0$; $dt^e < 0$

Equations (18) and (19) below give the solutions dy^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 (19) 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 (20). 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 recession[22].

(19) $$dy^S = \frac{\overbrace{\left[f_{t^e}(1-t)\eta\left(\bar{\omega}\frac{\beta}{\alpha}+\rho\right)\right]|dt^e|}^{+\,or\,0} - \overbrace{\left[(1-s) - f_{Tr^G}\left(\bar{\omega}\frac{\beta}{\alpha}+\rho\right)\right]\eta Y^*\theta}^{-} + \overbrace{g_{i_H}(1+\mu)\frac{Y^*}{\beta y}\sigma_b\theta}^{+\,or\,0}}{\left\{\left[\beta - (1-s)(1-t)\eta\frac{\beta}{\alpha}(\omega-\bar{\omega})\right] - g_{i_H}(1+\mu)\sigma_b\left[\frac{t\omega+(1-t)\bar{\omega}+b}{y}\right]\right\}}$$

[22] 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 dy^S, i.e. a contraction of short-run economic activity that tends to increase government outlays and government deficit.

$$(20)\ db^S = -\frac{Y^*\theta}{\beta y} - [t\omega + (1-t)\bar{\omega} + b]\frac{dy^S}{y}$$

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^e}, and of $|dt^e|$, i.e. the expected reduction (here reported in absolute value) in the tax burden levied on households. The higher and the quicker is $|dt^e|$, 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 Yannacopoulus (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.
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_H 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 (14) and (16), in the case of monetarily sovereign countries, the "financial market channel" through which fiscal consolidation may affect economic dynamics simply disappears (since that σ_b=0). Accordingly, in equation (19), 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)[23], and that fiscal multipliers may be high and

[23] 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

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 performances[24].

In terms of our model, such an undesirable outcome of public transfers' cuts emerges clearly from the above two expressions for dy 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 dy 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 decrease (see Figure 1). 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.

[Figure 1 here]

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. $\sigma_b >> 0$), improvements in public balance that are over-dependent on changes in domestic economic activity (i.e. $((t\omega + (1-t)\bar{\omega} + b)/y >> 0$), 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 2), 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.

[Figure 2 here]

[...] 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)".

[24] 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)".

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, 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)".

2.2 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 growth. The same logic applies to the reductions in the provision of the welfare system, which takes the form of lower unemployment benefits $\bar{w}$. 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, (and hence real) wage rate w.

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

$$\text{(S.2)}\begin{cases} dy = \dfrac{\overbrace{(1-s)(1-t)\eta(\beta/\alpha)\left[(1-y)\bar{\omega}+\omega y\varepsilon_{w,\bar{w}}\right](d\bar{w}/\bar{w})}^{-}+\overbrace{(\eta_q\Gamma+\epsilon)(\partial q/\partial w)(\partial w/\partial\bar{w})d\bar{w}}^{+}-\overbrace{g_{i_H}(1+\mu)\sigma_b}^{+}db}{\left[\beta-(1-s)(1-t)\eta\frac{\beta}{\alpha}(\omega-\bar{\omega})\right]} \\ db = \dfrac{\beta}{\alpha}\left[(1-t)(\delta-y)\bar{\omega}+ty\omega\varepsilon_{w,\bar{w}}\right]\dfrac{d\bar{w}}{\bar{w}}-[t\omega+(1-t)\bar{\omega}+b]\dfrac{dy}{y} \end{cases}$$

With $\Gamma = (1-s)(1-t)\left\{\frac{\beta}{\alpha}[\bar{\omega}+(\omega-\bar{\omega})y]+\rho\right\}$; $(\partial w/\partial\bar{w})>0$ and $\varepsilon_{w,\bar{w}}$ as the elasticity of nominal wages w to the unemployment subsidy $\bar{w}$; $(\partial q/\partial w)<0$; $d\bar{w}<0$.

Equations (21) and (22) give the solutions of system (S.2):

$$\text{(21) } dy^{S2} = \frac{\overbrace{\left\{(1-s)(1-t)\eta(\beta/\alpha)\left[(1-y)\bar{\omega}+\omega y\varepsilon_{w,\bar{w}}\right]+(\eta_q\Gamma+\epsilon)(\partial q/\partial w)(\partial w/\partial\bar{w})d\bar{w}-g_{i_H}(1+\mu)\sigma_b(\beta/\alpha)\left[(1-t)(\delta-y)\bar{\omega}+ty\omega\varepsilon_{w,\bar{w}}\right]\right\}}^{?}d\frac{\bar{w}}{\bar{w}}}{\left\{\left[\beta-(1-s)(1-t)\eta\frac{\beta}{\alpha}(\omega-\bar{\omega})\right]-g_{i_H}(1+\mu)\sigma_b[t\omega+(1-t)\bar{\omega}+b]/y\right\}}$$

$$\text{(22) } db^{S2} = \frac{\beta}{\alpha}\left[(1-t)(\delta-y)\bar{\omega}+ty\omega\varepsilon_{w,\bar{w}}\right]\frac{d\bar{w}}{\bar{w}}-[t\omega+(1-t)\bar{\omega}+b]dy^{S2}$$

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. parameters ϵ and η_q in equation (21)), 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*[25] and *largely de-industrialized*[26] 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.

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

[26] 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.

3. A look at the long run

Even admitting that austerity measures may imply some costs (i.e. economic recession) in the short-run, the supporters of expansionary austerity nevertheless claim that well-designed fiscal consolidations can pave the way for much higher benefits to come in the medium to long run. These benefits are supposed to emerge form the allegedly safer and more virtuous macroeconomic environment austerity could lead to by putting public finance variables under control.

In this section, we criticize this perspective due to the fact that short-run costs could hardly open the way for far higher long-run benefits. Indeed, several macroeconomic variables, economic activity and public debt, among others, seem to be affected by significant degrees of path-dependence and cumulativeness (perhaps when they overcome some 'stability threshold' and exit from, say, a 'safety area'). Accordingly, short-run austerity-led pains could more cause even stronger pains, and more painful adjustments, in the long run rather than avoid them, and increase instability rather than tame. Other way around, in order to pay off in the long run, austerity must be expansionary and stabilizing even in the short-run. Unfortunately, we have seen at length in the previous section how this event is very unlikely to happen.

In order to make our point formally clear, let analyze the dynamics of some relevant economic variables. Take price dynamics first. On the basis of equations (5) - (6), let assume that workers ground their price expectations on domestic prices only, so that $P^e=(P^H)^e$ [27]. Even further, let assume that both the targeted real wage (and hence the wage share) by trade unions and the desired profit rate by non-financial firms are exogenous and do not change through time.

Consistently with these assumptions, trade unions will modify their (nominal) wage claims should any gap be registered, ex-post, between expected prices and effective ones or, to put this other way around, should their targeted wage share be inconsistent with that one eventually determined by the price-setting decisions of non-financial firms[28]. More formally (with 'hat variables' representing percentage variations):

$$(23)\ \hat{w} = \frac{P^H - P^e}{P^e} = [(1 + m(r^d/y^e)(1 - \tau_w) - 1]$$

On their own side, non-financial firms may decide to change their mark-up if their expectations about capacity utilization, and hence their targeted profit rate, are not fulfilled. In particular, we could write:

$$(24)\ \widehat{(1+m)} = \tau\hat{m} = \tau\lambda(\tau y^e - \tau y) = \tau^2\lambda(y^e - y)$$

In equation (24), λ stands for the extent by which non-financial firms may adjust their mark-up rate (m) in search for 'compensation' for past unrealized expectations. In this

[27] This amounts to assume that foreign prices are taken as given or that, due to lack of information, workers do not form any expectation on them.

[28] Indeed, it is easy to verify from equations (4) and (6) that the condition $P^H=(P^H)^e$ implies $(1+m)(1-\tau_w)=1$, hence $(1-\tau_w)=\frac{1}{1+m}=(1-\tau)$, where $(1-\tau)$ is the effective workers' wage share emerging in the economy once firms have set prices according to their expectations and desired profit rate.

sense, firms may increase their mark-up rate (m) in the attempt to raise profitability from unsatisfactory low values as due to an effective capacity utilization that turned out to be lower than expected (i.e. $y^e - y$). Alternatively, firms may decrease and be satisfied of an even (perhaps slightly) lower mar-up rate should economic activity be buoyant and competitive pressures increasing [29]. Equation (25) eventually define domestic price dynamics by combining equations (23) and (24):

$$(25)\ \widehat{P^H} = \tau^2\lambda(y^e - y) + [(1 + m(r^d/y^e)(1 - \tau_w) - 1]$$

When we move our attention from price dynamics to the evolution of expectations over capacity utilization, a very simple adaptive rule is assumed. This is formally stated in equation (26):

$$(26)\ \widehat{y^e} = \phi(y - y^e) = \phi(y(y^e) - y^e)$$

Non-financial firms will revise upward their expected level of capacity utilization, and hence set $\widehat{y^e} > 0$, when current capacity utilization (y) turns out to be higher than the expected one. On the contrary, should effective capacity utilization should fall smaller than the expected one, expectation will be updated downward.

Finally, in equation (27) we describe the dynamics of the debt-to-GDP ratio, i.e. the economic variable, which is commonly considered of paramount importance in order to assess the long-run sustainability of public finances.

$$(27)\ \frac{\widehat{D}}{P^H Y} = \frac{dD}{D} - \widehat{P^H} - \hat{Y} = \frac{(\xi+\psi)/\beta y}{d} - \widehat{P^H} - \hat{y} - \hat{K}$$

With (d) as the debt-to-GDP ratio. After some mathematical passages, equation (28) can be usefully rewritten as follows:

$$(28)\ \hat{d} = \frac{\xi(y(y^e)/\beta y(y^e)}{d} + \frac{\psi(d)/\beta y(y^e)}{d} - \left\{\varepsilon_{y,y^e}\widehat{y^e} + \varepsilon_{y,i_H}\widehat{\imath_H}(d) - (1 - \varepsilon_{y,q})\widehat{P^H}(y^e) - g(y^e, i_H)\right\}$$

In equation (28), $\varepsilon_{y,y^e} = (g_{y^e}y^e/y(y^e, i_H))$ is the elasticity of *effective* capacity utilization y to the *expected* one y^e; $\varepsilon_{y,i_H} = g_{i_H}i_h/y(y^e, i_H)$ is the elasticity to the interest rate i_H; finally, $\varepsilon_{y,q}$ is the elasticity to the real exchange rate[30]. For the sake of simplicity, in equation (28), we assume that both the nominal exchange rate (e) and foreign prices (P^F) do not change. Accordingly, the dynamics of the real exchange rate (q) boils down to the percentage variation in the price of the domestic good.

In equation (28), we introduce two important assumptions that try to capture the concern of austerity supporters about the negative effects high public debt stocks may possibly have on economic dynamics (and hence on its own evolution). First, we assume that the burden of debt service over GDP is a positive function of the accumulated debt stock (over GDP). On the one hand, this is a straightforward consequence of the fact that,

[29] See Taylor (2004, ch.3) for a review of the literature assuming the mark-up rate to be a negative function of capacity utilization.

[30] More formally, we have $\varepsilon_{y,q} = \left[\eta_q(1-s)(1-t)\left(\bar{\omega}\frac{\beta}{\alpha} + \rho\right) + \epsilon\right] q/\left[\beta - (1-s)(1-t)\eta\frac{\beta}{\alpha}(\omega - \bar{\omega})\right] y$.

ceteris paribus, higher debt stocks naturally imply tougher repayment trances. On the other hand, in the case of non-monetarily sovereign countries in particular, a higher public debt stock can easily induce financial operators to raise the country factor risk σ, and ask for higher interest rates i_d, now and in the past. It goes without saying that this would inevitably make repayment conditions more stringent and (ψ) higher. Second, we assume (percentage) changes in the interest rate i_H banks charge on private sector loans to be a positive function of d. This assumption directly stems from the negative impact that a higher, and perhaps riskier, public debt stock may have on commercial banks' behavior by affecting the market price of government bonds. Indeed, when perceived risk and interest rate increase, government bonds' value decrease and commercial banks balance sheet gets more fragile. In turn, this may lead commercial banks to search for higher 'safety' margins on fundable projects and inter-temporally revise upward the mark-up rate μ.

Equations (26) and (28) jointly provide us with two useful theoretical instruments to analyze the dynamics of the economy as a whole, and how economic actors' expectation, economic activity, and public finance variables (the public debt-to-GDP ratio) interact each other. Many different scenarios exist. As to expectations' dynamics, given the negative (EAT-like) effects that d displays on economic activity and current capacity utilization y, hence on expectations' revisions, the effects of y^e on its own evolution is controversial. A self-stabilizing effect (i.e. $(\partial\widehat{y^e}/\partial y^e) < 0$) and a destabilizing one (i.e. $(\partial\widehat{y^e}/\partial y^e) > 0$) are both plausible. More formally, we have:

Self-stabilizing y^e (first) scenario: $(\partial\widehat{y^e}/\partial y^e) < 0$) if $\frac{g_{y^e}}{\left[\beta-(1-s)(1-t)\eta_{\alpha}^{\beta}(\omega-\bar{\omega})\right]} < 1$

Self-destabilizing y^e (second) scenario $(\partial\widehat{y^e}/\partial y^e) > 0$) if $\frac{g_{y^e}}{\left[\beta-(1-s)(1-t)\eta_{\alpha}^{\beta}(\omega-\bar{\omega})\right]} > 1$

As to the evolution of the debt-to-GDP ratio, let assume first that price dynamics and the real exchange evolution are mutually compensating, and turn out to be relatively irrelevant. On the one hand, higher inflation reduces the real burden of the public debt stock. On the other hand, however, it may also raise d by appreciating the real exchange rate, jeopardizing net exports, and eventually inducing a contractionary effect on current economic activity (i.e. the denominator of the debt-to-GDP ratio). For the sake of simplicity, we drop the direct and indirect effects $\widehat{P^H}$ may play on $(\hat{d})$ out of the picture[31].

Second, it seems reasonable to think that higher firms' expectations y^e, and hence higher current economic activity y and investment flows $\widehat{K}$, can contribute to reduce the debt-to-GDP ratio.

Finally, at pretty low values of the debt-to-GDP ratios, d may play a self-stabilizing effect on its own dynamics. Indeed, a relatively higher debt stock naturally makes any additional public deficit dD less relevant in percentage terms. Accordingly, $\widehat{D}$ may turn out to be smaller and the debt-to-GDP ratio under control. However, at much higher values of

[31] This simplifying assumption seems even more plausible since that, from equation (25), the effect y^e displays on inflation is all but clear (i.e. a higher expectations may induce firms to revise upward the mark-up rate whilst, at the same time, they tend to reduce the current value of the mark-up rate 'm' and, hence, possible workers' wage increase claims)

the debt stock, destabilizing forces may set in passing by the negative effects supposedly unsafe public finance positions and riskier sovereign bonds induce on interest rates.

Figures 3 and 4 graphically describe the rather different trajectories and the connected stability properties that may unfold in the (y^e-d) geometric space. In Figures 3 and 4, according to our previous analysis, the locus for a constant debt-to-GDP ratio (d '*hat*' =0) may look like a U-shaped curve. In Figure 3, we describe the case of self-stabilizing forces to prevail in 'shaping' expectations' dynamics. Hence, the locus for a constant expected capacity utilization (i.e. $y^e=y$) slopes downward. On the contrary, in Figure 4 we portray the case for self-induced instability characterizing the evolution of the expected capacity utilization. Accordingly, the locus for a constant expected capacity utilization is positively sloped. In both Figures 3 and 4, the vertical dashed line '*dmax*' stands for the ceiling threshold value of the debt-to-GDP ratio financial operators would accept to finance before rejecting additional treasure bond issuances and give rise to public bankruptcy [32]. Similarly, the horizontal-dashed line represents the technology-bounded highest level expected capacity utilization can possibly reach.

[Figure 3 here]

[Figure 4 here]

Interestingly, both in Figure 3 and in Figure 4 multiple equilibria may exist. In the first scenario (Figure 3), equilibrium *A* features a relatively high level of capacity utilization and a low debt-to-GDP ratio. On the contrary, equilibrium *B* combines low capacity utilization with a burdensome debt stock. Perhaps more interestingly, the two equilibria preset radically different stability properties. Whilst the 'virtuous' equilibrium *A* is locally stable, 'pernicious' equilibrium *B* is unstable.

Instability forces are even stronger in the second scenario we describe (see Figure 4). In this case, even at low debt-to-GDP level, equilibrium *A* shows saddle-path instability. A small deviation from the equilibrium may thus lead to diverging dynamics. In an optimistic scenario, a booming economic activity can perhaps go hand-in-hand with monotonically decreasing debt stocks. However, the economy may alternatively enter a more worrisome 'highway to hell', in which collapsing expectations and economic activity with mutually feedback into an exploding debt burden.

3.1 Short-run costs with long-run benefits? The intrinsic long-run inconsistency of EAT

Given the above scenarios, it is now interesting to enquire which could be the long-run dynamic outcomes of the austerity measures we have discussed in the previous section of the paper. In particular, here we aim at analyzing the intrinsic consistency of the widespread blathered conviction that austerity is the necessary medicine against fiscal indiscipline, a recipe perhaps bitter in the short-run but revitalizing in the short-run.

Let assume that, in line with the prescriptions of the EAT literature on the correct designing of successful fiscal adjustments, public transfers and/or social service provisions are drastically and permanently cut. In equation (17), ρ and $\hat{\omega}$ decrease. According to some recent contributions in the EAT vein itself, also assume that these measures curtail

[32] We might define 'd_{max}' as the amount of public debt stock (over GDP) that would give rise to a 'Ponzi' financial position by leading interest payments to be larger than current tax revenues.

economic activity and slightly increase the debt-to-GDP ratio in the short-run. In Figure 3, such fiscal contraction shifts the isocline for ($\hat{d} = 0$) upward. Higher expectations by non-financial firms would be required in order to compensate for the initial recessionary outcome of fiscal retrenchment, support economic activity and maintain the debt-to-GDP ratio constant. At the same time, the isocline for ($\widehat{y^e} = 0$) moves downward. In a recession-prone context, stationary non-financial firms expectations would require a lower expected capacity utilization on the onset. The long-run dynamics set in motion by the above fiscal consolidation are portrayed in Figure 5. What turns out to be clear is that the long-run consequences of the austerity-led short-run recession (and debt increase) are radically at odds with their prospected goals and achievements. In fact, should the economy be initially located in equilibrium point *A*, it will eventually end up in equilibrium A_2, featuring both a (relatively) depressed expected and effective economic activity, and an increased debt stock burden. Even more worrisome, should the economy be located in equilibrium *B*, an endless crisis and a mounting unsustainable debt stock will eventually bring the economy towards an inevitable default, and the ensuing harsh economic consequences (point B_2 in Figure 5).

[Figure 5 here]

Needless to say, such undesirable long-run outcomes are even strengthened should we operate in the 'unstable' macroeconomic environment we have described before (see Figure 6). What is most is that in such a scenario, long-run instability would emerge even with an economy originally located in equilibrium *A*, and characterized by reasonably low values of the public debt stock. In this context, even a slight austerity-led upward shift in the two isoclines for ($\hat{d} = 0$) and ($\widehat{y^e} = 0$)[33] will eventually induce a permanent contraction in economic activity and an unsustainable public debt (over GDP) stock to emerge.

[Figure 6 here]

Interestingly, such undesirable outcomes are due to the specific 'institutional setting' characterizing non-monetarily sovereign economies. In Eurozone countries, for instance, is supposed not to intervene on the financial primary market for government bonds, and perhaps could buy government bonds on the secondary market only with the purpose of implementing its inflation-oriented monetary policy. However, central bank's financing of public deficit is strictly forbidden. In line with the ideology of the 'market-driven discipline', governments have to fill their financial needs consistently with financial operators' will and sentiments. Accordingly, they are exposed to financial operators' abrupt changes in the evaluations of financial risks and credit worthiness.

This kind of economic dynamics seems not to characterize "stand-alone" economies. Indeed, in monetarily sovereign economies, the possible higher degree of engagement of central banks on government bonds' markets makes government bonds almost risk-free assets. Even in periods of economic and financial distress, or perhaps particularly during

[33] Differently from the previous case, the intrinsic instability characterizing the dynamics of non-financial firms' expectations now requires short-term austerity-led costs to be matched by a *higher* expected capacity utilization on the onset in order to preserve expectations' stability. Geometrically, this amounts to move upward (rather than downward) the locus for constant values of y^e.

phases of generalized financial turbulences, government bonds do emerge as safe assets, even when public deficits are widening and the debt-to-GDP ratio increasing. In this sense, the dynamics of the US and UK public debts, and of the connected government bonds' yields in the wake of the 2007-2008 financial crisis is highly telling. Following De Grauwe and Ji (2013), in "stand-alone" economies, government bonds' yields were not affected at all (or even decreased) by extraordinary deficit-creating banks rescue plans and fiscal stimuli.

In terms of our model and of the long-run dynamics we are describing, monetary sovereignty seems to imply that the upward-sloping arm of the isocline for ($\hat{d} = 0$) can likely disappear. A simple downward-bending locus for constant values of the debt-to-GDP ratio would now show up (see Figure 7). Accordingly, a unique and, above all, *stable* equilibrium might emerge in the (y^e-d) space. Monetary policy or, better, some monetary 'institutional arrangements', might be rather ineffective to rescue an economy from secular stagnation (as it seems to be occurring in the Eurozone). However, monetary sovereignty can significantly contribute to increase the overall macroeconomic stability, and help to avoid worrisome austerity-led destabilizing drifts.

[Figure 7 here]

4. Conclusions

An increasing body of EAT-like literature admits that frontload fiscal retrenchments can lead to economic recession and even increasing public debt-to-GDP ratios (Gros, 2012; Ali Abbas *et al.*,2013; Warmedinger *et al.*, 2015) in the short run. It also stresses, however, that these are the necessary costs in order to get much higher benefits in the long run. In this paper, we show how this proposition can be intrinsically inconsistent and theoretically untenable. Indeed, due to some assumptions lying at the basis of the expansionary austerity theoretical building itself (i.e. a negative impact of high public debt stocks on economic activity and on its own sustainability via heightened interest rates and increasing debt service expenditures), painful short-run fiscal adjustments cannot bring to any long-run benefit. Short-run austerity-led costs are intrinsically at odds with allegedly long-run austerity-led improvements. In order to allow for some long-run economy-wide pay-off to emerge out of austerity measures, austerity measures themselves *must* be expansionary and debt reducing even the short-run. But economists and policy-makers alike are increasingly skeptical about the fact this event will effectively materialize.

Some important policy implications can be drawn from such a short-run and long-run theoretical inconsistency in the EAT. First, frontloaded austerity measures alone do not pay off neither in the short run nor in the long run. In the case of highly indebted economies such as Greece, a stable macroeconomic environment can primarily created through a significant debt relief. Only subsequently some mild austerity measures might be implemented if a problem of 'financially inconsistent' fiscal stance was at the roots of the past unsustainable accumulation of public debt. Indeed, this policy sequence is exactly opposite to that followed in Greece since 2010.

Following Eichengreen and Panizza (2014), ambitious fiscal adjustment programs that, in the case of some European countries, foresee primary budget surpluses as high as 5% of GDP to be achieved annually on an entire decade are barely realistic. Even further, they fail

to recognize that significant reductions in the debt burden have historically occurred during periods of high growth, rather than under fiscal retrenchment-led economic slowdowns. If growth is the main way out of the crisis, pro-growth policies constitute the right choice policy-makers should embrace. This model tends to suggest that effective pro-growth policies are radically different that EAT-like well-designed fiscal cuts. If one does not want to directly point expansionary fiscal policies, attention should at least move to the public support to industrial policy, innovation policy, and investment policy. Public investment banks, if not governments directly, may turn out to be decisive actors to eventually prompt a sustained and sustainable recovery.

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Matrix 1 – Flow of funds in open economic system.

	Workers		**Rentiers**		**NF-Firms**		**Commercial Banks**		**Government**		**Central Banks**	**RoW**		**Σ**
	Current	Capital	Current	Capital	Current	Capital	Current	Capital	Current	Capital		Current	Capital	
Wages	$+W$				$-W$									0
Gov. transfer	$+Tr^G$								$+Tr^G$					0
Un. Subsidy	$+\bar{w}U$								$-\bar{w}U$					0
Dom. Consumption	$-C$				$+C$									0
Gov. Purchases					$+G$				$-G$					0
Real Investment					$+I$	$-I$								0
Exports					$+XE$							$-XE$		0
Imports	$-XM$											$+XM$		0
Taxes	$-T$								$+T$					0
Financial payments:														
Dividends			$+DIV$				$-DIV$							0
Gov. bonds							$+i_dD_b$		$-i_dD$			$+i_dD_{RoW}$		0
Loans					$-iL$		$+i_HL$							0
Foreign assets			$+iFA$									$-iFA$		0
Σ	$-S_w$	$+S_w$	$-S_r$	$+S_r$	$-P_{NFF}$	$+P_{NFF}$	*0*	*0*	$+S_G$	$-S_G$		$-S_{RoW}$	$+S_{RoW}$	0
Change in:														
Deposits		$-\Delta D$						$+\Delta D$						0
Gov. bonds								$-B_b$		$+B$			$-B_{RoW}$	0
Loans						$+\Delta L$		$-\Delta L$						0
Foreign Assets				$-dFA$									$-dFA$	0
Target 2											$+dT2$		$-dT2$	0
Total	0	0	0	0	0	0	0	0	0	0	$+dT2$	0	0	$+dT2$

Figures

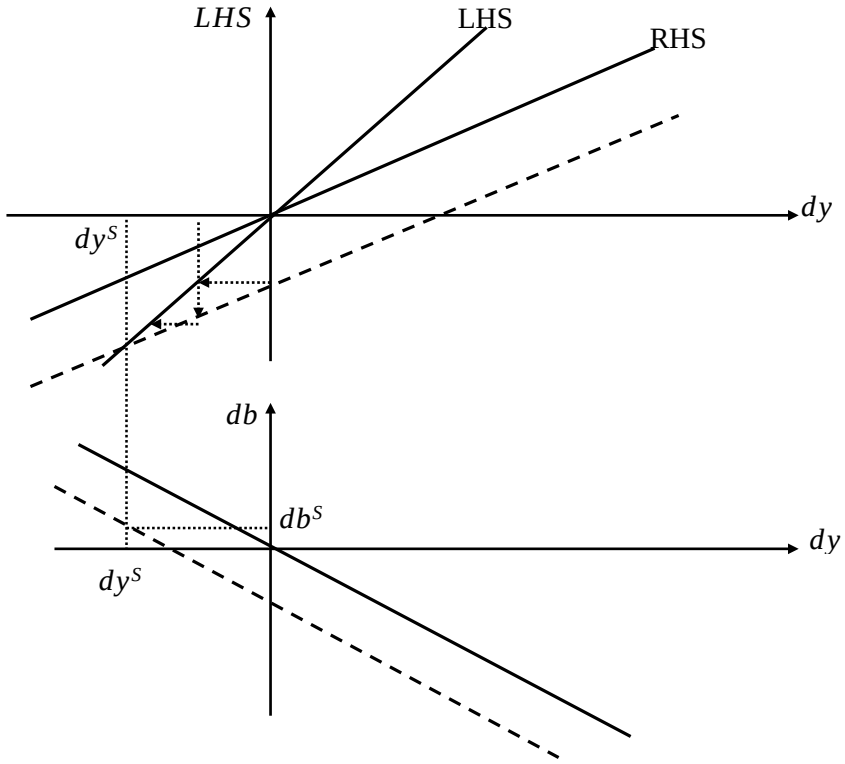

Figure 1 – Austerity-led economic contraction and rising deficit-to-GDP ratios in a *stable* short-run setting.

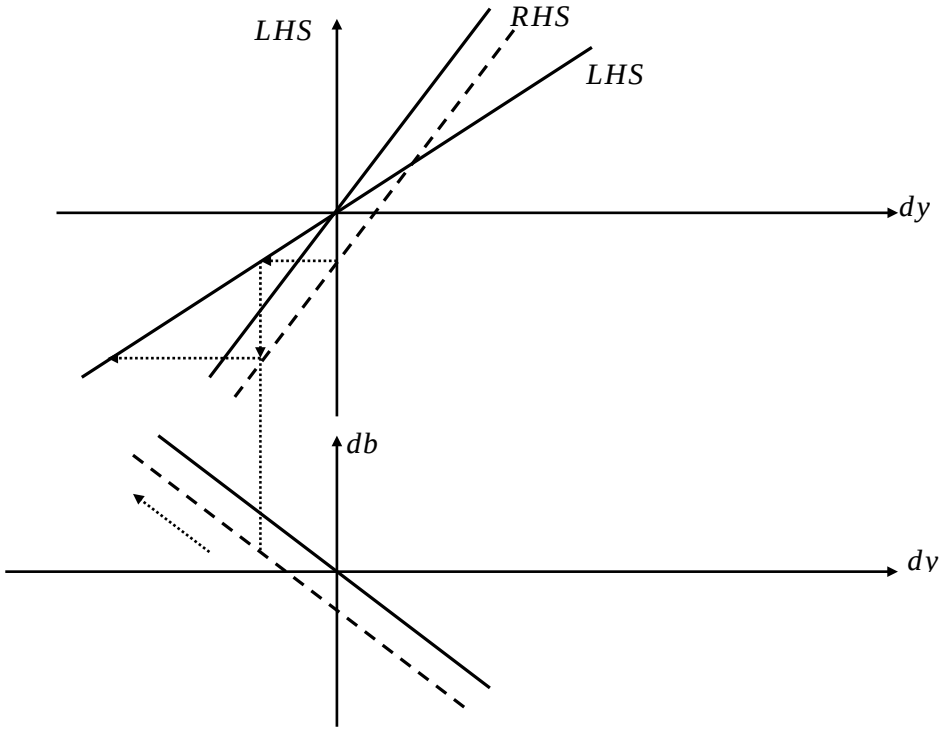

Figure 2 – Austerity-led "endless" economic contraction and explosive deficit-to-GDP (and debt-to-GDP) dynamics in an *unstable* short-run setting.

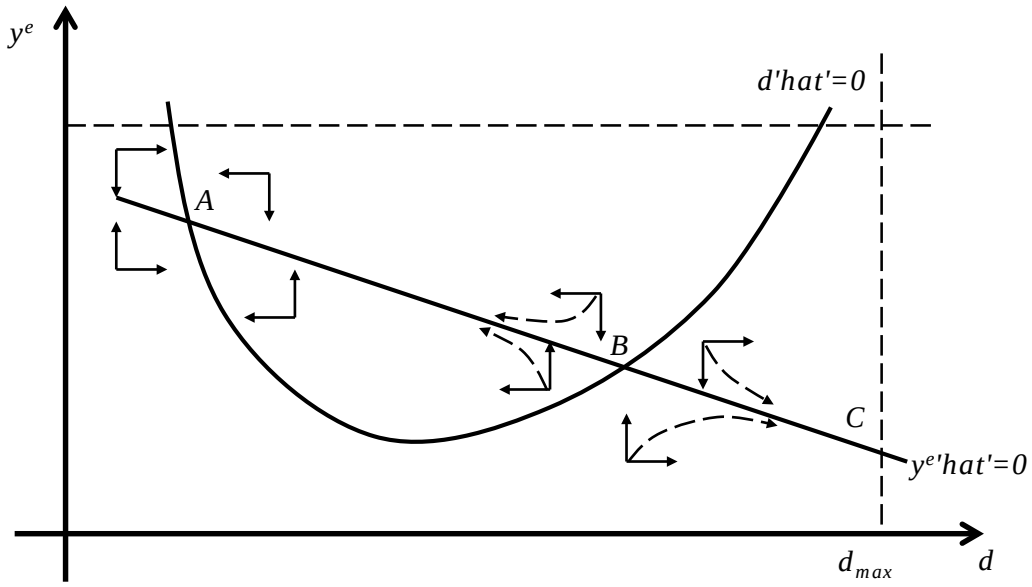

Figure 3 – Multiple equilibria in the (y^e-d) space with self-stabilizing expectations

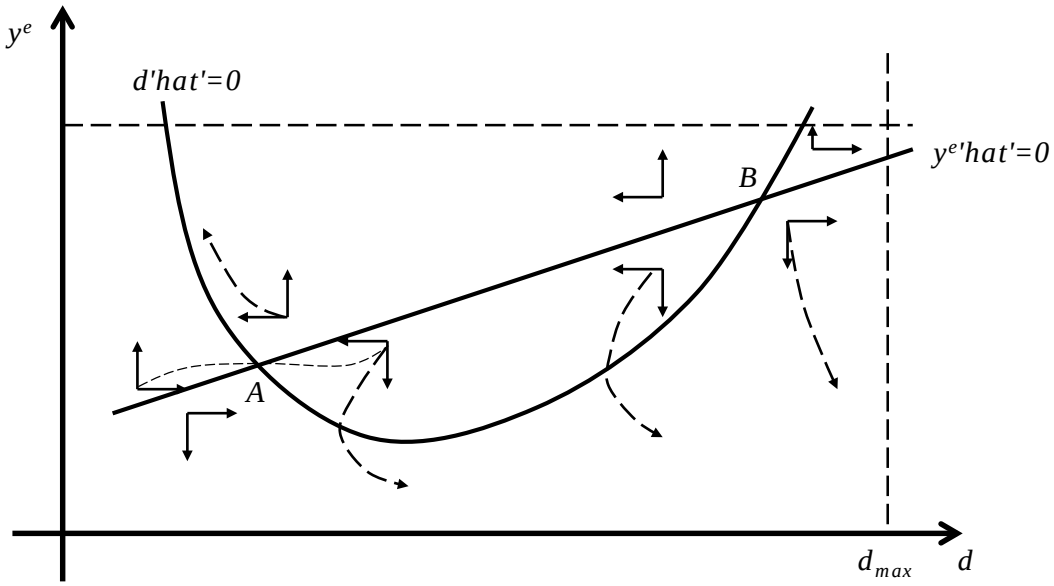

Figure 4 – Multiple equilibria in the (y^e-d) space with unstable expectations

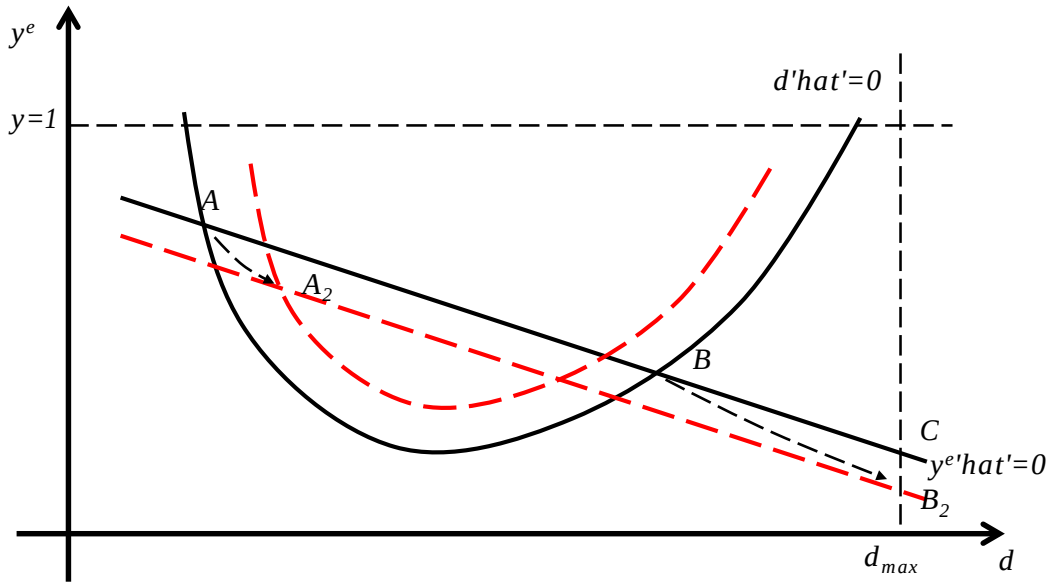

Figure 5 – Long-run outcomes of austerity-led short-run recession in a *stable* dynamic scenario

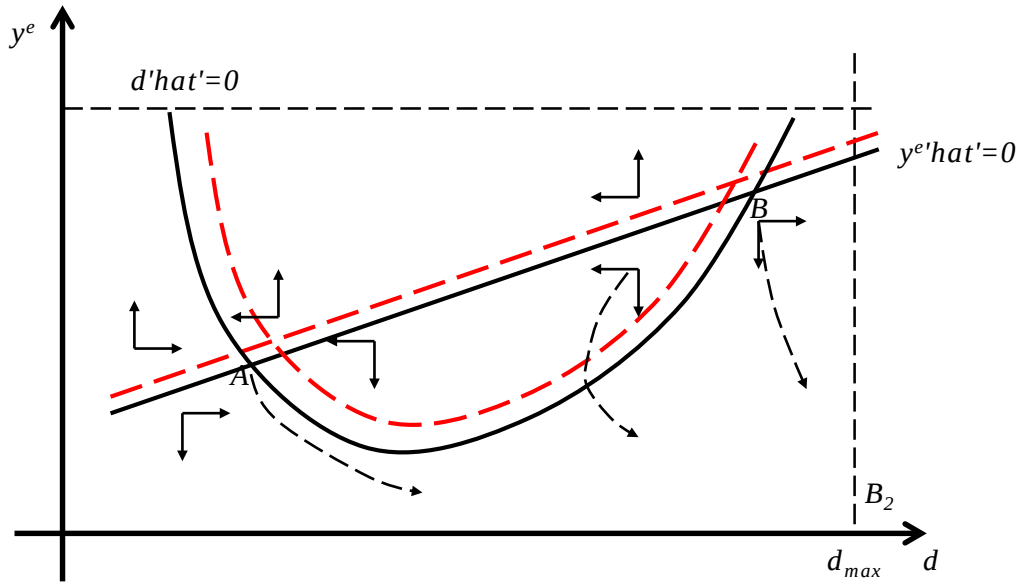

Figure 6 - Long-run outcomes of austerity-led short-run recession in an *unstable* dynamic scenario

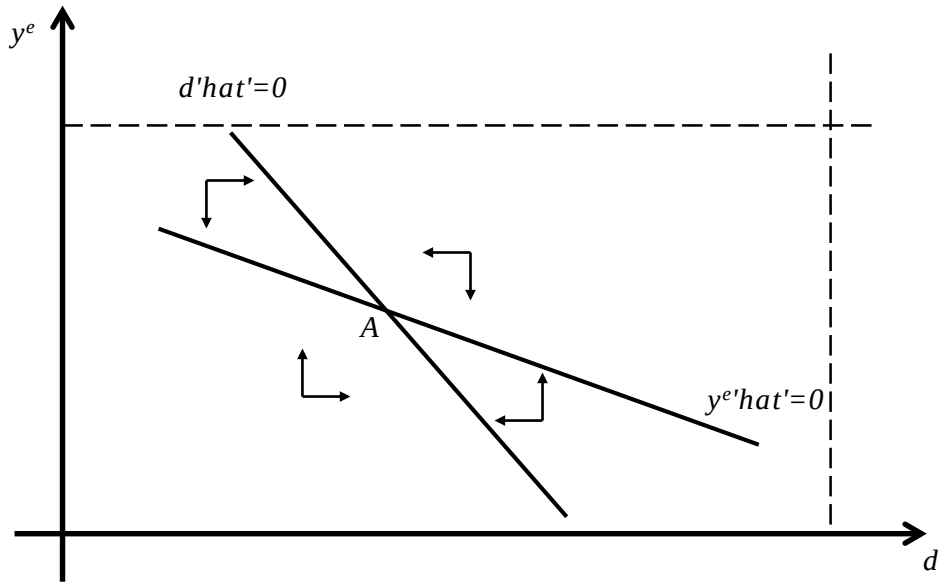

Figure 7 – Stabilizing macroeconomic effects of monetary sovereignty