CONDITIONS THAT MAY INVALIDATE THE PREDICTION OF THE EXPANSIONARY AUSTERITY POLICIES

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George D. Demopoulos

Athens University of Economics and Business

European Chair Jean Monnet

Nicholas A. Yannacopoulos

University of Piraeus

Abstract

The expansionary austerity policies predict that fiscal consolidation implemented mainly by a tax increase may signal that tax cuts have to be expected in the future, Consumers respond to tax cut increase by raising their estimate of their lifetime resources; as a result, they may raise consumption with corresponding positive effects in aggregate demand. The main channel through which fiscal consolidations may stimulate economic activity is that of the expectations view, which is based on two fundamental assumptions: that the horizon index of the consumer has to be infinite, and secondly that his tax expectations have to be elastic in the Hicksian sense. However, since the assumptions are not satisfied in a word characterized by uncertainty and liquidity constraints, the expansionary effects of fiscal austerity policies (through the expectations channel) fail.

Corresponding author: G.D.Demopoulos, Professor of Economics Emeritus and European Chair Jean Monnet, Athens University of Economics and Business, 76 Patission, str. 104 34 Athens, Greece. Phone: +30-210 82 03 281, Fax: +30-210 82 03 301, Email: Demopoulos@aueb.gr

1.Introduction[1]

The expansionary austerity hypothesis predicts that a reduction in government spending may lead to higher GDP rates even in the short run. This prediction is different from that of the conventional Keynesian model, according to which a reduction in government spending has contractionary effects on aggregate demand in the short run. The expansionary austerity hypothesis was introduced by Giavazzi and Pagano (1990)[2], who studied the effects of fiscal consolidation policies in Denmark and Ireland, during the eighties. They found that while most of the European countries went though recession in the early 1980's, Denmark and Ireland experienced economic expansion, after reducing their public spending. The research that followed the Giavazzi and Pagano paper, identified two channels through which fiscal consolidations may stimulate output and employment: the labour market and the expectations channel(Giudice, *et. al.*, 2003; Ardagna, 2004)[3]. These two channels reflect two different (non-mutually exclusive) *views* of how fiscal consolidations may stimulate economic activity.

The *first* view (*labour market view*) stresses the effect of the *composition* of current fiscal policy, i.e., whether the government's deficit is reduced via tax increases or spending cuts. It suggests that a reduction in public spending (especially transfers and government wage bills) renders the labour market more flexible. Economic activity is stimulated via the reduction in the real wage, which is caused by the flexible labour market. This view was defended, among others, by Alesina, et. al. (2002) and Ardagna (2004). The *second* view (*expectations view*), that forms the subject of this paper, suggests that fiscal austerity is expansionary if agents believe that fiscal tightening today generates a regime that eliminates the need for larger and more painful fiscal adjustments in the future. This belief may generate a positive wealth effect that leads to an increase in aggregate demand. The expectations view was defended (among others) by Blanchard (1990), Bertola and Drazen (1993), Sutherland (1997) and Perotti (1999).

We argue in this paper, that the expansionary effects of the fiscal austerity policies via the transmission mechanism implied by the *expectations view*, are likely to be very weak or even non-existent, *since* this view depends on some stringent assumptions that do not conform to the real world. *The first*, requires that the *horizon index* of the consumer 1/p (p is the probability of death) tends to infinity. This means that the consumer will be longer around to enjoy lower taxes. This condition, which is emphasized in the relevant literature, is *necessary* for the validity of the hypothesis but it is *not sufficient*. *Sufficiency* requires that the tax expectations of the consumer have to be elastic in the Hicksian sense (sufficient condition): a small increase in the present tax rate has to change expected taxes in the opposite direction

and in greater proportion than the present change. The difference between the present and the future taxation creates the *wealth effect* that is necessary for the increase in consumption. It is assumed, of course, that individuals behave according to the principles of the *rational expectations theory*: this means that they make efficient use of available information and know all about the market they are in.

The thesis, we are defending in this paper, is that the expansionary effects of fiscal austerity (through the expectations channel), are likely to be very weak or even non-existent, because *uncertainty* and *financial constraints* set limits on the economic horizon and, therefore, invalidate the first hypothesis. But even if we assume that the necessary condition is true, the sufficient condition (elastic tax expectations) may not be fulfilled, especially in periods of economic depression. Therefore, *fiscal austerity policies* are *always* contractionary. Being *always* contractionary, austerity measures are desirable in periods of economic expansion, because they prevent the economy from overheating, and undesirable during periods of economic depression because they amplify the negative effects of recession on output and employment. These contractionary effects *may be offset* either by a move to a trade surplus and /or a sharp decline in the interest rates. However, the world as a whole cannot move to a trade surplus and the decline in the interest rate is limited by the zero lower bound of the nominal interest rate and, more generally, by the form of the liquidity preference function.

 The remainder of this paper is organized as follows: In the next two sections, we state the necessary and sufficient assumptions for the validity of the expectations view and the factors that invalidate these assumptions, and render austerity policies contractionary. In the fourth section, we describe the effects of fiscal austerity during the cycle. In the fifth section, we discuss the argument that the negative effects of austerity policies may be offset either by a sharp reduction in the interest rates and/or by a move to a surplus position in the balance of payments. In the final section we conclude.

2. Fundamental assumptions of the validity of the expectations view

The key characteristic of the *expectations view* of fiscal policy is that the non-standard (non-keynesian) effects are explained by the role of current policy in shaping expectations about the future policy stance. These expectations have to be *rational* in the sense that individuals make efficient use of all available information and know all about the market they are in (i.e. behave according to the "relevant" economic theory). More specifically, the expectations view, of fiscal consolidation (implemented by a tax increase) may be stated as follows:

 Given the government inter-temporal budget constraint, a tax increase today has to be followed by a tax reduction in the future. Rational and forward looking consumers recognize

this and respond to the tax increase, by raising the estimates of their lifetime resources; as a result, they may raise consumption with positive effects on economic activity.

Even without increasing public spending, government may stimulate the economy in the sort run, by announcing that public spending will decrease (or in our case, that taxes will be raised),.

 The validity of this proposition rests on two assumptions:

Assumption 1 (necessary): *The horizon index of the consumer 1/p has to tend to infinity (implying that the probability of death p must tend to zero).*

The horizon of the consumer has to be long enough so that he will be longer around to enjoy lower taxes. This is the assumption emphasized by most of the current literature. However, this assumption, although necessary, it *is not sufficient*. In fact, under the assumptions that give rise to Ricardian equivalence (one of these assumptions is that the horizon index is infinite), a tax increase today is matched by an *equal tax reduction* in the future. Suppose that consumers are faced with an infinite horizon. Since the government acts within the limits set by its inter-temporal budget constraint, an increase in taxes today will be *matched by an equal tax reduction in the future*. In this case, consumers' lifetime resources are not affected and, therefore, total consumption does not change. Individuals will tend to smooth their inter-temporal consumption, and their spending is largely independent to changes of fiscal policies. There are no wealth effects and fiscal multipliers are zero. Austerity policies have *neutral effects* on consumption and effective demand. Therefore, an additional assumption is needed for the expansionary austerity hypothesis to be true.

Assumption 2 (sufficient): *Consumers' tax expectations have to be negative and elastic in the Hicksian sense.*

We define the *elasticity of tax expectations* of a consumer as the ratio of the proportionate change in the expected future taxation to the proportionate change in the current taxation. This definition is similar to that of Hicks (1939) for the elasticity of price expectations. The elasticity of tax expectations is *positive* if a change in the present tax rate will change expected tax rates in the same direction, and is *negative* if a change in the present tax rate changes the expected tax rate in the opposite direction. Thus, if the elasticity of expectations is negative, and equal to one, an increase in the current tax rate will change the expected future tax rate in the opposite direction and in the same proportion. This corresponds to the Ricardian case, discussed under Assumption 1 above.

Assumption 2 states that an increase in the present tax rate has to change the expected future taxes in the *opposite* direction and in a *greater* proportion than the present change. The difference between the present and the expected tax rate will create *the positive wealth effect* required for the expansion in the consumers' demand. What determines elastic expectations? Expectations are informed predictions of future events that are based on our knowledge of the present state of the economy. *Therefore, individuals will increase their current spending if the existing knowledge justifies a rational belief that expected future taxes will be reduced in a greater proportion than the increase in the present tax rate*. Although the elasticity of tax expectations is not mentioned, at least explicitly, in the relevant literature (to the best of our knowledge), a number of authors (Blanchard, 1990; Miller et al., 1990; Bertola and Drazen, 1993; Sutherland, 1997; Perotti, 1999) emphasize that private consumption boom can only result if the possible wealth effect, from the increase in taxation, is *large enough to outweigh the negative effects on current disposable income* (Ardagna, 2004).

3. Conditions that may invalidate the prediction of the expansionary austerity policies

The main argument against the expectation view of the expansionary fiscal austerity hypothesis is that the horizon is not infinite (Assumption 1), implying that p>0. Therefore, current consumers have no reason to increase their consumption, if they expect that the future generation (not the current generation) will enjoy the benefits from reduced taxation; a fiscal contraction will have the conventional Keynesian effects. The counter argument here is that since people leave bequests and care about their descendents, they will behave as if life never ends. But if smaller utility is attached to the utility derived from tax cuts that are expected to take place in the remote future, then the utility gains derived from the expected tax cut may not compensate for the utility loss from the increased taxation today.

Therefore, the lifetime resources of the consumer are reduced, and with them, present consumption. This invalidates Assumption 2 (elastic tax expectations), because the proportional decline in the expected future taxes is *less* than the increase in the current taxation. Assumption 2 may also be invalidated for another reason. The existing economic situation may not justify a rational belief that taxes will be reduced in the future. Thus, during a period of economic depression, and given the deterioration of public finance and tax base, there are few reasons for the individuals to believe that the higher taxes today will be followed by lower taxes in the future. On the contrary, as Boyer (2012, p. 304) notes, "the new demands, expressed by the European Commission, European Central Bank (ECB) and IMF induce the feeling that these austerity measures will be strengthened from period to period". Thus, *even under the assumption of infinite time horizons, fiscal austerity policies may be not expansionary*.

However, infinite horizons constitute an extreme hypothesis. *Uncertainty and financial constraints* pose limits on the length of the horizon, undermining the validity of the expansionary austerity hypothesis. These two factors are discussed in turn[4]:

(i) *Uncertainty.* Uncertainty *undermines* the expansionary effects of fiscal contraction in two ways. *First*, it sets a limit to the infinite horizon of the consumer. In fact, one may observe that there is a connection between the degree of uncertainty and the distance of the individual (the decision maker) from the events that are, supposedly, to take place in the future. The larger the distance the greater the degree of uncertainty will be. A limit on the horizon of the consumer implies that p is no longer equated with zero, as the expansionary austerity hypothesis requires (Assumption 1), but it takes a positive value (p>0), implying that the behaviour of the consumer is myopic.

Second, uncertainty is inconsistent with the rational expectation hypothesis, on which the expansionary austerity hypothesis rests. Uncertainty exists when the representative agent is unable to calculate the numerical values of probabilities for future states of nature. The formal proposition that underlies the rational expectations hypothesis (Muth, 1961) is that the expected value of a variable is equal to the value predicted by the "relevant" economic theory, plus a random error the probability distribution of which is known. Apart from the question relating to the "relevant" economic theory, the assumption that the probability distribution of the random error is known, limits the application of the theory to a world of risk.

However, the economic environment is characterized by uncertainty, and in this case the only reasonable answer to the question, "what tax rates will be in ten years time", is simply, "I do not know". As Keynes has remarked (Keynes, 1937, p. 214), "About these matters there is no scientific basis on which to form any calculable probability whatever". In such situations, one might expect individuals to base their behaviour *on what they actually know*, which is their disposable income, without much reference to the uncertain future. Therefore, a tax increase will reduce the disposable income of the consumers with negative effects on consumption and aggregate demand.

(ii) *Liquidity constraints.* A second factor that *poses limits* on the horizon of the consumers is the inability of some agents to borrow against future income, perhaps because lenders believe they are unlikely to repay their loans. To the extent that individuals are denied access to borrowing, their consumption behaviour is linked to their current disposable income rather than to their future income. Thus, in a liquidity constrained system, consumers are limited (by necessity) and therefore p>0. One *may be tempted* to assume

that the length of the horizon will be extended as the economic system becomes liquidity unconstrained; in the limiting case (no liquidity constraints), and on the assumption that there is no uncertainty, p=0 (Blanchard, 1990).

However, given the development of the *credit markets*, there is *at any given time* a fraction of the total population that is *liquidity constrained*. Even in "normal" times, the credit market is rationed (implying that there is an excess demand for credit at the equilibrium interest rate), due to asymmetric information (Stiglitz and Weiss, 1981). This fraction is more likely to increase during a *downturn*, when unemployment is high, for two reasons: (i) Credit markets are normally lend against collateral, not just the promise of future repayment; this condition is difficult to be met by unemployed individuals. (ii) The uncertainty, that accompanies an economy during a period of economic depression, may lead to a sharp increase in liquidity preference and, hence, to a rise in the interest rate. The rise of the interest rate limits the access of the individuals to the credit markets. Thus, *during a downturn*, when unemployment is high, a greater number of individuals are likely to find themselves *liquidity constrained*.

We may conclude, therefore, that p has always a positive value (p>0). Even if we assume that there are no liquidity constraints, in which case p =0, the uncertainty factor prevents p from reaching the zero value. Thus the value of p increases the period of economic depression, when the number of liquidity constrained individuals increases, and declines during the periods of economic prosperity (when the number of liquidity constrained individuals declines), but never reaches the value of zero. It is restricted to the range 1 > p >0, implying a limited horizon for the consumers. This violates Assumption 1. Therefore, consumers are myopic (they base their consumption on their current disposable income).

It follows that an increase in the tax rate (by reducing disposable income) will lead to a severe *depression*. Economic depression renders the validity of the Assumption 2 problematic, because the current situation (worsening of the public finance and of the tax base) cannot justify a rational belief that taxes will be reduced in the future. Furthermore, in a world in which austerity forms the dogma of economic policy (as in the Eurozone[5]), there are few reasons for rational individuals to believe that austerity measures taken today will be followed by measures that are inconsistent with the *austerity dogma* in the near future. Thus, fiscal austerity policies are not expansionary because the necessary and sufficient conditions for their validity are not satisfied. On the contrary, they have contractionary effects as predicted by the conventional Keynesian models.

4.**Dynamics**

Being contractionary, austerity policies prevent the economy from overheating and stabilize the economic system during the periods of economic expansion ("The boom not the slump is the right time for austerity at the Treasury", Keynes, 1937), while in periods of economic depression austerity programs tend to amplify the negative effects on output and employment caused by depression. These effects are described by the non-linear difference equation:

$$y(t+1) = f(y(t))$$

where y denotes output and t time. It is assumed that f allows for three equilibria A, B and C as shown in the following figure:
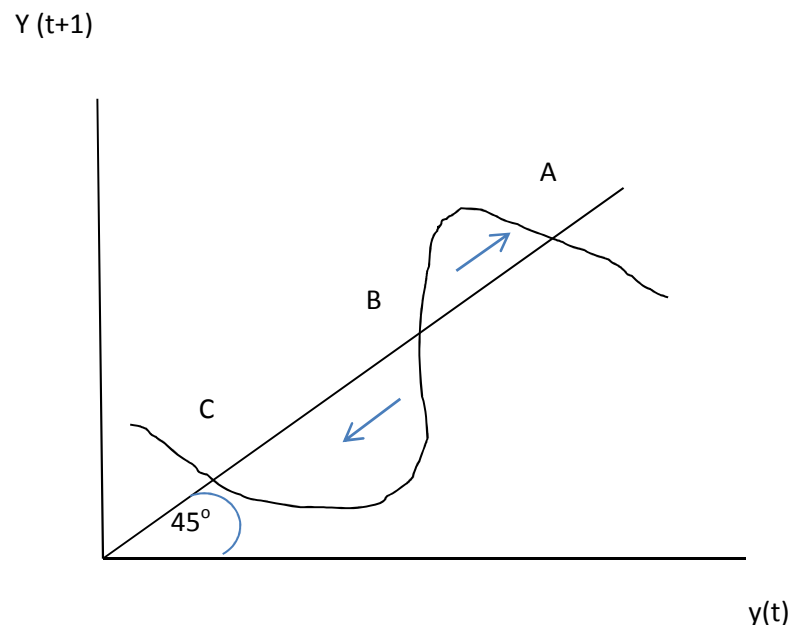
Equilibria at A and C are locally stable, while equilibrium at B is locally unstable. Local stability requires $0 < df/dy(t) < 1$, where $df/dy(t)$ is the slope of the phase line (Gandolfo, 1997, p.365). The equilibrium is locally unstable if $df/dy(t) > 1$. The negative slope $df/dy(t) < 1$ of the phase line, reflects the contractionary effects of fiscal policies and, therefore, is consistent with the restrictions imposed on the horizon of individuals by uncertainty and liquidity constraints $(0<p<1)$. We call the negative slope of the phase line the *austerity factor*.

Since austerity policies restrict economic activity, it follows that y(t) will move to the equilibrium point in steps whose magnitude grows smaller and smaller (the time path is

damped). This justifies the negative value of the slope. In periods of economic prosperity, i.e., when the system moves to the right of the unstable point B, contractionary fiscal policies prevent the system from overheating and guarantee that the economy will converge to the stable equilibrium point A. When a shock reduces the output to a lower level than that corresponding to the unstable point B, the austerity factor works in the opposite direction. Production declines (although at a reduced pace) generating a *deflationary spiral* that stops only when the lower equilibrium point C is reached. In monetary economies, *deflation* may be accentuated by an increase in the liquidity preference.

Deflation makes agents to hold more money than buy goods. The real interest rate tends to increase, necessarily so when nominal rates of interest are constrained by the lower zero bound, amplifying thus economic depression.

5. Offsetting factors

Two are the policy implications derived from the previous discussion. The *first* is that fiscal consolidations are not the appropriate policies against depressions. On the contrary, applied in periods of recession they tend to amplify the negative effects of recession on output and employment. The *second* implication is that, being always contractionary, austerity programs have to be complemented either by a sharp decline in the interest rate and/or by a move to a positive trade balance, if the level of output (and employment) is to expand. This was emphasized by Perotti (2011) who observed that economic expansions that took place after consolidations were associated with a sharp reduction in the interest rates or a net export boom (see also, Foresti and Marani, 2014). The effectiveness and the limitations of these two offsetting factors (interest rate decline, positive trade balance) are discussed below, with an emphasis to currency areas.

5.1. Interest rates. The effects of austerity on interest rates are discussed in the context on the IS-LM model. The new-neoclassical approach, in its extreme form, assumes that the LM curve is vertical on the output axis (the demand of money is independent from the interest rate) while the IS curve is horizontal at the given interest rate (which is determined by the intersection of the savings and investment schedules). The horizontal IS curve reflects the fact that the aggregate demand is irrelevant for output and employment. It follows that at a given level of output, a reduction in public spending, will shift the IS curve below its original position, leading to a fall in the interest rate, that stimulates private investment and, therefore, economic activity. This prediction is based on the postulate that private investment is more productive than public investment.

However, outside the neoclassical paradigm, a decline in public spending does not necessarily lead to a decline in the interest rate. If the money supply is interest elastic (the LM curve is horizontal), a decline in public spending, translated by a shift of the IS curve to the left of its original position, leaves the interest rate unchanged. The horizontal LM curve does not necessarily imply that the economy is in a state of liquidity trap. In a regime of fixed exchange rates with perfect capital mobility, the LM curve of a small country is a horizontal straight line, at the international interest rate, reflecting the fact the money stock is fully endogenous (Dornbusch, 1980, p. 179). In this case, fiscal austerity will lead the economy to an equilibrium characterized by lower income and unchanged interest rates. This prediction is justified as follows.

Assume that the LM curve is perfectly elastic at the world interest rate i*. The IS curve, representing the real sector of an open economy, is given by the equation:

$$y = E(i^*,y) + B(y)$$

where y denotes output, E aggregate spending by domestic residents and B the trade balance. E is a function of the international interest rate and real income, while trade balance is a function of real income. The IS curve has a negative slope, because at a given output, a lower interest rate increases domestic demand, and creates an excess demand condition. Therefore, an increase in output is required to restore equilibrium. The equilibrium of the system occurs at the point at which the LM and IS curves cross.

Consider now a real contraction caused by an austerity program. Austerity policies shift the IS curve to the left from its original position, and tend to reduce the domestic interest rates (below the level of the international interest rate i*) as the transaction demand for money declines relative to the prevailing money stock. Since the domestic interest rates are lower than the international interest rates, there will be an outflow of money. The outflow of money will continue until the domestic money supply equals domestic money demand at the international interest rate i*. The final equilibrium is established at a lower income and (unchanged) interest rate i*. Note that one of the reasons given by Perotti (2011) on the limited applicability of the austerity programs during depression, is that interest rates are too low and cannot be reduced further.

5.2. Current account surplus. The other *offsetting factor* to the contractionary effects of *fiscal austerity* is the increase in domestic income via a positive trade balance. In a flexible exchange rate regime, this can be achieved via the devaluation of the national currency. In a currency area (which is an extreme form of a fixed exchange rate arrangement), this policy tool is not available, and the only alternative for a deficit country is *internal devaluation*, that

can be achieved by adopting austerity measures. It is argued that the larger the fall of domestic demand, the more the imports will fall and the stronger the improvement of the current account will be (Gros, 2013).

However, *internal devaluation* has some undesirable effects. *First*, it increases the real burden of the debt and sets in motion the debt deflation dynamics described by Fisher (1933). As De Grauwe and Juemei (2013) have emphasized, the governments, in order to avoid the undesirable effects of these dynamics, are forced to take over private debt. The accumulation of debts by the governments may lead to *self-fulfilling liquidity crises*. In fact, the member of a currency area cannot guarantee to bond holders that cash will be available to pay them out at maturity, because they borrow in a currency the supply of which do not control. If, in addition, the currency area lacks a lender of last recourse, then it is left vulnerable to self-fulfilling liquidity crises. Investors sell the debt of the deficit country fearing default. In so doing, they drive up that country's borrowing costs and depress its economy so much, that they provoke the very default they fear. Thus, the country finds itself trapped at an equilibrium point like C, characterized by a low level of income and high unemployment.

Second, deflation may worsen the *terms of trade* of the deficit country (a fact emphasized by Keynes in his exchange with Ohlin on the transfer problem), adding thus an additional burden to the direct burden of the payment. These problems are more acute in the case in which the *surplus members* of the currency area refuse to adjust, and throw the burden of adjustment on the shoulders of the deficit countries, as in the case of the EMU. *Finally,* the world as a whole cannot run simultaneously a positive trade balance. Therefore, policies aiming at a positive trade balance, although rational from the point of view of a single country, will lead to systemic distortions if they are adopted by a significant fraction of the world economy (Blanchard and Ferretti, 2009).

6. Concluding remarks

We have argued that the validity of the expectations view of the *expansionary austerity policies* rests on two assumptions: infinite horizons (necessary) and elastic tax expectations (sufficient). *The first* (infinite time horizons) is unlikely to conform to the real world, especially under conditions of *uncertainty*, and the presence of liquidity constraints. Uncertainty sets a limit to the horizon of consumers. There is a connection between the degree of uncertainty and the distance of the consumer from future events. The larger the distance, the greater the degree of uncertainty will be. Uncertainty is also inconsistent with the rational expectations hypothesis on which the expectations of fiscal austerity policies rests.

Liquidity constraints are a second factor that poses limits on the horizon of the consumers. In a liquidity constrained system, since individuals are denied access to borrowing, their consumption behaviour is linked to their current rather than to future income. Therefore, the horizon of the consumers is not infinite. This invalidates the first key assumption that requires infinite horizons. *The second key* assumption is invalidated in a world in which austerity policies form the dogma of economic policies, as in the Eurozone. In such a world, there are few reasons for rational individuals to believe that austerity measures taken today will be followed by measures that are inconsistent with the austerity dogma in the near future. Hence, the necessary and sufficient conditions for the validity of the expansionary austerity hypothesis break down. Austerity policies are contractionary.

The contractionary effects of the austerity policies may be offset, however, either by a reduction in the interest rate, or through a positive effect in the balance of payments. These two effects, along with their corresponding limitations, are also discussed in the paper.

Notes

1.This is an extended and updated version of the authors' paper, "The Myth of expansionary austerity" (2012).

2.Giavazzi and Pagano draw their inspiration from the views expressed (during the early eighties) by the German Council of Economic Advisors' report. According to these views, reducing public spending can increase growth by improving expectations (Blyth, 2013).

3. The empirical literature does not provide a clear evidence in support of the expansionary austerity hypothesis. Giavazzi and Pagano (1990, 1996) show that fiscal consolidations are sometimes correlated with an expansion on private consumption within one year. Alesina and Perotti (1997) and Alesina and Ardagna (2010) find that fiscal consolidations are correlated with rapid growth, particularly if implemented by reducing public expenditures rather than by raising taxes. Finally, Alesina (2010, p.3) insists that many sharp reductions of budget deficits have been accompanied by "sustained growth rather than recession even in the short-run." These results are not accepted by all. In the *World Economic Outlook* (2010), the IMF emphasizes that austerity programmes are contractionary in the short run, though they may be expansionary in the long run. Similar results have been reached by Guardo, Leigh and Pescatori (2011) who found that fiscal consolidations are contractionary even in economies with high perceived sovereign default risk. They also found that the decline in private consumption and investment is mitigated by a rise in exports associated with a fall in the value of the domestic currency. Perotti (2011), an earlier supporter of the expansionary austerity hypothesis, doubts the applicability of it under present circumstances. Finally, in two

recent publications Blanchard and Lee (2013) and the World Economic Outlook by the IMF (2012), argued that, in advanced economies, stronger planned fiscal consolidations have been associated with lower growth than expected.

4. See also, Demopoulos and Yannacopoulos (2013).

5. "The dogma of expansionary austerity conquered Europe as completely as the Holy Inquisition conquered Spain" (with apologies to J.M.Keynes (1936,p. 32).

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