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# EXPANSIONARY FISCAL CONSOLIDATIONS: THEORETICAL UNDERPINNINGS AND THEIR IMPLICATIONS FOR THE EUROZONE

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This paper deals with theoretical foundations justifying alleged expansionary effects of fiscal consolidations. In some European countries there have been episodes of fiscal retrenchments followed by an increase in output (Sweden, Ireland, Denmark, and Finland). These have been taken as a starting point for theories advocating, contrary to the Keynesian tradition, the possibility of a negative sign of the fiscal multiplier. We show that expansionary fiscal consolidations can occur under extreme circumstances: they are not the result of pure fiscal policies, but rather they result from a policy mix in which the central bank's behaviour is crucial. On the basis of this evidence we discuss why, given the current economic scenario, immediate austerity cannot be a plausible way out from the recession in the euro-area countries.

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Since the pioneering works by Kahn (1931) and Keynes (1933) concerning the existence of a positive fiscal multiplier, there have been many opponents to this view.

The idea that a public-sector deficit can be considered as a powerful instrument for stabilizing income reductions has been increasingly questioned. These criticisms followed the theoretical analysis included in the Treasury View and reemerged with Friedman's monetarist approach to the natural rate of unemployment. This opposition to the Keynesian view has been kept alive by crowding-out arguments, by rational expectations models and by the theories based on Ricardian equivalence. It is worth noting that all these criticisms highlighted a low or zero fiscal multiplier.

However, the understanding of the effects of fiscal policies among the critics changed in the 1990s when a newer generation of critics began advocating the existence of *negative* fiscal multipliers. This approach gave rise to the idea that fiscal consolidations may increase output. We call this line of thinking the 'Non-Keynesian View' (hereafter, NKV) to distinguish it from the 'Keynesian View' (hereafter, KV).

This paper offers an investigation of the circumstances under which the conclusions of the NKV can occur. In particular, we demonstrate (i) that restrictive fiscal policies are able to generate expansionary effects under a peculiar policy mix. In this respect they can be determined by the essential role played by monetary policy and not by pure non-Keynesian fiscal policies; (ii) that pure fiscal consolidations are able to generate expansionary effects only under very strict circumstances: namely, when inflation expectations and permanent income strongly react to fiscal consolidations; when nominal interest rate variations strongly affect investments, exchange rate, and net exports; when the marginal propensity to consume is low; and (iii) that immediate fiscal consolidations do not seem to be a way out from the recession in the euro-area countries, as all the circumstances that trigger possible expansionary effects cannot take place in this economic area nowadays.

## I. THE DEBATE BETWEEN THE NKV AND THE KV IN A HISTORICAL PERSPECTIVE

Economic theory has undertaken a revision of the relation between public expenditure and economic growth following the increasing public-sector deficits and debts that occurred in the 1980s. The consolidation of public balances became an urgent need according to many academics and policy-makers. Moreover, the ongoing formation of the EMU strengthened this trend, since it was perceived as a good manner to minimise the decentralised loan expenditures in the forming monetary union. Although the reduction of expansionary fiscal policies seemed to be a good solution to these problems, the advocates of fiscal austerity feared the possible negative effects of such policies on income and employment. These doubts were strongly diminished during the 1990s, when a significant number of empirical studies highlighted that restrictive fiscal policies may have positive effects on consumption, investment, and income (Giavazzi & Pagano, 1990, 1995; Alesina & Perotti, 1995). This stream of the literature is what we call the NKV. Some examples of expansionary fiscal retrenchments took place in some European countries in the same period. The cases of the largest multi-year expansionary fiscal consolidations occurred in Denmark (1982–1986), Ireland (1987–1990), Finland (1992–1998), and Sweden (1993–1998). At first sight these episodes were taken to be clear examples of the possibility that fiscal consolidations, based on spending, can generate expansionary effects.

The early studies of the NKV analysed the effects of fiscal consolidation episodes through the estimation of behavioural functions and tried to isolate the channels through which positive effects on output take place. The theoretical foundations of these results are based on the Modigliani life-cycle theory (or Friedman permanent income theory) and Ricardian equivalence theory as in Barro (1974). Under rational expectations and no liquidity constraints, consumers smooth savings over time according to their expected flow of income. Therefore, during fiscal retrenchments an increase in consumption implies that private individuals have revised their permanent income upward as a consequence of the fiscal policy.

Despite the results of many studies based on single equation estimations, other streams of the empirical literature based on VAR methodologies and macroeconomic model simulations have not highlighted any general case of expansionary fiscal retrenchments (see also Barba, 2001 for a more theoretical analysis; see Capet, 2004; Creel *et al.*, 2004; Canale *et al.*, 2008). Ahrend *et al.* (2006) analysed the empirical methodologies applied by part of the NKV. The authors stress that a larger number of variables could explain the relationship between fiscal policy and economic activity (e.g. inflation, exchange rates, unemployment, and interest rates). They show that the inclusion of a variable controlling for the interaction between fiscal and monetary policy allows explaining the results of the NKV. Therefore, they investigate how, and in what circumstances, fiscal consolidations are affected by monetary policy reactions. Expansionary fiscal consolidations occur when, ceteris paribus, they are coupled with an expansionary monetary policy and interest rates are falling. The author's explanation for this result is that falling interest rates can encourage the continuation of consolidation as the interest rate variable is picking up a reaction of monetary authorities. More generally, monetary authorities seem to adopt asymmetric behaviour with respect to fiscal policies. This evidence is also supported by the theoretical literature studying the interaction between monetary and fiscal policies (see Beetsma & Debrun, 2004; Foresti & Marani, 2013; Foresti, 2013a,b).

These results have very strong theoretical implications. Fiscal plans have to be implemented into the central bank's forecasts and the response of the monetary authority should be able to affect the result of a fiscal policy.

After the contributions of the NKV, public-sector deficits have decreased in Europe. This phenomenon has also been due to the need for many European countries to attain the Maastricht Treaty parameters on the deficit/GDP and debt/GDP ratios. Nevertheless, starting from 2009, primary public-sector deficits have risen vigorously (see Table 1), mainly because of the financial crisis and the policies supporting the national banking systems.

As a consequence, the NKV and the idea of expansionary fiscal consolidations were back, and some have started advocating fiscal retrenchments as a way out from the crisis in the Eurozone. The basic idea is that fiscal retrenchments decrease the level of fiscal imbalances and, according to the NKV, should not decrease the level of income and employment. As a result, such policies should be a way out from the recession in Europe. Others have strongly opposed this view on the basis of two facts. First, estimated income reactions to fiscal retrenchments univocally show an output reduction in the short run (see IMF, 2010; Blanchard & Leigh, 2013). Secondly, all the cases of expansionary fiscal retrenchments operated through a net exports boom and a fast reduction in the interest rate (Perotti, 2012). Therefore, it can be concluded that, given these additional circumstances, fiscal retrenchments cannot fit the need of the world economy as a whole (Krugman, 2010).

TABLE 1
Governments' primary balance as a percentage of GDP

| Year | Countries | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ES | AT | BE | FI | FR | DE | EL | IE | IT | NL | PT | LU |
| 2012 | −7.65 | 0.11 | −0.49 | −0.84 | −2.29 | 2.49 | −5.01 | −4.41 | 2.49 | −2.15 | −2.01 | −0.41 |
| 2011 | −6.98 | 0.15 | −0.42 | 0.28 | −2.66 | 1.78 | −2.37 | −9.79 | 1.16 | −2.44 | −0.35 | 0.23 |
| 2010 | −7.73 | −1.83 | −0.39 | −1.42 | −4.66 | −1.61 | −4.89 | −27.5 | 0.12 | −3.07 | −7.01 | −0.53 |
| 2009 | −9.4 | −1.33 | −1.92 | −1.32 | −5.13 | −0.39 | −10.4 | −11.8 | −0.83 | −3.41 | −7.31 | −0.45 |
| 2008 | −2.89 | 1.65 | 2.81 | 5.8 | −0.41 | 2.68 | −4.8 | −6.01 | 2.45 | 2.71 | −0.61 | 3.52 |
| 2007 | 3.53 | 1.88 | 3.81 | 6.81 | −0.04 | 3.04 | −1.97 | 1.12 | 3.35 | 2.36 | −0.21 | 3.91 |
| 2006 | 4.01 | 1.19 | 4.33 | 5.63 | 0.21 | 1.21 | −1.33 | 3.97 | 1.19 | 2.71 | −1.83 | 1.53 |
| 2005 | 3.05 | 1.18 | 1.69 | 4.37 | −0.26 | −0.49 | −0.96 | 2.73 | 0.18 | 2.07 | −3.97 | 0.16 |
| 2004 | 1.91 | −1.61 | 4.53 | 4.02 | −0.84 | −0.88 | −2.57 | 2.53 | 1.2 | 0.71 | −1.41 | −0.92 |
| 2003 | 1.99 | 1.42 | 5.14 | 4.39 | −1.26 | −1.13 | −0.73 | 1.67 | 1.49 | −0.55 | −1.02 | 0.68 |
| 2002 | 2.47 | 2.41 | 5.61 | 6.26 | −0.33 | −0.88 | 0.74 | 1.06 | 2.47 | 0.69 | −0.6 | 2.36 |
| 2001 | 2.51 | 3.32 | 6.83 | 7.77 | 1.36 | 0.01 | 2.01 | 2.44 | 3.1 | 2.91 | −1.84 | 6.43 |
| 2000 | 2.28 | 1.76 | 6.53 | 9.74 | 1.35 | 4.33 | 3.64 | 6.74 | 5.42 | 5.62 | −0.33 | 6.31 |
| 1999 | 2.27 | 1.07 | 6.18 | 4.66 | 1.18 | 1.55 | 4.3 | 4.87 | 4.61 | 4.69 | −0.17 | 3.72 |
| 1998 | 1.18 | 1.22 | 6.37 | 5.11 | 0.68 | 1.03 | 4.32 | 5.47 | 5.18 | 3.79 | −0.78 | 3.78 |

*Source*: Eurostat.

## II. NKV THEORETICAL FOUNDATIONS AND THE RELEVANCE OF THE POLICY MIX

Following a fiscal policy manoeuvre, a central bank can choose among three different behaviours: (i) a neutral feedback operates when the monetary authority determines its instrumental variable and its intermediate targets irrespective of fiscal policy; (ii) a cooperative approach implies that the central bank cooperates with the fiscal authorities reinforcing their policies; and (iii) the central bank can also follow an antagonist approach when it operates on its instrumental variables aiming at frustrating and neutralizing the fiscal authority's manoeuvres (see Allsopp & Vines, 2000, 2005).

The notion that the reaction function of monetary authorities also depends on fiscal policy and that the stance of the latter will be, more or less, enhanced by antagonistic or cooperative monetary policy reaction functions is not new in the literature (Taylor, 2000). The debate on the optimal policy mix, i.e. on the effectiveness of fiscal contractions harmonised with benign monetary policies, goes back to the 1950s (CaryBrown, 1955) and has continued in the 1970s and 1980s (Okun, 1972; Tobin, 1982a,b; Blinder, 1984).

Then, it seems clear that the evaluation of the effects of fiscal policies involves the reaction of the central bank to public deficit variations. Therefore, an analysis of the effects of fiscal policy that neglects the inclusion of a behavioural rule for the central bank cannot be considered as complete.

Understanding policy interdependence and the reaction of the central bank to public deficit involves the analysis of the monetary authorities' loss function, that is, the behavioural relation underlying the reduced form of the Taylor Rule. We therefore assume that the reaction function of the central bank becomes a cornerstone to analyse the effects, whether Keynesian or non-Keynesian, of fiscal policies.

The absence of a government's budget constraint is one of the major shortcomings of the IS-LM approach, but the understanding of the interdependence between fiscal and monetary policy is another missing issue. It is also worth noting that the NKV does not take into account the monetary policy reaction to the fiscal stance variations. In other words, it seems that in order to have a complete evaluation of the fiscal policy effects that are claimed by the NKV, the analysis should also consider the effects of interest rate variations decided by the central bank in response to a new fiscal policy setting. The inclusion of the effects of interest rate changes would permit a distinction between pure fiscal policies (in the sense of fiscal policies without any monetary feedback) and policies in the presence of a cooperative or antagonistic central bank's behaviour. According to the existing literature we can assume that central banks react mainly to variations in output ($Y$) and expected inflation ($\pi^e$). It can be assumed that, following an increase in output or inflation, central banks operate on their instrument (the nominal interest rate, $i$) in order to implement a restrictive monetary policy (an increase in $i$). Therefore, we can synthesise this view with the following central

bank's reaction function:

$$i = \beta\pi^{e} + \delta Y \tag{1}$$

where $\beta$ and $\delta$ reflect the sensitivity of the central bank's reaction to expected inflation and output.

The level of current output is determined by consumption ($C$), investment ($I$), public deficit ($D$), and net exports ($NX$). Therefore,

$$Y = C + I + D + NX \tag{2}$$

An increase in the interest rate reduces investments:

$$I = -\alpha i \tag{3}$$

When governments modify their fiscal deficit ($D$), the manoeuvre can have temporary ($D_T$) or permanent ($D_P$) effects. Therefore, we assume that the total deficit is a sum of these two components, $D = D_T + D_P$.

Consumption can reflect both the KV and the NKV. In this respect consumers can react to current income ($Y$) and permanent income ($Y_P$):

$$C = \theta c_0 Y + (1 - \theta) c_1 Y_P \tag{4}$$

When consumers are purely Keynesian, consumption is exclusively based on current income ($\theta = 1$). On the contrary, when $\theta = 0$ consumption completely reflects the NKV, as it is based only on permanent income. The parameters $c_0$ and $c_1$ represent the marginal propensity to consume, referring to current and permanent income, respectively.

Permanent income depends positively on permanent deficits:

$$Y_p = \gamma D_P \tag{5}$$

Net exports ($NX$) depend positively on the nominal exchange rate ($E$) and react negatively to an increase in the level of output:

$$NX = n_0 E - n_1 Y \tag{6}$$

An increase in the interest rate reduces the exchange rate:

$$E = -\lambda i \tag{7}$$

Equation (7) highlights how the central bank can affect the exchange rate by modifying its policy instrument.

Following the common wisdom that increasing public-sector deficits are expected to increase the inflation, expected inflation can be intended as depending positively on

both permanent and temporary deficits:

$$\pi^e = \omega_T D_T + \omega_P D_P \tag{8}$$

Obviously, other variables can influence expected inflation, but for the sake of simplicity and without loss of generality we omit them.

By solving our model, the equilibrium level of current income can be written as

$$Y = \rho\{(1 - \alpha\beta\omega_T - n_0\lambda\beta\omega_T)D_T + [(1 - \alpha\beta\omega_P - n_0\lambda\beta\omega_P) + (1 - \theta)c_1\gamma]D_P\} \tag{9}$$

Equation (9) synthesises all the theoretical conjectures reported in the paper so far.

The term $\rho = 1/[1 - \theta c_0 + n_1 + \delta(\alpha + n_0\lambda)]$ represents the usual Keynesian multiplier of autonomous aggregate demand in an open economy, but it takes also into account the effects of the reaction of the central bank on investment expenditures ($\delta\alpha$) and on net exports ($\delta n_0\lambda$). It is worth noting that the more consumption decisions are based on current income (higher $\theta$), the stronger is the effect of the Keynesian multiplier.

The terms in braces in equation (9) highlight that temporary and permanent fiscal retrenchments can be expansionary when the following inequalities hold:

$$\frac{dY}{dD_T} = \rho(1 - \alpha\beta\omega_T - n_0\lambda\beta\omega_T) < 0 \tag{10}$$

and

$$\frac{dY}{dD_P} = \rho[(1 - \alpha\beta\omega_P - n_0\lambda\beta\omega_P) + (1 - \theta)c_1\gamma] < 0 \tag{11}$$

Therefore, equations (9–11) show that expansionary effects of fiscal retrenchments can take place only under peculiar circumstances.

Fiscal consolidations are more likely to be expansionary:

(1) the higher the reaction of the central bank to changes in the expected inflation ($\beta$);
(2) the higher the impact of fiscal consolidations on inflation expectations ($\omega_T$ and $\omega_P$);
(3) the more interest rate variations affect investments ($\alpha$) and the exchange rate ($\lambda$);
(4) the more exchange rate variations affect net exports ($n_0$);
(5) the less fiscal policies affect permanent income ($\gamma$);
(6) the lower the consumers' reaction to current ($c_0$) permanent ($c_1$) income.

Propositions 1–4 highlight the role played by the central bank in the realization of expansionary fiscal consolidations. According to proposition 1, expansionary fiscal consolidations take place when the central bank strongly reacts to inflation expectations. As the latter depends on the fiscal stance, it is the channel by which strong

monetary activism can trigger the mechanisms supporting the NKV. Without this monetary 'support', it seems that the KV is most plausible and then fiscal consolidations are supposed to generate a reduction in income. Furthermore, proposition 2 shows that in order to have expansionary fiscal consolidations, it is required that inflation expectations are strongly influenced by the fiscal stance. In an open economy another channel by which the NKV can explain reality is based on the exchange rate manoeuvres and net exports. According to propositions 3 and 4, this channel operates when the central bank has a strong control over the exchange rate and when net exports strongly react to exchange rate variations.

Propositions 5–6 show that the weaker the transmission channels of fiscal impulses in the economy, the more expansionary fiscal consolidations can occur. Both in the KV and NKV, the expansionary effects of positive fiscal impulses rely on the reactivity of consumption to fiscal policies. The more a fiscal stimulus affects consumption, the more it is supposed to affect income. Therefore, a lazy reaction of consumption to fiscal policies can be seen as a minimum requirement for the NKV to take place.

It can be concluded that only in an economy where all these characteristics are extreme, the sign of the Keynesian multiplier can be inverted and an increase in income can be triggered by fiscal consolidations.

## III. FISCAL CONSOLIDATIONS UNDER A BINDING ZERO LOWER BOUND ON NOMINAL INTEREST RATES

As highlighted in the previous section, expansionary fiscal consolidations seem to occur only under certain circumstances. One of these is that the central bank offsets the restrictive effects of a fiscal consolidation by lowering the nominal interest rate (see equations (10) and (11) and proposition 1).

Then, it can be argued that fiscal policies effects are likely to have strong Keynesian effects when the central bank faces what the literature defines as the 'zero lower bound on nominal interest rates'. It defines a situation in which the policy interest rates are zero and the monetary authority cannot push them any lower. Therefore, following a restrictive fiscal policy, the central bank cannot offset it with an expansionary monetary policy. This constraint for the monetary authority is binding when the nominal interest rate implied by its monetary rule is negative (see Cwik & Wieland, 2010).

It is worth noting that negative nominal interest rates are something monetary authorities can eventually engineer, as in principle they are able to set the nominal interest rate at any level, including a rate below zero. Therefore, the zero lower bound is not necessarily an iron barrier, but rather a point where central bankers should show more creativity and the conventional effects of monetary policy do not take place anymore. Nevertheless, the zero lower bound can be considered as binding in practice because negative nominal interest rates are very difficult to implement due to their potential drawbacks (banking system strains, consumption expenditure reductions, lower profitability for the banking system, outflow of capitals, and unknown effects of conventional monetary policies) and lack of meaningful experiences (there have been

only exceptional cases of brief moves towards negative nominal interest rates so far; Sweden and Denmark are two examples).

Many studies have investigated the effects of fiscal policies when the zero lower bound on nominal interest rates is binding. The common result is that under this circumstance a fiscal consolidation does not have expansionary effects (see Bodeinstein *et al.*, 2009; Christiano *et al.*, 2011). Moreover, Romer (2012) argues that the large and Keynesian fiscal multipliers evidenced by cross-regional studies show the importance of the zero lower bound, as monetary policy is fixed across regions in a country.

The circumstance in which the central bank cannot push the interest rate lower can be synthesised in our model as $\beta = 0$, $\delta = 0$ in the reaction function (1), and the equilibrium income cannot be affected by monetary policy anymore. Therefore, it becomes

$$Y = \frac{1}{1 - \theta c_0 + n_1}\{D_T + [1 + (1 - \theta)c_1\gamma]D_P\} \tag{12}$$

It is clear that now, following a fiscal consolidation (both temporary and permanent), the level of income has no possibility of going up. Therefore, the effects of fiscal consolidations support the KV and the multiplier becomes the standard Keynesian one.

It is worth noting that these results are valid only for fiscal consolidations, but they do not hold in the case of a fiscal expansion if the implied nominal interest rate for the central bank is not negative. Following a Taylor rule-based reaction function, the response of a central bank to an expansionary fiscal policy is an increase in the interest rate. Therefore, under the assumption that the target nominal interest rate is positive, the zero lower bound is not binding and the monetary authority can eventually offset the effects of fiscal policies.

It is worth noting that even when the zero lower bound is binding, the central bank is not completely powerless yet. Exchange rate policies and direct asset purchases allow the exploitation of real-balance and portfolio-balance effects in order to stimulate inflation and lower real interest rates (see McCallum, 2002; Coenen & Wieland, 2003).

## IV. WHY EXPANSIONARY FISCAL CONSOLIDATIONS CANNOT TAKE PLACE IN THE EUROZONE

Our results are confirmed by the analysis conducted in Perotti (2012), in which the author revises the existing cases of expansionary fiscal retrenchments. It seems clear that these episodes are actually policy mix examples in which monetary and currency policies have played a crucial role. In these circumstances interest and exchange rates have been affected by public-sector deficit variations.

As we know, most of these episodes occurred in European countries (Sweden, Denmark, Ireland, and Finland). On the basis of the evidence coming from these countries and by the NKV, some are advocating fiscal consolidations as a way out from

the current crisis in Europe. Nevertheless, on the basis of our results, it does not seem that this can be the case.

Primary deficits were substantially low following the advent of the euro (see Table 1). In many countries positive primary balances have even occurred during that period. On the contrary, before and during the crisis primary deficits have risen and expenditures have been greater than income in many European countries. As a response to the following economic downturn, the main implemented policies have relied on austerity and have been based on reduction in public expenditures.

It is worth noting that the austerity measures have been required by the increasing levels of debt and by the fear of default in some countries. Nevertheless, the policies aiming at reducing the Debt/GDP ratio should also have considered the effects on unemployment and GDP growth. According to the NKV this should not be a problem, as fiscal consolidations should imply a growth in the GDP in the medium and long term. On the contrary, following our argumentations it seems that the conditions for this to happen do not apply to the European case.

First, as highlighted in Table 2, the key interest rates are currently very low in the Eurozone. In this table the changes in the three key interest rates for the euro-area are reported. These rates are: (i) the interest rate on the main refinancing operations, which provide the bulk of liquidity to the banking system; (ii) the rate on the deposit facility, which banks may use to make overnight deposits with the Eurosystem; and (iii) the rate on the marginal lending facility, which offers overnight credit to banks from the Eurosystem.

TABLE 2
Key interest rates in the euro-area

| Date | | Deposit facility | Main refinancing operations (fixed rate) | Marginal lending facility |
|---|---|---|---|---|
| Year | With effect from | Level | Level | Level |
| 2012 | 11 July | 0.00 | 0.75 | 1.50 |
| 2011 | 14 December | 0.25 | 1.00 | 1.75 |
| 2011 | 9 November | 0.50 | 1.25 | 2.00 |
| 2011 | 13 July | 0.75 | 1.50 | 2.25 |
| 2011 | 13 April | 0.50 | 1.25 | 2.00 |
| 2009 | 13 May | 0.25 | 1.00 | 1.75 |
| 2009 | 8 April | 0.25 | 1.25 | 2.25 |
| 2009 | 11 March | 0.50 | 1.50 | 2.50 |
| 2009 | 21 January | 1.00 | 2.00 | 3.00 |
| 2008 | 10 December | 2.00 | 2.50 | 3.00 |
| 2008 | 12 November | 2.75 | 3.25 | 3.75 |
| 2008 | 15 October | 3.25 | 3.75 | 4.25 |

*Source*: ECB.

On 7 March 2013, the Governing Council of the European Central Bank (ECB) decided that these three rates will still remain unchanged at 0.75, 0.00, and 1.50%, respectively. Therefore, it can be assumed that the ECB is very close to its zero lower bound of interest rate and it means that, following fiscal consolidations, the monetary authority is not in the inclination to lowering the interest rate even if inflation expectations and income will go down. Focusing on the deposits rate, it is clear that the ECB has already attained its nominal zero lower bound.

The overall situation on the main interest rates can be interpreted as very low levels of the parameters $\beta$ and $\delta$ in equations (1) and (9). Therefore, the central bank should not react that much to changes in income and expected inflation. Under this circumstance the NKV is not able to explain the effects of fiscal retrenchments, whose effects are more likely to be Keynesian. Moreover, expansionary fiscal consolidations can occur if there is a boom in net exports. This cannot happen among countries in the Eurozone, at least in the short run, since in the monetary union exchange rates are fixed. Therefore, there is not the possibility of an intra-Eurozone solution driven by exchange rates variations. On the other side, the boom in exports may apply between the euro-area and other countries (i.e. the USA), but it is unreasonable to think that the ECB will allow for a devaluation of the euro in order to boost exports just after a period in which its strength has been questioned on the international financial markets.

Another important aspect concerns the marginal propensities to consume. In both the KV and the NKV, marginal propensity to consume positively affects the fiscal multiplier (see proposition 6). As shown in equation (9), an increase in the marginal propensity to consume determines an increase in the fiscal multiplier. Moreover, according to economic theory the marginal propensity to consume is not independent on the level of income. The higher the level of income, the lower is the marginal propensity to consume. The general idea is that the marginal propensity to consume is higher in the case of poor than in the case of rich people. This intuition comes from the idea that the higher a person's income, the more her basic needs have already been satisfied. Therefore, she should have a higher propensity to save. Likewise, the marginal propensity to consume is supposed to be higher in poor countries and lower in a rich country. In the case of a rich country, most of the basic needs of the people have already been satisfied, and all the additional increments of income are saved, resulting in a higher marginal propensity to save but in a lower marginal propensity to consume. In a poor country, on the other hand, most of the basic needs of the people remain unsatisfied so that additional increments of income go to increase consumption, resulting in a higher marginal propensity to consume. Following this conclusion, it can be assumed that the marginal propensity to consume goes up in periods of recession and disrupted economic situations. Therefore, we can conclude that the KV is more likely to apply in periods of economic downturn, while the NKV could explain the effects of fiscal policies when there is a positive economic trend. This is another element against the likelihood of expansionary fiscal consolidations in the depressed economies of the

Eurozone, as the consumers' reaction to income variations is supposed to be high in such countries given their current economic scenario.

As a result of this evidence, immediate austerity does not seem to be a good recipe for the European countries facing a deep recession. Under the current circumstances austerity measures are going to be very dangerous as they reduce income and increase unemployment. Therefore, the solution may be a two-step procedure based on immediate fiscal expansions, followed by back-loaded fiscal consolidations.

First, in the short run fiscal expansions would fight unemployment and facilitate the growth of income. At this stage the role of the ECB is crucial. The ECB needs to announce that nominal interest rates will be kept constant (as already done in the last 9 months) for the entire period of the first phase. Provided this announcement is perceived as credible, the nominal interest rate is anticipated to remain constant and it will not rise in response to the fiscal stimulus. The expectation of rising inflation and falling real interest rates will boost the economy owing to the smoothing in consumption and investment. Under these circumstances a remarkable crowding-in effect occurs (see Cwik & Wieland, 2010).

On the other hand, there is no doubt that countries facing a recession in the Eurozone have to tackle their fiscal problems and fight these imbalances. Therefore, at a certain point fiscal consolidations will be necessary, but they have to be introduced gradually and they need to be based on a precise schedule stating which taxes or expenditures are changed, when, and according to which indicators. Romer (2012) highlights how similar plans have previously worked for other countries (USA in 1983, Sweden in 1995, and Australia in 1995) and argues that once such policies are legislated, politicians have no incentives to deviate from them. Nevertheless, it is not going to be enough, as most of the Eurozone countries facing a crisis desperately need a fall in their borrowing interest rates. In this sense the ECB has a crucial role. As shown in Table 2, the ECB does not have a great margin to further reduce the nominal interest rates in order to help fiscal consolidations. It has already attained its zero lower bound on the deposits interest rate and this will probably imply the attainment of the zero lower bound on the other nominal interest rates. Nevertheless, the ECB will still have the capabilities to support the back-loaded fiscal retrenchments via other channels like directly buying public bonds. This will also reduce the cost of borrowing in the disrupted economies. According to DeGrauwe (2011) one of the main problems connected with the cost of borrowing in the Eurozone is the lack of a lender of last resort. By buying public debt bonds the ECB will give a strong signal to the markets in order to fix this problem. Moreover, another channel by which the restrictive effects of fiscal retrenchments can be diminished is net exports. Provided a devaluation of the euro is highly improbable, the increase in net exports to other euro-area countries can be the solution. Therefore, expansionary fiscal policies should be carried on in more healthy economies of the Eurozone, as they will support net exports in the countries under fiscal retrenchments.

## V. CONCLUSION

In this paper we have analysed the theoretical foundations that justify possible expansionary effects of fiscal retrenchments. To this aim, we have shown how expansionary fiscal retrenchments could not be the consequence of pure fiscal policies, but just the result of a policy mix involving the reaction of the central bank. Therefore, monetary policy is extremely important, as an expansionary reaction of the central bank to a restrictive fiscal policy can be the main cause of the increase in income. Thus, falling interest rates, or national currency devaluations, are the main determinants of the expansionary effects of fiscal retrenchments.

In our view this conclusion has important implications for the management of the current depression in the euro-area. Some have called for immediate fiscal retrenchments as a way out from the recession in some European countries. We have shown why this is not supposed to occur, as most of the circumstances allowing for expansionary fiscal consolidations do not take place in the Eurozone. Nominal interest rates are very low in the euro-area and the ECB cannot lower them anymore. Moreover, exchange rate devaluations cannot take place among euro-area members, and an expansionary devaluation of the euro does not seem to be possible.

Therefore, we have advocated a phase of expansionary fiscal policies in order to reduce unemployment and increase output in the short term. Only in a second phase, fiscal consolidations have to be taken into account as a necessary sacrifice in order to fight fiscal imbalances. Nevertheless, fiscal consolidations need to be back-loaded and an active role of the ECB is required in both phases.

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