Fiscal Adjustment in Times of Crisis: The Case of the Euro-Area

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Abstract
Countries in the European Monetary Union have been divided into two major blocks according to their ability to respect fiscal criteria and ensure sound public finance. The widespread belief is that this ability influences the interest rate financial markets apply, the sustainability of deficit and debt and the long-run growth. As a consequence, some countries are asked to achieve severe retrenchment to restore confidence. The aim of this paper is to show that the financial stability is realized at expenses of a lower targeted output, rather than representing the premise of a greater growth. When a negative shock occurs the deficit/GDP ratio goes up and sends the signal that governments are loosening their fiscal stance, so that financial markets increase the interest rates applied. Due to aggregate demand effect of the sharp increase in refinancing costs, deficit grows greater and greater causing unsustainability of public finance. Hence national policy authorities, following Emu prescriptions, accept to reduce public expenditure regardless the level of output and employment to be reached. They face the choice either to target a lower output or to devalue the currency, but the uncertainty of cost of exiting from the EMU makes devaluation highly unlikely and causes a passive acceptance of fiscal retrenchments.

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1. Introduction
Since the financial crisis of 2007, countries in the European Monetary Union (EMU) have been divided into two major blocks according to their ability to respect fiscal criteria and adopt sound public finance. Some of them have been required to reduce their deficit and debt considerably in order to prevent speculative attacks and preserve the financial stability of the Currency Union.

Despite the current prescription of the European institutions, since the birth of the EMU, fiscal policy as not been defined by the same degree of rigidity. It started in 1999 with initial rigour, then there ensued an intermediate period with a certain tolerance, and now a new phase of greater rigidity has been ushered in by the European Council since March 2011: for the year 2012 the deficit/GDP ratio has to stay within the limit of 3% and in cases of a public debt exceeding the threshold of 60% EMU member states should plan an annual improvement in their structural balance of 0.5% of GDP.

After the financial crisis in 2007 many EMU countries were forced to use fiscal policy and automatic stabilizers to reduce output fluctuation and combat the lack of aggregate demand. “Unsound” public finance became, for a certain period of time, a shared problem. At present, some countries are said to have restored sustainable public finance while others appear have great difficulty complying with the Stability and Growth Pact.

These countries, known as PIIGS from the first letters of their names (Portugal, Ireland, Italy, Greece and Spain), are suffering the threat of the increase in government bond yields. This increase reflects the country’s risk and probability of default: because the debt is unsustainable (Pagano, 2010), they might leave

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the Monetary Union, decide not to pay back the public debt or convert it into a devalued currency. Hence financial markets ask for higher returns to offset the higher risk. The result is that the greater interest rates compromises the sustainability of both deficit and debt and the long-run growth. Individuating the main cause of the lack of confidence in unsound public finance, EMU institutions ask for severe fiscal retrenchment. Making a logical leap the retrieval of confidence on the sustainability of public accounts is considered the sufficient precondition of convergence toward long run growth.

The aim of this paper is to show that the financial stability has been realized at expenses of a lower targeted output, rather than representing the premise of a greater growth. When a negative shock occurs, the deficit/GDP ratio goes up and sends the signal that governments are loosening their fiscal stance, so that financial markets increase the interest rates applied. Due to aggregate demand effect of the sharp increase in refinancing costs, deficit grows greater and greater causing unsustainability of public finance. Hence national policy authorities, following EMU prescriptions, accept to reduce public expenditure regardless the level of output and employment to be reached. They face the choice either to target a lower output or to devalue the currency, but the uncertainty of cost of exiting from the EMU makes devaluation highly unlikely and causes a passive acceptance of fiscal retrenchments.

The paper is organized as follows: the next section describes the evolution of fiscal policy in Europe in terms of how the Stability and Growth Pact has been applied until recent reforms. A quick look to the adjustment effects on both long-term government bond yields and growth is given. Section 3 presents a stylized model aiming at demonstrating how the objective of both retrieval of confidence and lower interest rates are obtained at expenses of a lower targeted output. The last section draws conclusions underlying the recessive bias of EMU policy prescriptions.

2. The Path of Fiscal Policy in Europe and the Structural Consolidation Effects

Fiscal policy, since the EMU was launched in 1999, has pursued different degrees of rigidities oscillating from initial strictness towards a certain intermediate laxity and back again in recent times to stronger, more rigorous prescriptions for governments. The theoretical underpinnings have always been the crowding-out effects, the Ricardian equivalence theorem (Barro 1974) and the instability effects on expectation of long-run unsound public finance (Giavazzi and Pagano 1996). Because public expenditure is unable to change the long-run equilibrium income, it is better to avoid the real financial instability deriving from the excessive issue of public debt. Fiscal discipline is a necessary prerequisite for long-run stable growth. Furthermore high levels of debt are supposed to reduce growth (Reinahart e Rogoff 2010). National governments belonging to the EMU are supposed to conduct fiscal adjustments especially through spending cuts (Alesina and Ardagna 2010) to respect the Stability and Growth Pact (SGP) parameters.

Despite these theoretical foundations the attitude of European institutions towards fiscal policy has changed over time, reflecting the contingent difficulties of the main member countries. In the first phase fiscal policy may be viewed as rigid: the Stability and Growth Pact (SGP) (1996) was the natural pursuance of the convergence criteria defined in the Maastricht Treaty (1992). The SGP defined the constraints for EMU member countries to adhere to fiscally virtuous behaviour even after the adoption of the single currency.

Under the SGP a government deficit/GDP ratio of 3% must not be exceeded, except in cases where the decline in the rate of output growth in real terms has not fallen by more than two percentage points. The existence of a high level of debt has to be followed by a procedure of reducing the debt-to-GDP ratio by 0.5% per year. In the event of over shooting the limits, countries in deficit are subject to a so-called Excessive Deficit Procedure (EDP).

The EDP consists of the following instruments:

a) The preventive arm: Member States should submit the plans for sound public finances. The EU Commission and the Council expresses its opinion. If the assessment is negative, the Commission
formulates: i) an early warn into prevent excessive deficit; ii) policy advice, suggesting policy recommendations to achieve the goal.

b) The dissuasive arm: If the deficit exceeds the limit of a 3% ratio to GDP, the country is subjected to the excessive deficit procedure (EDP). The latter defines: i) time limits to return within the values and ii) the penalties for overrunning.

A second phase comprises changes in the direction of less rigidity. In March 2005, the ECOFIN decided to make some changes to the workings of the SGP ("Improving the Implementation of the Stability and Growth Pact" drawn up by the Ecosin Council in March 2005): its benchmarks, i.e. 3% for the government deficit and 60% for public debt ratio to GDP remained unchanged but a greater tolerance was allowed for countries showing high divergence of current growth from its potential level. The changes included: a) a structural adjustment of debt of +0.5% that should be reduced in "bad times"; b) a temporary deviation from the path of adjustment over the medium term in the event of long-term sustainability of public finances; c) the reduced implementation of the EDP case of a 2% reduction in GDP but also in cases of negative growth rates or long-term loss of production in respect to potential growth.

A third phase of fiscal policy in Europe was implemented in 2011 with the "six pack" reform, stressing the accent on the need of structural adjustments in the presence of deficit and debt exceeding the thresholds. It started with the adjustments programs suggested for single countries (Ireland, Greece and Portugal) and then in 2012 the adjustment paths have been inserted in both national and euro-area legal framework. In May 2011, the European Council decided that Member States had to present a multi-year repayment plan with the goal of bringing the deficit below 3% and ensuring the long-term sustainability of public accounts. The principle of an annual structural adjustment for countries with an excessive debt/GDP ratio was reintroduced. This may exceed the structural adjustment of 0.5% provided by the first SGP in cases of countries with particular public finance imbalances.

On the level of the preventive arm a control of the expenditure path was introduced stressing the importance of the compliance both with medium-term objectives and structural balance results.

The mechanism of enforcement was also strengthened: increasing sanctions are imposed to member states not respecting the suggested adjustment plans. Finally in 2013 reform the introduction of both "two pack" and "fiscal compact" ensured the compliance at national level with the EU rules. A common budget timeline and the introduction within the constitutional framework of rigid rules ensuring the observance of the SGP, enshrined the removal of national fiscal autonomy.

Noting the unsustainability of government accounts of some EMU countries, and the self-fulfilling process of interest rates increase and public finance deterioration, in February 2012, 17 Euro area member state, signed a Treaty establishing the European Stability Mechanism (ESM), with the aim to preserve the financial stability of the Euro. The ESM created with the proportional contribution of all EMU countries substitutes the European Financial Stability Facility (EFSF) whose mandate is to safeguard financial stability.

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2The “Six Pack” is referred to the 6 pieces of legislation. For further information about the evolution of the SGP see European Economy 2013.

3The text states as follows: “In particular, Member States will present a multi-annual consolidation plan including specific deficit, revenue and expenditure targets, the strategy envisaged to reach the targets and a timeline for its implementation. Fiscal policy for 2012 should aim to restore confidence by bringing debt trends back on a sustainable path and ensuring that deficits are brought back below 3% of GDP in the timeframe agreed upon the Council. This requires in most cases an annual structural adjustment well above 0.5% of GDP. Consolidation should be frontloaded in Member States facing very large structural deficits or very high or rapidly increasing levels of public debt” (EU summit 2011). The full text of the EU Summit is available at http://register.consilium.europa.eu/pdf/en/11/st00/st00010.en11.pdf

4The European Financial Stability Facility (EFSF) has a capacity of 440 bln Euros and relies on the guarantee of member States. It was added to the European Financial Stability Mechanism (EFSM) having the insufficient capacity of 60 bln Euros with the guarantee of the EU Budget. It follows the principle of private sector involvement (PSI) which according to BiniSmaghi (2011) has not produced positive effects on government refinancing costs and could become an ultimate credit default obligation (Zingales 2011). Recently even the EFSF was downgraded by rating agencies.
stability in Europe by providing – under the condition of a government structural budget adjustment - financial assistance to euro area Member States.

On the side of the financial stability the European Policy Mechanism combining structural adjustments, with financial assistance, seems to have worked quite well.

**10 years Government bond yields**

![Graph of 10 years Government bond yields](image)

**Figure 1: 10 years government bond yields. January 2009- March 2013. Source ECB**

Figure 1 shows the path of 10 years government bond yields in selected Euro area countries. From the second half of 2009 until the first period of 2012, when the fiscal reform was accepted at national level and the Treaty establishing the ESM was signed, there was a period of great turbulence on long term cost of public finance. After that the yields started to decline pushing the public debt funding condition toward a common trend. Excluding Greece, whose values are – despite declining – still above the others, financial markets seem not to ask for increasing returns in exchange for increasing risk of a likely default.

On the side of growth the data provides a different picture.

**Structural adjustment and Growth**

![Graph of Structural adjustment and Growth](image)

**Figure 2: Relation between structural adjustment and growth in selected Euro-area Countries from 2009 to 2013. Source: IMF**

![Equation](image)

\[ y = -1.4832x + 2.2927 \]

\[ R^2 = 0.8804 \]
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Figure 2 shows the relation between the dimension of structural adjustment on government budget as a percentage of potential GDP and the cumulative growth rate from the year 2009 until the year 2013\(^5\). The empirical evidence shows a clear negative relation between the two variables testifying that those countries where greater structural adjustment were implemented, experienced the greater reduction in terms of growth. Furthermore the figure shows also that in times of crisis (2009-2013) structural adjustment in government balance explain little less than the 90\% of the loss in growth (R\(^2\)).

3. Stylized Model of Fiscal Adjustment

Analytical representation may help to better describe how countries are fostered to reach a sustainable path in their public finance. As a general case let us suppose that fiscal policy authorities have the following loss function:

\[
L_F = L_F \left[ -\frac{1}{2} (y - y^T) \right]^2
\]

Equation (1) states that the fiscal policy authority registers a loss each time current output \(y\) diverges from the target output \(y^T\). The current output \(y\) is given by the aggregate equilibrium income growth obtained solving supply and demand.

Demand is:

\[
y_d = m - \pi + \varphi_F D + \varphi_A A - \varphi F (r - \pi^e) + \xi \pi E
\]

and supply is:

\[
\pi = \sigma y_t + \pi^e
\]

The (2) is the aggregate demand growth and is represented as a linear function of: 1) real money growth \(m - \pi\), i.e. the real balance effect; 2) deficit spending \(D\) according to the parameter \(\varphi_F\); 3) autonomous demand \(A\) according to the parameter \(\varphi_A\); 4) inflation expectations \(\pi^e\); 5) nominal interest rate \(r\) according to the effect on the real interest rates \(\varphi\) and 6) exchange rates \(\pi\).

The (3) is the aggregate supply growth where the inflation rate is represented as a linear function of output following the parameter \(\sigma\) and inflation expectations \(\pi^e\). The equations describing supply and demand represent the constraints, the loss function in subject to.

Solving supply and demand for a unique value of equilibrium income \(y\), the constraint can be substituted in the loss function. With the aim of finding the optimal amount of deficit, allowing to minimize the loss function, the obtained value of \(L_F\) is first derived in respect of \(D\), equalized to zero and then solved for \(D\). \(D\) can be so interpreted as the instrument the fiscal policy authority can use to target output.

The following function expresses how the deficit should increase as a reaction to offset the change of variables influencing the current equilibrium output:

\[
D_t = \frac{\rho}{\varphi_F} r + \frac{(1 - \rho)}{\varphi_F} \pi^e - \frac{\varphi_A}{\varphi_F} A - \frac{1}{\varphi_F} m + \frac{1 + \sigma}{\varphi_F} y^T - \frac{\xi}{\varphi_F} E
\]

Equation (4) can be interpreted as a reaction function or as a demand for funds: fiscal policy authorities, in order to minimize the difference between current equilibrium income and target output, have to react positively to interest rate movements. If the target equilibrium income increases, deficit spending has to increase as well. The effect of inflation expectations depends on the value of \((1 - \rho)\). If the effect of inflation.

\(^5\) A similar figure is contained in Krugman (2013). However figure 2 presents the structural adjustment as a percentage of GDP potential and therefore there is no autocorrelation with the cumulative rate of current growth.
expectations on aggregate demand is higher than the negative effect on aggregate supply - or in other words if $\rho > 1 - \frac{\partial D}{\partial \pi^*} < 0$, i.e. deficit spending can decrease when $\pi^*$ increases, in order to have the same equilibrium income. Deficit spending has to decrease if autonomous demand increases $\frac{\partial D}{\partial A} < 0$ and if nominal money growth increases $\frac{\partial D}{\partial m} < 0$. The relation with the exchange rate is negative $\frac{\partial D}{\partial E} < 0$, stating that a depreciation of the Euro or a devaluation, if it improves the current account surplus, reduces the need for deficit spending.

The deficit reaction to interest rate movements is given by the following:

$$(4') \quad \frac{\partial D}{\partial r} = \frac{\rho}{\varphi_F}$$

which shows that the deficit reaction - or liquidity demand - is greater the greater is the effect of interest rates on aggregate demand $\rho$ and is smaller the grater is the multiplier effect of government spending on equilibrium income $\varphi_F$.

Suppose now that to finance deficit spending the fiscal policy authorities have to raise funds on the market. The cost of raising these funds depends on the reference rate the Central Bank sets and on the interest rates which the financial markets apply to finance the increasing deficit.

$$(5) \quad r = r_{nc} + \alpha + \beta D$$

Equation (5) can be interpreted as a supply of funds where $\alpha > 0$ is a constant measuring the greater interest rate government has to pay to finance through debt the additional deficit. $\beta \geq 0$ describes the interest rate function in respect to deficit stating the fact that the country is considered fragile and that financial markets apply an ever increasing interest rate as a compensation for the additional risk.

Thus if $\beta = 0$ the following holds:

$$\frac{\partial r}{\partial D} = 0$$

while in the second case, for a fragile country in search of additional funds:

$$\frac{\partial r}{\partial D} = \beta$$

In figure 3fiscal policy authority behaviour and the financial market are represented. The line FP shows the behaviour of fiscal policy: given the current output, the target output the autonomous demand and the exchange rate, government raises the deficit when interest rates increase to compensate for- or as a result of - the effect of demand reduction.
The slope of the curve FP is given by:

\[ \frac{\partial r}{\partial D} = \frac{\varphi_F}{\rho} \]

i.e. the inverse relation described in (4)'.

The line FM represents the financial market behaviour to supply funds to cover the increasing deficit. The line is flat until a certain level of deficit \( D_0 \), after which the line has a positive slope and in particular:

\[ \frac{\partial r}{\partial D} = \beta \]

Suppose for a clearer representation of the case that the slope is \( \beta > 0 \) and at the same time \( \beta > \frac{\varphi_F}{\rho} \)

such that the slope of curve FM is higher than that of curve FP.

In normal times the two lines meet at the point N where at the current interest rate \( r = r_{bc} + \alpha \) the demand for funds meets supply. Suppose that a negative shock on autonomous demand occurs. Curve FP shifts rightward into FP', increasing the demand for deficit to \( D_1 \), once the interest rate is given. After the shock the financial market increases interest rates to \( r' \), further increasing the deficit until \( D_2 \). The figure describes the explosive dynamics of public finance under the condition that financial markets apply an ever increasing interest rate as the need for funds increases. Importantly, within the existing conditions, an equilibrium level of deficit cannot be reached.
A positive dynamic of public finances can be restored if government pursues the goal of a lower output causing the FP curve to shift leftward so that the equilibrium point between fiscal policy reaction function and financial market supply of funds lies above interest rates applied on the market. In this case an automatic reduction of needs to finance deficit occurs and interest rates also decrease (Figure 4). This “sound” dynamics brings at the end of the adjustment process, to a budget surplus ($D_3$ has a negative value), in turn bringing to a reduction of the accumulated debt.

The same solution may be the result – other things being equal - of an exchange rate devaluation on exiting the monetary union. This clarifies the fact that as long as in terms of social costs to target a lower output is too expensive, policy authorities have an incentive to depreciate the currency.

4. Conclusions

Fiscal policy in Europe has never been considered as a stabilizing instrument. The equilibrium of public accounts is, in the view of the European Macroeconomic Consensus (Arestis and Sawyer 2005), an objective to be reached in whatever external situation. It is, together with a constant inflation rate, the premise for a long run stable growth.

In recent times, despite the real effects of the crisis, the fiscal policy prescriptions have been reinforced adding more sanctions for countries guilty of profligacy. The requests for structural budget adjustment have been introduced both at European and at national level with the aim of restoring (or building up) the long-run sustainability of public accounts. The achievement of this objective will reduce – according to the European policy model – the financial instability and the threat of dissolution of the whole currency area.

However if the difference between the 10-years government bond yields of “good” and “bad” countries appear to have been reduced in the last year and financial markets at the moment consider different nations public debt as almost perfect substitute, it does not mean that policy prescriptions were able to build a
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stronger Europe. On contrary the structural adjustments in government balance appear to be highly correlated with a negative rate of growth (see on this subject Blanchard and Leigh 2013).

The stylized model presented in previous pages demonstrates how the recovery of balance in public finance is made at expenses of a lower target output and that it does not represent the premise for a long run stable growth, but rather of a recessive bias.

As happens in every fixed exchange rate mechanism, the cost of adjustment is borne on the shoulders of countries in difficulties who – as the new Obstfeld’s policy trilemma states (Obstfeld 2013)– have lost fiscal independence in exchange for both financial stability and financial integration. This suggests that without a fiscal policy shared stabilization mechanism the European Monetary Union is going to remain alive until the effects in terms of reduction of income and employment will not be considered as anymore acceptable from its citizens.

References


