Fiscal Policy, does it Really Matter? The (non) Impact of Fiscal Consolidation Policies on Growth

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Authors' contributions

This work was carried out in collaboration between all authors. All authors read and approved the final manuscript.

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ABSTRACT

Following the outbreak of the sovereign debt crisis in the euro zone, austerity policies have emerged as the solution to the ills devastating the economies on the periphery. The impact of fiscal consolidation policies on growth remains an open question. There is widespread acceptance of a short-term negative impact alongside a broad range of opinions regarding the results in the medium and long term. This difference of opinion is primarily the result of the various theoretical approaches applied to this analysis. Because of its importance, in this article we take a predominantly applied approach to characterizing the effects of the processes involved in public deficit reduction at the macro level. Our result mainly rely in a statistical description of the results reported by the different European economies in periods of fiscal consolidation.

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1. INTRODUCTION

The creation of the euro zone (EMU) has served in a first stage to improve the credit rating of Mediterranean countries that joined the single currency. The lax monetary conditions imposed, with the aim of mitigating the effects of the bursting of the technology bubble in 2001, allowed all EMU countries to enjoy financing at historically low rates with no apparent restrictions over an extended period of time. Thanks to innovations in the securitization and pooling process, and theoretically, reduced risk, brokers provided access to financing for any agent that required it. In the countries on the periphery (Greece, Portugal, Spain, Ireland), the terms extended to borrowers resulted in indebtedness processes [1] (predominantly private or public, depending on the case) which have now been shown to be untenable. On the other side of the coin, the central economies (Germany, Netherlands, France) became creditors, using their considerable external surpluses to finance the unbridled rise in spending and external deficit in the countries on the periphery. This created a false illusion of growth in more favourable years.

The crisis, which began in the United States in 2007, reached Europe in 2008, revealing the fragile nature of the sources of growth in countries like Spain. The shortage of financing at the international level that followed the rise in uncertainty and lack of confidence about the real strength of the major financial institutions after the fall of Lehman Brothers, weakened economic growth, which depends heavily on a steady influx of financing. The response of the public sector (in two areas: financial sector aid and Keynesian fiscal stimulus for growth), together with the weakening of economic activity in itself and the implementation of automatic stabilisers, caused deficit and public debt levels to shoot up in an environment of financial restrictions and rising risk aversion. As a result of public aid, in the EMU as a whole, the debt ratio went from an average of 69% in 2004-08 to 88% in 2011.[2] Such a high figure raises the risk of a snowball effect, in which interest payments alone may increase future debt levels (in 2011, Greek interest payments accounted for 6.9% of GDP, 4.9% in Italy and 3.9% in Portugal).

This considerable public debt in such an adverse financing environment destroyed the utopia of a single (and German) interest rate for all euro area countries. Creditors, most especially beginning in 2009, have begun to differentiate among public debt in the euro zone based on its source. This practice has taken the form of imposing increasing 'risk premiums' on the sovereign debt of countries on the periphery, insofar as the economic situation was worsening and the financial systems in these countries grew weaker. This situation has come to the extreme of intervention, insofar as countries like Greece, Portugal and Ireland no longer had access to financing at sustainable rates.

Increasingly difficult access to financing and the political pressure exercised by Germany and other central creditor countries have imposed an accelerated process involving fiscal consolidation and the adoption of greater budgetary discipline. The reform of the Stability and Growth Pact in 2011-12 [3] established balanced budgets as a goal, putting a limit on structural deficit not to exceed 0.5% of GDP, with considerable fines for countries that do not comply (fiscal compact). Given this goal, and taking the situation shown in Table 1 into account, it is clear that there is a widespread need to impose extensive austerity policies in virtually all euro zone countries, especially the countries on the periphery.

The scope of the measures needed to achieve the goal established in the fiscal compact and the unfavourable economic conditions in which they must be adopted raise numerous questions regarding whether it is possible to achieve them, what the effects on growth will be, whether they are advisable in the current situation and what the scope of the measures should be if the aim is to strengthen the credibility of the process.

In this article, we aim to focus on one of these questions, specifically on analysing the characteristics of fiscal adjustment processes implemented in the past in a large group of countries and analysing the effects of these processes on growth patterns in the various countries which have undertaken them.

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[1] *This process was not only limited to the euro zone, but also occurred in the United States and the United Kingdom.*

[2] *As one might imagine, the differences between countries are enormous. According to European Commission data (European Economic Forecast, Spring 2012), in 2011, Greece's debt level was 165% of GDP, 120% in Italy, 108% in Ireland, 107% in Portugal, 98% in Belgium, 68% in Spain and in Germany, 81%.*

[3] *Fiscal Compact or Treaty on Stability, Coordination and Governance in the Economic and Monetary Union. March 2012.*

Table 1. Public deficit/surplus (% GDP)

	Deficit/Surplus				Structural Deficit/Surplus			
	2008	2009	2010	2011	2008	2009	2010	2011
Ireland	-7.3	-14.0	-31.2	-13.1	-13.3	-11.6	-8.9	-6.8
Greece	-9.8	-15.6	-10.3	-9.1	-13.7	-18.6	-11.4	-6.9
Spain	-4.5	-11.2	-9.3	-8.5	-5.0	-9.0	-7.2	-4.4
France	-3.3	-7.5	-7.1	-5.2	-2.9	-4.8	-4.6	-3.8
Netherlands	0.5	-5.6	-5.1	-4.7	-1.1	-4.4	-4.5	-3.4
Portugal	-3.6	-10.2	-9.8	-4.2	-3.8	-9.1	-9.4	-4.0
Euro Area	-2.1	-6.4	-6.2	-4.1				
Italy	-2.7	-5.4	-4.6	-3.9	-2.6	-3.9	-3.1	-2.6
Belgium	-1.0	-5.6	-3.8	-3.7	-1.8	-3.2	-2.9	-2.6
Austria	-0.9	-4.1	-4.5	-2.6	-2.4	-2.9	-3.6	-3.2
Denmark	3.2	-2.7	-2.5	-1.8	2.5	-0.3	-1.6	-0.8
Germany	-0.1	-3.2	-4.3	-1.0	-0.7	-1.1	-2.3	-1.4
Finland	4.3	-2.5	-2.5	-0.5	2.6	0.9	-0.3	0.7
Sweden	2.2	-0.7	0.3	0.3	0.9	1.2	1.4	1.2

Source: Eurostat and IMF

In the following section, we present a brief bibliographic overview of the effects of budgetary consolidation on growth. In section three, we present an applied analysis of the characteristics of the fiscal consolidation processes. Lastly, in section four, we present the principal conclusions of our study.

2. BACKGROUND

The aim of fiscal consolidation processes is to reduce the public deficit and curb the debt dynamic. From this seemingly obvious statement, it is possible to deduce the most significant aspects of consolidation processes to be analysed. We will start with the following definition of deficit (SP),

$$sp_t = \frac{SP_t}{Y_t} = \frac{PE_t - T_t}{Y_t} = \frac{(G_t + Tr_t) - T_t + iB_{t-1}}{Y_t}$$

Eq.(1)

Where PE is total public expenditure, which is the sum of public administration spending (G_t), transfers and expenditure linked to redistribution policies (Tr_t) and debt servicing (iB_{t-1}). T_t is tax revenue and Y_t is the GDP for year t.

Having made some simple substitutions and assuming that tax revenue depends on GDP level, $T_t = kY_t$, and neglecting debt (that is, assuming $B_{t-1}=0$), we can establish that (Δ denotes growth rate)

$$\Delta sp_t = \Delta PE_t - \Delta Y_t$$

Eq. (2)

From the above equation, it is immediately possible to conclude that deficit reduction, Δsp_t <0, can be undertaken in conditions of growth, ΔY_t >0, even with increases in public expenditure, provided that it does not exceed the combined effect of increased revenue and an increased denominator. This consolidation may be described as passive or automatic and may not involve any change in the structural deficit. In order to reduce the structural deficit, it must be accompanied by an effective increase in the aggregate tax rate for collection, k, or by a reduction in expenditure ΔPE_t <0.

In contrast, in an environment in which GDP is falling, ΔY_t <0, the only viable alternative to achieve fiscal consolidation is to reduce expenditure, ΔPE_t <0, by amounts which exceed the negative contribution of the drop in tax revenue and the reduction of the denominator. Unlike the previous case, this consolidation is active and reduces the structural deficit.

Empirical evidence demonstrates that variations in the structural budget balance follow a symmetrical pattern (Chart 1), in that they show a zero-centred distribution skewed only slightly towards negative values, that is, towards deficit increases. In contrast, the pattern of growth values is slightly more dispersed, with a more probable value situated at around 4%. If the two histograms are compared exclusively for cases in which the structural budget balance is positive (reduction in deficit or increase in surplus), we

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can see (Chart 2) that these consolidations have primarily coincided with periods of economic growth. Fiscal consolidations in periods of recession have only taken place on rare occasions. Despite the importance of these data, this result does not give any indication of causality. Therefore, it cannot be interpreted as evidence of fiscal consolidation having or not having an effect on growth.
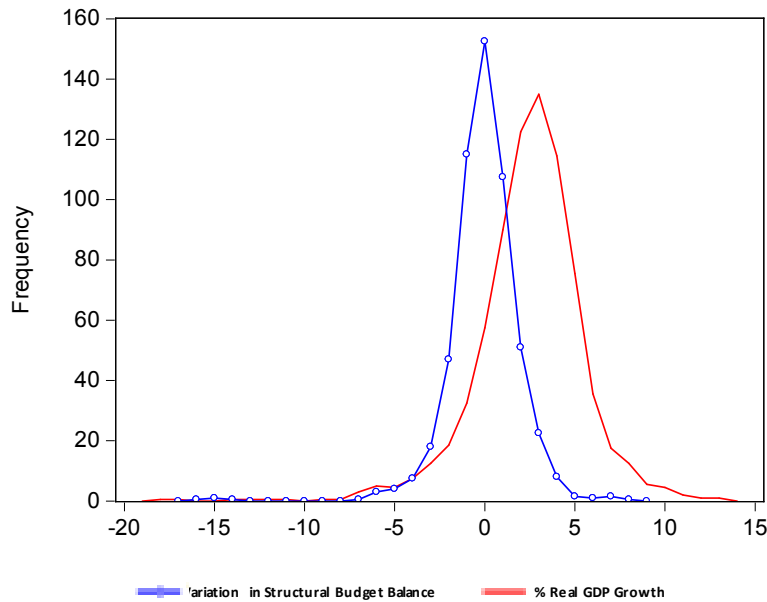

Chart 1. Histogram: variation in structural budget balance and % real GDP growth. 1980-2010
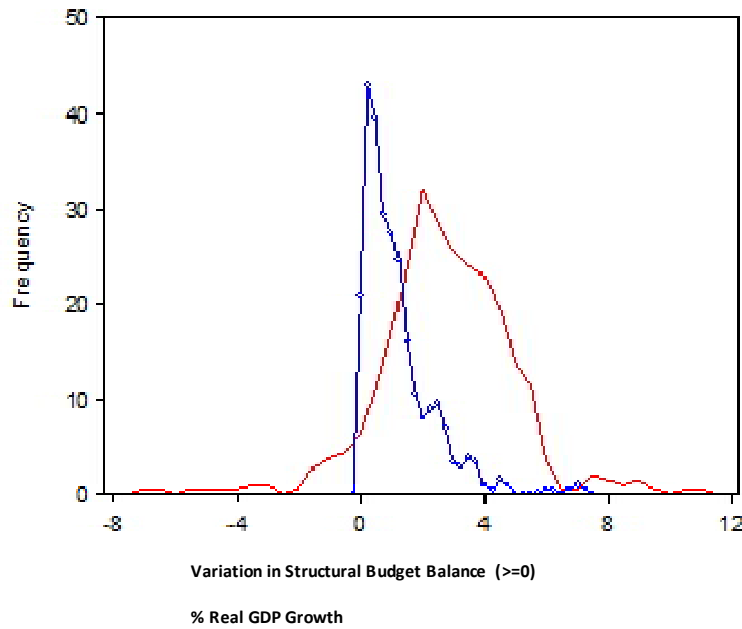*Source: WEO, International Monetary Fund*

Chart 2. Histogram: variation in structural budget balance and % real GDP growth. 1980-2010. Sub-sample of periods with increases in structural budget balance (consolidation)
Source: WEO, International Monetary Fund

This simple analysis does not take into account the possible multiplier effect of public expenditure on growth itself. Its existence would mean that it is virtually impossible to consolidate the budget solely through expenditure reduction. It is enough to assume that $\Delta Y_t = w\Delta PE_t$ with w>1, in equation 1 to show that reducing expenditure results in an increase in the deficit as a percentage of GDP. The existence and quantification of the public expenditure multiplier is a controversial topic. Despite this, there seems to be some consensus that in the U.S. economy, the multiplier for a temporary increase in public spending (G) financed with debt is between 0.8 and 1.5 [1], although it is not possible to rule out a wider range of 0.5-2.0.Obviously, with such a broad range of variation, all options are open. It is perhaps most important to analyse under what conditions[4] the multiplier might be expected to be in the higher or lower ranges. The implications are of extreme significance. It is enough to consider the different conclusions to be drawn from a spending reduction programme if the multiplier is positive, as in the case considered by the IMF (World Economic Outlook, 2010), compared to the case in which it is negative, as discussed by [2] or in [3], who state that fiscal consolidations can have an expansionary effect on the economy. In the same line [4] shows that strong budgetary positions are generally associated with higher economic growth in both the short and long terms. In other works, like in [5] the results are in stark contrast, showing that fiscal consolidation can be a drag on economic growth in the short-term.

First of all, one aspect which may affect the size of the multiplier is the specific details of the consolidation programme and the method of financing the increase or decrease in spending. The specific details refer to the fiscal policy instruments which are modified as part of the programme. The macro effects will differ if the adjustment programme affects aspects such as taxation, redistribution, public investment spending programmes or simple running costs of public administrations. When the expenditure is financed by non-distorting taxes, the Ricardian

equivalence indicates that a very low multiplier is to be expected. If the expenditure is financed by distorting taxes, as [6] state, the effect may be expected to be less or even negative, given that agents may react to higher taxes by working less. [7] show that tax increases have especially contractionary effects. In contrast, if the expenditure is financed with debt, and therefore higher future taxes, the multiplier rises, as the higher public expenditure may be accompanied by decisions regarding intertemporal substitution which could affect job supply (working more now that taxes are low in order to work less when they go up). When stimulus packages target transfer policies, the effects are usually limited, as [8] state in their analysis of the effects of the American Recovery and Reinvestment Act of 2009. Nonetheless, there is a possibility that agents' marginal tendencies to consume may differ according to their income, so that redistribution policies based on taxes and transfers may have a positive effect.

Another aspect which determines the amount of the multiplier is the bias of the monetary policy and financial conditions of the economy as a whole when the spending programme is implemented. Any macroeconomic text will discuss the problem of crowding out[5] in fiscal policy, relating the response of private investment to changes in interest rates deriving from the effects of changes in fiscal policy. When the economy is in a so-called liquidity trap with rates at close to zero and a risk of deflation, [9] and [10] state that the multiplier may be greater due to inflationary expectations which lead to a programme of increased spending. As regards financial conditions, it may be expected that the multiplier will be higher the higher the agents' borrowing capacity and the greater their access to credit, as stated by [11]. [12] also finds indications that fiscal policy has asymmetric effects in the presence of liquidity restrictions.

Recently, the idea that multipliers depend on what stage of the cycle the economy is in has begun to be considered. The results of [13] indicate that fiscal expansion has an asymmetric

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[4] *When quantifying the effects of the fiscal policy, it is necessary to take into account the potential distorting effect of fiscal consolidation measures on the allocation of resources, specifically with regard to taxes and transfers. This would be the case of establishing or changing the progressiveness of the tax system in such a way that it would affect the job supply or the cost of use for the capital factor, therefore limiting the achievement of balance in the medium term. Likewise, the case of an overly generous transfer policy which shrinks job supply should also be considered.*

[5] *The crowding-out effect is analysed based on the following identity: S=I+DP+XN, where S is household savings, I is aggregate investment, DP is public deficit and XN is the balance on current account. Assuming that S depends on disposable income and that in the medium term this is given and constant (which means that the redistribution policy compensates for direct taxes and transfers), the above identity means that an increase in deficit must mean a reduction in investment inasmuch as the financing of the rest of the world is not capable of fully financing the increase in public deficit.*

effect, with a greater impact on public expenditure during recessions than in expansionary periods. This effect has also been noted by [12] and others.

Another important aspect is the economy's degree of openness to foreign trade, exchange rate system and the extent of spill-over effects. A significant propensity for imports reduces the value of the multiplier, such that the foreign sector may respond to a policy of curbing public spending by making up for the reduction in foreign demand through a drop in imports. Belonging to a fixed exchange rate system may considerably reduce the multiplier by limiting the potential of the foreign sector as a mechanism for adjustment.

The confluence of so many determining factors, some of them contrary in nature, determines whether the effects of fiscal policies are specific to the country, time period, state of the economy, monetary institutions and exchange rate system and details of the fiscal programmes. What is more, as [14] points out,[6] the results are often skewed by the omission of important variables. When analysing and comparing flows (GDP, tax revenue, spending, deficit, etc.), it is common to omit the analysis of stock variables (value of real property, financial position, etc.) which may have an important effect on the variables analysed. One example for Spain is property transfer tax revenue, one of the essential elements of autonomous community budgets during the property boom. As it is associated with second and subsequent property transfers, it bears no relation to GDP, given that these transfers are not included when calculating it.

Taking these limitations into account, in the following section, we present the results of the study of the characteristics of periods of fiscal consolidation and their impact on GDP growth.

3. CHARACTERISTICS OF EPISODES OF FISCAL CONSOLIDATION

As indicated in the preceding sections, our basic aim is a statistical description of the results

reported by the different European economies in periods of fiscal consolidation, with this being understood in a very broad sense. This means interpreting this fiscal consolidation *a posteriori*, without including any prior assumption about the discretionary nature of the ultimate causes which led to this consolidation.

In this regard, we will take an approach similar to that used by [2], and we will determine our analysis cases in those periods in which the financing needs of public administrations were reduced by more than 1% of GDP in comparison with the period immediately before.[7]

In order to avoid, as much as possible, any bias deriving from how the information is processed, we will use gross data for the public administrations' capacity or need for financing, without any type of correction for the cyclical effect or costs associated with debt servicing, as is normal in this type of study. While we are aware that using this gross data may slightly distort the causal interpretation of the results obtained, and given that our initial aim is essentially descriptive, we have chosen to keep to this definition, as for practical purposes, it is these figures, and no others, which are ultimately evaluated and to which the various countries respond in their respective adjustment programmes.

The initial database is that compiled by Eurostat, which includes annual data from 1980 to 2010 for the 27 European Union countries. However, of the 810 possible data (27 countries x 30 years), there are only valid data on financing capacity and need as a percentage of GDP for 534 cases, with the majority of the unavailable data being from between 1980 and 1995.Of the 534 valid cases, 276 showed a positive change in the financing capacity of the public administrations (reduction in deficit or increase in surplus). Of these, in 150 cases this improvement in the budget balance exceeded 1% of GDP. The graph presented below contains the basic statistics for the distribution of the 150 cases ultimately chosen.

As shown in chart 3, the mean public deficit reduction was around 2.5% of GDP, with a median slightly below 2% and a standard deviation on the order of two and a half points.

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[6][14] criticises the work of [2], which studies the expansionary effect of consolidation policies. As [14] states, these authors analyse periods of significant deficit reduction, analysing GDP growth subsequent to these. Their results indicate that following the consolidation, GDP rises, especially when the consolidation consists of reducing spending. [14] states that these are not consolidations as such, but rather in some cases simply reflect higher tax revenue linked to the favourable development of stock markets during these episodes, stimulating tax revenue and usually anticipating expansionary phases of the cycle.

[7][2] set this minimum threshold at 1.5% of GDP. However, according to the analysis carried out by the IMF in 2010, the average value of the fiscal consolidation episodes was 1% of GDP and only one fifth of them exceeded 1.5%.

More than 50% of the cases analysed are at around 1 to 2% of GDP.

Turning to the type of consolidation undertaken, as shown in the below chart 4, most of the adjustments focused on aspects related to expenditure, with an average reduction of 2 GDP points, while revenue increased by only one half point of GDP.

On an individual basis, of the 150 cases analysed, there was an increase in revenue as a percentage of GDP which exceeded the spending reduction in only 44 of them. On average, this revenue increase was limited to 0.6% of GDP.

Having characterised the features of the episodes of public deficit reduction, the next step was to analyse the effects on the real GDP growth rate, initially in the same financial year as the improvement in the budget balance of the public administrations was recorded. In order to show this effect, both the difference in real GDP growth rate compared to the preceding period and the change in the growth differential with the European Union average were calculated.

The results obtained for both growth indicators seem to confirm the expansionary fiscal consolidation hypothesis put forward by [2], as on average, real GDP growth rates increased during the periods analysed, both in comparison with the data for the preceding period and in terms of the growth differential with the European Union. This is shown in Chart 5, where we continue to classify the different fiscal consolidation episodes according to the extent of the adjustment.

As shown in Chart 5, except in those cases where the public deficit reduction exceeded 3.5% of GDP, the effects on the real GDP growth rate observed were positive, with an average increase in rates of 1.3 points in comparison with the previous period, and a 0.6 point average increase in growth differential with the European Union, both values being statistically different from zero.[8]

The literature offers different theoretical explanations for this phenomenon. From the demand point of view, it is seen as the result of an assessment of expected future income [15], and from the supply side, as due to a reduction in wage demands [16], and [2]. However, in order for this apparent incongruity of public deficit reduction which does not affect the real GDP growth rate to occur, the total additional savings in the public sector must be offset by lower savings in the private sector, with it maintaining overall consumption and investment levels. To put it another way, the reduction in the financing needs of the public sector is offset by the increase in these same needs in the private sector.

Chart 6 shows the average change in private sector financing needs, including companies and households, for each of the cases analysed. It is easy to see that the reduction in the financing needs of the public sector was accompanied by an increase in these needs among private agents as a whole.

As shown in chart 6, in average terms, this substitution of private savings for public savings was seen in all the episodes of public deficit reduction. In general, total financing needs as a percentage of GDP held steady, as demonstrated by the country's balance, thus justifying the fact that the public deficit reductions did not ultimately contain the available resources which affect GDP growth in the system as a whole.

This substitution of private savings for public savings can be compared statistically for the group of cases analysed and where the change in the financing needs of the public sector has a significant effect on the change in private financing needs, with very high elasticity, as shown in the results of the regressions presented below.

Δ Private Financing Needs$_t$ =	-0.34 (-1.37)	-0.84*Δ Public Financing Needs$_t$ (-12.33)
R^2= 0.54	Test N*R^2 = 71.15	χ^2(2)=9.21 (99%)

Δ Private Financing Needs$_t$ =	-0.91*Δ Public Financing Needs$_t$ (-18.33)	
R^2= 0.53	Test N*R^2 = 70.27	χ^2(1)=6.64 (99%)

(The value of the T-Student statistic associated with each coefficient is indicated in brackets.)

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[8] Statistical significance was checked using the T-Student statistic associated with the constant term of a regression compared to
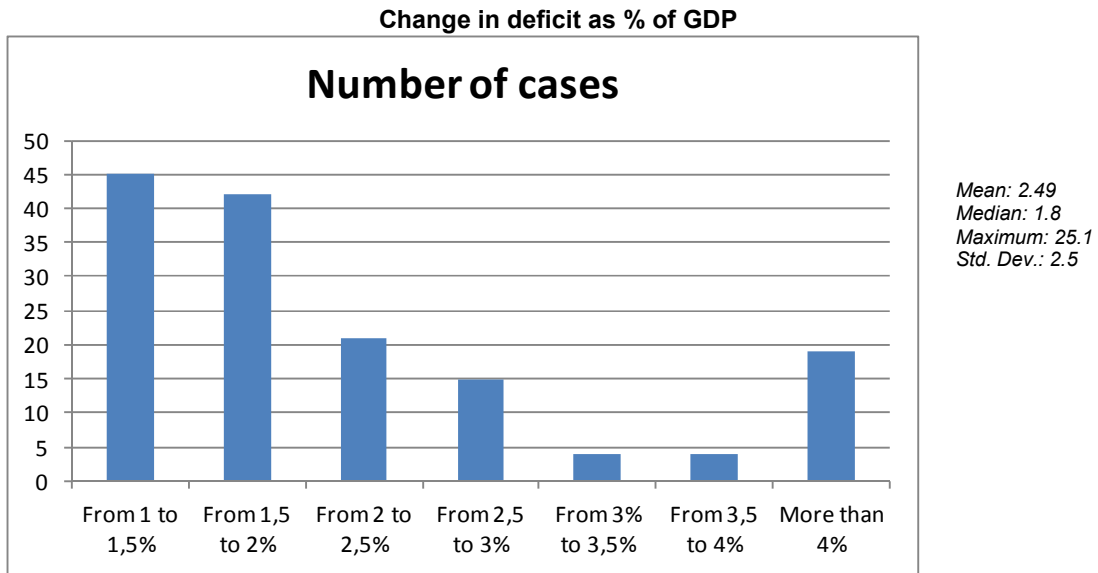the target variable (change in GDP growth or change in growth differential).

Change in deficit as % of GDP

Number of cases

Mean: 2.49
Median: 1.8
Maximum: 25.1
Std. Dev.: 2.5

Chart 3. Distribution and basic statistics for the cases analysed
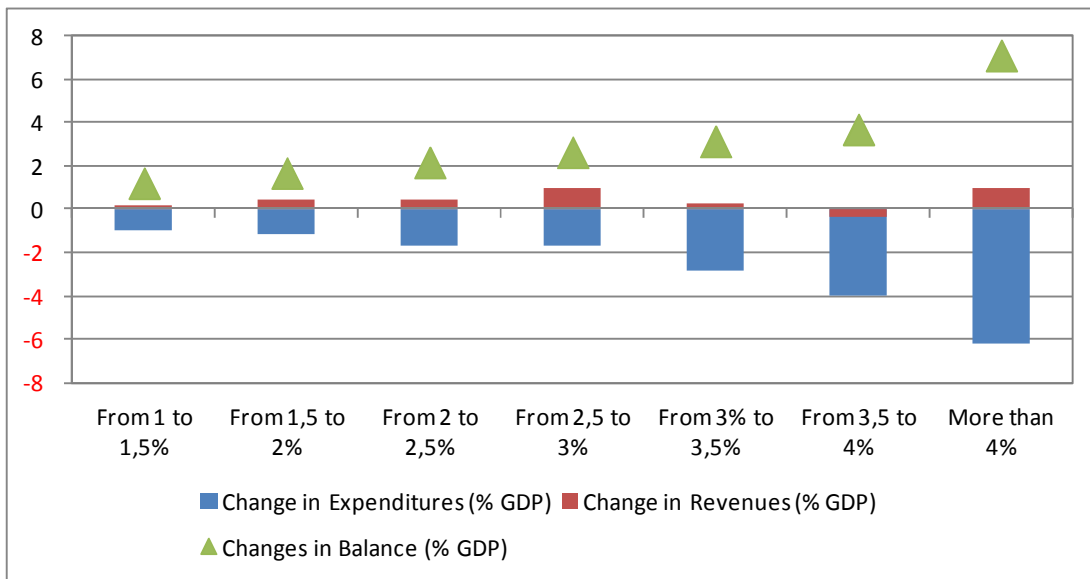*Source: compiled by the authors*

Chart 4. Type of adjustments implemented (changes in percentage of GDP)
Source: compiled by the authors

Basically, what occurred is a redistribution of resources among the economic agents which did not significantly affect real activity (Ricardian equivalence).

However, in order for this effect to occur, private agents must first perceive that the situation is favourable to offsetting the drop in public expenditure with their consumption and investment, and second, have the latitude to increase their financing needs, either by reducing their financial assets or by increasing their liabilities. Unfortunately, at the present time, credit restrictions and declining expectations are not the most suitable circumstances to facilitate this substitution.
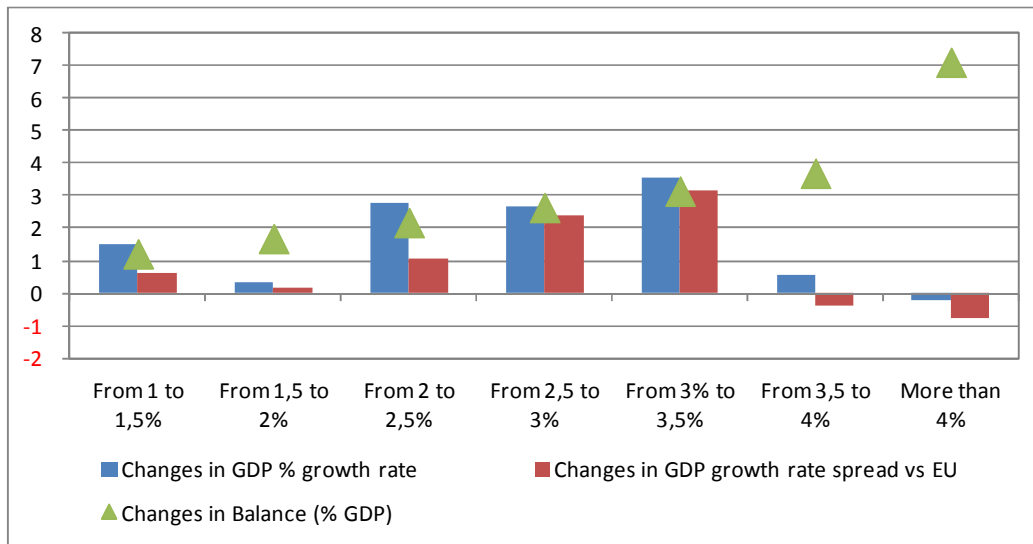
Chart 5. Effects on real GDP growth rate (annual change)
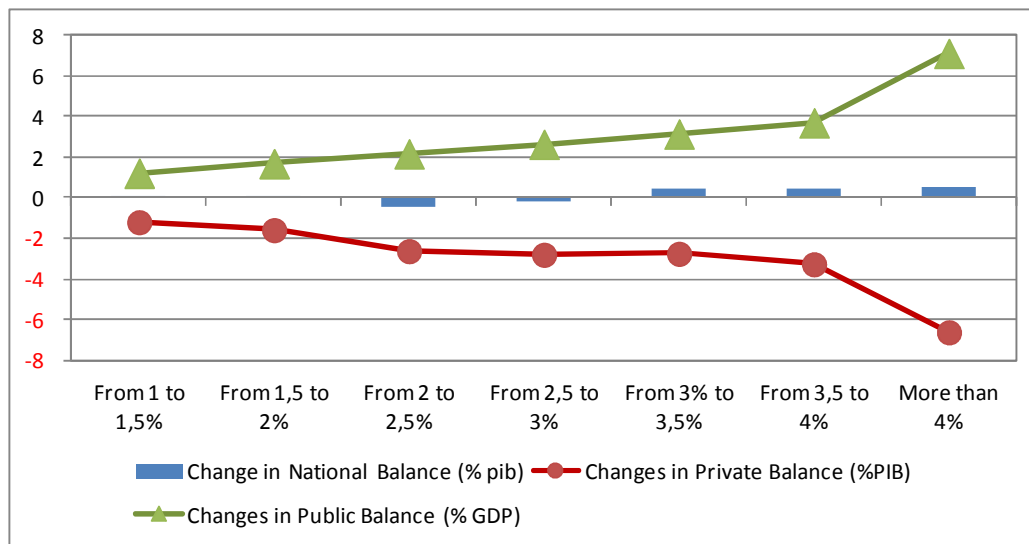*Source: compiled by the authors*

Chart 6. Financing needs as % of GDP (annual change)
Source: compiled by the authors

Additionally, certain adjustments in public expenditure may translate, as they have in the past, into a reduction, not of real values, but rather of deflators or the acquisition cost of goods, services and mainly, personnel expenses. Thus, a reduction in public spending implemented by reducing the salaries of public employees does not mean a reduction in public spending in real terms (as the amount of work purchased is the same), but rather an equal decrease in the deflator.

As before, this effect of price reduction can be compared in previous episodes of fiscal consolidation in which both the overall GDP deflator and the private consumption deflator decreased on average terms for the cases analysed as a whole, as shown in Chart 7.In effect, except in the four cases of public deficit reduction situated between 3.5 and 4% of GDP, in the rest of the ranges, there was a reduction in price growth rates for consumption as well as GDP as a whole.
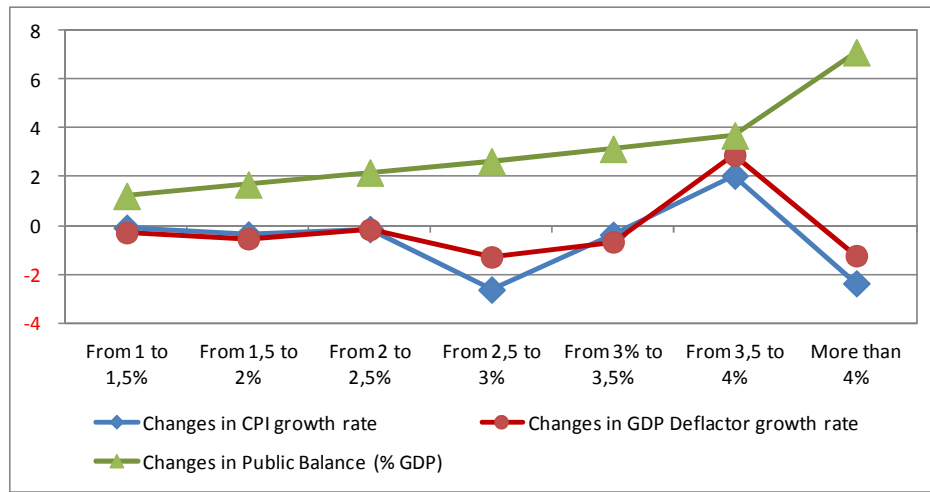
Chart 7. Public deficit and % deflator growth (annual change)
Source: compiled by the authors

As in the previous case, this deflationary effect of fiscal consolidation can be compared statistically using a direct regression between the changes in the growth of the deflators and the changes in the financing needs of the public sector, as shown below:

Δ % GDP Growth Deflator$_t$ =	-0.25*Δ Public Financing Needs$_t$ (-3.31)
R^2= 0.05	Test N*R^2 = 7.03 χ^2(1)=6.64 (99%)
Δ % Consumption Growth Deflator$_t$ =	-0.24*Δ Public Financing Needs$_t$ (-3.13)
R^2= 0.03	Test N*R^2 = 4.34 χ^2(1)=3.84 (95%)

(The value of the T-Student statistic associated with each coefficient is indicated in brackets.)

In view of these results, we can state that past episodes of fiscal consolidation must not have had an especially harmful effect on GDP growth, due to having been offset by lower growth in prices and the replacement of public demand by private demand.

However, this increase in the financing needs of the private sector which seems to occur alongside periods of public deficit reduction may have a contractionary effect in the following financial years, as demand levels readjust to the new situation in terms of disposable income and net financial assets.

To check this effect, we have analysed the change in real GDP growth rates in the period following that in which the public deficit reduction is observed, comparing them in both absolute terms (change compared to the previous period) and relative terms (change in the growth differential with the European Union average).

In this case, as shown in Chart 8, the results are not so favourable, with slightly negative average results for the majority of the ranges.

On average, for the cases analysed as a whole, the effect on GDP growth in the year following the consolidation is around 0.81%, while in terms of the change in growth differential with the European Union, the figure is -0.65%, with both values being statistically different from zero.

In order to analyse the soundness of these results in comparison with the economy's different cyclical positions at the time of the consolidation, or the availability of an individual monetary policy, we have recalculated the mean values of the key variables for the 150 cases analysed as a whole, in different situations.

a) Level of relative growth, differentiating between periods with growth above or below potential growth (calculated as the average of all available data) in the period immediately before.
b) Level of absolute growth, differentiating between episodes of consolidation undertaken in periods with less than 1% growth in the preceding period and the rest.
c) Cyclical position, differentiating between growth periods and slowdowns, calculated as the change in real GDP growth rate in the period prior to the consolidation.

d) Availability of an independent monetary policy, differentiating between episodes of consolidation carried out within the Monetary Union and outside of it.

Table 2 shows the values obtained for different levels of relative growth, while Table 3 contains the data on absolute growth levels. An estimation of the statistical significance of the differences obtained for the two groups considered is included in column three.

As we can see from the above tables, although there are no significant differences in the average extent or type of adjustment carried out, there is a greater concentration of episodes in periods of growth, both relative and absolute, which are higher. In addition, the effects on GDP growth in the two groups are statistically different, with a greater positive effect in the short term (in period t) and more compensation in the following period (t+1).

With regard to the cyclical position, the episodes are quite a bit more balanced between the two situations, and once again, although there are no differences in the extent or type of adjustment, it is possible to observe a certain difference in the effects on GDP growth which is similar to before. That is to say, during slowdowns, the positive effects in the current period and the subsequent compensation in the following financial year increase.

Lastly, Table 5 shows the mean results grouped according to the existence, or lack, of a common monetary policy.
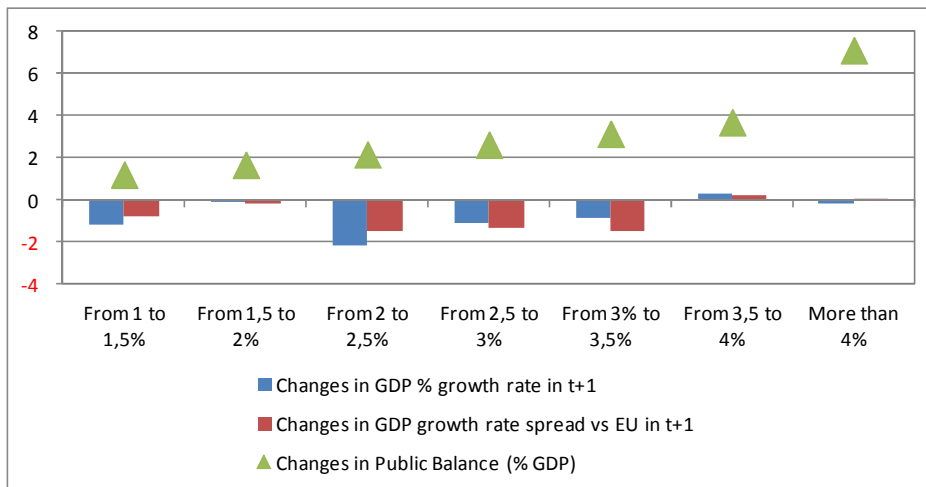

Chart 8. Effects on real GDP growth rate in the following period (annual change)
Source: compiled by the authors

Table 2. Mean results by levels of relative growth

	Total	∆GDP t-1 < Potential	∆GDP t-1 > Potential	Sig.(1)
No. of cases	150	41	109	
Change in Public Deficit (% GDP)	2.5	2.3	2.6	
Change in Public Expenditure (% GDP)	-2.0	-1.7	-2.0	
Change in Public Revenue (% GDP)	0.5	0.5	0.4	
Change in Private Finan. Needs (% GDP)	-2.4	-2.2	-2.5	
TOTAL Change in Finan. Needs (% GDP)	0.1	0.1	0.0	
Change in Real GDP Growth in t	1.3	4.4	0.1	**
Change in Real GDP Growth in t+1	-0.8	-4.3	0.6	**
Change in GDP Growth Diff. vs. EU Avg. in t	0.6	2.4	-0.1	**
Change in GDP Growth Diff. vs. EU Avg. in t+1	-0.7	-3.0	0.3	**
Change in GDP Deflator	-0.5	-0.5	-0.5	
Change in Consumption Deflator	-0.6	-0.7	-0.6	

(1)* 95% **99%Source: Authors' calculations

Table 3. Mean results by levels of absolute growth

	Total	∆GDP t-1 < 1%	∆GDP t-1 > 1%	Sig.(1)
No. of cases	150	30	120	
Variation Public Deficit (% GDP)	2.5	2.3	2.5	
Change in Public Expenditure (% GDP)	-2.0	-1.5	-2.1	
Change in Public Revenue (% GDP)	0.5	0.8	0.4	
Change in Private Finan. Needs (% GDP)	-2.4	-2.0	-2.5	
TOTAL Change in Finan. Needs (% GDP)	0.1	0.3	-0.0	
Change in Real GDP Growth in t	1.3	5.5	0.2	**
Change in Real GDP Growth in t+1	-0.8	-4.9	0.3	**
Change in GDP Growth Diff. vs. EU Avg. in t	0.6	2.8	0.0	**
Change in GDP Growth Diff. vs. EU Avg. in t+1	-0.7	-3.1	0.0	**
Change in GDP Deflator	-0.5	-0.2	-0.6	
Change in Consumption Deflator	-0.6	-0.3	-0.7	

(1) 95% **99%Source: Authors' calculations*

Table 4. Mean results by cyclical position

	Total	Slowdown in t-1	Growth in t-1	Sig.(1)
No. of cases	150	83	67	
Variation Public Deficit (% GDP)	2.5	2.7	2.2	
Change in Public Expenditure (% GDP)	-2.0	-2.1	-1.8	
Change in Public Revenue (% GDP)	0.5	0.5	0.4	
Change in Private Finan. Needs (% GDP)	-2.4	-2.3	-2.5	
TOTAL Change in Finan. Needs (% GDP)	0.1	0.4	-0.3	
Change in Real GDP Growth in t	1.3	2.3	0.2	**
Change in Real GDP Growth in t+1	-0.8	-3.1	1.4	**
Change in GDP Growth Diff. vs. EU Avg. in t	0.6	1.1	0.1	
Change in GDP Growth Diff. vs. EU Avg. in t+1	-0.7	-2.3	1.0	**
Change in GDP Deflator	-0.5	-0.2	-0.8	
Change in Consumption Deflator	-0.6	-0.2	-1.0	

*(1)   * 95% **99%Source: Authors' calculations*

(2) Table 5. Mean results by availability of an independent monetary policy

(3)

	Total	With common monetary policy	Without common monetary policy	Sig.(1)
No. of cases	150	33	117	
Variation Public Deficit (% GDP)	2.5	1.9	2.7	
Change in Public Expenditure (% GDP)	-2.0	-1.5	-2.1	
Change in Public Revenue (% GDP)	0.5	0.4	0.5	
Change in Private Finan. Needs (% GDP)	-2.4	-1.8	-2.6	
TOTAL Change in Finan. Needs (% GDP)	0.1	0.1	0.0	
Change in Real GDP Growth in t	1.3	0.5	1.6	
Change in Real GDP Growth in t+1	-0.8	0.1	-1.1	
Change in GDP Growth Diff. vs. EU Avg. in t	0.6	-0.3	0.9	*
Change in GDP Growth Diff. vs. EU Avg. in t+1	-0.7	0.1	-0.9	
Change in GDP Deflator	-0.5	0.4	-0.8	*
Change in Consumption Deflator	-0.6	0.3	-0.9	*

(4) (1) 95% **99%Source: Authors' calculations*

Although again we do not see significant differences in the extent or type of adjustment, on this occasion, it is the growth differential and the deflators which seem to have significantly different performance.

4. CONCLUSIONS

The review of the literature carried out in preparing the present article once again highlights the difficulties in evaluating the impact of fiscal policies on economic growth, not only at a quantitative level, strength of the multipliers, but also at a qualitative level, expansionary effects of the fiscal reduction.

It seems that the initial factors determining what cases were selected for analysis, the theoretical model followed, and even the quantitative analysis technique itself can lead to different results, in both qualitative and quantitative terms. For this reason, in our empirical analysis, we have tried to avoid any bias deriving from the initial selection of cases, including all the episodes of public deficit reduction greater than 1% of GDP, as well as using sophisticated theoretical models and quantitative techniques, taking as our reference absolute data for the financing capacity or needs of public administrations as a percentage of GDP, and limiting ourselves to obtaining basic statistics for the changes observed in the other figures during these fiscal consolidation processes.

To conclude, we can state that the statistical analysis of earlier episodes of public deficit reduction does not seem to show a significant negative effect on economic activity, measured, as it normally is, by the real GDP growth rate.

This phenomenon may be explained by at least two different factors which may tend to soften the impact of public deficit reduction on real growth.

1. The private sector compensating for the reduction in spending by public administrations.
2. The transfer of part of the effect to reductions in prices and not volume of activity.

These overall results show themselves to be quite sound compared to alternative situations such as cyclical position of the economy or strength of economic growth at the time of the consolidation, and even in situations where there is no independent monetary policy.

Obviously, our aim in conducting this analysis is in no way to detract from the importance of the short-term effect of the fiscal adjustment which a significant number of European economies are dealing with. Rather, it is to reveal the fact that the past teaches us that it has been possible to tackle public deficit reduction without this resulting in a serious worsening of the real GDP growth rate, and that it would be important to find a better way to deal with these adjustments with the least amount of damage to real activity.

In this regard, the key element would be the replacement of public spending and investment by private spending and investment, so that the increase in the financing capacity of public administrations is offset, as has occurred in the past, by a reduction in private financing capacity, that is, by a reduction in private financial assets or an increase of their liabilities. In both cases, private agents must have the necessary expectations to undertake this change in their financial position, less savings or more debt, and the financial markets must support this trend with, for example, lower return on assets and greater availability of credit.

Unfortunately, these conditions do not appear to be present at the current time. Therefore, we cannot expect the private sector to do much to offset the consolidation of public deficit being undertaken by the European economies.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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