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fiscal consolidation?

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# DOES FAIRNESS MATTER FOR THE SUCCESS OF FISCAL CONSOLIDATION?

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## ABSTRACT

Does it matter for the success of fiscal consolidation programmes that they are fair? This question has never been empirically addressed despite its profound importance especially since many developed countries have embarked on fiscal consolidation programmes, which in many cases have led to sizeable increases in unemployment and poverty, and are met with public dissatisfaction. Using a data set for 29 OECD countries over the period 1971-2009, we argue that fairness matters, namely that improving the targeting of social transfers and their effectiveness in terms of poverty alleviation, higher public expenditure on training and active labor market policies and programmes like social housing directed to the poor, even decreasing the VAT rate on necessities, improve the success probabilities of consolidation attempts. Introducing such concerns sheds new light on the prevailing view that the successful fiscal adjustments are those that rely on spending-cuts rather than on tax increases. The results of this paper provide empirical evidence that ameliorating the effects of adjustment, by supporting the weaker parts of society, is crucial for the success of fiscal consolidations and argues that "fair fiscal adjustments" may provide the double dividend of enhancing the probability of success of the adjustment and of promoting social cohesion.

*JEL classifications:* D63, E62, H23, H53, H50, H62, I38

*Keywords:* fiscal consolidation; success; fairness; expenditure; social transfers

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# 1 Introduction

## 1.1 Motivation and main results

In the summer of 2010, the IMF's Chief Economist Olivier Blanchard and Carlo Cottarelli set out "Ten Commandments" for fiscal consolidation in advanced economies. The recommendations were published at a time when public finances of most such economies were close to chaos, a result of the global financial crisis and the subsequent fiscal stimulus and bail-out packages. In the EU-27, the fiscal deficit reached almost 7% of GDP in 2009 and fiscal imbalances still seem to persist in the medium-term, while the debt-to-GDP ratio has exceeded 100% on average in OECD countries since 2011. In the US, the budget deficit exceeded 1 trillion dollars in 2009 for the first time in its history, and only in 2013 is it projected to fall below this limit. The fiscal crisis has been particularly severe in certain countries, predominantly Greece, but also Ireland and Portugal which have been involved in rescue packages jointly funded by the IMF, the EC and the ECB. Foremost, it was made evident that fiscal imbalances raise risks which are not country-specific any more.

With the bulk of developed countries having embarked on fiscal adjustment programmes, the Ten Commandments show the shift of attention from the necessity to consolidate (which is taken for granted) to the importance of *how* you consolidate. Indeed a fast-growing strand of empirical literature attempts to identify why some countries in the past have been more successful in consolidating their budgets than others, with the conclusions serving as a blueprint for policymakers. In this spirit, it has been rather convincingly argued that fiscal adjustment programmes relying mainly on primary expenditure cuts rather than on tax revenue increases tend to lead to more sustained reductions in deficits and debt (e.g. Alesina and Ardagna, 2009, Molnar, 2012).

The present paper deals with the Commandment VI, which has been granted perhaps the least attention research-wise, that is "you *shall* be fair". The lack of empirical studies on whether fairness is an ingredient of successful fiscal consolidations is at clear odds with its popularity among international organizations and politicians, who stress that fiscal adjustment should be equitable (Dao and Loungani, 2010). Only very recently there seems

to be growing concern to empirically assess the distributional consequences of fiscal consolidation programmes (for example, Rawdanowicz et al, 2013).

Perhaps the reason why the issue of fairness, with regard to fiscal consolidation, has not received proper attention so far, can be easily understood, since fairness is a notion neither uniformly defined nor simply measured. Even if we could agree on its definition and measurement, we would probably be plagued with a lack of comparable empirical data. To cite just one example, there are ingredients of tax benefit systems that have serious distributional consequences, which nevertheless are almost impossible to model across time and countries in a consistent manner. Especially in the present context, one could argue that defining what is fair, when consolidating, should not be viewed as a separate issue from identifying those who mostly benefited during fiscal expansion that preceded the outbreak of the recent global financial crisis. As Atkinson (2008) points out "if a rising tide does not lift all boats, how will they be affected by an ebbing tide?"

The paper therefore does not aspire to fully evaluate the fairness of past adjustment programmes. It rather undertakes the much more modest task of considering aspects of fiscal adjustment affecting disproportionately different parts of the income distribution and exploring whether these make any difference in the probability of the success of such adjustment. We study consolidation episodes for 29 OECD countries over the 1971-2009 period. The data set for fiscal and monetary variables is taken from the OECD Economic Outlook data base, but we have also used a variety of other sources for our explanatory variables, including the OECD Social Expenditure database, the OECD Health database, several Eurostat publications, the World Tax Database, etc.

Perhaps the most well cited and least contested result of the literature on the success determinants of fiscal consolidations is that spending-cut based adjustments are more likely to succeed (e.g. Alesina and Perotti, 1995). This result seems to have guided policy recommendations of international organizations and policy action in many cases (OECD Fiscal Consolidation Survey 2012). We challenge this result and argue that quality aspects of consolidation programmes hinging on their fairness might be more important in enhancing the probability of success. When "fairness" variables are taken into account, the evidence fails to support the superiority of expenditure cuts. In this case, the decomposition

of fiscal adjustment into the contributions from expenditure and revenue loses its explanatory power. Improving the targeting of social transfers and their effectiveness in terms of poverty alleviation, increasing public expenditure on training and active labor market programmes and social transfers like social housing directed to the poor, even decreasing the VAT rate on necessities are shown to play an important role in securing a sustained deficit reduction.

Overall, the paper attempts to provide some evidence on the question "does it matter to be fair" when policy makers are faced with the challenge of fiscal consolidation. The answer to this question is of profound importance, since recent fiscal consolidation attempts, at least in Europe, have been met with increasing percentages of the population falling under the poverty threshold. Furthermore, such programmes are met with often extreme public dissatisfaction, manifesting itself in several ways. The results of this paper provide some empirical evidence that ameliorating the effects of adjustment on the weaker parts of society is crucial and pave the way for more research on the question whether "fair fiscal adjustments" provide the double dividend of promoting social cohesion, and enhancing the probability of success of the adjustment.

The paper is organized as follows. Section 1.2 reviews the literature on determinants of success of fiscal consolidations and how income inequality issues have been addressed in the context of fiscal adjustments. Section 2 describes the data. Section 3 discusses the main results, and section 4 concludes.

## **1.2 Relation to the literature**

The existing literature on the determinants of successful fiscal consolidations dates back to Alesina and Perotti (1995), who claim that attempts to consolidate the budget are more effective if they are based on expenditure cuts, rather than on tax revenues increases. This has been confirmed in a number of subsequent studies.<sup>1</sup> An important explanation for the superiority of expenditure cuts is that they are often accompanied by reforms aimed at improving public sector efficiency (European Commission, 2007). The nature of public

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<sup>1</sup> See for example, Daveri and Tabellini (2000), von Hagen et al (2002), Ardagna (2004), Afonso et al (2006), Maroto and Mulas-Granados (2007), Alesina and Ardagna (2012), Afonso and Jalles, (2012).

expenditure cuts is also under scrutiny, with Alesina and Perotti (1995) arguing that cutting social expenditures and the government wage bill is more promising, while cutting public investment is more common in unsuccessful fiscal consolidation episodes. Guichard et al (2007) and Campos (2011) also find that a greater weight on cuts in social spending tended to increase the chances of success. On a different footing, Tsibouris et al (2006) argue that tax-based consolidations can also be successful if the initial tax-to-GDP ratio is low and implementation is gradual.

More recently, related papers consider the effect of additional factors on the probability of success in fiscal adjustment episodes. Monetary policy easing contributes to offset its contractionary impact according to Ahrend et al (2006), while Von Hagen and Strauch (2001) and Lambertini and Tavares (2005) argue that monetary policy actions have no influence on the success of fiscal adjustments. Other papers study the role of fiscal rules (e.g. Guichard et al, 2007), the type of government (Alesina and Perotti, 1995), corruption (Arin et al, 2012) or systemic financial crises (Barrios et al, 2010).

Despite its profound importance, the question whether fairness in the distribution of the burden of fiscal consolidation plays any role in the probability of success has not been taken up at all in empirical analysis. The most relevant existing papers address issues regarding the relation between fiscal consolidation and inequality in general. Mulas-Granados (2005), for example, focuses on the effects that different budgetary consolidation compositions have on the distribution of income, after fiscal adjustment episodes in fifteen EU member states between 1960 and 2000, and presents very strong empirical evidence pointing to the existence of a trade-off between growth and equality, mediated by fiscal consolidations. More specifically, while expenditure-based adjustments perform better in terms of subsequent economic growth than do revenue-based adjustments, the latter are less harmful in terms of income distribution.

According to the IMF (2012, page 50) "preventing a significant worsening of the income distribution during the adjustment phase is critical to the sustainability of deficit reduction efforts, as a consolidation that is perceived as being fundamentally unfair will be difficult to maintain". The report, however, goes on to study the effect of fiscal consolidation and fiscal variables (tax structure, specific taxes, and expenditures) on



inequality in disposable income in a sample of 48 advanced and emerging market economies over the period 1980-2010. Its findings are in broad agreement with Mulas-Granados (2005): inequality during fiscal adjustment rises especially when the latter is based on a retrenchment of spending, and even more so in the case of cuts in social spending. Tax-based consolidations that rely more on indirect taxes overall tend to worsen inequality, while this is not the case when indirect tax increases are combined with offsetting measures, such as direct measures targeted at poor households.

Agnello and Sousa (2012) also study the effects of fiscal consolidation on the distribution of income in a sample of 18 OECD countries, over the 1970-2010 period. Their results support an equalizing effect of austerity measures. The reduction in the net income Gini index is larger in the case of successful consolidation attempts. The authors use the successful fiscal consolidation episodes as an explanatory variable of variations in the net Gini index, yet the question arises about the mechanism at work producing this result and whether there are issues of reverse causality, i.e. austerity measures which are fair in the sense of spreading the cost of adjustment disproportionately more on the wealthier (hence the reduction in the net Gini index) tend to characterise successful fiscal adjustment attempts.

Larch (2012), on the other hand, uses income inequality as an explanatory variable of fiscal outcomes, or in other words, examines the distribution of income as an alternative explanation of the deficit bias. Based on a sample of 30 middle-income and industrial countries over the 1960-2008 period, the author finds evidence that income inequality makes fiscal discipline more difficult, with the link between income distribution and fiscal performance not being a direct one. Rather, interactions with political factors seem to be at play. Political instability, in particular, can produce additional budgetary costs when combined with a more skewed distribution of income. It seems, therefore, that increasing income inequality could give rise to political pressure favouring deficit spending. The author concludes that the decision taken in some countries to impose higher taxes on those who purportedly benefitted excessively from the preceding economic progression is grounded precisely in the belief that prospective fiscal consolidation could be much more difficult if politics turned a blind eye to the distribution of income.

Summing up, the existing literature on the determinants of success of fiscal consolidation programmes does not explicitly take “fairness” into account . At the same time, a parallel literature exists, which studies the effects of fiscal consolidation programmes and their composition on fairness, in terms of income inequality, providing evidence that these programmes, in most cases, do come at the cost of worsening the income distribution. The impact of income inequality on fiscal outcomes is also found to be negative. This leaves a big gap in our understanding of whether certain quality (fairness) aspects of fiscal adjustment also affect its sustainability (success). The present paper is a first step attempting to bridge this gap, by raising and exploring the question whether justice can go hand in hand with effectiveness, when a country has to put its fiscal house in order.

Several caveats should be born in mind. One of them is that past experience need not always be a promising guide for the future. Doubts have been expressed even for the much cited result on the superiority of expenditure cuts in terms of effectively consolidating the budget. The European Commission (2007) for example, found that in the 1990s the positive impact of cutting primary expenditure on the likelihood of success became weaker, probably an indication that past consolidations have already harvested the "low hanging fruits" (Molnar, 2012).

Another caveat is the lack of the long-term perspective. Fiscal adjustment programmes often involve reforms (e.g. pension reforms) with strong distributional consequences which are spread over a long period of time. Such consequences cannot be modeled in the specific framework adopted in this paper. For example, one risk identified in the 2009 Sustainability Report of the European Commission (2009) is that prospective pension reforms in many countries, which contribute to sustainable public finances, imply very low pension levels for a growing number of older people. Similar concerns for the dynamic effects of consolidation measures are expressed by the OECD (Rawdanowicz et al, 2013). For the purpose at hand, however, which is not the evaluation of the distributional impact of fiscal consolidation measures on life-time incomes, this might not be a crucially relevant issue.

## 2. Data description

Our original data set consists of 29 OECD countries over the period 1971 to 2009.<sup>2</sup> The countries included in the sample are Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Luxembourg, Netherlands, New Zealand, Norway, Poland, Portugal, Spain, Sweden, Switzerland, the United Kingdom and the United States. In our *benchmark regressions* we use the whole sample of the 29 OECD countries. In robustness checks we confine the sample to all European countries (21 in total) or the old European Union Member States (15 in total).

**Definition of fiscal adjustments.** The most commonly used criterion to determine fiscal episodes is based on changes in the cyclically adjusted primary budget balance (CAPB), which isolates discretionary policy action from effects resulting from economic activity such as inflation or real interest rate changes.<sup>3</sup> We confine our attention to large consolidation attempts, defined as an improvement in the CAPB of at least 1.5 per cent of GDP taking place in one year or taking place over three years, if in each and every year the CAPB does not deteriorate by more than 0.5 per cent of GDP.<sup>4</sup> As emphasized by Alesina and Ardagna (2012), it is important to consider multi-year adjustments and allow for the possibility of small reductions in the primary deficit in a particular year, provided this happens in a period of consecutive years of sizeable improvements in the fiscal balance. Such fiscal consolidation episodes are closer to what OECD countries are experiencing since the recent global financial crisis, when fiscal adjustments are likely to be multi-year processes.

**Success.** We consider an attempt as successful if at least one of the two following criteria holds: (i) in the three years after the attempt, the ratio of the cyclically adjusted primary deficit to GDP is on average at least 2 percent of GDP below the attempt year, (ii) three years after the attempt, the debt-to-GDP ratio is at least 5 percent of GDP below the level of the attempt year. This approach is suggested by the original paper of Alesina and

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<sup>2</sup> Chile, Mexico, Slovenia, the Slovak Republic and Turkey were excluded due to lack of data.

<sup>3</sup> -For details of its estimation by the OECD see Girouard and Andre (2005).

<sup>4</sup> This definition is also used by e.g. Alesina and Perotti,(1995), European Commission, (2007), Arin et al, (2012), Barrios et al, (2010).

Perotti (1997) and is also followed in subsequent studies, e.g. Arin et al (2012). Other studies use slightly different criteria. The European Commission (2007) for example identifies a fiscal consolidation episode as successful if, in the three years after the end of the episode, the CAPB does not deteriorate by more than 0.75 % of GDP in cumulative terms compared to the level recorded in the last year of the consolidation period. Using just the deficit criterion seems too generous in characterizing episodes as successful. Barrios *et al* (2010) use only the debt criterion and consider a fiscal consolidation successful if three years after the last year of the tight period, the debt-to-GDP ratio is 5 percent of GDP below the level of the last year of the tight period. The Alesina-Perotti (1997) criterion lies midway and is considered preferable. In practical terms, the choice of criterion might not be of crucial importance. A robustness check for the set of countries and the time period examined in the present paper indicated that the Alesina-Perotti (1997) criterion, for example, is in agreement with the Barrios et al (2010) criterion for more than 90% of the cases. Out of 197 attempts, this method indicated that in 77 cases fiscal adjustment was successful.

**Standard control variables.** According to existing literature, the composition of fiscal adjustment in terms of spending cuts and tax revenue increases is taken into account. More precisely, the contribution of expenditure cuts to the total fiscal adjustment is calculated as the difference between the expenditure-GDP ratio of this year and the year before, divided by the change in the CAPB. The contribution of tax revenues is calculated accordingly. As a robustness check, we have used as control variables the aforementioned changes in expenditure and revenue as a percentage of the *Blanchard fiscal impulse* (BFI) as suggested by Blanchard (1993). The BFI measures the difference between a year's cyclically adjusted primary balance and the unadjusted primary balance of the year before and effectively eliminates only unemployment effects on the government budget.<sup>5</sup> For the sample of European countries only, we have been able to run another robustness check, using the difference in the cyclically-adjusted revenue- and expenditure-to-GDP ratios over the change in the CAPB.<sup>6</sup>

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<sup>5</sup> For a detailed description of the calculation of the Blanchard fiscal impulse see Alesina and Perotti (1997, p. 10).

<sup>6</sup> See Table 1 in the Appendix for precise definitions and sources of variables.

As further control variables, which are standard in the literature, we use the debt-to-GDP ratio and the monetary stance measured as the yearly change in the short-term interest rates (treasury bond yields). The degree of monetary easing is included to take into account the behaviour of central banks, which directly affects the real economy and hence the success probability of fiscal consolidation attempts (see e.g. Arin et al, 2012).

**Control variables indicating the 'fairness' of fiscal adjustment.** The contribution of the present paper is to incorporate as additional control variables, quality aspects of an adjustment programme that reflect equity considerations of the government. Such aspects hinge on both the tax and the spending side. The IMF (2012) expresses, for example, the opinion that progressive taxation and targeted social transfers and subsidies introduced in the context of a broader decline in spending can help offset some of the negative distributional impact of deficit reduction. As proxies for progressive taxation we use three variables, the level of the lowest value added tax (VAT) rate, the top marginal income tax rate and the ratio of direct to indirect taxes. The first proxy is the rate of VAT applied in most countries to distributionally sensitive commodities, like food or medicine. The much cited Swedish budget consolidation of the beginning of the 90's, for example, amidst several revenue increasing measures explicitly included a reduction in the VAT rate on food precisely with the aim of cushioning the effects of the adjustment at the lower end of the income distribution (Bergman, 2011). In the regressions we use a dummy variable taking the value of one in the case where the lowest VAT rate was reduced. The second proxy is another dummy variable taking the value of one in cases where the government increased the top marginal personal income tax rate. Given the complexity of personal income tax schedules, apparently the top marginal rate does not comprehensively summarize the intended progressivity of personal income taxation, nevertheless we use it as an imperfect proxy. Finally, the direct to indirect tax ratio is suggested by the IMF (2012) as a crude indicator of tax progressivity. We therefore use the change in this ratio as a control variable, where positive changes indicate an increase in tax progressivity.

On the expenditure side, existing studies (e.g. Campos, 2011, Alesina et al, 1998) consider just the national accounts breakdown of public outlays, namely compensation of employees, investment, transfers, subsidies etc. We instead exploit the classification of the OECD Social Expenditure Database, and focus on categories of public spending directed

primarily at low and middle-income households. In any case, transfers to households are shown to have a greater equalizing impact. We thus use as control variables, public expenditure on housing per head at constant prices and purchasing power parities (ppps), the change in real public spending on family benefits per head,<sup>7</sup> the change in the public share of total expenditure on health<sup>8</sup> and the change in real public spending on unemployment benefits per unemployed person.<sup>9</sup> The IMF (2012) also suggests that fiscal policy can address inequality by promoting education and training among low- and middle-income workers. Rawdanowicz et. al. (2013) also claim that in the absence of training and activation measures, the adverse effects of fiscal retrenchment on the income distribution will be more persistent. We have used as a relevant proxy real public expenditure on active labour market programmes per head, available from the OECD Social Expenditure Database.

Large and durable fiscal adjustments have often been associated with significant expenditure cuts, including cuts in public cash transfers (Alesina and Perotti, 1997; Alesina and Ardagna, 2009). In Europe, these transfers have been shown to lower income inequality (as measured by the Gini coefficient) by about 9 percentage points (OECD, 2008), so curtailing social transfers may contribute to widening income inequality and making the fiscal adjustment programmes more unfair. As pointed out by Dao and Loungani (2010), substantial fiscal adjustment can be associated with relatively small changes in income inequality, if expenditure reductions are accompanied by efforts to better target these benefits. In fact, the targeting of social transfers is not equally effective across different countries, and one way to quantify this effectiveness is to measure the reduction in the at-risk-of- poverty rate *before* and *after* social transfers. The percentage of the population being at-risk-of-poverty is a standard indicator calculated by Eurostat and takes into account people with income lower than 60% of median equivalised income. This

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<sup>7</sup> The family payment system includes items like the child tax credit and in many countries cushioned the effect of the recent crisis and consequent adjustment programmes for poorer families (OECD, 2012).

<sup>8</sup> Available evidence suggests that public health care spending is directed over-proportionally to families with children and older people, both of which are mostly frequently located in the lower part of the income distribution (Devaux and Looper, 2012).

<sup>9</sup> In most countries, unemployment benefits are insurance-based and related to earnings. Nevertheless, some progressivity stems from the fact that low-wage earners are more likely to become unemployed (Rawdanowicz et al, 2013). However, changing the generosity of unemployment benefits might not have an overall sizeable distributional impact.

indicator is measured before and after social transfers, and the difference between the two measures the percentage of population taken out of poverty as a result of public social transfers. We use this difference, proxying the effectiveness of public social expenditure, as a further control variable. Dao and Loungani (2010) in fact suggest that the targeting of social transfers can be enhanced by relying more on social benefits which are means-tested, so we use as a final control variable the share of means-tested social benefits as a percentage of total social benefits.<sup>10</sup> The last two indicators are constructed from data by Eurostat, are therefore available only for European countries, and are only used in the regressions including the subsample of European countries.

### **3. Results and discussion**

Table 1 shows our probit regressions, where the dependent variable is a binary one (1=successful fiscal consolidation, 0=not successful fiscal consolidation) and the explanatory variables are the standard ones used in the existing literature, namely the change ratios to GDP of total expenditure and total revenue, as a percent of the improvement in the CAPB (as discusses above), the debt-to-GDP ratio and the monetary stance. The evidence in Table 1 broadly corroborates the results of the existing literature. The regression in column (1) includes all OECD countries. Consolidations based on expenditure cuts tend to be more successful, while the share of the increase in revenue in the total change of the CAPB has a positive estimated coefficient that is not statistically significant. The debt level plays a positive and significant role, favouring the success of consolidation in line with prior expectations (e.g. Barrios et al, 2010)<sup>11</sup>, while the coefficient on monetary stance carries the expected sign (monetary easing favours the success of fiscal adjustments) but is not statistically

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<sup>10</sup> It must be noted that the targeting argument ignores the fact that, with means-tested benefits, there is a problem of incomplete take-up, so that they may be less effective.

<sup>11</sup> Since the debt variable might be endogenous, we use in alternative specifications the debt-to-GDP ratio of the year prior to the start of the consolidation episode and results remain similar.

**Table 1: Benchmark Regression. Consolidation success: the role of expenditure cuts and tax revenue increases.**

Logistic Regression; Dependent variable: Success			
	OECD countries (1)	OECD countries (2)	Old European Union Member States <sup>1</sup> (3)
Debt	0.0133*** 0.0051 (4.12)	0.0137*** 0.0052 (4.22)	0.0173*** 0.0063 (3.74)
Monetary stance	-0.0674 -0.0256 (-1.47)	-0.0594 -0.0226 (-1.27)	-0.1253* -0.0456 (-1.72)
ExpCh1	-0.0942* -0.0360 (-1.72)		-0.1840** -0.0669 (-1.90)
RevCh1	0.0440 0.0168 (0.59)		0.0794 0.0289 (0.75)
ExpCh		-0.1267 -0.0483 (-1.23)	
RevCh		-0.2057** -0.0780 (-2.02)	
Constant	-1.2448*** (-5.07)	-1.2383*** (-5.05)	-1.7664 (-4.84)
McFadden R <sup>2</sup>	0.09	0.12	0.17
N	193	193	115

For definitions of variables see Table 1 in the Appendix.

\*, \*\*, \*\*\* denote significance at 10, 5 and 1% levels, respectively. The second line for each variable shows marginal effects. The marginal effects are evaluated at the mean of the covariates, except in the case of binary variables, for which they represent the discrete change from 0 to 1. z values in brackets.

includes Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and the UK.

significant. The coefficients in the second line are always marginal effects of the respective exogenous variables, that is the impact of a marginal change of the variable on the success probability. The marginal effect of debt, for example, indicates that an increase in the debt-to-GDP ratio by one point increases the success probability by around 0.5%.<sup>12</sup>

We run two robustness checks on these results. The estimation of CAPBs is not straightforward and different institutions use different methodologies.<sup>13</sup> Thus, column (2)

<sup>12</sup> This corroborates results by Barrios et al (2010).

<sup>13</sup> For a discussion on the OECD methodology see Girouard and Andre (2005).



alternatively presents revenue and expenditure changes as a share of the *fiscal impulse*, which is the change in the Blanchard Fiscal Index. Results remain broadly similar. The expenditure change coefficient still has a negative sign, but is now not statistically significant, while the revenue share on fiscal consolidation now carries a negative and statistically significant coefficient, indicating that if a fiscal consolidation is more based on the revenue side, it reduces the corresponding probability of success. This result supports findings recently put forward by Afonso and Jalles (2012). Coefficients on debt and the monetary stance remain effectively the same with column (1). In the second robustness check, we confine the sample in the more homogeneous set of old EU Member States (EU-15). The sign and significance of all coefficients are exactly the same with the case of all OECD countries, with the only exception that the coefficient of monetary stance becomes significant at the 10-percent level.

Summing up, the benchmark regressions of Table 1 lend support to existing evidence, namely that fiscal adjustments based mostly on the spending side are less likely to be reversed (Alesina and Ardagna, 2012), while the monetary stance and primarily the initial debt level are also determinants of success.

Table 2 introduces certain quality aspects of the tax structure as further control variables explaining the success of fiscal consolidation. The change in the direct-to-indirect tax revenue ratio indeed has a positive coefficient in line with prior expectations, but is not statistically significant (see column 1 of Table 2). This might imply that this indicator is a poor proxy of the change in the overall tax progressivity, or that it is affected by a variety of factors, such as the change in the tax bases of different taxes, and is therefore only partly under the control of government policy. Columns (2)-(4) progressively introduce three control variables, all of which indicate policy initiatives, namely a dummy variable indicating that the government has

**Table 2: Consolidation success: the role of tax progressivity.**

Logistic Regression; Dependent variable: Success				
	OECD countries (1)	OECD countries (2)	OECD countries (3)	OECD countries (4)
Debt	0.01326*** 0.0051 (4.10)	0.01247*** 0.0048 (3.78)	0.01255*** 0.0048 (3.80)	0.0123*** 0.0047 (3.69)
Monetary stance	-0.0666 -0.0255 (-1.45)	-0.0571 -0.0220 (-1.21)	-0.0525 -0.0202 (-1.11)	-0.0545 -0.0210 (-1.14)
ExpCh1	-0.0911 -0.0349 (-1.65)	-0.0916 -0.0353 (-1.62)	-0.0873 -0.0337 (-1.54)	-0.0843 -0.0326 (-1.47)
RevCh1	0.0373 0.0144 (0.49)	0.0474 0.0184 (0.61)	0.0406 0.0158 (0.50)	0.04112 0.0161 (0.50)
ChDirInd	0.5122 0.1848 (0.55)	0.2466 0.0840 (0.26)	0.1168 0.0315 (0.12)	0.2565 0.0859 (0.27)
LlowVAT		1.6511*** 0.6351 (3.00)	1.6104*** 0.6190 (2.92)	1.5834*** 0.6097 (2.83)
RlowVAT			-0.4666 -0.1797 (-1.32)	-0.4521 -0.1743 (-1.28)
Rtopinc				0.29211 0.1125 (0.84)
Constant	-1.2539*** (-5.09)	-1.2815*** (-5.11)	-1.2284*** (-4.83)	-1.2398*** (-4.77)
McFadden R <sup>2</sup>	0.09	0.14	0.15	0.14
N	193	193	193	189

For definitions of variables see Table 1 in the Appendix. \*, \*\*, \*\*\* denote significance at 10, 5 and 1% levels, respectively. The second line for each variable shows marginal effects. The marginal effects are evaluated at the mean of the covariates, except in the case of binary variables, for which they represent the discrete change from 0 to 1. z values in brackets.

decreased the VAT rate applicable to necessities, a dummy variable indicating that the government has increased this rate and a dummy variable indicating that the government has increased the top marginal personal income tax rate. All three dummies have coefficients of the expected sign. The lowest VAT rate usually applies to necessities like foodstuffs, heating, water supplies, passenger transport, pharmaceutical products, that absorb the budget of poor households (Borselli et al, 2012). In all specifications, reducing this rate has a positive and highly statistically significant impact on the probability of success (columns (2)-(4)), while increasing this rate has a negative, though not statistically

significant impact. This result might reflect a pure Keynesian effect, since the effective increase in the purchasing power of poorer households is more likely to increase domestic aggregate demand. It might also be interpreted from a political economy perspective, whereby fiscal adjustments that are seen as being unfair are unlikely to be sustainable (IMF, 2012) and in this respect policy measures counteracting the effects of adjustment for the poor carry positive weight with the electorate. The increase in the top marginal income tax rate could be seen under a similar light and indeed has a positive but not statistically significant coefficient -see column (4) of Table 2.<sup>14</sup> In any case, this variable might be a poor proxy of income tax progressivity, since, in several cases, adjustment packages involve more complex reforms of income tax schedules.<sup>15</sup> These results are robust to changes in the country sample, if we consider e.g. just European countries.

In Table 3, we add as further control variables, categories of social transfers that are designed to primarily benefit the poor, as discussed in the previous section. We also keep the VAT tax dummy, which had a statistically significant coefficient in Table 2. Column (1) presents results for all OECD countries. In accordance with prior expectations, public expenditure on active labour market policies and on social housing has a positive and statistically significant coefficient. Increases in social spending directed to the unemployed, to family benefits and to financing a greater share of health expenditure also carry positive signs, but do not seem to have a statistically significant impact. The low statistical significance of the generosity of unemployment benefits might be explained by the fact that, in most countries, they are insurance-based and related to earnings, and therefore are not clearly directed towards low-income groups. The goodness-of-fit measure also implies that adding these variables improves the performance of the model.

#### Restricting the country

sample to the more homogenous group of old EU Member States makes no qualitative difference (column 4 of Table 3), enhancing the robustness of the results.

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<sup>14</sup> In general, top marginal income tax rates have decreased markedly over the last thirty years in all OECD countries (Mankiw et al, 2009).

<sup>15</sup> In the Swedish 1994-1997 consolidation, for example, the top marginal income tax rate remained stable, but the government introduced a tax on high income earners (varns katt), Bergman (2011).

**Table 3: Consolidation success: the role of tax progressivity and social transfers.**

Logistic Regression; Dependent variable: Success				
	OECD countries (1)	OECD countries (2)	OECD countries (3)	Old European Union Member States <sup>1</sup> (4)
Debt	0.0147** 0.0056 (2.57)	0.0148*** 0.0057 (2.90)	0.0140** 0.0054 (2.50)	0.0359*** 0.0110 (2.97)
Monetary stance	-0.1013 -0.0390 (-1.11)	-0.1039 -0.0401 (-1.14)	-0.0902 -0.0349 (-1.01)	-0.1300 -0.0400 (-1.03)
ExpCh1	-0.1520 -0.0586 (-1.42)	-0.1066 -0.0412 (-1.10)		-0.2748 -0.0843 (-1.45)
RevCh1	0.0846 0.0326 (0.92)			0.0824 0.0253 (0.56)
LowVAT	1.4418** 0.5552 (2.00)	1.4255** 0.5498 (1.99)	1.4323** 0.5536 (2.02)	1.8027* 0.5515 (1.83)
Labour	0.0020* 0.0008 (1.84)	0.0020* 0.0008 (1.84)	0.0022** 0.0008 (2.07)	0.0028* 0.0008 (1.94)
Housing	0.0050** 0.0019 (2.91)	0.0050*** 0.0019 (2.90)	0.0050** 0.0019 (2.50)	0.0081*** 0.0025 (3.29)
ChUnempl	0.0001 0.0000 (0.81)	0.0001 0.0000 (0.88)	0.0001 0.0000 (0.91)	0.0001 0.0000 (0.40)
ChFam	0.0053 0.0020 (1.38)	0.0051 0.0020 (1.32)	0.0042 0.0016 (1.10)	0.0029 0.0009 (0.44)
ChHealth	0.0468 0.0180 (0.39)	0.0571 0.0220 (0.47)	0.0484 0.0187 (0.40)	0.0086 0.0026 (0.05)
Constant	-2.2804*** (-4.74)	-2.1990*** (-4.68)	-2.0949*** (-4.64)	-4.8946 (-3.94)
McFadden R <sup>2</sup>	0.26	0.26	0.25	0.50
N	123	123	123	84

For definitions of variables see Table 1 in the Appendix. \*, \*\*, \*\*\* denote significance at 10, 5 and 1% levels, respectively. The second line for each variable shows marginal effects. The marginal effects are evaluated at the mean of the covariates, except in the case of binary variables, for which they represent the discrete change from 0 to 1. z values in brackets.

Includes Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and the UK.

Perhaps more unexpectedly, the composition of the adjustment undertaken into spending cuts and revenue increases becomes insignificant. Furthermore, not controlling

for the percentage of tax revenue increases in the total change in the CAPB (see column 2 of Table 3) changes neither the magnitude and statistical significance of the other coefficients nor the explanatory power of the regression. The same is true if we omit from the regression the total expenditure change variable (ExpCh1, see column (3) of Table 3). This suggests that the success of fiscal consolidation programmes hinges much more crucially on certain quality aspects of such programmes, than on the crude breakdown of the adjustment into revenue increases and total spending cuts. As discussed above, these quality aspects could work both through boosting domestic aggregate demand by directly or indirectly protecting employment and the income of the low end and the middle of the income distribution (e.g. through active labour market programmes, social housing and family benefits), and by promoting the social justice profile of the fiscal adjustment programme, thus reducing opposition and securing public support.

The social spending variables included in Table 3 by their nature are assumed to cushion the negative impact of fiscal adjustment programmes in a distributionally sensitive way. Yet some categories of social transfers might be poorly targeted in certain countries. This could explain the lack of statistical significance of e.g. family benefits in Table 3. A direct way of precisely evaluating the effectiveness of social transfers is to measure the decline in the percentage of the population falling under the poverty threshold as a result of such transfers. As already explained, EUROSTAT measures the at-risk-of-poverty rate before and after social transfers for a number of EU countries. The question then arises whether consolidating economies which, at the same time, improve the targeting of social transfers to those in most need, have a better chance of seeing their consolidation efforts met with success. We therefore include as an explanatory variable the *change* in the effectiveness of social transfers, that is the difference in the decline of the poverty rate before and after social transfers during the fiscal consolidation period. Data availability limits our sample and consequently it is not possible to include in the regression a large number of explanatory variables. We include nevertheless along with the variables of the benchmark model (Table 1) also another variable available by EUROSTAT measuring the percentage of means-tested social benefits in total social benefits (see previous section).

**Table 4: Consolidation success: the role of social transfers targeting.**

Logistic Regression; Dependent variable: Success				
	European countries <sup>1</sup> (1)	European countries <sup>1</sup> (2)	European countries <sup>1</sup> (3)	European countries <sup>1</sup> (4)
Debt	0.0332*** 0.0123 (3.30)	0.06469*** 0.022 (3.05)	0.0560*** 0.017 (3.13)	0.1496** 0.0014 (2.22)
Monetary stance	-0.2847 -0.1049 (-1.64)	-0.3337 -0.0117 (-1.59)	-0.4226* -0.1261 (-1.90)	-0.5018 -0.0049 (-1.51)
ExpCh1	-0.1228 -0.0454 (-0.86)	-0.2873 -0.0096 (-1.13)		
RevCh1	0.0617 0.0227 (0.46)	0.2301 0.0078 (1.25)		
TargSocTr	0.1961*** 0.0723 (3.44)	0.3245*** 0.0112 (3.29)	0.2790*** 0.0833 (3.17)	0.4533** 0.0044 (2.44)
Means SB		0.1499** 0.0052 (2.48)	0.1314** 0.0400 (2.30)	0.4505** 0.0041 (2.04)
ExpCh			-0.4860 -0.1413 (-1.10)	
RevCh			-0.1598 -0.0458 (-0.58)	
CAEXP				-0.5365 -0.0047 (-1.61)
CAREV				0.3892 0.0038 (0.89)
Constant	-4.8260*** (-4.13)	-10.1539*** (-3.35)	-8.7773*** (-3.38)	-21.7605** (-2.29)
McFadden R <sup>2</sup> N	0.39 59	0.50 59	0.50 59	0.61 52

For definitions of variables see Table 1 in the Appendix. \*, \*\*, \*\*\* denote significance at 10, 5 and 1% levels, respectively. The second line for each variable shows marginal effects. The marginal effects are evaluated at the mean of the covariates, except in the case of binary variables, for which they represent the discrete change from 0 to 1. z values in brackets.

<sup>1</sup> Includes Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland and the UK.

According to column (1) of Table 4 increasing poverty alleviation through public social spending, during fiscal adjustment periods, has a highly significant effect on the

chances of adjustment success. Better targeting of social transfers, as proxied by the proportion of social benefits being means-tested, also has a positive and statistically significant impact (see column 2 of Table 4). At the same time, the change in total expenditure again becomes insignificant when the two proxies for the effectiveness of social transfers are also included in the regression. This suggests that certain qualitative features of public spending might be much more important determinants of success of fiscal consolidation efforts than just reducing the overall level of such spending or social spending as suggested so far in the literature. As already suggested the beneficial effect of improved targeting of social transfers, as part of fiscal adjustment programmes, might work both through boosting aggregate demand in the economy and from the political economy lens of strengthening public support (IMF, 2012). The debt-to-GDP ratio remains highly significant, while the coefficient of monetary stance has again the expected negative sign (monetary *loosening* has a positive effect) but is not statistically significant, albeit close at the 10-percent significant level.

We run two robustness checks on these results, by changing the definition of total spending and revenue change. Column (3) presents revenue and expenditure changes as a share of the *fiscal impulse*, that is the change in the Blanchard Fiscal Index, while column (4) takes into account the absolute change in the cyclically adjusted revenues and expenditure as a percent of GDP, as calculated by the European Commission (2012). Both alternative specifications lend strong support for the results already stated. The change in new expenditure and revenue variables is also not statistically significant, while the two proxies for the targeting of social transfers have positive and significant coefficients. Thus the main conclusions derived from our first regression are robust with respect to these changes.

Summing up, the empirical evidence of the present paper indicates that the distributional aspects of fiscal adjustment programmes might have a significant bearing on the success probabilities of the latter. An issue that remains open is to explore more thoroughly the ways in which this finding can be explained. As already suggested, one explanation might be rooted in political economy considerations. As pointed out by IMF (2012, page 57) "for reasons of equity and also of political economy -fiscal adjustments

that are seen as unfair are unlikely to be sustainable- it is critical that the costs associated with fiscal consolidations and weaker growth be shared equitable throughout the economy". In fact, a very recent paper (Stix, 2013), employing data from a survey of Austrian voters argues, for example, that voters' support of consolidation depends crucially on the "fairness" of fiscal consolidation plans and how the burden is distributed among the current generation. Yet, this seems to be a very newly discovered research topic and as Stix (2013) himself points out, there are practically no other microdata based papers studies on the preferences for consolidation. Another part of the explanation might come from the purely Keynesian argument that austerity should be accompanied by coordinated policies supporting growth through expanding fiscal multipliers and the purchasing power of low and medium income groups with a high propensity to consume (Calgano, 2012). Both explanations are potentially fruitful avenues for further research.

#### **4. Conclusions**

Virtually all developed economies face the challenge of fiscal consolidation, in response to elevated debt levels after the recent financial crisis. Using past experience can potentially highlight determinants of success and guide policy action. Despite the fact that existing empirical studies have used different specification approaches or sets of explanatory variables, an almost non-debatable conclusion is that expenditure cuts lead to more sustainable reductions in public deficit and debt, thus tilting the balance in the agenda of policy makers, attempting fiscal consolidations, away from tax increases and towards spending retrenchments. The existing literature also analyses the composition of such retrenchments in a national accounts classification framework. Most papers conclude that less persistent effects tend to be associated with consolidation which relies on cuts in public investment; while in successful adjustments governments do not refrain from cutting transfers, subsidies and compensation of employees (e.g. Campos, 2011 and Alesina et al, 1998).

We explore the role of policy variables along a different dimension, that of their distributional impact on different parts of the income distribution. The proxies used are imperfect, yet we believe that a reasonable case can be made that improving the fairness of



a consolidation programme might have a bearing on its chances of being met with success. Thus, improving the targeting of social transfers and their effectiveness in terms of poverty alleviation, increasing public expenditure on training and active labor market policies and social transfers (like social housing directed to the poor), or decreasing the VAT rate on necessities are shown to have a statistically significant positive effect in securing a sustained deficit reduction.

The main findings of the paper support policy conclusions that seem to be relevant especially in the aftermath of the post-2007 global financial and economic crisis and provide some answers to very recent concerns that fiscal consolidation might become harder if governments turn a blind eye to how the burden of consolidation spreads across the income distribution. As Larch (2012, p.72) points out "inattention with respect to the distribution of income could ultimately trade off unfavorably with sustainability". The importance of securing public support has recently also been recognized by the IMF (2011), while new surveys show that fairness weighs highly in the criteria the broad public uses to favor fiscal consolidation (Stix, 2013). Furthermore, "distributionally sensitive" adjustment programmes imply a softer attack on the incomes of those who have the highest marginal propensity to consume. In the same light, international organizations recently suggest that "emphasis should be placed on consolidation measures that limit the negative impact on demand" (Dao and Loungani, 2010, p.15). This consideration might be even of greater importance in a context, where the overall negative effect of fiscal consolidation on domestic demand is higher than previously thought (Blanchard and Leigh, 2013). Our results suggest that taking care of the less advantaged, even in situations of putting the fiscal house in order, has top priority, and enhances the probability that the housekeeper will indeed succeed.

## Appendix Table 1

### Definition and sources of variables

ExpCh= difference between the expenditure- GDP ratio of this year and the year before / change in the BFI	OECD Economic Outlook database (with No. 90 the most recent) and own calculations for the BFI
RevCh= difference between the tax revenue- GDP ratio of this year and the year before / change in the BFI	OECD Economic Outlook database (with No. 90 the most recent) and own calculations for the BFI
ExpCh1=difference between the expenditure- GDP ratio of this year and the year before / change in the CAPB	OECD Economic Outlook database (with No. 90 the most recent)
ExpCh1=difference between the tax revenue- GDP ratio of this year and the year before / change in the CAPB	OECD Economic Outlook database (with No. 90 the most recent)
CAEXP= change in cyclically adjusted expenditure as a % of GDP	European Commission, Cyclical Adjustment of Budget Balances, Autumn 2012.
CAREV= change in cyclically adjusted revenue as a % of GDP	European Commission, Cyclical Adjustment of Budget Balances, Autumn 2012.
DEBT= debt-to-GDP ratio	OECD Economic Outlook No. 90, December 2011.
STIR (Monetary stance) = change in the short- term interest rate	OECD Economic Outlook No. 91, June 2012.
LlowVat = dummy variable taking the value of 1 if the low VAT rate has been reduced, 0 otherwise	European Commission, (2012), "VAT rates applied in the Member States of the European Union", taxud.c.1(2012)910012 - EN, OECD (2011) Consumption Tax Trends 2010, OECD various country reports (several years)

RlowVat = dummy variable taking the value of 1 if the low VAT rate has been increased, 0 otherwise	European Commission, (2012), "VAT rates applied in the Member States of the European Union", taxud.c.1(2012)910012 - EN. OECD (2011) Consumption Tax Trends 2010. OECD various country reports (several years).
Rtopinc = dummy variable taking the value of 1 if the top marginal income tax rate has been increased, 0 otherwise.	For the years 1975-1999: Office of Tax Policy Research, World Tax Database, downloaded from <a href="http://www.wtdb.org/index.html">http://www.wtdb.org/index.html</a> . For the years 2000-2008: OECD Tax Database, Table I.7. <a href="http://www.oecd.org/dataoecd/44/2Z1942506.xls">http://www.oecd.org/dataoecd/44/2Z1942506.xls</a>
ChDirInd = the change in the ratio of direct / indirect taxes	OECD (2012) Revenue Statistics Database.
Labour = public spending on active labour market programmes per head at constant prices (2000) and constant PPPs (2000), in US dollars	OECD Social Expenditure Database (data extracted from OECD.Stat, <a href="http://stats.oecd.org">http://stats.oecd.org</a> )
Housing = public spending on housing per head at constant prices (2000) and constant PPPs (2000), in US dollars	OECD Social Expenditure Database (data extracted from OECD.Stat, <a href="http://stats.oecd.org">http://stats.oecd.org</a> )
ChFam = change in public spending on family benefits per head at constant prices (2000) and constant PPPs (2000), in US dollars	OECD Social Expenditure Database (data extracted from OECD.Stat, <a href="http://stats.oecd.org">http://stats.oecd.org</a> )
ChHealth = change in the public expenditure on health as a % of total expenditure on health	OECD Health Data 2011
ChUnempl = change in public spending on unemployment benefits per unemployed, at constant prices (2000) and constant PPPs (2000), in US dollars	OECD Social Expenditure Database and Labour Force Statistics (data extracted from OECD.Stat, <a href="http://stats.oecd.org">http://stats.oecd.org</a> )
MeansSB = means-tested social protection benefits as a % of total social protection benefits	Own calculations from data by EUROSTAT
TargSocTr = difference in the at-risk-poverty rate before and after social transfers (cut-off point: 60% of median equivalised income)	Own calculations from data by EUROSTAT

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