

Session 3

FISCAL POLICY AND FISCAL RULES

THE GREAT CRISIS AND FISCAL INSTITUTIONS IN EASTERN AND CENTRAL EUROPE AND CENTRAL ASIA

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1 Introduction

In the years prior to the onset of the great crisis of 2008, high growth rates and a favorable external environment led to a decade of promising fiscal developments for countries in the Eastern and Central Europe and Central Asia (ECA). They saw an unprecedented increase in fiscal resources as tax revenues burgeoned with accelerating growth rates. Public debt fell dramatically as a share of GDP. But rising revenues also meant that fiscal expenditures could grow; while expenditure growth rates were below those of revenue, they were still high, especially since the mid 2000s. The size of government did not fall, but rose in many cases. At the same time, for a large majority of the countries under consideration, the last decade saw the consolidation of deep institutional reforms, starting in many cases in the early 1990s, which aimed to dramatically change the way in which public expenditures and revenues were handled. Against this backdrop, came the global crisis and the impact on growth in ECA countries was severe. Consequently, fiscal outcomes suffered significantly.

This paper reviews fiscal outcomes during the 2000s against the backdrop of high growth rates and institutional advances across the region. In three cases, Turkey, Poland and Russia, we examine in detail how fiscal outcomes may have been affected by the types of fiscal institutions that countries adopted during the period leading up to the crisis. We find that not all institutional reforms were effective, partly because some (such as fiscal rules) may have been too inflexible to be operationally relevant in a crisis situation. Yet, on average, institutional reforms did help countries to better manage their fiscal situation. Section 1 reviews the macroeconomic and fiscal outcomes in ECA countries during the years leading up to the crisis of 2008-09 and the policies adopted in response to the crisis. Section 2 discusses the institutional reforms that were being adopted during this time and Section 3 focuses on how institutional reform in three countries, Poland, Russia and Turkey, in the period leading up to the crisis and in the crisis affected fiscal outcomes.

2 Fiscal institutions and outcomes

This paper draws from an extensive literature in exploring the relationship between fiscal institutional designs and fiscal outcomes. It builds on the insight that the public budget is subject to a common-pool problem where individual agencies (interest groups) tend towards over-consuming the (common) resource: public funds (Weingast, 1981; Shepsle and Johnson, 1981). Thus more fractured public sectors would have a greater tendency to overspend, generate deficits, and grow debt, a view that has been confirmed by empirical investigations beginning in the early 1990s with the work by Von Hagen *et al.* (1992, 1994, 1996, 2006 and 2008) concerning EU fiscal systems. Velasco (1999) and Tornell and Lane (1999) have formalized this insight.

The approach to measuring the degree of fiscal fragmentation has centered on the powers of the ministry of finance in the three main stages of budgeting: preparation, approval and implementation. Fiscal centralization corresponds to situations where the finance minister has a strong role in setting and enforcing fiscal targets, resolving conflicts over spending, and has the

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authority to block expenditures in order to ensure that actual expenditures do not exceed authorized levels. In addition, the legislature has limited powers to amend the budget or increase aggregate expenditure. The finding has been that rules giving the ministry of finance strategic dominance on budgetary arrangements and in enforcing budget discipline, and limiting the amending power of parliaments and the opportunities for modification during implementation are “strongly conducive to fiscal discipline, *i.e.* relatively small deficits and public debt” (Von Hagen, 1992, p. 53). That centralization of authority over allocation and during execution of budgets matters for fiscal outcomes has been confirmed for later periods for the EU and EU accessions countries by the same and other authors (see Mulas-Granados *et al.*, 2006). It has also been found relevant for Latin America by Alesina *et al.* (1999b) and Stein *et al.* (1999), and Filc *et al.* (2004). Dabla-Norris *et al.* (2010) find evidence that the relationship between the design of fiscal institutions and fiscal outcomes holds in low-income countries as well.

Political fragmentation has also been found to drive fiscal outcomes indirectly by precluding or facilitating agreements on core institutional designs and, directly, through the competition for budgetary resources. Fabrizio and Mody (2008) review the channels linking politics to fiscal outcomes. In politically fragmented environments, a “desirable” allocation of mandates may be infeasible because political actors may fail to come to an agreement on institutional consolidation. Von Hagen and Hallerberg (1999) contend that in such environments a “contract” as opposed to a “delegation” approach works better. The contract approach would seek agreements among relevant parties at the start of the budgeting process, with the bargaining amongst the parties providing the framework for developing a comprehensive view of the budget thus overcoming the common pool externality. In extreme case, however, the symbiosis between institutional and political fragmentation can lead to tightly-knotted arrangements that delay reforms and follow the dynamics described by Alesina and Drazen (1993).

Transparency in budgetary practices as an aide to delivering better fiscal outcomes has also received attention in the literature: transparency can help prevent players from hiding incomes, expenditures and especially negative fiscal outcomes. But implementing transparency can be difficult in practice. Alesina and Perotti (1999) in discussing the relevance of transparency pointed to possible measurement difficulties. International institutions have invested in developing transparency measurement criteria such as the IMF’s *Code of Good Practices on Fiscal Transparency*, which has been used to produce Reports on Observation of Standard and Codes (ROSC) for a large number of countries. Using information from these reports Hameed (2005) finds that transparency matters to delivering fiscal discipline, controlling corruption and achieving better credit ratings (see also Debrun and Kumar, 2007, on the disciplining role of transparency). Alesina (2010) is of the view that transparency in the budget and outcomes is the most important element in delivering good fiscal outcomes because it is more difficult for pressure groups to hide wasteful programs in an environment of greater transparency.

The traditional focus on (primary) deficits and debt-to-GDP ratios has been shifting to the pro-cyclical fiscal behavior of governments, something which seems ubiquitous in developed, transition and developing economies. Fragmentation and lack of transparency are found to also explain pro-cyclical fiscal behavior. Alesina *et al.* (2008) indicate that in developing countries pro-cyclical behavior is likely to be linked with a lack of transparency. Given that pro-cyclical behavior occurs even in European economies ranked high on transparency standards, other factors are likely to be at play. Complementary explanations therefore point to the inability to make credible inter-temporal commitments to the future allocation of resources. Balassone and Kumar (2007) review the challenges of cyclical behavior for fiscal institutional design.

In countries around the world, considerable attention has been given to improving fiscal institutional designs anchored on the emerging consensus that institutions matter for fiscal outcomes. Fiscal institutions of various types have been adopted to counter budgetary

fragmentation and non-transparency in fiscal policy. The underlying presumption is that certain budgetary procedures could reduce institutional fragmentation, increase transparency and improve fiscal outcomes; these procedures are often strengthened when they are supported by quantitative targets which facilitate adherence and monitoring. Within this strategic framework, the ongoing efforts to tame pro-cyclical behavior and *ad hoc* changes in budgets emphasize the introduction of Medium Term Expenditure Frameworks (MTEFs), or multi-year fiscal policy and planning embedded in consistent macroeconomic projections. MTEFs, along with other measures to bolster data release, enhance transparency, and by facilitating discussions on quantitative and monitorable outcomes, facilitate good policymaking. In practice, the worldwide experience, including that in transition economies, over the last two decades indicates that such investments in supporting fiscal systems take time to design and implement.

One type of fiscal institution, fiscal rules, have a long and successful history at sub-national levels in the US and in Switzerland. At the national level, they have become popular worldwide only recently. In 1990, five countries had fiscal rules at the national level; over 80 countries today have them. Fiscal rules can be adopted nationally or be part of external agreements like they are for the EU countries. Some countries (e.g., Poland) have both national and supranational rules. The design of fiscal rules varies but overall the focus of these rules is to constrain fiscal aggregates by introducing ceilings on fiscal balances, public debt to GDP, or overall expenditures, or by setting overall revenue targets. The literature finds that rules may enhance fiscal discipline. However, focusing on rules that are not binding in good times (when revenues are rising fast) may not impede pro-cyclical behavior and a deterioration in fiscal policy. Therefore, better designed fiscal rules would place greater emphasis on debt sustainability and smoothing expenditures over the economic cycle with an emphasis on structural deficits in an effort to address inter-temporal inconsistencies. Recently Chile adopted a fiscal rule, whose design takes these issues into account. The inherent risk in defining and using these rules, however, lies in increasing the complexity by requiring a good understanding of where the economy is in the cycle and identifying the “special circumstances” that may require deviating from them. Differentiating between cyclical downturns, short term shocks and longer term trends is not an easy matter, even in developed countries.

There is also some skepticism about the role of rules. This skepticism centers on the observation that rules work best when they are not binding. Schick (2009) notes that “Fiscal rules should have much of their bite when the economy is strong; if they do not, they may do much harm and little good when the economy is weak”. Thus, the test of rules and strong institutions more generally is the ability to manage the good times. Institutions that complement fiscal rules and bolster inter-temporal consistency of fiscal policy are Independent Fiscal Agencies (Eichengreen, Hausmann and Von Hagen, 1999). The concept of establishing fiscal agencies to independently assess, monitor and evaluate fiscal policy builds on the positive experience with Central Bank independence and the conduct of monetary policy. Potential mandates for such agencies include setting the yearly level of the deficit or surplus and ensuring debt sustainability; in the case of an abrupt economic change the agency would have the mandate to adjust the fiscal stance as needed. Fiscal agencies, with a variety of mandates, have been emerging with a focus on independent forecasts, analysis or normative judgments; these types of agencies can help meet institutional deficiencies specific to individual countries.

A working hypothesis today is that fiscal institutions can support good policy making and in particular, fiscal rules can serve to deliver improved fiscal outcomes in politically fragmented environments. The view has been that fiscal rules can help lock in gains by introducing (quantitative) hard budget constraints, complementing sound institutional designs for budget management and a policy of transparency that responds to the demands of various constituencies. A broader question is whether legislation establishing fiscal rules alone can substitute for

inadequate institutions in highly fragmented political and institutional environments, bypassing the painful efforts of broader institution building in which fiscal rules would be one ingredient.

2.1 *Fiscal outcomes in the 2000s in Europe and Central Asia*

During 2005-07, ECA countries averaged a growth rate of 6.7 per cent as compared with 5.2 per cent during 2000-04 and 3.8 per cent during 1995-2000.¹ While there was a great deal of variation among countries, (for example, Azerbaijan grew at 25 per cent in 2007 versus Turkey at 4.7 per cent), growth was higher than the average in half the countries during 2005-07. Figures 1a and 1b show average growth rates during this period for all of ECA but also different groups in ECA. Growth in incomes reflected both large increases in investment, consumption and increasing integration in world markets.

High GDP growth and increasing integration had substantial impacts on the fiscal position of ECA countries, the effect differing among countries depending on their initial conditions. For example, for the oil and gas exporters (OGE) fiscal developments are closely tied to world markets for oil and gas.² Fast growing world markets meant high export values and high corporate profits. Fiscal revenues rose substantially. At the same time, in these economies the management of fiscal revenues from the oil and gas sectors has been of significant concern. The EU accession countries are distinguished by the nature of the fiscal and other structural reforms they have undertaken. This group which also has the higher income countries of the ECA region experienced a higher increase in trade integration than the other groups in the region. The graph EU10+ includes Croatia and Turkey in the group.³ The decline in trade during the crisis affected tax receipts in many of the smaller countries substantially in the crisis. The low and lower middle income countries (LLMIC)⁴ also had substantial growth in output and trade during the pre-2008 period which had a positive impact on their fiscal outcomes, even though their fiscal institutions are less developed.

2.2 *Rising size of the public sector*

ECA countries' fiscal situations improved dramatically alongside growth during 2000-07 and the first half of 2008, in large part because of substantial fiscal revenue growth in their booming economies. During this period most countries also reformed tax policies and institutions. The reforms of tax policies aimed to reduce the tax burden on the private sector with the aim of supporting investment and growth but at the same time, reforms sought to broaden the tax base to maintain tax revenues. During this period, many countries also began reforms to enhance the efficiency of expenditures and to rationalize government spending. However, in the mid-2000s, some of the efforts appear to have weakened.

From the early 2000s to 2007, real fiscal revenue growth in ECA was high and rising. As a share of GDP revenues were 33.6 per cent during 1995-2000, and 32.5 per cent during 2000-04. As GDP accelerated, real fiscal revenue growth in ECA was high and rising and surpassed GDP growth in 2005-07 to be 35.2 per cent of GDP. As a ratio to GDP, revenues rose the most in the LLMIC group (outside of the oil related revenues accruing to the OGE), and the least in the

¹ All averages relative to GDP will be GDP weighted unless otherwise stated. Unweighted growth rates were 7.8 per cent overall, 15.2 per cent for the OGE, 6.7 for the EU10+ and 7 per cent for the LLMIC.

² The oil and gas exporters are Kazakhstan, Russia and Azerbaijan.

³ The EU10+ group is composed of: Poland, Latvia, Lithuania, Hungary, the Czech Republic, Slovenia, Slovakia, Bulgaria, Estonia, Croatia and Turkey.

⁴ The LLMIC are: Albania, Armenia, Georgia, Kosovo, Kyrgyz Republic, Moldova, Tajikistan, Ukraine.

Figure 1a

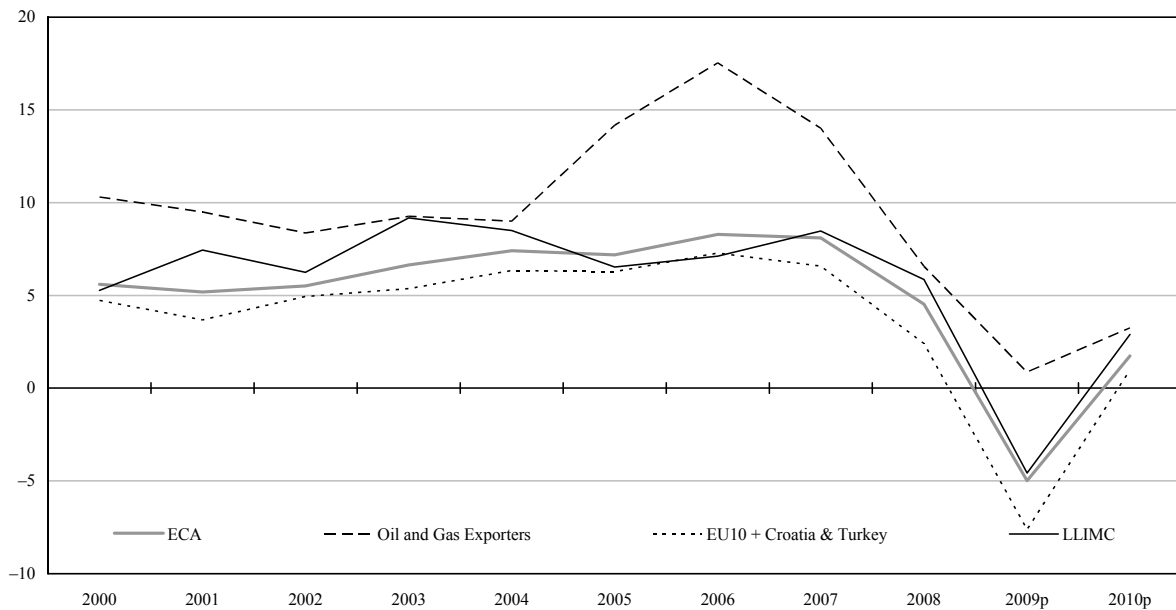
Weighted Real GDP Growth Rates for ECA and Subgroups
(percent)



Source: World Bank Regional Tables.

Figure 1b

Non-weighted GDP Annual Growth Rates
(percent)



Source: World Bank Regional Tables.

Figure 2a

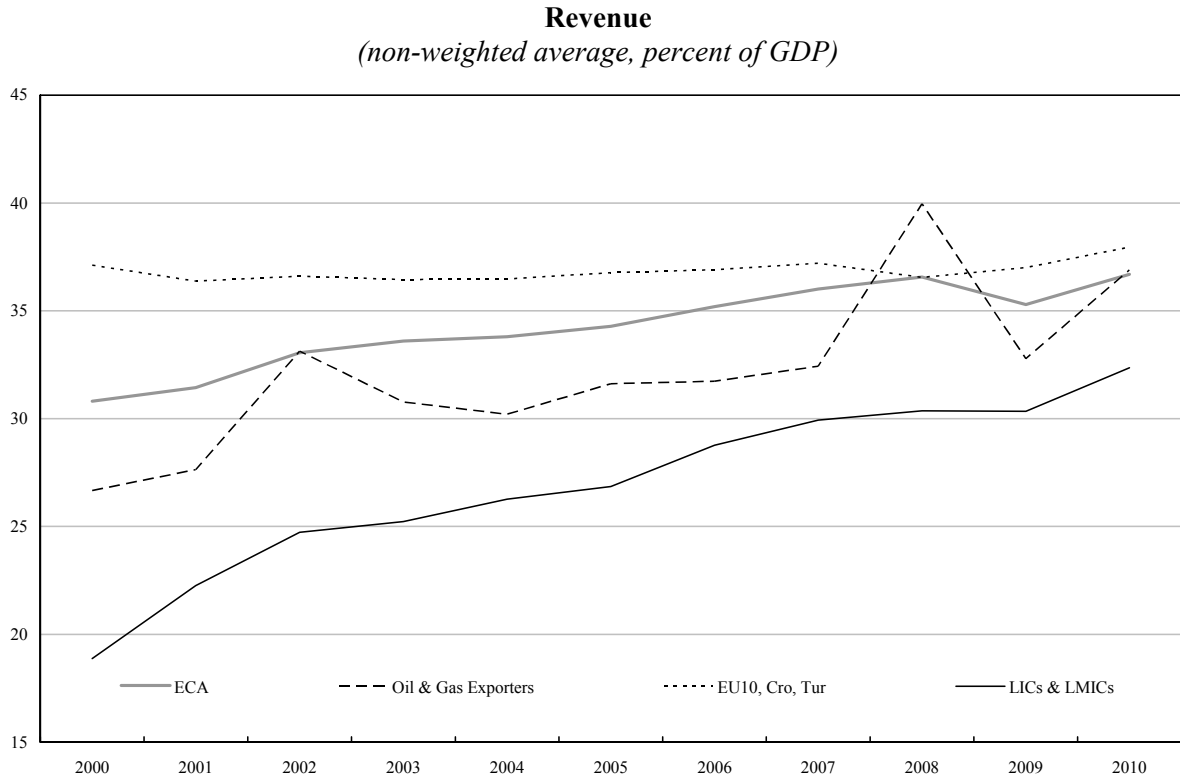
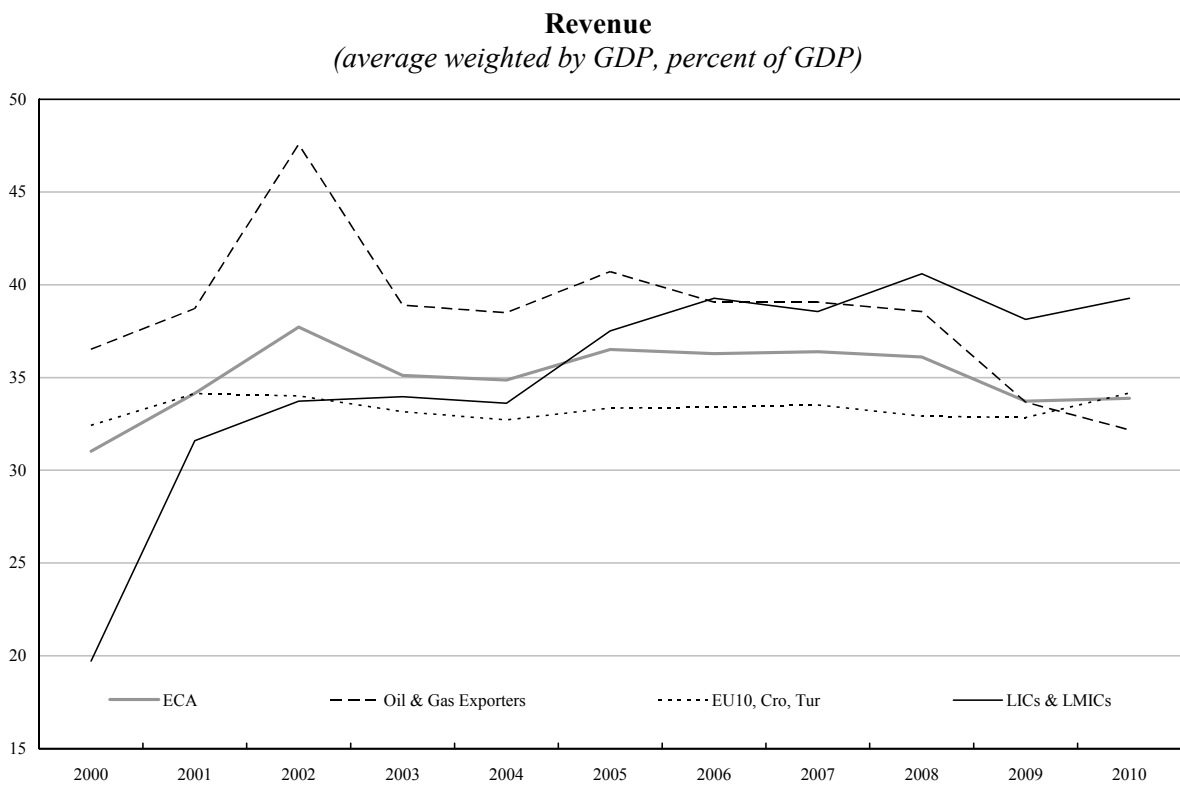


Figure 2b



EU+ countries, even though real growth was 7.5 per cent in 2007 for this group. When averages are weighted by GDP however, the OGE revenue to GDP ratio is fairly constant (implying that in the larger countries, growth was slower), though the LLMIC come out stronger. Among the EU10 countries, the revenue share to GDP was fairly constant when weighted, but rose for the unweighted average as small countries experienced a rising share. In countries where revenues followed patterns in imports, they would have exhibited more volatility relative to GDP. In 2007, 30 per cent of ECA countries had real fiscal revenue growth above 10 per cent:⁵ Armenia, Azerbaijan, Belarus, Bulgaria, Georgia, Kazakhstan, Kyrgyz Republic, and Montenegro. Just under half the countries had real revenue growth over 10 per cent in 2006 and 40 per cent in 2005. By 2007, fiscal revenues to GDP were 36.4 per cent, though the OGE were at 39 per cent in weighted terms (Figures 2a and 2b).

At the same time, average fiscal expenditures grew from just over 34.3 per cent of GDP in 2000 to an average of 36.4 per cent of GDP by 2007 though they fell in weighted terms until 2007.⁶ There was a lot of variation among countries. In fact, despite much higher GDP growth in the 2000s relative to the period 1995-2000, expenditures grew faster for many countries, though in GDP weighted terms, fiscal expenditures relative to GDP declined until 2007 for the EU10+ and OGE groups, but not for the LLMIC group. During 2006-07, average expenditure growth was more than 10 per cent in real terms. Real expenditure growth was over 10 per cent in 12 ECA countries in 2007 and in 9 countries in 2006. The period 2004-07 is distinguished by an acceleration in expenditure growth (see Figures 3a and 3b).

2.3 *The impact of the crisis*

Until the crisis struck, deficits and debt showed tremendous improvements in the 2000s. During 2000-03, the GDP weighted fiscal balance was a deficit of 3 per cent of GDP on average. This reflected higher deficits in the EU10+ group of over 6 per cent of GDP per cent on average and in the LLMIC of 2 per cent. The OGE had surpluses during this time. Due to impressive revenue performance, and strong growth, the debt-to-GDP ratios of ECA countries improved dramatically during 2000-07, the ECA (weighted) average falling from 46 per cent of GDP to 23 per cent of GDP. The decline was the largest in the LLMIC countries where debt/GDP fell by around 16 percentage points of GDP from 47 to 31 per cent. The EU10+ group had smaller declines and was the most indebted in 2007.

When the global economic crisis struck ECA countries in 2008, governments had already programmed large increases in expenditures and had to adopt revised budgets in 2008 that cut expenditures during the year in expectation of shortfalls in revenue. However, none of the ECA countries had declines in nominal expenditure levels (and only 6 had declines in real terms). Though the crisis in 2008 had an immediate impact in many countries, 24 countries still had nominal expenditure growth of over 10 per cent in 2008 (though only 10 saw growth in real terms at this rate) and 15 had growth over 20 per cent (though only 1 had real growth at this rate). The adjustment is more visible when looking at expenditure to GDP ratios which fell (in terms of percentage points of GDP) in 11 countries in 2008 and 6 in 2009.

2.4 *The crisis*

As a result of the changes in expenditures and revenues, in 2009, the average deficit for ECA

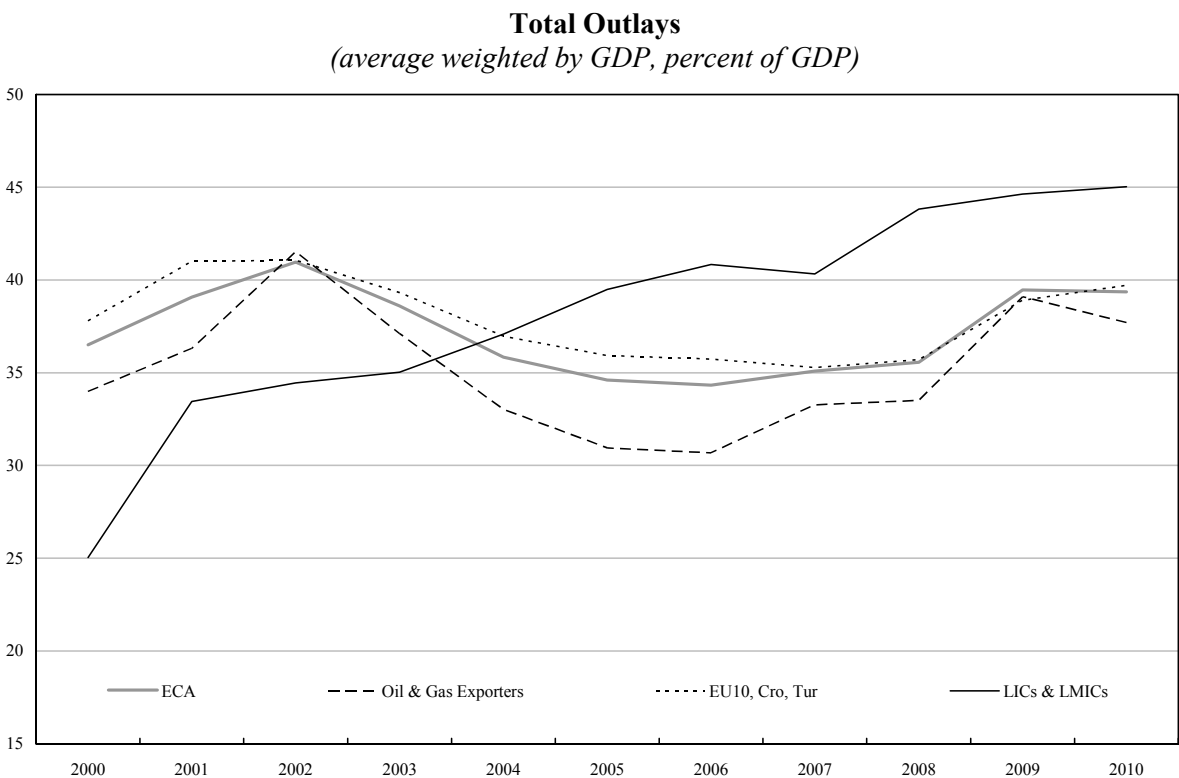
⁵ The GDP deflator is used in calculating real values.

⁶ Note that all growth rates are given in unweighted terms.

Figure 3a



Figure 3b



rose by over 4 percentage points of GDP relative to 2008 and 6 percentage points of GDP relative to 2007. Seven countries had a deterioration of 5 percentage points or more. Russia and Kazakhstan stand out with very large deteriorations reflecting their large stimulus packages. But the largest deficits were in Latvia and Lithuania (9 per cent) with Georgia and Romania following (8 per cent) in 2009. Sixty per cent of the countries with the largest deficits in 2009 (near 7 per cent or above) had the highest share of taxes coming from VAT/taxes on goods and services.

In order to manage their fiscal positions, ECA countries undertook a number of policies. There was a wide variation in responses, with some countries raising taxes, others lowering them, some running arrears and others reducing expenditures of various kinds. Some of the policies adopted are short term in nature and expected to be reversed (for example, lengthening the duration of unemployment compensation, or announcing temporary VAT cuts); others will need to be considered more carefully in the longer run (for example, the desired level and type of capital expenditures). The fiscal policies used are summarized in Table 1.

Table 1 indicates that most governments had policies to contain the wage bill, and most had some sort of tax policy change during the crisis. Their efforts indicate that public sector compensation is (and will probably remain) an issue for budget management. Many countries used tax cuts to stimulate spending, but some had to increase taxes to offset the dramatic revenue declines or tax rate declines of previous years which took effect during the crisis years. Several supported their financial sectors and many governments took measures to help the unemployed and vulnerable.

In sum, an analysis of the fiscal outcomes of the 2000s reveals that governments had substantially improved their fiscal positions in terms of reducing deficits and debt until the crisis struck in 2008. It also highlights how fiscal adjustment if measured in terms of deficits and debt, may be relatively painless under high growth rates. The decline of 2008, however, illustrates the risk that volatile environments pose for fiscal outcomes. While governments were able to go on a spending spree in the mid-2000s, greater restraint would have meant lower deficits in the crisis. ECA countries adopted both expenditure and tax policies to (a) contain deficits or (b) boost aggregate demand or alternatively, (c) protect certain segments of the population. Many of the policies they adopted were short-term in nature (for example a freeze on wages) and would have been less necessary with more restraint.

Any review of developments in the ECA region in the pre-crisis years and extensive efforts to contain budgets in the crisis years would be incomplete without some assessment of the institutional changes that were taking place in these countries as fiscal outcomes improved in the 2000s. The next section describes some of these important changes in ECA's fiscal institutions and the following section examines the impact of institutional changes in three countries.

3 Fiscal institutional reforms: A bird's eye view⁷

The design, reform or creation of fiscal institutions has been a major challenge for transition economies where defining the boundaries of the state has been and remains a continuing challenge. The point of departure in the reform process across countries differed substantially depending on the length of time each country spent under socialism and the type of socialism it practiced. All countries faced severe political and institutional fragmentation, which led to the emergence of soft-budget constraints with noted fiscal consequences that delayed the transition process (Kornai *et al.*, 2003; World Bank, 2002). The efforts to address these challenges included the corporatization of productive and financial enterprises and their privatization as well as setting the institutional frameworks for social security, and introducing fiscal systems for local and regional governments.

⁷ This section is drawn from Eckhardt and Islam (2010).

Table 1

Fiscal Policies in the Crisis Years 2008-09

Wage Bill (Wage Growth/Employment) ^(a)	Armenia, Belarus, Bosnia, Bulgaria, Croatia, Czech Republic, Georgia, Hungary, Kazakhstan, Kosovo, Kyrgyz Republic, Latvia, Lithuania, Macedonia, Moldova, Montenegro, Romania, Russia, Serbia, Slovak Republic, Slovenia, Tajikistan, Ukraine
Pensions: Indexation change or other adjustment ^(b)	Albania, Belarus, Bosnia, Croatia, Estonia, Georgia, Hungary, Latvia, Macedonia, Romania, Russia, Serbia, Tajikistan,
Tax Cuts	Armenia, Belarus, Czech Republic, Estonia, Kazakhstan, Latvia, Lithuania, Macedonia, Poland, Russia, Slovak Republic, Slovenia, Tajikistan, Turkey, Ukraine
Tax Increases	Belarus, Croatia, Estonia, Hungary, Latvia, Lithuania, Moldova, Poland, Serbia, Slovenia, Ukraine
Financial Sector Measures ^(c)	Albania, Azerbaijan, Belarus, Bulgaria, Croatia, Czech Republic, Hungary, Kazakhstan, Latvia, Montenegro, Poland, Russia, Slovakia, Slovenia, Ukraine
Cuts in Capital Expenditures ^(d)	Armenia, Azerbaijan, Belarus, Bosnia, Bulgaria, Croatia, Hungary, Kyrgyz Republic, Latvia, Lithuania, Macedonia, Moldova, Montenegro, Romania, Serbia, Slovenia, Turkey, Ukraine
Increases in Capital ^(e) Expenditures	Czech Republic, Georgia, Kazakhstan, Kosovo, Kyrgyz Republic, Latvia, Macedonia, Moldova, Poland, Russia, Slovak Republic, Tajikistan
Arrears Owed to or by Government ^(f)	Albania, Bosnia, Bulgaria, Croatia, Kosovo, Latvia, Moldova, Montenegro, Romania, Russia, Tajikistan
Employment/Unemployment Related Policies	Armenia, Bosnia, Bulgaria, Croatia, Czech Republic, Kazakhstan, Latvia, Montenegro, Romania, Russia, Slovak Republic, Slovenia, Tajikistan, Turkey
Change in Subsidies to Enterprises/Other	Armenia, Azerbaijan, Croatia, Estonia, Kazakhstan, Macedonia, Moldova, Montenegro, Romania, Russia, Serbia, Slovak Republic, Slovenia, Turkey, Ukraine
Increase in Social Transfers ^(g)	Albania, Armenia, Azerbaijan, Belarus, Croatia, Georgia, Hungary (lowered), Kazakhstan, Kyrgyz Republic, Latvia, Lithuania (lowered), Macedonia, Moldova, Montenegro, Romania, Serbia, Slovak Republic, Slovenia, Tajikistan, Ukraine
Public Works	Armenia, Bulgaria, Hungary, Kazakhstan, Macedonia, Moldova, Russia, Slovenia, Tajikistan, Turkey

^(a) Kosovo, Kyrgyz Republic and Kazakhstan had wage increases in 2009. The Czech Republic had a wage increase but employment reduction. The others had declines in wages and/or employment. Several countries had declines in general current expenditures as well.

^(b) Russia, Tajikistan and Turkey had increases in 2009.

^(c) Does not cover central bank support of various kinds to the financial sector.

^(d) These refer to cuts in 2009. Though countries may have begun adjusting at end-2008, the overall numbers may or may not have shown adjustments.

^(e) These refer to increases in 2009. Though countries may have begun adjusting at end-2008, the overall numbers may or may not have shown adjustments.

^(f) For Montenegro and Russia they were arrears owed to government.

^(g) Some countries adopted policies to rationalize expenditures in the social sectors, e.g., eliminating free-of-charge textbooks. These are not addressed here but are explained in the full country matrices.

The fiscal institutional building agenda focused on fundamentals, such as taxation, accounting, treasury and the establishment of budgetary procedures. These changes have happened in a fluid and fragmented political situation. Not surprisingly, design and implementation of these agendas has taken time and proceeded in spurts often linked to external events. The efforts by transition economies to close institutional gaps that existed with respect to market economies provide valuable experimental information on the process of change and the role of fiscal institutions in reducing fragmentation and increasing transparency, the importance of political fragmentation, and the contribution of economic events.

As discussed, the 2000s, particularly the latter half, saw high growth rates and improving fiscal positions. During this time ECA countries were very outward focused integrating with global markets. Higher integration meant also that changes in the external environment became very important for fiscal policies and outcomes. Many countries acceded to the EU adopting EU reforms, while other countries saw change to various degrees. The crisis of the late 2000s, brought certain weaknesses in fiscal management to the forefront of policy discussion during this period of fiscal adjustment. The 2008/09 crisis tested the readiness of some of the institutions ECA countries had put in place and highlighted areas in which countries need to move forward.

Most countries in the ECA region have made progress in reforming their fiscal institutions, but the pace of institutional change has been uneven. The World Bank's Country Policy and Institutional Assessments (CPIA) attempt to measure the quality of policy and institutions in member countries in a number of areas. These assessments are based on both quantitative, monitorable indicators of policy and institutional reform, as well as judgments by country teams.⁸ One of the indicators considered relates to the quality of public administration. Its evolution suggests that the majority of countries have made some progress over the past decade, and while some countries seem to have stagnated, none of the countries seems to have experienced a major deterioration in institutional quality. However, the quality of fiscal systems continues to differ across the region with differences in income levels. Figure 4 below shows the evolution of the CPIA indicator for ECA countries separated into three groups according to GDP per capita. The top third in terms of income per capita have much higher scores as might be expected, but countries at the lower and middle income categories have also been improving. Variance in institutional quality for a given level of income is greater among lower and middle income countries, while it converges among the high income countries.

The first part of the decade saw the largest change in institutional quality for all groups as Figure 5 shows. The middle group had the greatest improvements, followed by the countries in the bottom third income group. In the second half of the decade, the rate of change in institutional improvement was stronger in the lowest income group among the ECA countries. Despite these changes in the second and third tier income groups, the top countries in terms of per capita income have much better quality of institutions.

Overall in ECA, the fiscal reform agenda has evolved over the last decade. The first decade of transition (1990-2000) was dominated by institutional changes designed to overcome the legacy of central planning systems. During this time, reforms included the establishment of treasuries to improve the execution of the budget and cash management, the gradual integration of off-budgetary funds, the clarification of roles and responsibilities of different institutions in the budget process, establishment of democratic checks and balances, such as legislative budget approval and establishment of external audit institutions. There were major fiscal consolidation efforts in many countries of the region. Many countries put in place fundamental financial management regulations through the adoption of organic budget and treasury laws.

⁸ Countries are rated on a score of 1 to 6.

Figure 4

Average Score – Public Sector Management and Institutions, 2000-08
(top, middle and bottom countries in terms of per capita income)

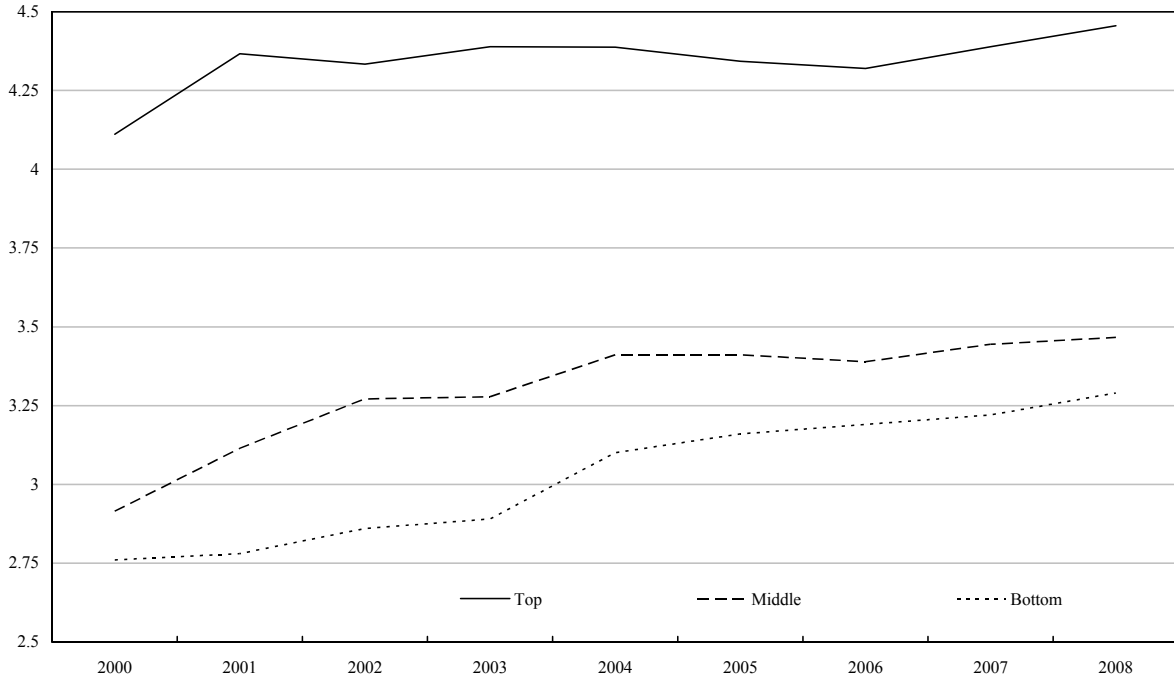
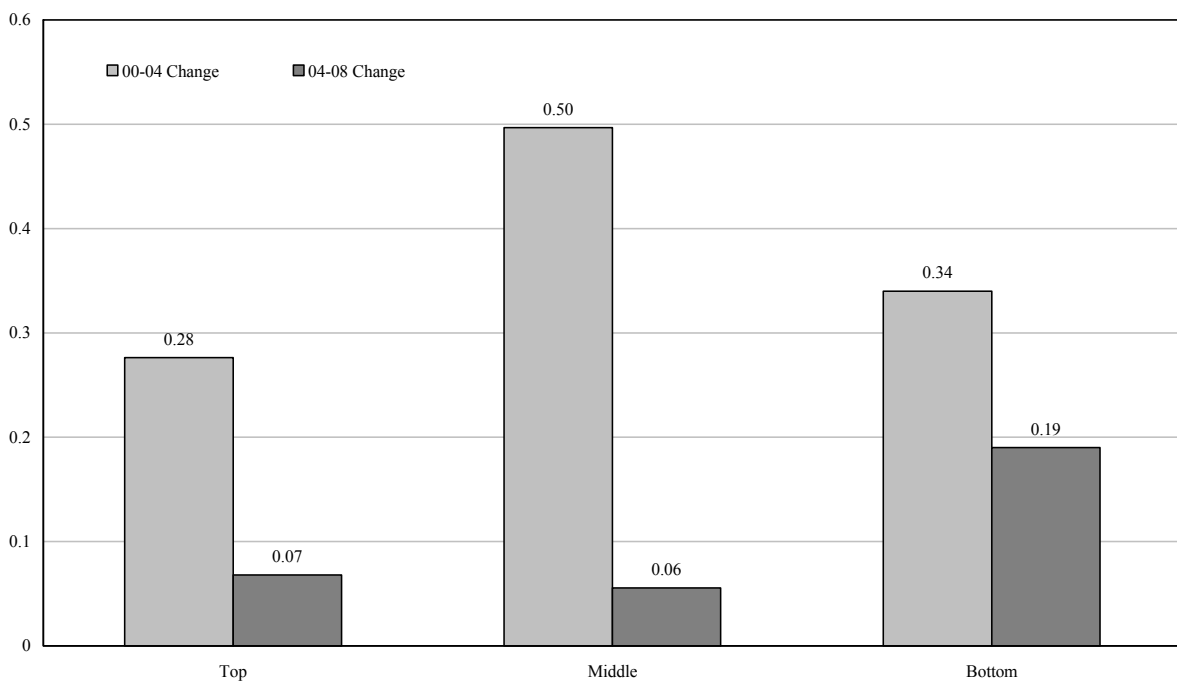


Figure 5

Change in Average Score (2000-04 and 2004-08) – Public Sector Management and Institutions
(top, middle and bottom countries in terms of per capita income)



With the most basic fiscal management foundations in place, the reform agenda during the second decade (2000-10) has moved to tackle more advanced challenges, such as linking expenditure prioritization more closely to policy objectives, introduction of a medium term perspective in fiscal policy, mostly through the adoption of Medium Term Expenditure Frameworks (MTEF) and a move away from detailed input controls to more performance and results orientation in expenditure management. Most countries in the region have some form of MTEF with differing degrees of integration with the budget process. Armenia's MTEF for example, is an integral part of the budgetary process. In Croatia, the MTEFs are formally adopted by Parliament. In addition, countries have begun adopting various kinds of fiscal rules to contain budgets and public debt (the EU accession countries have supranational rules under the convergence programs which limit debt and deficit ratios to GDP). Tax administration reforms have also advanced and many countries have begun to adopt practices compliant with the principles of self-assessment, better risk management, simplicity, greater transparency, client segmentation and specialization aimed at reducing compliance burden and administrative costs.

In addition, along with the democratization of political systems across the region, parliaments have taken on strong oversight roles in the budget process in most countries. Legislative scrutiny and enactment of annual budget laws is an essential element supporting government accountability. This type of scrutiny is intended to provide both an institutional check on executive power and voice to public demands. As the role of legislatures has grown budget decisions have become more transparent across ECA countries. This was particularly important during the recent crisis when many governments had to undertake budget amendments and difficult budgetary decisions.

The specific role of Parliaments and the authority they enjoy vary across countries, and depend to a great extent on the constitutional traditions of a country. Some legislatures have virtually unlimited powers to amend and change executive budget proposals, including changes that affect the Government's overall fiscal stance. In other countries, parliamentary powers over the budget are constrained to only effecting expenditure reallocations in the initial deficit target set by the executive. For example, in Croatia the 2003 Organic Budget Law and a subsequent version passed in 2008 requires that any amendment proposal needs to identify an offsetting measure to remain deficit neutral. Several different types of arrangements may be consistent with fiscal discipline, depending on the existence of other constraints faced by the executive and legislative arms of government. However, unlimited budgetary amendment powers require that constraints on fiscal expansion do exist in the budget review process to restrain elected representatives from overspending. Parliaments in ECA enjoy amendment powers of various types. Among those parliaments with unlimited amendment powers are those of Albania and Romania. Bulgaria, Poland, Russia, and Turkey are among those with limited amendment powers while the parliaments of Georgia and Azerbaijan do not enjoy formal amendment powers.

While there are common themes, such as policy based budgeting, performance orientation and medium term fiscal planning, fiscal reform challenges and priorities have varied across the region depending on the structure of the economy and other country characteristics. For example, the key fiscal policy and institutional challenge for oil and commodity exporters, like Russia, Kazakhstan and Azerbaijan was related to the prudent management of large revenue windfalls that have accrued over the past decade. For the new member states of the EU, reforms were driven by requirements of the accession process, including adoption of the SGP fiscal rules and fiduciary systems capable of managing and absorbing increasing transfers from the EU under the common agricultural policy and structural funds. In contrast, in some of the lower income countries the focus has remained on building the foundations for sustainable fiscal management with a focus on both reforms of revenue administrations to broaden tax bases and stabilize revenue generation and

systems for prudent expenditure control. Below, we look at two institutional reforms aimed at supporting fiscal discipline, in more detail.

3.1 *Fiscal rules*

As mentioned in Part I, The basic rationale for fiscal rules is to create a mutually binding and enforceable set of rules and procedures to encourage fiscally responsible behavior across time and/or different budgetary entities. Preestablished fiscal rules are particularly useful in settings characterized by multiple constituencies with the ability to initiate spending and revenue policies. If properly designed, a rules based approach can help secure control over consolidated fiscal balances while allowing a prudent degree of flexibility to entity governments. Numerical fiscal rules can apply to all fiscal aggregates: expenditure, the deficit, the debt stock, and revenue (although there are few practical examples).

The proliferation of fiscal rules across the ECA region is a relatively new trend. About half of the countries in the region have adopted fiscal rules, mostly during the past ten years. The types of fiscal rules they have adopted vary greatly among ECA countries. The new EU member states all comply with the EU stability and growth pact, but only a few have embedded the supranational rules in their national fiscal-institutional framework. In other countries fiscal rules have been included in organic budget laws or specific debt management and fiscal responsibility laws while others have promulgated fiscal targets either as part of their Medium Term Expenditure Frameworks or as general political commitments. Deficit and debt rules are by far the most popular type of rules among ECA countries. All EU member states are committed to the deficit and debt rule of the Stability and Growth Pact. In addition, Hungary, adopted a deficit rule requiring the general government primary budget balance be in surplus. Armenia's debt management law passed in 2008 establishes an overall constraint on public debt at 60 per cent of GDP and an additional limitation on the annual budget balance when debt is above 50 per cent of GDP.

As countries are faced with pressures emanating from the recent crisis, they have often exceeded constraints established by their fiscal rules. In the recent crisis, fiscal rules, in particular those constraining deficits, have been criticized for reinforcing pro-cyclical fiscal policy. Many countries have chosen to pursue an expansionary fiscal policy stance in reaction to the economic downturn, sometimes at the cost of exceeding preestablished deficit limits.

3.2 *Medium-term expenditure frameworks*

Medium-Term Expenditure Frameworks (MTEFs) are tools which aim to introduce a more strategic approach to budget formulation and help focus on fiscal priorities with a medium- to long-term perspective. MTEFs typically comprise top down estimates of the expected aggregate resource envelope, bottom up forward estimates of expenditures required to continue existing policy commitments and a framework to reconcile the two. Fully elaborated MTEFs translate the government's macroeconomic and fiscal strategy into budgetary policy. MTEFs can help safeguard fiscal sustainability by projecting the fiscal impact of current budget decisions, including the recurrent cost implications of capital expenditures and the available resource envelope over the medium term and by enhancing transparency. For MTEFs to be effective tools for expenditure prioritization and budgetary decision-making they need to be procedurally and institutionally integrated with the annual budget formulation process. In practice, countries rarely adopt fully articulated MTEFs, but selectively and/or sequentially apply key elements.

Almost all ECA countries (26 of the 28 examined) are now experimenting with some form of medium-term budgeting. Most of the medium-term frameworks cover a three or four-year period.

But the depth of medium-term planning and its impact on budgetary decisions vary across countries. Some countries prepare only forward estimates of fiscal aggregates (revenue, and broad expenditure categories) while others have developed full-fledged MTEFs with detailed bottom up expenditure estimates for existing programs as well as forward looking estimates.. The institutional coverage varies but many countries continue to cover only central government operations, though sub-national governments are included in the MTEFs of only a few countries, such as Armenia. In a majority of countries the institutional and procedural integration of MTEFs with the annual budget process is incomplete, undermining their real impact on expenditure prioritization. Only in some countries, like Croatia, Slovenia and the Slovak Republic are MTEFs formally adopted by Parliament; others adopt MTEFs as executive documents. A number of countries, including Armenia, Moldova and Russia have suspended the preparation of MTEFs in view of the recent volatility in the macro-economic environment. Economic volatility has thrown into uncertainty growth and revenue prospects, the costs associated with financing the deficit on world markets as well as expenditure needs arising from automatic stabilization.

4 Three countries: How fiscal institutions performed Russia, Turkey and Poland

In this section, we (a) examine the evolution of fiscal institutions during the 1990s and 2000s in Russia, Poland and Turkey in some detail; (b) discuss how these institutions and the degree of political fragmentation may have affected fiscal outcomes in the last decade; and (c) discuss how the latter in turn has affected institutional development.

The general developments in fiscal outcomes in ECA countries are reflected in the public sector outturns of Poland, Russia and Turkey during 2000-10. Turkey's fiscal adjustment, as shown by its dramatic reduction in the deficit was particularly remarkable in the aftermath of the crisis in 2001 to 2006 (Figure 6). Poland's deficit also falls continuously during 2003-07 and Russia's surpluses of the mid-2000s are impressive. Turkey's performance is the most impressive in containing the share of government in GDP: in Turkey, outlays to GDP fell continuously from 30.8 to 23.7 in 2006 (rising slightly in 2007), This was also true of Russia (outlays fell from 38.3 per cent to 31.6 per cent in 2006 but rose 2.6 percentage points of GDP in 2007 as the government boosted spending just before the crisis (Figure 7). Expenditures to GDP fell less in Poland (44.7 to 42.2 per cent in 2007) and the changes fluctuated in the period with some years seeing expenditures grow faster than GDP. The impact of the growth downturns in 2008 meant large deteriorations in the deficit for all countries as fiscal revenues fell (Figure 8). Also, all three countries protected expenditures during the growth collapse, Russia leading with a large stimulus package. In Turkey and Poland, debt to GDP rose while Russia used its oil reserves.

The three countries had very different institutional conditions at the beginning of the 90s many of which were maintained till the early 2000s. Poland and Russia, the "transition economies" changed their institutions to more market-oriented ones but with different points of departure. In the early 1990s, Poland's institutional framework was closer to market principles because market supporting structures had been in place before WWII and the transition process began in Poland earlier than in Russia. Russia in contrast, experienced a more centralized form of socialism and for a longer period, so that when the transition began the gap with market supporting institutions was larger than that in Poland. Overall Russia's challenge compares with the challenge of other CIS countries that had a similar point of departure. Turkey was not a transition economy in the traditional sense but rather made a transition from a long period of forced industrialization around an import substitution strategy which had run its course by 1980.

Figure 6

Fiscal Balance – Poland, Russia, Turkey, 2000-10
(percent of GDP)

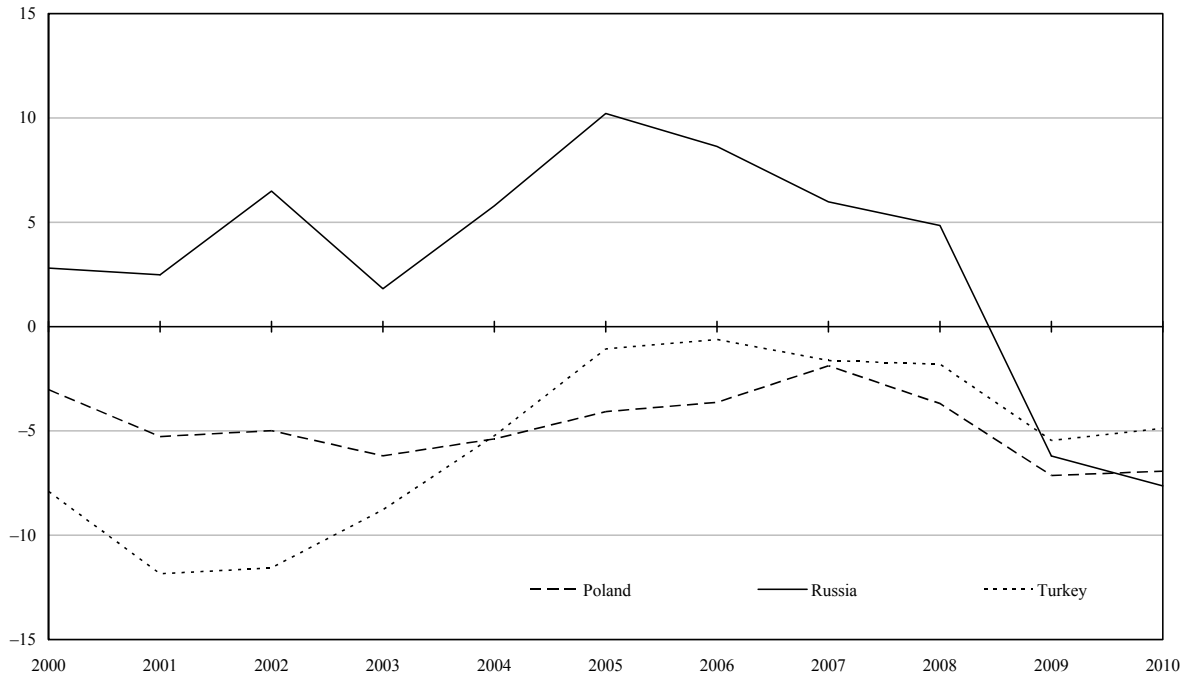


Figure 7

Total Outlays – Poland, Russia, Turkey, 2000-10
(percent of GDP)

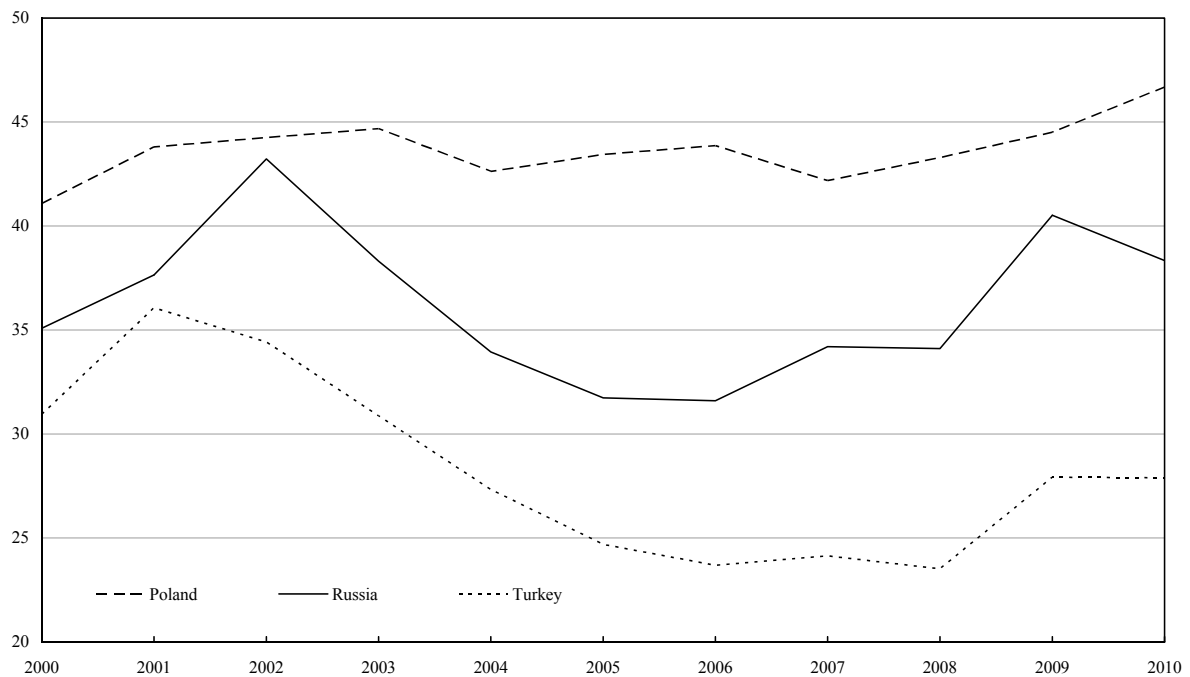
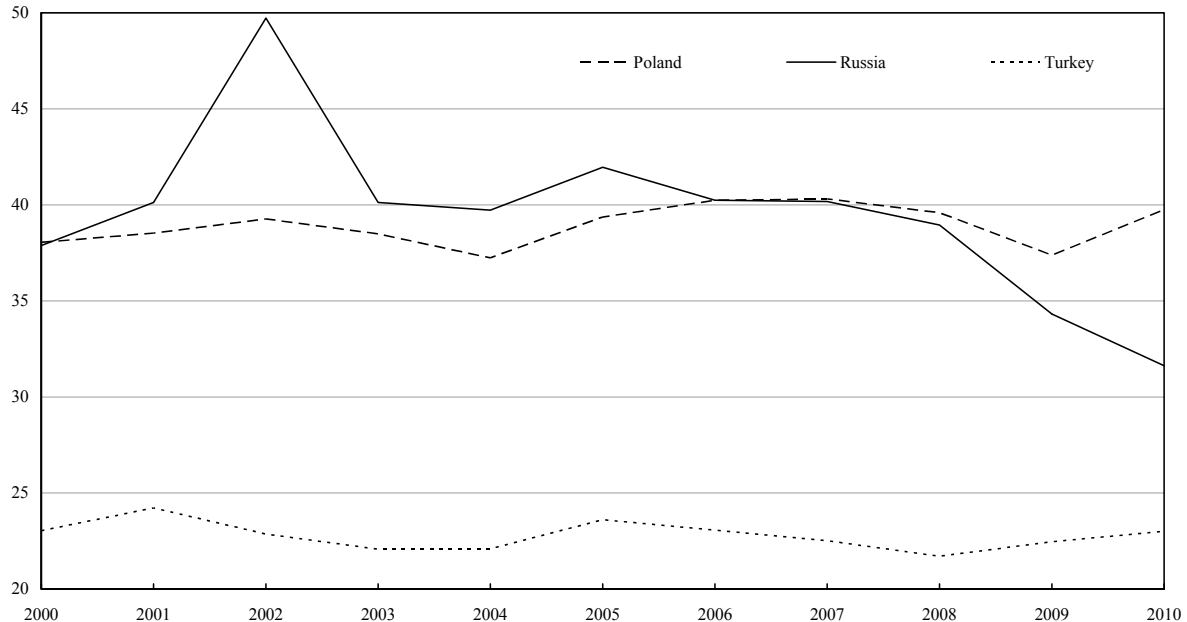


Figure 8

Total Revenues – Poland, Russia, Turkey, 2000-10
(percent of GDP)



4.1 Poland

The Magdalena Agreement of early 1989 in Poland (alternatively referred to as the Roundtable Negotiations), concluded negotiations between the incumbent communists and the opposition, thus setting the basis for new, democratic institutions. Building on strong popular support, the Government of Prime Minister Mazowiecki undertook wholesale reform combining macroeconomic stabilization with comprehensive institutional reform and the government put fiscal reform at the center of its agenda. Through a combination of expenditure cuts and revenue increases, it narrowed the fiscal gap; the headline deficit decreased from 8.5 per cent of GDP in 1991 to 4.3 per cent of GDP in 1998 and 2.3 per cent of GDP in 1999. Other reforms, such as privatization and regulation to harden budget constraints focused on clarifying the boundaries of the state.

After a severe economic contraction in 1991, rapid economic growth and macroeconomic stabilization made Poland one of the leaders of the early transition period. In 1991, parliament approved the first comprehensive public finance law (Budget Law) that adjusted fiscal institutions to the new market economy regime. Later, the 1997 Constitution mandated restrictions on the level of the national debt, banned financing of the deficit by the Central Bank, empowered parliament to introduce changes to the draft of the State Budget and mandated parliament to pass a new comprehensive legal act on public finance. The constitutional rules on public debt stipulated maintaining (i) the outstanding central government public debt below 60 per cent of GDP and (ii) the ratio of debt service to revenues for local governments below 15 per cent. The Public Finance Act that became effective January 1, 1999 mandated specific actions in the case that public debt moved close to 60 per cent of GDP. In addition, it laid out the framework governing the coverage of the budget, the roles of the budgetary units (departments and agencies), the procedures at the central and the local level of government and the submission of the budget to the parliament,

among related aspects. The fiscal rules gave the legislature powers to revise and alter revenue estimates and expenditure programs as long as it maintained the government-proposed nominal deficit levels. The President maintained the power to veto the budget proposed by the legislature. The legislation confirmed an independent audit agency, known as the Supreme Chamber. On availability of information, the Constitution and the Public Finance Act defined with precision the required scope and dates of publishing core fiscal information.

Political and institutional fragmentation still remained issues and their effects on the budget were aggravated by the lack of a single treasury account where budget units would maintain sub-accounts within a consolidated budget.⁹ In addition, EU programs and projects were not included in budgetary estimates of expenditures or financing and thus were not part of the appropriation process of the legislature, although counterpart allocations, met from local sources, were included in the budget (albeit separately appropriated.) Upon Poland joining the EU in 2004, additional fiscal rules became mandatory and greater fiscal transparency was required. The 3 per cent of GDP ceiling on the fiscal deficit under the Growth and Stability Pact complemented Poland's rules on public debt. Amendments to the Act on Public Finances in 2001 and 2003 to comply with the *acquis communautaire* meant an additional strengthening of the 1998 fiscal reform efforts. Yet, all these reforms did not succeed in reducing fragmentation. A review by Von Hagen (2006) stressed that the authority of the Ministry of Finance within the cabinet and in relationship to Parliament faced constraints. Namely, the full cabinet had the power to override the Ministry of Finance and Parliament to make substantial modifications to the budget. Von Hagen pointed to how the fragmented political system at the time was an additional source of incoherence that affected the design of fiscal institutions. After reaching a peak of 6.7 per cent growth of GDP in 1997, in the aftermath of the Russian crisis economic growth in Poland slowed in the early 2000s. At the same time, the public sector deficit jumped from 3.4 per cent of GDP in 2000 to 5.9 per cent of GDP in 2004, driven by increases in transfers and subsidies, with the public debt to GDP rising from 37.6 in 2001 to around 47.1 per cent in 2005. Despite Poland's significant reforms, fiscal consolidation failed in the face of fragmented politics. Public expenditures remained high and social transfers (whose share of GDP continued to increase) much higher than other countries in the region with similar incomes per capita.

But, the booming external environment supported Poland's economic and fiscal recovery around the mid-2000s. However, the economic situation did not galvanize the authorities into action on expenditure rationalization. As growth eased the debt burden, fiscal rules and constraints were not binding: the debt/GDP ratio came down to 44.8 per cent by 2007. Fiscal improvements allowing consolidation of EU funds into the budget and the incorporation of extra-budgetary funds were implemented. Most importantly, in late 2007, a new government with parliamentary majority came to power and moved forward reforms that began to address points of fiscal weakness – pensions, taxes and social security contributions. These reform initiatives were launched before the crisis and were grounded partly (*i.e.*, reduction in social security contribution) in the buoyant public revenues at the time. Poland's fiscal improvements were substantially affected by the general economic reforms. Fiscal institutions did not contain expenditure growth.

When the global crisis struck in 2008, Poland undertook some fiscal expansion. Poland's economy suffered less than many others in the region, with the more moderate dependence on the external sector softening the impact of the external crisis. The government borrowed externally from international capital markets and official donors and undertook further expenditure rationalization, while providing support to the economy. The IMF estimates that the country provided significant fiscal stimulus during the crisis, with a discretionary fiscal relaxation

⁹ WB OER 2003. Note, however, that the lack of a single treasury account probably itself reflected a lack of political consensus on its desirability.

estimated at 1.15 per cent of GDP in 2008 and 2.5 per cent of GDP in 2009, in part resulting from tax cuts that were approved prior to the crisis and not compensated by budget cuts as initially intended in 2009. The increase in the fiscal deficit from 2 per cent of GDP in 2007 to 7 per cent of GDP in 2009 reversed the trend in place since 2000. The excessive deficit procedure under the SGP was initiated in 2008 due to the deficit overrun.¹⁰ As a consequence public debt escalated from 45 per cent of GDP in 2007 to an estimated 51 per cent in 2009.

Overall, expenditure control remains relatively weak. The 2010 Bank Public Expenditure Review¹¹ (PER) stressed the need to better align budgetary allocations within a mid-term consistent framework, a point that the 2003 PER had stressed but where apparently progress had been limited. Some MTEF elements were introduced with the new Law on Public Finance of 2009 and the first adoption of the Medium-Term Financial Plan of the State in late July 2010. Despite the national and supra-national rules and reforms in tax administration, Poland could not contain its deficit or debt-to-GDP ratios. Fiscal rules could not substitute for political fragmentation and were not useful in a crisis.

The fiscal situation in 2009 led the government to revise the Public Finance Act to strengthen commitment to (a) a level of public debt lower than 60 per cent of GDP, (b) a medium term framework for the planning of public expenditure; (c) introduction of performance-based budgeting; (d) further consolidation of government (reducing fragmentation); (e) stronger control and internal audit, and (f) separation of EU funds from other items in the state budget. The revised Public Finance Act strengthens the previous safety thresholds and requires additional corrective actions if the debt exceeds 55 per cent of GDP.

For Poland's expenditure-based adjustment to succeed, the country needs to address the political and economic fragmentation that has put upward pressure on expenditures and delayed fiscal adjustments. Recent legal initiatives, including the revision of the Public Finance Act and the reform of social security, could ease such pressures; the latter will reduce the fiscal risk that could arise from the growing elderly population. Going forward, Poland's fiscal consolidation strategy includes plans for two new fiscal rules: (a) to limit the growth in discretionary budgetary spending to 1 percent over inflation over the next few years; and (b) over the longer run, introduce a fiscal rule through a new public financial stability law to prevent a pro-cyclical fiscal pattern in public finances. The institutional reforms that commenced in 1998 need to be strengthened to contain political fragmentation, recent legislation reduces institutional fragmentation but does not strengthen the powers of the fiscal authorities or constrain parliamentary powers to revise the budget. Lacking strong fiscal powers the authorities may find it difficult to enforce (top-down) fiscal envelopes for the whole public sector.

4.2 *Russia*

After the transition began in 1991, the building of fiscal institutions in Russia proceeded slowly. A highly fragmented fiscal system emerged; Federal Government expenditures were less than half of total public expenditures with the rest accounted for by the sub-national governments. The fragmented fiscal structure meant fiscal outcomes were hard to contain placing the country in a weak position as it faced the 1998 crisis. In the pre-1998 period weaknesses in tax policy, tax administration and budgetary management reinforced each other. The lack of adequate expenditure

¹⁰ In 2009, despite a preparation to reduce state expenditures by 10 per cent, state related expenditures, excluding EU-related spending, increased by 20 per cent in current prices during the first half of the year, but the July supplementary budget changed the 2009 to cut expenditures helping contain the general budget deficit to about 6 per cent of GDP.

¹¹ Public Expenditure Reviews by the World Banks assess the fiscal policy and institutions, particularly as they relate to fiscal expenditures.

control and the inability to collect revenues meant the authorities used noncash mechanisms to settle budgetary commitments. They accumulated arrears. In fact, *ad hoc* expenditure cuts and budgetary arrears became pervasive at all levels, including in extra-budgetary funds and sub-national governments. The Federal Government accounted for the bulk of the overall public deficit (expenditures were pushed up by rising transfers and interest payments); its fiscal space was shrinking as revenues were declining (from 15.6 per cent of GDP in 1992 to 11.6 per cent in 1997). In response, the Federal Government tried to control the deficit by cutting expenditure (from 26 per cent of GDP to 18.4 per cent) but did so in an *ad hoc* manner. Russia's fragmented political system blocked efforts at fiscal reform; for instance the Duma rejected a fiscal reform package in July 1998 just before the financial crisis hit.

During the crisis, the economy contracted and the debt-to-GDP ratio reached over 90 in 1999. With a new government in place, the authorities undertook a dramatic shift in fiscal and macroeconomic policy, and by 2002 the general government was running a surplus which it maintained until the crisis of 2008-09. But, the financial crisis of 1998 was clearly a watershed event for Russia's fiscal institutions and fiscal performance and it led to a turnaround among politicians and technocrats. The cooperation between the executive and the Duma increased, beginning with the approval of a tough 1999 budget that included significant reductions in expenditure including at the regional and the local levels. Changes went beyond the approval of tight and demanding budgets. The government abandoned the practice of using tax offsets to pay its obligations and this helped foster revenue mobilization and reduced barter transactions in the economy. In addition, control over regional and local government finances increased, as did the share of taxes channeled through the federal budget. From 2000 to 2005, the authorities overhauled fiscal institutions in several core strategic areas beginning with the reform of the tax system, including the adoption of a flat income tax and reduction in the corporate income tax rate. Tax administration reforms efforts complemented tax policy initiatives. In 2002, a single Treasury Account brought all government expenditures together at the Central Bank. The revision of the budget code laid out sound principles for budget preparation, execution and reporting covered the sub national governments and established limits on their deficits and borrowing capacity. In a significant step, the government undertook to manage its oil revenues better and introduced an Oil Stabilization Fund (created in 2003 and operational in 2004); later in 2008 this Fund would be split in two: (a) a Reserve Fund (aiming to insure against price volatility) and (b) a National Welfare Fund (for inter-generational equity.)

There were questions however about the sustainability of the adjustment because it initially held social payments and wages below inflation. However, as the finances of the public sector improved, aided by increases in oil revenues which by 2000 had already reached 7.5 per cent of GDP, concurrently, expenditures rose and the non-oil fiscal deficit to non-oil GDP that had reached a surplus in 2000 became a growing deficit thereafter. This development however did not impair a rapid reduction of the overall public debt, a reduction that was aided by the rapid growth in oil export revenues, non-oil revenues to GDP, and negative real interest rates.

The reform of the fiscal relationship across the levels of government proceeded gradually, beginning with the passing in 2003 of a comprehensive decentralization reform that radically reshaped the powers of the local governments in Russia. This legislation was enacted in 2006 and full implementation commenced in January 2009. In addition, the 2004 Budget Code and the 2004 Federal Law on the Distribution and Assignments between Levels of Government tightened the assignment of spending mandates. Federal grants to regions came under common rules that limited them to equalization, matching and compensation for federal mandates. The use of formulae for equalization transfers as mandated by the Budget Code has replaced previous negotiations between the Federal Government and the regions. The legislation endeavored to clarify overlapping

responsibilities between the Federal government and the regions, to eliminate unfunded mandates and to reduce excessive expenditure obligations.

Despite buoyant public sector revenues, fiscal institutional reform continued and focused on second generation reforms that included the introduction of multi-year and performance budgeting (2007), that allowed line ministries to conclude multi-annual contracts and distinguish between the baseline budget and new budget initiatives. The need to respond to the crisis in late 2008, however, led to a suspension of the first multiyear budget adopted in 2007. Further revisions to the Budget code in 2007 tightened the fiscal rules and increased the constraints on extra-budgetary activities of government units and public enterprises, which was complemented with efforts to terminate quasi-fiscal spending by public corporations in which the Russia Federation holds a stake.

As a result of all these reform, Russia's fiscal institutions and fiscal performance improved vastly during the 2000-08 period. These improvements meant that Russia entered the 2008-09 recession in a fiscally strong period, with a large government surplus, a low public debt and sizeable fiscal reserves. In the last quarter of 2008, when the effects of the global crisis were beginning to be felt in Russia, the government responded with an array of policies. Russia's total stimulus package of about 6.7 per cent of GDP over 2008-09 was large when compared to that of other countries. The across-the-board institutional overhaul that took place in the decade after 1998 to addressing the crisis in 2008 and 2009 allowed the government to respond boldly using the room to maneuver created by the substantial level of reserves and the low public debt. As a result, the non-oil federal deficit reached 13.5 per cent of GDP in 2009, and is likely to remain at a similar level in 2010. At the same time, it is estimated that a long-term sustainable level for the deficit is around 4.3 per cent of GDP. The gap between this number and the current deficit implies the magnitude of the adjustment faced by Russia (Bogetic *et al.*, 2010).

Recent spending increases in Russia (which began before the crisis) reflect permanent shifts (in pension and wages, for instance) in a situation where long-term sustainability calls for a significant reduction in the non-oil deficit. The Reserve Fund has been depleted substantially but less than had been feared at the beginning of the crisis. Thus Russia, like Poland, faces significant challenges ahead in further consolidation of its budget. The institutional apparatus, set in place before the crisis, with emphasis on embedding the budget within a mid-term framework can serve to help maneuver the needed adjustment, but it will have to be anchored on a broad political consensus to increase the likelihood of sustainability. The adoption of new rules on oil revenues may signal a greater commitment to fiscal constraint.

4.3 Turkey

The opening and liberalization of the Turkish economy began in 1980 as the country started abandoning strict import-substitution policies. For the next two decades (1980-99) Turkey faced periodic crises which combined stop and go cycles of growth and a rising level of average inflation. But efforts at fiscal adjustment did not take hold. Fiscal and political fragmentation was at the heart of the macroeconomic difficulties. For instance, two episodes during the 1990s (1994-95 and 1998) increased the overall primary surplus of the central government through substantive reductions in expenditures and tax increases, but could not contain the deficit in the rest of the public sector. With the adjustment burden falling on the central government and with a private sector with limited appetite to pay more taxes, the efforts failed. The relative autonomy of various segments of the public sector reduced the fiscal space available to the center and its ability to manage the overall fiscal situation, leading to periodic increases in the overall public sector deficit, inflation and the public sector debt. In addition, underlying these two failed fiscal adjustments during the 1990s were weak coalition governments that could not implement the changes needed to impose hard budget constraints on the rest of the public sector. By 1999, the public sector debt as a percentage

of GDP had grown to 61 per cent from 35 per cent at the beginning of the decade. Meanwhile the ratio of taxes to GDP remained relatively stable, despite a decade of efforts at tax policy and tax administration reform.

In 1999, in the wake of the Russian crisis, an adjustment effort supported by an IMF program focused on curtailing the fiscal powers of the non-central public agencies and enterprises. But, in 2000, the high level of short-term debt refinancing obligations of the public sector induced a fiscal/financial crisis that compromised a weak banking sector. Political and fiscal fragmentation led to a high level of spending and correspondingly large deficits financed by captive public banks. The situation was aggravated by the crawling peg established in 1999 which led the banks to make exchange rate “bets” they lost when the peg failed. Turkey faced one of its most severe crises in 2001. The crisis galvanized the authorities into action. They ruled out debt restructuring and focused instead on ensuring the ability to roll over debt and strengthen longer term sustainability through the generation of high primary surpluses. A critical part of the adjustment was to generate a primary surplus in the rest of the public sector. The adjustment relied as well on indirect taxes (VAT, special consumption tax, petroleum, tobacco, alcohol and motor vehicles) with a lesser contribution of personal and corporate income taxes. Deep structural reforms accompanied the program with a primary focus on the banking sector. Costs of bank restructuring amounted to about 15 of GDP. Turkey obtained sizeable multilateral and bilateral financial support complemented the high primary fiscal surplus to service and manage the debt bulge and to assure the continued availability of international finance. It took longer to reduce the vulnerability of the high level of debt, which was also relatively short-term. In contrast to previous efforts, the rest of the public sector primary balance went from deficit to surplus for the first time since 1980. The GDP did contract by 5.7 per cent in 2001, but rapid recovery followed in 2002 and it grew by 6.2 per cent followed by 5.3 per cent in 2003.

Although the adjustment was undertaken under a coalition government the 2002 election brought in a single party government with an overall majority that went on to conclude the stabilization process and soon thereafter launched an overhaul of its fiscal institutions that the Public Financial Management Control Law (PFMC Law), effective in 2006, consolidated. The PFMC Law reformed the entire cycle from planning and budgeting to legislative scrutiny of budget proposals, internal control and audit, external audit and *ex post* legislative control. The PFMC Law advanced a more consolidated view of the General Government to include Central Government, Social Security Institutions, and Local Administrations. In addition, it assigned responsibilities to a small set of core agencies, reducing fragmentation in decision making: the Ministry of Finance (MOF), the State Planning Organization (SPO) and the (Undersecretariat of the) Treasury. The MOF prepares, executes and reports on the budget; SPO prepares the macro-framework, which is then used by the Treasury to develop the investment budget and manage the public debt (and cash flow). The MOF sets tax policy but a specialized agency (Revenue Administration) collects.

During 2003-06, the nonfinancial public sector primary balance was in surplus as was the central government and the rest of the public sector. The period saw a rapid decline in the public sector debt relative to the economy. Turkey was helped by rapid growth. The general government gross debt-to-GDP ratio fell from 78.6 per cent of GDP in 2001 to 39.5 per cent of GDP in 2008. By the last quarter of 2008, the global crisis had affected Turkey. The authorities undertook a fiscal expansion in response to the crisis. The public sector primary fiscal balance went from a surplus of 4.1 per cent of GDP in 2007 to a surplus of 3.4 per cent in 2008 to balance in 2009. The decline in the primary fiscal balance was due to discretionary measures which amounted to 1.2 per cent of GDP with the remainder coming from automatic fiscal stabilizers. These came mostly as transfers to the health and social security systems. In addition the government introduced temporary tax cuts (VAT) to induce consumption of durables; a moderate package of employment support measures would be introduced as unemployment increased.

The ability of the government to respond was certainly aided by the fiscal space that had been gained and the low level of public debt. Yet as the crisis recedes, Turkey will need to ensure budgetary prudence and to further strengthen its fiscal institutions. To lock in gains and guide the future fiscal stance, the government has proposed adopting a fiscal rule. Draft fiscal legislation sets an annual deficit ceiling that adjusts to cyclical conditions while converging gradually to the medium-term deficit target. The draft legislation also proposes important improvements to Turkey's public financial management procedures, including more transparent and comprehensive reporting of fiscal projections and outturns, tighter oversight of local government borrowing, and strengthened controls to deliver spending outturns more in line with the budget. Recent announcements indicate that the adoption of the rule may be delayed.

5 Conclusion

ECA countries, including the three countries studied in some detail, saw improvements in the quality of fiscal institutions and in fiscal outcomes during the period under study. The improvements in fiscal outcomes before the crisis were aided substantially by a favorable international environment but also by improved fiscal institutions that reduced institutional fragmentation and enhanced transparency through significant investment in supporting systems. Political consensus (or lack thereof) has been a major determining factor behind the types of institutional progress and fiscal consolidation that has taken place. Periods of political consolidation have favored institutional improvements. In addition, the impetus for institutional reforms has gained momentum after the recent crisis.

At the eve of the economic crisis, the three countries seemed better prepared in terms of their fiscal accounts, than in the earlier 1998 crisis period. By 2007, they had all reduced their public debt-to-GDP ratios and improved primary fiscal balances. But large increases in tax revenues and GDP allowed expenditures to accelerate though the deficit fell: fiscal controls did not extend as well as they could have to expenditures. Neither was there substantial improvement in problems areas or rationalization of expenditure patterns. Russia had accumulated substantial international reserves from oil exports by 2007 but it succumbed to upward pressures on expenditures. Russia's high reserves saw it through the crisis, but the time is ripe for a more critical look at public sector expenditures and further constraints on the use of the oil fund. Turkey's expenditure cuts were remarkable until the latter half of the 2000s but Turkey can reduce its risks further through a more complete consolidation of the public sector finances and a renewed commitment to expenditure rationalization. Among the three, Poland, which also raised expenditures, is the only one that had a rise in the public debt-to-GDP ratio before the crisis, and this happened despite the multiplicity of rules and constraints it adopted in the EU accession process. For a variety of reasons, Poland weathered the crisis better, but its fiscal accounts continue to be endangered by rising debt. A political will to tackle social expenditures is critical to Poland's ability to further contain its fiscal outcomes. It is difficult to assess the impact of the institutional reforms in the crisis itself. The empirical evidence indicates that improved institutional frameworks were no match for the unprecedented swings in the macroeconomics in the region, but countries were able to maneuver more efficiently and decisively than in previous episodes in the last two decades.

Over the longer term, the crisis is likely to have two impacts. First, longstanding reforms in social programs, which had lost momentum due to the easy financing of the 2000s, are now more likely to be reenacted, and lead to more sustainable public finances in the future. Second, the momentum for more binding fiscal rules is gaining strength, this time accompanied by substantial improvements in the underlying institutional capacity to enforce them. The principal weakness looking forward, of course, remains the unpredictability of the political process.

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FISCAL POLICY IN COLOMBIA AND A PROSPECTIVE ANALYSIS AFTER THE 2008 FINANCIAL CRISIS

*Ignacio Lozano**

The purpose of this study is twofold: First, it provides an empirical characterization of fiscal policy in Colombia over the last decades, by assessing the three most relevant macroeconomic factors: the behavior of fiscal policy over the business cycle; whether it has been coherent with the long-term debt sustainability; and, whether it has been a significant source of macroeconomic volatility. The results are compared internationally. Second, it evaluates the fiscal stance of the Colombian authorities during the 2008 global financial crisis, and examines the adoption of a fiscal rule as an appropriate tool to manage public finances beyond the recovery phase.

1 Introduction

The purpose of this study is twofold: first, it provides an empirical characterization of fiscal policy in Colombia over the last decades, by assessing the three most relevant macroeconomic factors: (i) the behavior of fiscal policy over the business cycle; (ii) whether it has been coherent with the long-term debt sustainability; (iii) whether it has been a significant source of macroeconomic volatility. The results are compared internationally.

Second, it evaluates the fiscal stance of the Colombian authorities during the 2008 global financial crisis, and examines the adoption of a fiscal rule as an appropriate tool to manage public finances beyond the recovery phase.

To meet the first objective, a standard fiscal reaction function was estimated, and other customary empirical techniques (fiscal impulses and cointegration test) were applied. The analysis led to the conclusion that discretionary fiscal policy in Colombia has been historically pro-cyclical; that it has been closely consistent with the long-term condition of debt sustainability; and that its volatility has been decreasing in recent years. Regarding the second objective, the analysis revealed that the Colombian fiscal authorities adopted a rather *neutral* posture during the crisis – a discretionary counter-cyclical (or pro-cyclical) fiscal plan to compensate for the decline in real activity has not been developed mainly because of the lack of fiscal space.

Two short and medium-term scenarios were considered to assess the fiscal effects of the crisis: one with a moderate impact and a quick economic recovery; and the other, with a slightly more severe impact and a slower growth recovery. As a result of the economic slowdown, the analysis shows that the government finances are likely to suffer a substantial decline: tax revenues will drop more than –4 per cent in 2010 (in real terms); the primary balance will be negative between 2009 and 2011 (higher than –1 per cent of GDP); and debt levels will reach those attained at the beginning of the decade (above of 40 per cent of GDP), when the central government finances were highly fragile.

Despite this short-term fiscal deterioration, the Colombian fiscal indicators had been improving over the pre-crisis period, as a result of a favorable domestic and external macroeconomic environment as well as various fiscal reforms. Going beyond the recovery phase,

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the adoption of a fiscal rule on government accounts would be a suitable tool to help consolidate the public finances in the long term. Prospective exercises were made to support the benefits of this tool. Overall this discussion is organized as follows: an empirical characterization of fiscal policy in Colombia over the last decades is provided in Section 2. The fiscal stance of the authorities during the 2008 global financial crisis is described in Section 3. An assessment of a fiscal rule to be applied to the long-term public finances is presented in Section 4. Some conclusions are drawn in Section 5.

2 Empirical characterization of the fiscal policy: the three major issues

2.1 The fiscal stance throughout the cycle

A large number of empirical studies have found that the fiscal stance in industrial countries tends to be either a-cyclical or counter-cyclical, which is consistent with the stabilizing role of fiscal policy.¹ By contrast, other studies for developing countries – low and middle-income countries – or for emerging economies like Colombia, have usually concluded that their fiscal policies have a pro-cyclical character.² Among the reasons that explain pro-cyclical policies are: weak fiscal institutions, borrowing constraints, and the so-called *voracity effect*.³ Gavin *et al.* (1996) tested some of these factors for Latin American countries (LAC) in the nineties, reaching valuable conclusions. In particular, they found out that the fragile relationship of Latin America with the international financial markets was detrimental to the adoption of counter-cyclical policies. This occurs since these countries often face a loss of market confidence, during economic downturns, that intensifies borrowing constraints.

The Colombian fiscal policy through the cycle is explored empirically in this section, to validate the results found for other LAC. First, a reduced form model of a traditional reaction function is employed. The results are compared at an international level. Second, the fiscal impulses technique is applied which permits to do an annual evaluation of the fiscal stance. Assessing the causes of the fiscal posture during the cycles in Colombia is beyond the scope of this discussion.

2.1.1 The fiscal reaction function

The reduced form of the fiscal reaction function relates the fiscal balances in t (overall or primary), Bal_t , in percent of GDP, to the lagged (or contemporaneous) output gap, Gap_{t-1} , controlling the lagged debt-to-GDP ratio, $Debt_{t-1}$, and the lagged dependent variable. Equation (1) shows this postulation:

$$Bal_t = \alpha + \beta GAP_{t-1} + \lambda Debt_{t-1} + \delta Bal_{t-1} + \varepsilon_t \quad (1)$$

where ε is an i.i.d. disturbance. In equation (1), $\beta < 0$ is evidence of a pro-cyclical policy ($\beta > 0$ counter-cyclical) which means that balance-to-GDP ratio falls when actual output increases relatively to potential output. Regarding the relationship between debt and fiscal balance, which

¹ Galí (1994); Perotti (1999); Silgoner *et al.* (2003); Perotti (2004).

² Manesse (2006); Alesina and Tabellini (2005); Calderón, Duncan and Schmidt-Hebbel (2004); Kaminsky, Reinhart and Végh (2004); Talvi and Végh (2000); Gavin and Perotti (1997).

³ According to Manasse (2006, p. 7), the “voracity” effect takes place “in economies lacking strong legal and political institutions. In such circumstances, a windfall in revenue exacerbates the struggle for fiscal redistribution, as each interest group tries to appropriate its share without fully internalizing the consequences of its own demand on general taxation. The lack of coordination, in this version of the familiar common pool problem, is ultimately responsible for a more-than-proportional increase in spending”.

was first used by Bohn (1988) to test government solvency (sustainability), it is required that $\lambda > 0$. We will return to this subject in the next section.

Empirically, the endogenous variable of equation (1) could be estimated using three possible alternatives: actual balance, Bal ; cyclical-adjusted balance, Bal^{CA} ; or using only the cyclical component of the balance, Bal^C , which is given by the difference between the first two concepts (*i.e.*, $Bal^C = Bal - Bal^{CA}$). As it is shown below, in the first case, β reflects both the automatic stabilizer size and the endogenous change of the discretionary fiscal policy. In the second case, β gives the endogenous response of the fiscal policy to the cycle, precisely the indicator explored in this section. In the third case, β reflects exclusively the size of the automatic stabilizers.⁴ Regarding the fiscal balance definition, it must include the interest payments on the public debt (overall balance, or Bal) or exclude these expenditures (primary balances, $PrimBal$). This second option is closer to the government budget constraints and reflects better the discretionary actions of the fiscal authorities.

$$\begin{aligned} Bal &\longrightarrow \beta = \text{automatic stabilizer} + \text{changes in endogenous policy} \\ Bal = Bal^{CA} &\longrightarrow \beta = \text{endogenous response of fiscal policy} \\ Bal^C &\longrightarrow \beta = \text{automatic stabilizer} \end{aligned}$$

Table 1 shows the estimation of the reaction function for Colombia employing annual data for the central government from 1960-2008. The outcomes are compared internationally with results derived from the Fatás and Mihov (2009) research.⁵ Both for Colombia and for the OECD countries, the estimations were made through OLS (also with the instrumental variables method to control endogeneity problem) and incorporate dummy variables to capture possible changes in the fiscal regimes (structural breaks).⁶ In both studies, the cyclical adjusted balances are estimated using the OECD methodology.⁷

The following two findings must be highlighted: first, the long-term fiscal position of the Colombian government has been pro-cyclical ($\beta < 0$). The different options of measuring the endogenous variable (Bal , Bal^{CA} , $BalPrim$, $BalPrim^{CA}$), are statistically significant and support this conclusion. Using the cyclically-adjusted balance ($\beta = -0.155$), the parameter means that for each percentage point increase in the output gap, the structural balance deteriorates by about one sixth-part. If we evaluate the reaction function with the cyclically-adjusted primary balance ($BalPrim^{CA}$), as recommended by some authors, the degree of pro-cyclicality is maintained ($\beta = -0.139$), and renders a better level of statistical significance (99 per cent).⁸

The second outcome refers to results at an international level. In particular, the European Union governments maintained, on average, a pro-cyclical stance between 1970 and 2007 ($\beta = -0.145$), and only for the U.S., did the authors find evidence of a counter-cyclical stance ($\beta = 0.133$). For the Japan and the U.K cases, clear conclusions could not be drawn since the parameters were not statistically significant. Regarding the size of the automatic stabilizer, the parameter for Colombia is notably lower (0.131) than that of developed countries, where it ranges from 0.26 (for Japan) to 0.46 (for European Union countries).

⁴ Fatás and Mihov (2009).

⁵ The Fatás and Mihov study was made, mainly, for the 12 major European Union economies (EU), USA, UK, and Japan for the period 1970-2005.

⁶ In Colombia, the most significant dummy was detected in 1998, which coincides with a substantial increase in government spending rising from fiscal decentralization and social security programs implemented by the middle of the decade. In the European Union economies, the dummy applies since 1999, before the adoption of the single currency, and after the implementation the Stability and Growth Pact.

⁷ For Colombia, see details in Lozano and Toro (2007).

⁸ Because of data limitations, it was not possible to calculate the reaction function for sub-period (before and after the break changes in 1998).

Table 1

Fiscal Reaction Function for Colombia, 1960-2008

Dependent Variable	GAP _{t-1}		Debt _{t-1}		Dep. Var. Lagged		R ²
	Coefficient	s.e.	Coefficient	e.e.	Coefficient	s.e.	
<i>Bal</i>	-0.122	(0.061)*	0.047	(0.027)*	0.782	(0.103)***	0.82
<i>Bal</i> ^{CA}	-0.155	(0.061)**	0.028	(0.026)	0.716	(0.103)***	0.82
<i>Bal</i> ^C	0.131	(0.009)***	-	-	-	-	0.81
<i>PrimBal</i>	-0.096	(0.053)*	0.057	(0.024)**	0.651	(0.099)***	0.61
<i>PrimBal</i> ^{CA}	-0.139	(0.052)***	0.045	(0.023)*	0.576	(0.098)***	0.63
<i>PrimBal</i> ^C	0.131	(0.009)***	-	-	-	-	0.81

Dependent Variable <i>Bal</i> ^{CA(1)}							
Zone	GAP _t		Debt _{t-1}		Dep. Var. Lagged		R ²
	Coefficient	s.e.	Coefficient	e.e.	Coefficient	s.e.	
Euro Area (G-12)	-0.145	(0.061)	0.016	(0.006)***	0.721	(0.076)**	0.82
Japan	-0.042	(0.100)	0.005	(0.007)	0.904	(0.069)**	0.78
U.K.	-0.196	(0.127)	0.017	(0.032)	0.837	(0.095)**	0.67
U.S.	0.133	(0.065)***	0.028	(0.014)	0.770	(0.103)**	0.69

Dependent Variable <i>Bal</i> ^{C(1)}							
Automatic Stabilizers							
Zone	GAP _t		Debt _{t-1}		Dep. Var. Lagged		R ²
	Coefficient	s.e.	Coefficient	e.e.	Coefficient	s.e.	
Euro Area (G-12)	0.464	(0.005)***	-	-	-	-	1.00
Japan	0.267	(0.012)***	-	-	-	-	0.95
U.K.	0.391	(0.021)***	-	-	-	-	0.94
U.S.	0.293	(0.013)***	-	-	-	-	0.95

Source: Calculations of the author for Colombia and Fatás and Mihov (2009) for the OECD countries.

Notes: CA = Cyclically-adjusted, C = Cyclical component.

*** significance at 99 per cent level, ** significance at 95 per cent level, * significance at 90 per cent level.

⁽¹⁾ From Fatás and Mihov (2009), period 1975-2007.

2.1.2 The fiscal impulses

A fiscal impulse is defined as a change in the cyclically-adjusted fiscal balance between two periods, and can be assessed both with the overall balance (ΔOB^{CA}) and primary balance (ΔBP^{CA}). These indicators were compared with respect to output gap, in order to establish the fiscal stances through the business cycle. The advantage to use fiscal impulses rather than a reaction function is that a fiscal stance can be assessed annually. Figures 1 and 2 show the results for a shorter period (1994-2008).⁹ The slope sign of the trend line captures the fiscal posture (on average) along those years. The negative correlations between fiscal impulses and the output gap point out to the dominance of pro-cyclical fiscal postures in Colombia in recent times. A pro-cyclical fiscal policy was also evident in the economic expansion of recent years (2003-07), in which the economy grew at an average rate of 5.8 per cent. Throughout the entire period considered, only four of the fifteen observations (years) displayed counter-cyclical fiscal stances.

2.2 Debt sustainability

From a macroeconomic perspective, debt sustainability is the second important empirical fact that must be considered. According to equation (1), if λ is positive, the government tries to increase the fiscal balance in order to react to the existing stock of public debt and comply with the inter-temporal budget constraint (IBC). The standard interpretation of such a result could be seen as a sign of a *Ricardian fiscal regime*. However, the literature has emphasized that sustainability of public finances would require not only that λ be positive but also *sufficiently* positive.¹⁰ The results for Colombia show that $\lambda = 0.057$ when the reaction function is evaluated with the actual primary balance, as dependent variable, and that $\lambda = 0.045$, when it is evaluated with the cyclically-adjusted primary balance (Table 1). The latter parameter has a higher significance level (95 per cent). These results provide evidence that the Colombian central government has been historically coherent with the IBC. Internationally, the clearest evidence of fiscal sustainability is offered by the U.S. and the G-12 countries of the European Union.

2.2.1 Cointegration analysis

A cointegration analysis between the tax revenues (t_t) and the primary expenditures (g_t) of the central government was performed as an alternative technique to assess fiscal sustainability, and as a means to complement the analysis of parameter λ from the fiscal reaction function; in particular, it was important to assess if the size of such parameter was positive enough. The idea behind co integration analysis is that if we assume that the discount rate (δ) of the IBC follows a stationary process, as it is empirically commonplace, we can expect a long term relationship between these two variables (Hakki and Rush, 1991).¹¹ If this is the case, we use the reduced-form model $t_t = (\sigma_0 + \sigma_1 D_t + \beta g_t + \varepsilon_t)$, where σ 's and β are the cointegration parameters, D denotes dummies – capturing the possible structural changes –, which are estimated endogenously using Gregory and Hansen (1996) tests, and ε is the error term. Because of data availability

⁹ Quadrants I and III reflect a counter-cyclical stance as the fiscal balance improved with positive changes in output gap, and quadrants II and IV reflect the opposite case (pro-cyclical stance).

¹⁰ Afonso (2005). See details in Afonso, p. 14 and 24.

¹¹ The budget constraint could be expressed as $b_t = E_t \sum_{i=1}^{\infty} \delta^{-i} (t_{t+i} - g_{t+i})$, where b_t is the debt to GPP ratio, E_t is the expectative operator, and the no-Ponzi game condition is imposed.

Table 2

Unit Root Test

test	Actual Data				Cyclically-adjusted Data			
	t_t	Δt_t	g_t	Δg_t	t_t^{ca}	Δt_t^{ca}	g_t^{ca}	Δg_t^{ca}
ADF	2.398	-6,076*	1.403	-16,1*	2.090	-13,48*	2.053	-17,701*
PP	0.222	-15,525*	0.193	-38,534*	0.161	-15.115*	0.398	-33,425*
KPSS	1,068*	0.139	1,014*	0.079	1,077*	0.133	1,131*	0.083

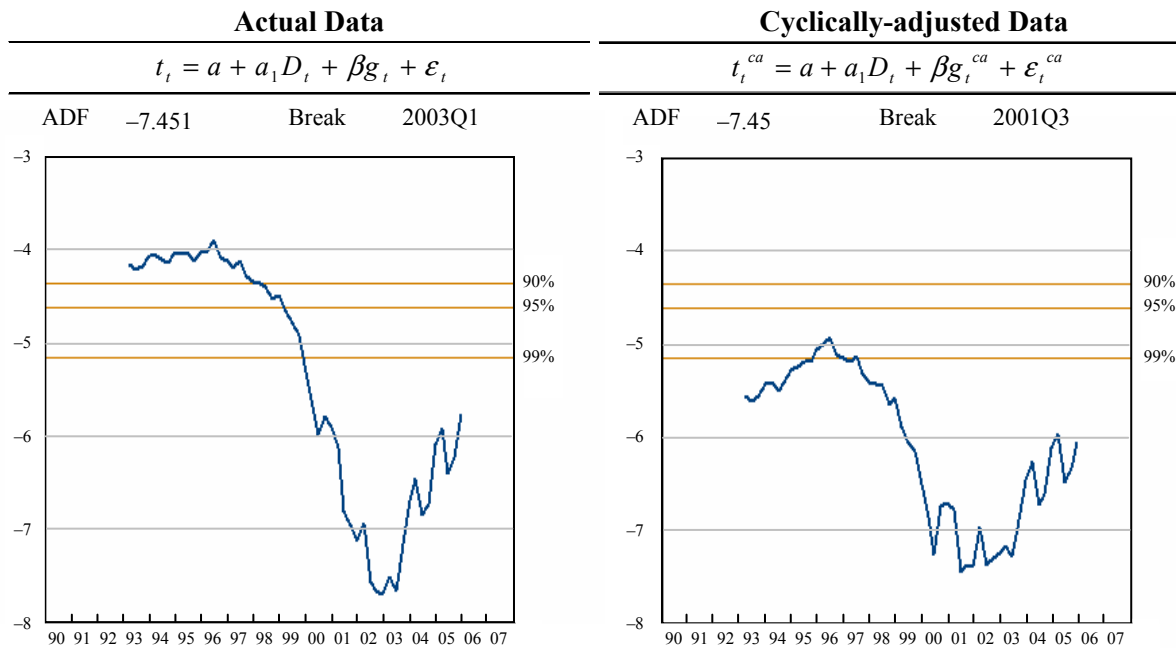
Notes:

ADF: Dickey-Fuller-Augmented; PP: Phillips-Perron; and KPSS Kwiatkowski-Phillips-Schmit-Shin.

* 99 per cent of significance level.

Table 3

Cointegration Test with Structural Break (Gregory-Hansen Test)



Note: Critical Values ADF from Gregory-Hansen (1996): $a(1\%)$ -5.13, $b(5\%)$ -4.61, and $c(10\%)$ -4.34.

constraints, this cointegration analysis was made for a shorter period with quarterly data (from 1990Q1 to 2008Q4).

Initially, both the unit root and the cointegration tests were checked as well as the long-term causality test between (t_t) and (g_t), through the Vector Error Correction Model, VECM. Two important findings emerged. First, variables were co integrated only considering a structural break in 2003Q1 (Table 2), which coincided with the adoption of some fiscal reforms known as

“second-generation reforms”, implemented to adjust government finances.¹² Second, there was evidence in favor of the expenditures-to-revenue-long-term determination-hypothesis, which means that the government spending has been determining the dynamics of its revenues (Table 3).¹³ On the basis of these results, the fiscal sustainability test using Dynamics OLS (DOLS) and the sustainability test of Quintos (1995) were performed. The reduced-form model employed can be expressed as:

$$t_t = \sigma_0 + \sigma_1 D_t + \beta g_t + \sum_{-q}^q \gamma_q \Delta g_{t-q} + \varepsilon_t \quad (2)$$

where the forth term on the right side of (2) is used to control the short-term dynamic of the exogenous variable. Tables 4 and 5 display the results. Because the parameter β ($\beta=0.48$) is neither (statistically) close to one (which is the case of a *strong sustainability condition*) nor close to zero (*unsustainability condition*), we can conclude that the fiscal stance in Colombia, during the last two decades, has been *sustainable but in a weak sense* ($0 < \beta < 1$), which in practice means that the government has been compelled to make debt roll-over (partially or totally).¹⁴

2.3 Volatility

The volatility of fiscal policy is the third empirical aspect to be examined. According to the reaction function, equation (1), any exogenous discretionary fiscal decision, which is not related to the debt level or to the state of the economy (output gap), is captured by the error ε_t . Consequently, the error behavior can be used to analyze the volatility of the discretionary fiscal policy, and therefore to get an idea of the role played by fiscal policy, from a macroeconomic volatility perspective. Table 6 shows errors volatility for Colombia since 1960. The results are compared with fiscal volatility figures found by Fatás *et al.*, (2009) for major OECD countries. In both cases, the overall actual balance is used as endogenous variable.

Fiscal volatility, measured by the error’s standard deviation (SD), was 0.84 for the overall period. Looking at sub-periods, the nineties registered higher fluctuations of the residuals (SD = 1.37) than those of the seventies and eighties (SD = 0.61). The highest volatility reached in the nineties was partially associated to the public spending commitments of the Political Constitution of 1991, which generated a large deficit and high-debt levels for the central government by the turn of the century.

It is important to note that the highest fiscal volatility in Colombia, during the Nineties, coincides with the highest level of economic growth volatility. However, this indicator has been decreasing in recent years, facilitating macroeconomic stabilization. Historically, fiscal policy in Colombia has been less volatile than in Japan and the U.K, but more volatile than in the U.S. and the G-20 countries of European Union. For the latter, volatility figures were substantially reduced after the adoption of the single currency in 1999. As was the case in Colombia, fiscal policy in the U.K. and the U.S. was less volatile after 1999.

3 The fiscal stance during the 2008 global financial crisis

As described in the previous section, from the 1960s discretionary fiscal policy in Colombia has been pro-cyclical; it has been consistent with the long-term condition of debt sustainability – although in a weak way, particularly over the last two decades; and it has registered decreasing

¹² The fiscal reforms are described in (Lozano, 2009).

¹³ Table 3 shows that the error correction term (δ) is statistical significant only in the income equation.

¹⁴ More details on these results are offered in Lozano and Cabrera (2009).

Table 4

Revenue and Expenditures Nexus – Estimation Through the VECM Model

Actual Data				Cyclically-adjusted Data			
Δt_t		Δg_t		Δt_t		Δg_t	
α_0	0.01 (0.001)	$\hat{\alpha}_0$	0.002 (0.002)	α_0	0.001 (0.001)	$\hat{\alpha}_0$	0.002 (0.003)
α_1	0.067 (0.136)	$\hat{\alpha}_1$	-0.439 (0.229)***	α_1	-0.006 (0.123)	$\hat{\alpha}_1$	-0.527 (0.227)**
α_2	-0.306 (0.115)*	$\hat{\alpha}_2$	0.266 (0.193)***	α_2	-0.411 (0.108)*	$\hat{\alpha}_2$	0.349 (0.200)**
β_1	0.084 (0.084)	$\hat{\beta}_1$	-0.882 (0.142)*	β_1	0.063 (0.077)	$\hat{\beta}_1$	-0.856 (0.142)*
β_2	0.328 (0.087)*	$\hat{\beta}_2$	-0.276 (0.147)**	β_2	0.274 (0.078)*	$\hat{\beta}_2$	-0.277 (0.145)*
δ	-0.604 (0.177)*	$\hat{\delta}$	0.201 (0.298)	δ	-0.419 (0.156)*	$\hat{\delta}$	0.196 (0.289)

Causality Analysis

Actual Data			Cyclically-adjusted Data		
Ho	Statistic	P-Value	Ho	Statistic	P-Value
$\beta_1 = \beta_2 = 0$	27.440	0.000	$\beta_1 = \beta_2 = 0$	23.792	0.000
$\hat{\alpha}_1 = \hat{\alpha}_2 = 0$	15.918	0.000	$\hat{\alpha}_1 = \hat{\alpha}_2 = 0$	21.293	0.000

* Significance at 99 per cent level, ** significance at 95 per cent level, *** significance at 90 per cent level.

Table 5

Cointegration Relationship Through DOLS (Stock and Watson)^(a)

Actual Data			Cyclically-adjusted Data		
$t_t = \alpha + \alpha_1 D_t + \beta g_t + \sum_{-q}^q \gamma_q \Delta g_{t-q} + \varepsilon_t$			$t_t^{ca} = \alpha + \alpha_1 D_t + \beta g_t^{ca} + \sum_{-q}^q \gamma_q \Delta g_{t-q}^{ca} + \varepsilon_t^{ca}$		
α	α_1	β	α	α_1	β
0.043	0.033	0.484	0.042	0.033	0.484
(0.012)*	(0.004)*	(0.096)*	(0.012)*	(0.005)*	(0.096)*

Sustainability Test (Quintos)^(b)

Actual Data				Cyclically-adjusted Data			
Step	Ho	H1	t	Step	Ho	H1	t
1	$\beta = 0$	$\beta > 0$	5.169**	1	$\beta^{ca} = 0$	$\beta^{ca} > 0$	5.050**
2	$\beta = 1$	$\beta < 0$	-5.508**	2	$\beta^{ca} = 1$	$\beta^{ca} < 0$	-5.395**

Notes:

^(a) Standard error * Significance at 99 per cent level.

^(b) Critical Values for Ho: (10%) 1.295, (5%) 1.669, and (1%) 2.387.

** Reject Ho at 99 per cent level of significance.

Table 6

Fiscal Volatility				
Colombia, 1960-2008				
Error Volatility (Fiscal Policy)		Growth Volatility		
	S.D. Total Period 0.839		S.D. Total Period 0.021	
	S.D. by Sub-periods		S.D. by Sub-periods	
	1961-70	0.648	1961-70	0.011
	1971-80	0.610	1971-80	0.018
	1981-90	0.610	1981-90	0.015
	1991-00	1.373	1991-00	0.029
2001-08	0.815	2001-08	0.021	
OECD Countries ⁽¹⁾				
Country	Before 1999	After 1999		
	S.D. (Fiscal Policy)			
Euro (G- 12)	0.304	0.146		
Japan	1.096	2.543		
U.K.	1.845	0.899		
U.S.A.	0.641	0.135		

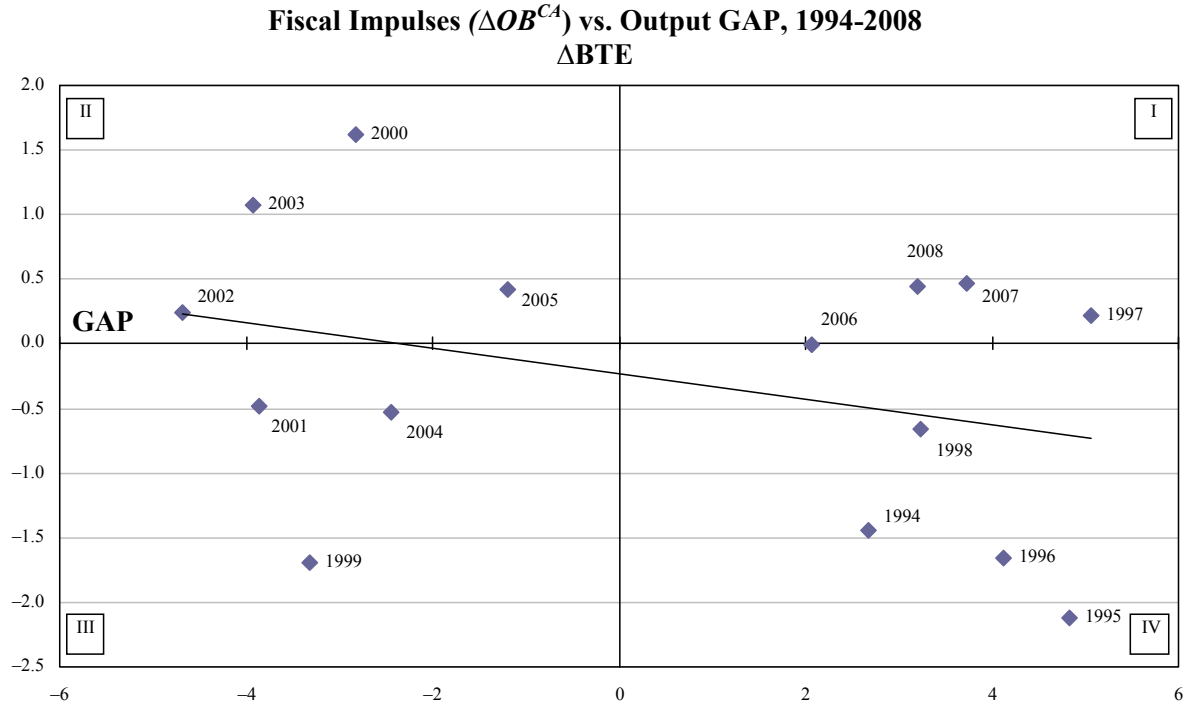
⁽¹⁾ From Fatás and Mihov (2009), period 1960-2000.

volatility rates in recent years. Under this scenario, it is important to analyze how the 2008 global financial crisis affected public finances in Colombia, and whether its fiscal authorities are exploring new policy mechanisms conducive to long-term self confidence. These queries are tackled, first, by describing the fiscal indicator behavior during the pre-crisis period; and second, by reviewing the changes in its forecasting, once the slowdown in economic activity became evident.

Regarding the first query, it is evident that in the course of last decade, Colombia's public finances have displayed a remarkable improvement. The fiscal balance of the consolidated public sector (CPS) shifted from a deficit of 4.9 per cent of the GDP in 1999, to a small surplus of 0.1 per cent of the GDP in 2008. In that period, the deficit of the Central Government (CG) went down from 6 to 2.3 per cent of the GDP, and its debt level decreased from 47.5 per cent of the GDP in 2002 to 36 per cent, in 2008. These results were fostered by fiscal reforms designed to increase revenues (three tax reforms) as well as to moderate the growth of public expenditures (two pension reforms and two reforms to transfer resources at sub-national levels, among others). However, the most important factors of such a successful fiscal performance were the favorable internal and external macroeconomic circumstances, including the boom of oil prices.¹⁵

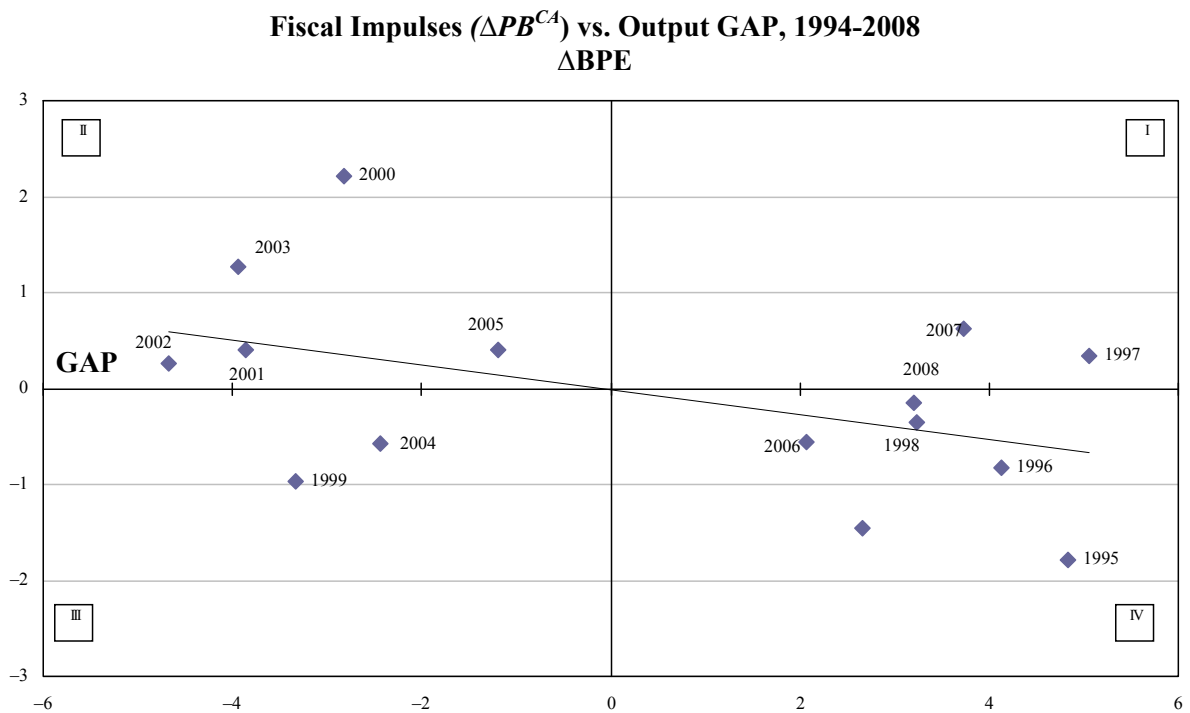
¹⁵ In 2004 for instance, the debt ratio was reduced in 4.5 points of the GDP, out of which 3.6 points were explained both by economic growth and by the appreciation of the COP. See details in Lozano (2009).

Figure 1



Source: Calculations of the author (OB^{CA} : Cyclically-adjusted Overall Balance).

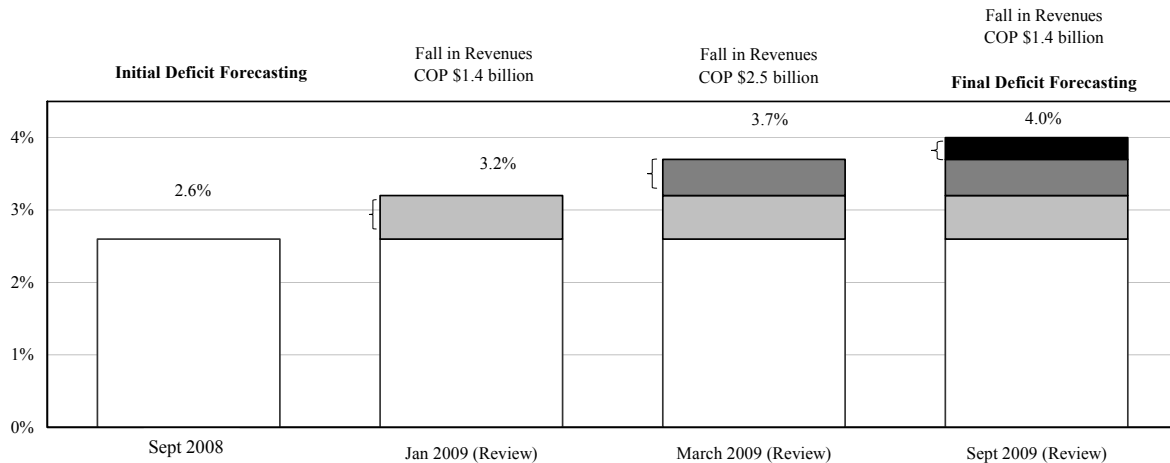
Figure 2



Source: Calculations of the author (PB^{CA} : Cyclically-adjusted Primary Balance).

Figure 3

Changes in Fiscal Balance Forecasting for 2009
(percent of GDP)



Source: Ministry of Finances.

The sharp economic slowdown that began in the fourth quarter of 2008 and extended into 2009 caused a significant drop in the tax revenues of the central government, and the subsequent deterioration of its fiscal position. The Colombian economy has accumulated negative growth rates for the last four quarters, from -1 per cent (2008Q1) to -0.2 per cent (2009Q3). The external transmission channel (fall in commodity external prices, falling exports, falling remittances, temporary restriction of credit markets, etc.), was the most important channel of transmission of the global crisis. Despite the impact of these factors in tax revenues, fiscal authorities decided to keep the same expenditure levels to avoid a further contraction of the domestic demand, which could exacerbate the economic downturn.

As a result, the deficit of the central government for 2009 rose from an initially expected level of 2.6 per cent of the GDP to a final level of 4 per cent (Figure 3). The changes in fiscal forecasting meant a deterioration of the balance of 1.4 per cent of the GDP. It is anticipated that the fiscal balance will continue to deteriorate in 2010, by the lagged effect of the crisis. Because this larger fiscal deficit is mainly explained by the fall of endogenous revenue and the preservation of public-expenditure rates, this fiscal stance can be typified as a-cyclical.

At the bottom of Table 7, the size of the automatic stabilizer for 2009 is calculated, *i.e.*, the impact of the fall in economic activity on the government's fiscal balance; these results are compared internationally. The economic growth forecast for 2009 was reduced from an initial rate of 5 per cent to a final rate of 0.5 per cent, while the fiscal imbalance increased from 2.6 to 4 per cent of the GDP correspondingly. Therefore, it can be concluded that for each percentage point of lower economic growth, the fiscal deficit deteriorated 0.3 per cent of the GDP. The effect of the crisis for industrialized and emerging economies (G-20) would be, on average, very close to that found for Colombia.¹⁶

¹⁶ The effect of the automatic stabilizers on the fiscal balance is calculated using standard accounting techniques (see 1 in Table 6). For OECD and emerging economies, see IMF (2009).

Table 7

Fiscal Balance in Colombia
(percent of GDP)

	2006	2007	2008	Forecasting 2009			
				June 08	March 09	Sept 09	Δ Forecasting
Central Government	-3.4	-2.7	-2.3	-2.6	-3.7	-4.0	-1.4
Decentralized Agencies	2.4	1.9	2.1	1.1	1.2	1.2	0.1
Quasi-fiscal Operations	0.3	0.2	0.1	0.3	0.1	0.1	-0.1
Overall Balance	-0.7	-0.6	-0.1	-1.2	-2.4	-2.7	-1.4
Change in Balance	-	-	-	-	-1.2	-0.3	-1.4
Automatic Stabilizers (AS) 2009							
a. Colombia							
Economic Growth (y)	6.9	7.5	2.5	5.0	1.0	0.5	-4.0
Δ in Economic Growth (Δy)	1.2	0.6	-5.0	-	-4.0	-0.5	-4.5
Size of the State (G/Y) ⁽²⁾	30.6	--	--	-	-	-	-
Effect of A. S. on Fiscal Bal⁽¹⁾	--	--	--	-	-1.2	-0.2	-1.4
b. OECD Countries and Some Emergent Countries⁽²⁾							
U.S.	-	-	-	-	-	-	-1.5
Japan	-	-	-	-	-	-	-1.4
U.K.	-	-	-	-	-	-	-2.0
Spain	-	-	-	-	-	-	-1.8
Brazil	-	-	-	-	-	-	-0.5
Mexico	-	-	-	-	-	-	-0.8
Argentina	-	-	-	-	-	-	-0.8
G-20 (OECD and Emergents)	-	-	-	-	-	-	-1.2

Source: Ministry of Finance, IMF (2009) and calculations of the author.

⁽¹⁾ The size of the Automatic Stabilizer (AS) is estimated through (2):

$$AS \approx (G/Y) * \Delta OUTPUT GAP \quad (1)$$

Assuming that $\Delta y_t \approx \Delta Output Gap Y_t$, then:

$$EA_t \approx (G/Y_t) * \Delta y_t \quad (2)$$

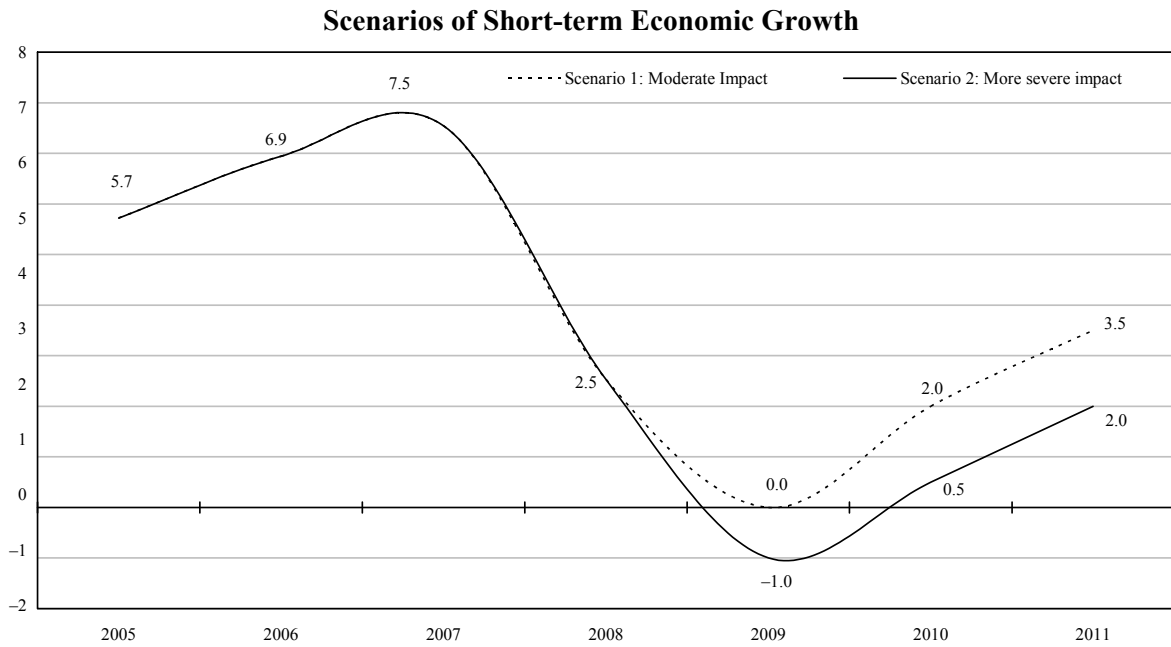
⁽²⁾ From IMF (2009), Table 11, p. 51.

3.1 Short and medium term fiscal forecasting

The deterioration of the Colombian fiscal indicators in the short and medium terms will depend on the severity of the economic downturn in 2009 and 2010, and particularly on the recovery path of subsequent years. As will be the case of other Latin American Countries (LAC), economic recovery in Colombia will be conditional to the revitalization of the global economy and, in particular, of the U.S. economy and those of other important trading partners such as Venezuela, Ecuador and the E.U. Figure 4 displays two foreseeable scenarios for Colombia's economic growth for the period 2009 to 2011: Scenario 1 with a moderate impact of the international crisis and a quick economic recovery; and Scenario 2 with a slightly more severe impact and a slower economic recovery.

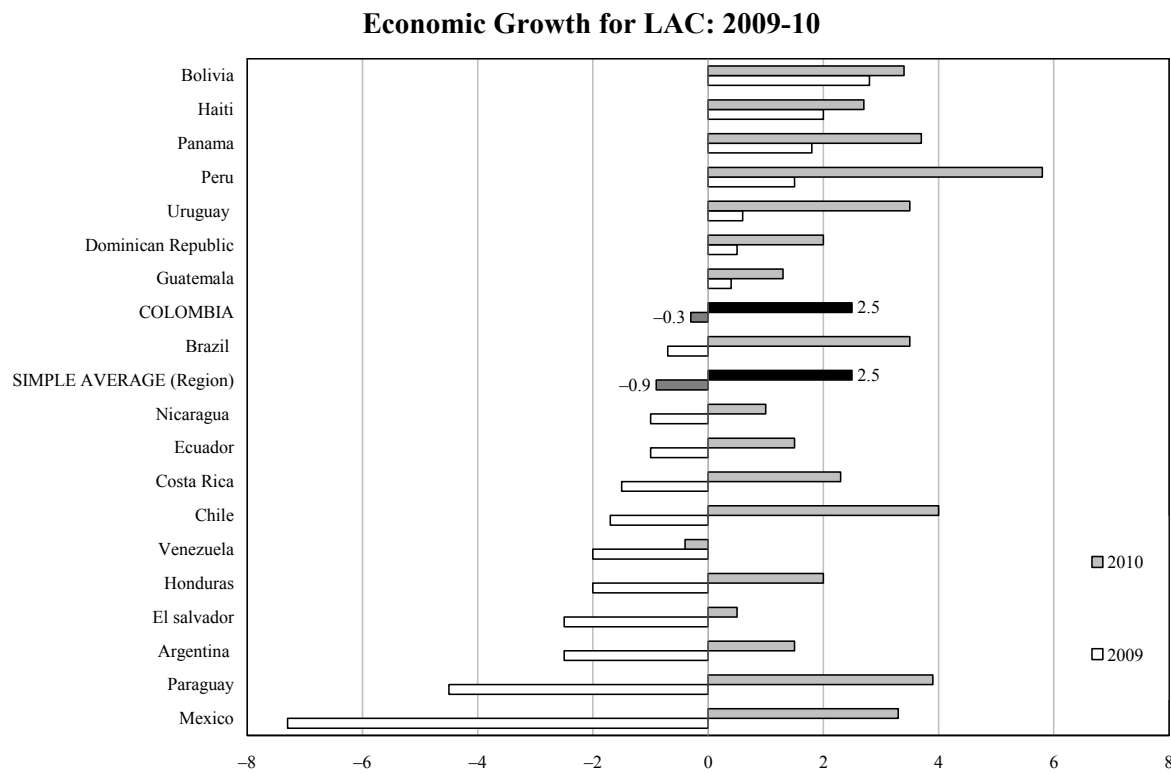
A comparison of the above-mentioned forecasting with the WEO-IMF growth-forecast for LAC leads to the conclusion that: i) the moderate growth scenario is coherent with what IMF is expecting for Colombia, and ii) the growth impact of the crisis in 2009 was more severe in countries like Mexico, Chile, and Brazil, even though the growth recovery has been faster in these countries. The Colombian economic performance in these two years (2009-10), is just equal to the average (simple) for the region (Figure 5).

Figure 4



Source: Calculations of the author.

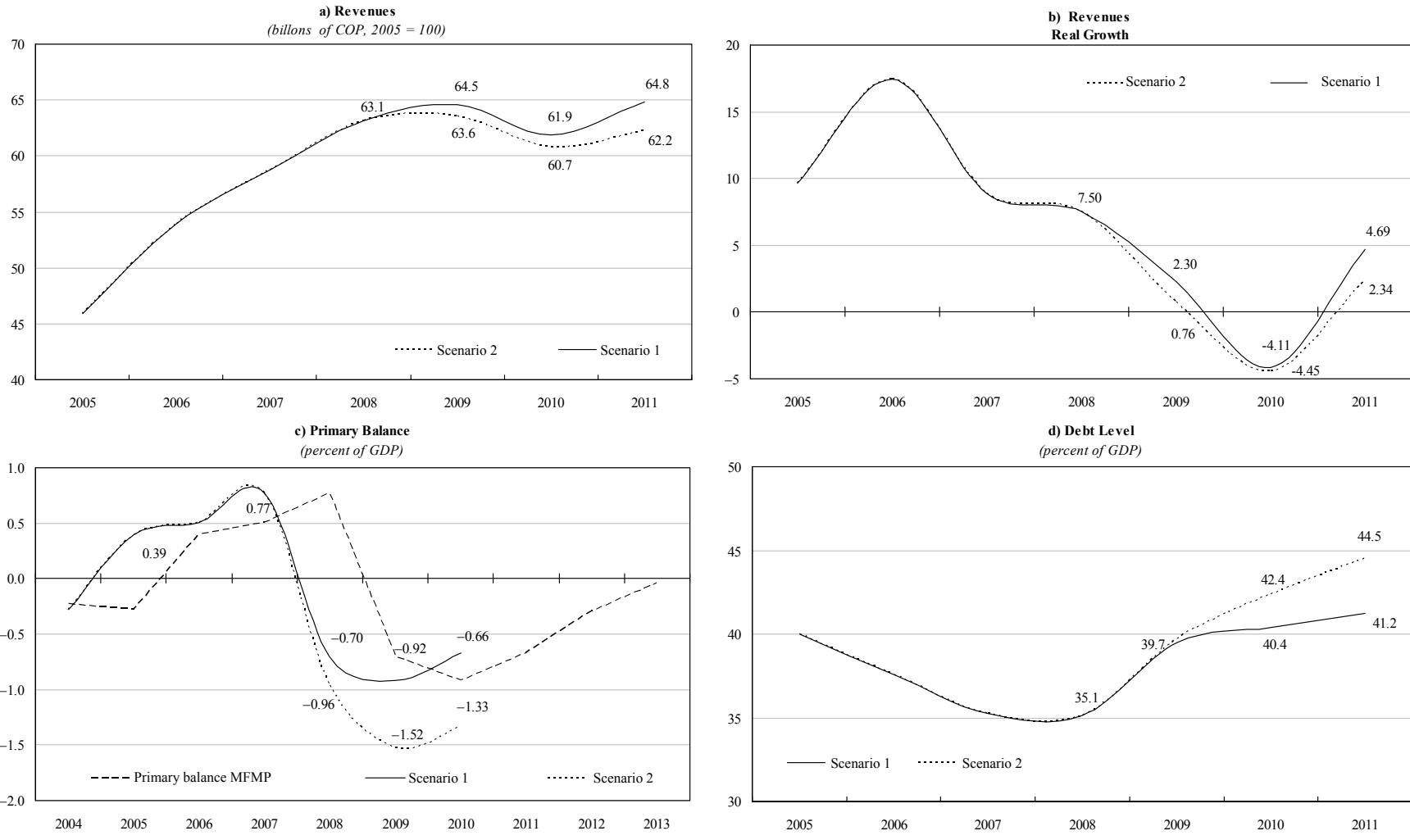
Figure 5



Source: WEO-IMF.

Figure 6

Fiscal Effects of the Economic Slowdown



Source: Calculations of the author.

Under each economic growth scenario and considering other consistent macroeconomic assumptions, a predicting exercise of tax revenue, primary balance and debt, for the short and medium terms, was carried out.¹⁷ Figure 6 illustrates how the economic slowdown will have negative effects on the central government finances. In both scenarios, government revenues will decline, in real terms, more than –4 per cent in 2010; the primary balance will be negative between 2009 and 2011 (higher than –1 per cent of GDP); and debt levels will reach those recorded at the beginning of the decade (above of 40 per cent of GDP), when the central government finances were highly fragile. With regards to the pre-crisis period (2007-08), the debt level could increase in 2011 about 8 percentage points of the GDP.

Although the main fiscal indicators are declining in Colombia as result of the global crisis, it is certainly not a “huge fiscal decline”, as has been the case of the majority of OECD economies. However, fiscal authorities are facing important policy challenges to guarantee the long-term sustainability of the public finances, and particularly to implement counter-cyclical tools that help face unexpected shocks like the 2008 crash. The defies are difficult and mounting since the Colombian government has been solving a larger demand for social expenditures, particularly in the social security services; the poverty level has increased in recent times (around of 45 per cent); and the political internal conflict still remains to be solved.

4 Designing a fiscal rule to manage public finances

According to preliminary exercises of prediction, the primary balance for central government will return to an equilibrium level (not positive) only since 2014. This means that only by then, the debt-to-GDP ratio would return to its downward trend.¹⁸ Under these circumstances, it is not advisable for the government to assume a passive fiscal posture in the upcoming years. The unexpected increase in fiscal deficits and public debt has raised concerns about the sustainability of public finances in Colombia, and underlines the need for additional adjustments in the medium term.

As was mentioned in Section 3, Colombia has made significant progress towards fiscal consolidation over the last ten years. Nevertheless, the fiscal adjustments have not sufficed and, somehow, they have been partially reversed by the 2008 global financial crisis. The current scenario calls for the adoption of a fiscal rule (well-designed and well-implemented) on central government finances that would guide fiscal policy in medium and long terms and, particularly, anchor expectations regarding the sustainability of the public debt. The fiscal adjustments advanced to date constitute a credible prelude for the establishment of such a rule.

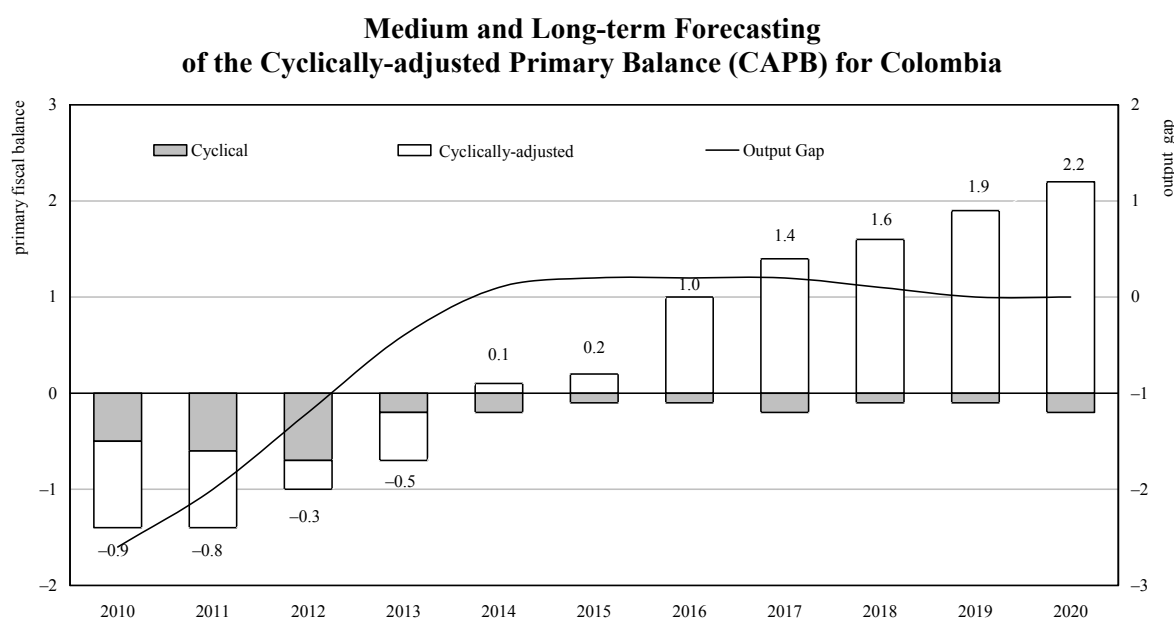
A recent IMF study states that in countries with no existing rule and relatively small adjustment needs (like Colombia), early implementation of a fiscal rule may help strengthen policy credibility. The confidence and credibility are essential to anchor long-term expectations about the sustainability of the public debt. Such anchoring, in turn, could help prevent adverse market reactions, including a higher risk premium, and facilitate the adoption of a prudent fiscal policy (IMF, 2009). It should be recalled that Colombia does not have investment grade, like Chile, Brazil, Mexico, and Peru, which means that its debt is relatively more expensive. In this regard, the fiscal rule might help the country regain the investment grade that was lost in the late nineties.

From a macroeconomic standpoint, there is evidence that fiscal rules enhance the credibility of government decisions; allow countries to have counter-cyclical and sustainable fiscal policies;

¹⁷ The macroeconomic assumptions are derived from the balance of payments, and include inflation, exchange rate, external prices of major commodities, the import growth, and the economic growth of major trading partners.

¹⁸ This is mainly due to the fact that output gap remains negative until 2013.

Figure 7



Source: Calculations of the author.

and contribute to economic stability and long-term economic growth.¹⁹ The adoption of fiscal rules has become an institutional strategy for most OECD countries and for several LAC (Brazil, Chile, Mexico and Peru). Colombia began to introduce fiscal rules by the end of the nineties, but mainly at the sub-national level. In particular, the operational expenditures and the debt levels of the sub-national governments were constrained to the performance of their own revenues and to their payment capacity, respectively. Since then, local governments in Colombia have not been a source of fiscal disequilibrium.

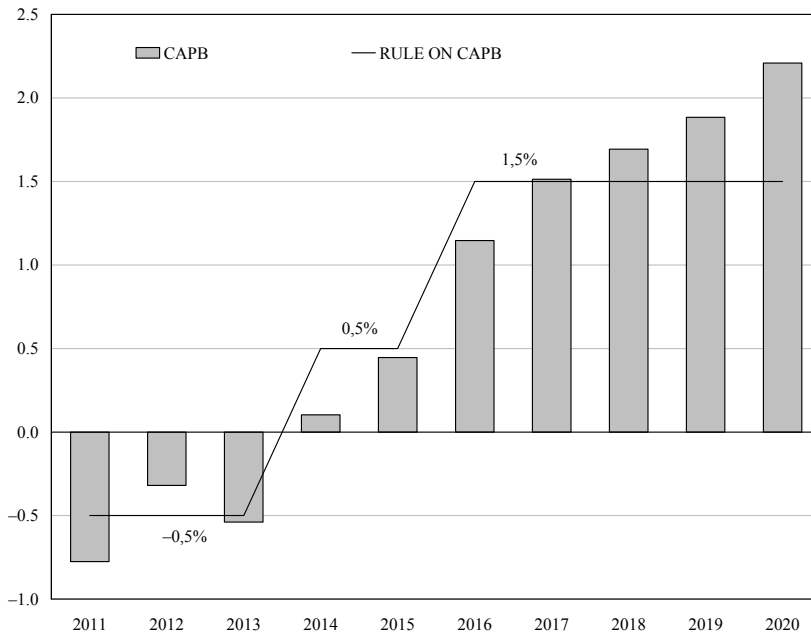
Among several alternatives, the Colombian government is currently analyzing the cyclically-adjusted primary balance (CAPB) as one of the best indicators to fix the fiscal rule. The primary balance excludes the interest payments on the debt, over which the fiscal authority has no discretion. As such payments could be very sensitive to exogenous macroeconomic variables such as the exchange rate and the interest rates (domestic and external), may be appropriate that the rule would not depend on the volatility of these variables. Another advantage of focus on CAPB is that is relatively more controllable by the fiscal authorities. In addition, if the rule is adopted to guide fiscal policy towards the smoothing the economic fluctuations, the international evidence suggests that the CAPB becomes in one the best indicators since it allows the automatic stabilizers to operate fully.

Figure 7 displays a CAPB long-term prediction exercise, to examine the adoption of a fiscal rule on this indicator. For the reasons stated above, the coverage of the new rule would apply only to the central government finances. The fiscal forecasting exercise is made on the basis of a conservative macro-scenario, which does not contemplate any additional tax reforms, and is also consistent with the reduced fiscal space. Remarkably, the negative output gap will close smoothly until 2013 (right scale). Moreover, the CAPB will be negative until 2013 (-0.6 per cent of the

¹⁹ Kopits (2004) and Fatás and Mihov (2003).

Figure 8

Fiscal Rule on Cyclically-adjusted Primary Balance (CAPB)



Source: Calculations of the author.

Figure 9

**Debt Forecasting with Fiscal Rule on CAPB
(percent of GDP)**



Source: Calculations of the author.

potential GDP, on average) and, thereafter, will remain almost in equilibrium for the following two years. Afterward, the CAPB will become positive (on average 1.6 per cent of the potential GDP between 2016 and 2020).

In conformity to these results, the fiscal rule must have at least three key elements to secure credibility, counter-cyclicality, and fiscal discipline in the long term; moreover, it should be supplemented by other fiscal reforms to render feasible its implementation. First, the CAPB rule must include more than one numerical target for the coming years, to make possible its fulfillment at the stage of economic recovery. Assuming that the fiscal rule would be adopted as of 2011, for instance, this paper proposes a numeral target in three steps: -0.5 per cent of GDP for 2011, 2012 and 2013; +0.5 per cent for 2014, and 2015; and finally, +1.5 per cent, as of 2016. These goals must be reviewed at any prudential intervals (*i.e.*, every 5 years) to introduce any required adjustments.

Second, the numeral target on CAPB must guarantee a decreasing trend for the debt-to-GDP ratio of the central government, so that in the long term

(2020 and thereafter) it reaches levels close to (or below of) 30 per cent of GDP. Finally, any positive or negative divergence in output gap with respect to what is considered here, will allow the government to design a counter-cyclical fiscal policy, to absorb partially any external shocks, and to smooth the business cycle. For the case of unusual and unpredictable exogenous financial and real shocks, generated from external and domestic sources (terms of trade, sudden stops in capital inflows, natural catastrophes, wars, and so on), is recommended that the fiscal rule includes explicitly clauses of scope to these events. This study offers evidence for the first two elements in Figures 9 and 10.

5 Conclusions

The following points summarize some of the most important findings of this study:

- From the 1960s, discretionary fiscal policy in Colombia has been pro-cyclical; it has been coherent with the long-term condition of debt sustainability – although in a weak sense, particularly over the last two decades; and it has registered a decreasing volatility in recent years. These have been the three most relevant traits of fiscal policy, from a macroeconomic perspective.
- Pro-cyclicality was assessed both through a standard fiscal reaction function and through fiscal impulses. The results show that, on average, for each percentage point increase in the output gap, the structural balance deteriorates by about one sixth-part. Fiscal sustainability was also evaluated through cointegration models. These models offer evidence in favor of the expenditures-to-revenue long-term determination hypothesis, which means that the government spending has been determining the dynamics of its revenues. Between 1990 and 2008, on average, an increase of 1 per cent of the GDP in the primary spending was associated with an increase of 0.48 per cent of the GDP in tax revenues. In practical terms, this means that the fiscal stance was sustainable, but only in a weak sense.
- Throughout the pre-crisis period, public finances displayed a remarkable improvement in Colombia. Between 2002 and 2008, the fiscal balance of the central government went down from 5.3 to 2.3 per cent of the GDP, and its debt level decreased from 47.5 to 36 per cent of the GDP. These positive trends were fostered by fiscal reforms designed to increase revenues as well as to moderate the growth of the public expenditures. However, their most important causes were relative to favorable internal and external macroeconomic factors, including the boom of oil prices. The sharp economic slowdown that began in the fourth quarter of 2008 and extended into 2009 (the last four quarters have yield negative growth rates) caused a significant drop in tax revenues and the subsequent deterioration of the fiscal indicators.
- The deficit of the central government for 2009 rose from an initially expected level of 2.6 per cent of the GDP to a final level of 4 per cent (deterioration of 1.4 per cent). It is anticipated that the fiscal balance will continue to decline in 2010, by the lagged effect of the crisis. Because this larger fiscal deficit is mainly explained by the fall of endogenous revenue and the preservation of public expenditure rates, this discretionary fiscal stance can be typified as neutral or a-cyclical. It can be inferred that for each percentage point of lower economic growth, the fiscal deficit has been deteriorating by 0.3 per cent of the GDP (*i.e.*, 0.3 is the size of automatic stabilizer).
- An additional decline of the fiscal indicators in the medium term will depend on the severity of the economic downturn during 2009 and 2010, and mainly on the recovery path of subsequent years. As will be the case of other LAC, economic recovery in Colombia will be conditional to the revitalization of the global economy and, in particular, of the U.S. economy, and those of other important trading partners such as Venezuela, Ecuador, and the E.U. Using two

foreseeable scenarios for economic growth in Colombia, for the period 2009 to 2011, this analysis concludes that: the government revenues will decline, in real terms, more than –4 per cent in 2010; the primary balance will be negative between 2009 and 2011 (higher than –1 per cent of GDP); and the debt levels will reach those of the beginning of the decade (above 40 per cent of GDP). Comparing to the pre-crisis period (2007-08), in 2011, the debt level could increase by about 8 percentage points of the GDP.

- The unexpected increase of fiscal deficits and public debt, as a consequence of the global financial crisis, has raised concerns about the sustainability of public finances in Colombia. The short and medium term scenarios call for the adoption of a fiscal rule on central government finances that would guide fiscal policy in the future. The fiscal adjustments advanced to date constitute a credible prelude for the establishment of such a rule.
- The adoption of a fiscal rule may strengthen policy credibility. Confidence and credibility are essential to anchor long-term expectations about the sustainability of the public debt. This, in turn, could help prevent adverse market reactions, including a higher risk premium, and facilitate the adoption of a prudent fiscal policy. It should be recalled that Colombia does not have an investment grade, like Chile, Brazil, Mexico, and Peru, and that the fiscal rule might help the country regain the investment grade that was lost in the late nineties.
- The Colombian government is currently analyzing the cyclically-adjusted primary balance (CAPB) as one of the best indicators to fix the fiscal rule. After a CAPB long-term prediction exercise, this analysis suggests that the fiscal rule must have at least three key elements to secure credibility, counter-cyclicality, and fiscal discipline in the long term. First, the rule must include more than one numerical target for the coming years. Assuming that the rule would be adopted as of 2011, the numeral target must contain three levels: –0.5 per cent of GDP for 2011, 2012, and 2013; +0.5 per cent for 2014, and 2015; and +1.5 per cent as of 2016. These goals must be reviewed at any prudential intervals (*i.e.*, every 5 years) to introduce any required adjustments.
- Second, the targets on the CAPB must guarantee a decreasing trend for the debt-to-GDP ratio of the central government, so that in the long term (2020 and thereafter), it reaches levels below of 30 per cent of the GDP. Finally, any positive or negative divergence in output gap, with respect to what is considered here, will allow the government to design a counter-cyclical fiscal policy to absorb any external shocks, and to smooth the business cycle. This study offers evidence of these considerations.

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FISCAL INSTITUTIONS IN NEW ZEALAND AND THE QUESTION OF A SPENDING CAP

Tracy Mears, Gary Blick,* Tim Hampton* and John Janssen**

New Zealand's current fiscal policy framework has been in place for nearly 20 years. At its core is a set of principles around maintaining prudent levels of public debt and running fiscal surpluses on average over time. This framework, combined with an extended period of economic growth, contributed to New Zealand entering the global financial crisis with historically and internationally low levels of public debt.

While the current fiscal policy framework has helped achieve and maintain defined, prudent levels of public debt, it does not require the government to define a target level for government spending. Over recent years, government spending has increased as a share of GDP. Most of this reflects increased spending during the extended economic upturn through the middle of last decade. The recent recession has also played a small role in increasing spending, largely through the automatic stabilisers as New Zealand did not implement a substantive expenditure-based stimulus package. The Government therefore committed to investigating whether a spending cap would be an appropriate addition to the existing fiscal policy framework. This paper outlines the motivation for such a spending cap, presents a proposed design, including some of the potential challenges, drawing heavily on international experience.

Reflecting on this analysis, the Government decided not to introduce a formal cap on total spending in Budget 2010. The benefits of the proposed spending cap are that it would have reinforced the commitment to the existing limit on new initiatives (via the \$1.1 billion Operating Allowance) and placed an indicative limit on other forecasted expenses increases that go through the Baseline Update process. However, the complexity of the proposal may have led to significant communication challenges and some confusion about how it would operate alongside the existing system.

1 Introduction

New Zealand's current fiscal policy framework has been in place for nearly 20 years. At its core is a set of principles around maintaining prudent levels of public debt and running on average over time fiscal surpluses. This framework, combined with an extended period of economic growth, contributed to New Zealand entering the global financial crisis with historically and internationally low levels of public debt.

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While the current fiscal policy framework has helped achieve and maintain defined, prudent levels of public debt, it does not require the government to define a target level for government spending. Over recent years, government spending has increased as a share of GDP. Most of this reflects increased spending during the extended economic upturn through the middle of last decade. The recent recession has also played a small role in increasing spending, largely through the automatic stabilisers as New Zealand did not implement a substantive expenditure-based stimulus package. The Government therefore committed to investigating whether a spending cap would be an appropriate addition to the existing fiscal policy framework.

Section 2 considers the literature on fiscal rules, how they have been used internationally and how they have performed over the past few years. One thing that is apparent is that the appropriate design for a spending rule is dependent on the existing fiscal arrangements. Therefore, Section 3 outlines New Zealand's current fiscal institutions and Section 4 describes the evolution of Budget management processes. Section 5 provides some more context by outlining New Zealand's economic and fiscal performance over the past decade. Section 6 outlines some of the key design choices that would be relevant if a spending cap was to be introduced in New Zealand. Section 7 then discusses some of the Government's reasoning for not going ahead with a cap on total spending at this point in time.

2 Fiscal rules – theory and international experience

2.1 Definitions and objectives of fiscal rules

Fiscal rules are a subset of fiscal institutions – the arrangements that form a nation's public finance framework. Institutions include the legislative framework for budgeting and fiscal planning, any policy guidelines or well-established norms, the public institutions involved in the planning and implementation of the budget process, and any independent entities that give advice or monitor performance.

Kopits and Symansky (1998) define a fiscal rule as “a permanent constraint on fiscal policy through simple numerical limits on budgetary aggregates”. Although the legal form can vary – international treaty, constitutional amendment, legal provision, or policy guideline – a common theme, as the International Monetary Fund (IMF, 2009) has noted, is that fiscal rules are all mechanisms aimed at supporting fiscal credibility and discipline. Ongoing debate over the relative merits of rules versus the merits of other institutions, such as a fiscal policy committee or a fiscal advisory council, is outside the scope of this paper.¹

Fiscal rules can have various objectives, such as promoting debt sustainability, promoting macroeconomic stabilisation, containing the size of government, or supporting intergenerational equity. The key objective is usually the promotion of fiscal sustainability. The IMF (2009) has compiled a dataset of fiscal rules applied to central government in member countries, and characterised the rules into the following groupings:

- budget balance rules – including rules that relate to the overall balance, the structural or cyclically-adjusted balance, or the balance over the cycle, with the aim of restraining the build-up of debt-to-GDP ratios;
- debt rules – such as a limit or target for public debt as a share of GDP;
- expenditure rules – also known as spending rules, may involve limits on total, primary or current spending, either in absolute terms, growth rates or as a share of GDP; and

¹ Wyplosz (2005), for example, argues that rules are often too flexible or too stringent, and that adequate incentives backed by institutions are the better option.

- revenue rules – may be ceilings to prevent an excessive tax burden, or floors aimed to boost revenue.

2.2 *Prevalence of fiscal rules*

Fiscal rules have become more prevalent among countries over the past two decades. The IMF (2009) has documented a rise in the use of fiscal rules; in 1990, only seven countries had national or supranational fiscal rules applying to central government, whereas by 2009 this had increased to 80 countries. This increased attention to fiscal rules was, at least in part, a reaction to a build-up of public debt in many countries through the 1970s and 1980s.

In recent years, spending rules (a subset of fiscal rules) have become more widespread, reflecting a trend for countries to move from a single rule (such as a debt or a balanced budget rule) to multiple rules. The choices and tradeoffs involved in a wider set of rules are discussed by Anderson and Minarik (2006) and Kumar and Ter-Minassian (2007). In 2009, 25 countries were making use of spending rules in some form – whereas only ten countries had been using a spending rule in 1999 (IMF, 2009). The increased prevalence of spending rules, in particular, reflects the fact that a debt target or balanced budget rule, on its own, places little discipline on the growth in government spending in the times of strong revenue growth during an economic expansion (Barker and Philip, 2007).

2.3 *Design features*

The IMF has suggested that there are three components of effective fiscal policy rules:

- 1) an unambiguous and stable link between the numerical target and the fiscal objective;
- 2) sufficient flexibility to respond to shocks, so that a rule should at least not exacerbate the macroeconomic impact of a shock; and
- 3) a clear institutional mechanism to map deviations from the rule into incentives to take corrective actions (e.g., by raising the cost of deviations, or mandating the correction of a deviation).

The legal form of fiscal rules may vary. With regard to spending rules, although in some (predominantly developing) countries these are embedded in national legislation, the IMF (2009) has found this is not necessarily a requirement for a rule to endure. Ljungman (2009) examines spending rules in three countries – Finland, the Netherlands and Sweden – and found that each has the status of a political commitment with no predefined sanctions in the event of a breach, other than reputational costs for the Government. Ljungman concludes that any spending rule that is not perceived as serving the interest of the Government and Parliament will inevitably be circumvented, and that “in the absence of this widespread political support, it is doubtful that the legislative status of a spending rule will have any impact on actual policy formulation”.

2.4 *Effectiveness of fiscal rules*

Research into the effectiveness of fiscal rules is ongoing, but in reviewing available empirical studies, the IMF recently concluded that fiscal rules have generally been associated with improved fiscal performance (IMF, 2009). In addition, Badinger (2009) has found tentative evidence across a sample of OECD countries that the fiscal rules introduced since 1990 reduced the extent to which governments have made use of discretionary fiscal policy, although no New Zealand-specific results are reported. Intuitively, the effectiveness of a rule depends on the

institutional context into which the fiscal rule is being applied and the existing macroeconomic environment, as well as the design of the rule itself.

In terms of spending rules, countries such as Finland, the Netherlands and Sweden appear to have had positive experiences. Ljungman concluded that the general impression in each of those countries has been that a spending rule has contributed to maintaining stable public finances. However, as Ljungman notes, an unambiguous correlation between the spending rules and the robustness of public finances is difficult to establish, particularly since economic growth had been relatively strong in the period between their introduction in the mid-1990s and the time of his review in 2008. In addition, Finland and the Netherlands are part of the euro area, so it is plausible that improvements in the conduct of their fiscal policy have been influenced by requirements of the Stability and Growth Pact associated with that monetary union.

The global financial crisis in 2008-09 and the associated macroeconomic shocks have posed challenges for fiscal institutions in many countries. There are signs that even countries with established spending rules have substantially increased spending in an environment with lower-than-expected economic growth and decisions to implement fiscal stimulus packages. For example, the OECD's *Economic Outlook* from May 2010 forecasted general government spending as a share of GDP to have increased between 2007 and 2011 in Finland (+8.2 percentage points), the Netherlands (+6.4 percentage points) and Sweden (+2.8 percentage points).² It will be interesting to see how countries with spending rules fare in managing spending growth over the next few years.

3 New Zealand's legislative framework³

Reflecting a combination of external factors and policy choices, New Zealand's fiscal position deteriorated considerably from the mid 1970s until the early 1990s, with net public debt rising from around 5 per cent of GDP in 1974 to above 50 per cent of GDP in 1992. In response, the Government adopted a number of practices that aimed to improve fiscal management, with a large emphasis on transparency. The Fiscal Responsibility Act (FRA) of 1994 codified the initial practices, including the shift to accrual accounting, the publication of short-term fiscal forecasts and the publication of a pre-election economic and fiscal update.

The FRA aimed to address the earlier poor fiscal performance by:

- strengthening the incentives on Ministers to set Budget priorities and to follow an agreed fiscal strategy; and
- providing more regular information to the public on the medium-term fiscal outlook and the decisions that underpinned that outlook.

In 2005, the FRA was incorporated into the Public Finance Act (PFA) of 1989. The fundamental principles of responsible fiscal management contained in the 1994 Act were retained (see below). The intention of the merger was to consolidate legislation regarding public finance and it also provided the opportunity to make some amendments to the FRA.

The amendments were introduced to align New Zealand's fiscal reporting with best international practice after assessing legislation in the United Kingdom and Australia, reviewing the best practice guidelines issued by the IMF and OECD and drawing on experience with the legislation since its introduction. The key addition was a legislated requirement for the Treasury to

² The comparable figure for New Zealand is +4.4 percentage points.

³ The section draws on New Zealand Treasury (2005). Scott (1996) and Janssen (2001) discuss the development of the Fiscal Responsibility Act and its relationship to wider public sector reform such as the State-owned Enterprises Act 1986, the State Sector Act 1988 and the Public Finance Act 1989.

produce a regular statement on the long-term fiscal position covering at least 40 years (New Zealand Treasury, 2009).

The PFA sets out five principles of responsible fiscal management. The two that are most relevant for this paper are those associated with debt and fiscal balance:⁴

- Reducing total debt to prudent levels, so as to provide a buffer against factors that may impact adversely on the level of total debt in the future. Until prudent levels of debt have been achieved, the Government must ensure that total operating expenses in each financial year are less than total operating revenues in the same financial year.
- Once prudent levels of total debt have been achieved, maintaining those levels by ensuring that, on average, over a reasonable period of time, total operating expenses do not exceed total operating revenues.

Definitions such as “prudent” level of debt or “reasonable period of time” are not specified in the PFA. It is left to the Government of the day to interpret the relevant fiscal terms. Importantly, although a Government can depart from the principles, the PFA requires any such departure to be temporary and that the Minister of Finance specify the reasons for departure, the approach to be taken to return to the principles and the period of time that this is expected to take.

In addition, the PFA requires the Government to annually state long-term (ten or more years) fiscal objectives and short-term (three year) fiscal intentions for the following variables:⁵

- total operating expenses;
- total operating revenues;
- the balance between total operating expenses and total operating revenues;
- the level of total debt; and
- the level of total net worth.

With the exception of the principles of responsible fiscal management that relate to debt and the operating balance, the PFA is not prescriptive about what the fiscal objectives and fiscal intentions should be. Rather, it requires the Government to state its objectives and intentions, whether they have changed and how they accord with responsible fiscal management. This means that a trend increase in government expenses as a share of GDP is permissible under the PFA provided that the principles relating to debt, the operating balance, and revenue are adhered to.

4 New Zealand’s budget management process

As with the legislative framework, the Budget management process has evolved over the past 20 years. This evolution can be split into three distinct phases: fixed nominal baselines; fiscal provisions; and the Fiscal Management Approach.⁶

4.1 Fixed nominal baselines

Prior to the introduction of the PFA in 1989, the Budget process involved making regular

⁴ The others relate to net worth, fiscal risks, and the predictability and stability of tax rates.

⁵ The reporting requirements in the PFA relate to a definition of “total” government that includes the Core Crown, Crown entities, and State-owned Enterprises (SOEs). Given the central role of the budget, fiscal policy has focused on the Core Crown and Crown entities.

⁶ More detail and evaluation is provided in Barnes and Leith (2001); OECD (2002); the New Zealand Treasury (2003); and Wilkinson (2004).

adjustments to personnel costs based on public sector wage negotiations. Operating and capital spending were generally adjusted annually to reflect expected cost movements. Government Budgets were made only for the year ahead with no forecasts of spending in subsequent years.

The early 1990s saw a shift to fixed nominal baselines, where the “baseline” is the agreed Budget allocation over the forecast period. Government spending was split into “formula-driven” and “fixed” (*i.e.*, no change to nominal baseline amounts). Formula-driven indexation applied to non-departmental spending on benefits (e.g., inflation indexation of unemployment payments, wage indexation of public pensions) and volume adjustments. A specific policy decision was required to change non-indexed spending. A key issue to emerge was the effect of fixed nominal baselines on the short-term fiscal forecasts. For example, three-year fiscal forecasts between 1994 and 1996 included increases in government spending only for those areas affected by indexation. With all other spending assumed to remain constant over time, this yielded a profile of rising forecast surpluses. Together with concerns about agencies’ abilities to meet rising costs this created pressure to increase nominal baselines.

4.2 *Fiscal provisions*

In its 1997 Budget, the Government adopted a \$5 billion (cumulative) cap on new spending over the three fiscal years 1998 to 2000. This cap was on top of expenses already included in the fiscal forecasts (*i.e.*, on top of the fixed nominal baselines and formula-driven indexed items). The cap evolved into a mechanism known as the fiscal provisions, which also included a set of rules for identifying which items would be treated as specific policy decisions and therefore “counted” towards the cap on spending. Formula-driven increases in expenses that did not “count” would still be permitted but did not impact on the amount available for new initiatives. For example, an increase in unemployment benefit payments due to higher unemployment would not be financed by (or “count against”) the fiscal provisions.

A capital provision, linked to the debt objective, sat alongside the operating provisions. The capital provision generally provides for new investments or where maintaining current operations cannot be funded from accumulated depreciation on balance sheets.

4.3 *Fiscal management approach*

In Budget 2002, the Government signalled a change to the fiscal provisions framework that:

- shifted the focus to the paths of the operating balance and debt rather than just the nominal new spending amount; and
- sought to ensure that spending intentions remained relevant as the economic and fiscal outlook evolved. Spending plans would be reviewed twice yearly with reference to updated forecasts and progress against fiscal objectives.

These new procedures were termed the Fiscal Management Approach (FMA), with the amounts for new initiatives being relabelled as the Operating Allowance (for expense and revenue initiatives) and the Capital Allowance (for capital initiatives). This is the system that remains in place today.

Under the FMA there are three ways that the levels of expenses, revenue and capital items can change.

The first is changes in the profile of the expected values of expenses, revenue and capital resulting from current policy settings (referred to as the “profile”). For expenses, these changes will generally result from existing demand-driven programmes. For example, the current forecasts will

build in an expectation of the rising cost of New Zealand Superannuation (NZS) as more people reach retirement age. In Budget 2010 the forecasted cost of NZS in 2010 is \$8.287 billion and in 2011 is \$8.822 billion and in 2014 is \$10.781 billion. This expected rising profile is built into the expense forecasts.

The second way in which expenses, revenue and capital can change is via the addition of new discretionary initiatives which are included as part of the Operating Allowance (for revenue and expenses) and the Capital Allowance. These are referred to as “new discretionary initiatives”. The focus of Budgets has tended to be on allocating those allowances to the Government’s priority initiatives. The allowances are set with a view to achieving the Government’s medium-term operating balance and debt objectives. So, if the Government decided to increase the rate at which NZS is paid or change the eligibility criteria which increased uptake, those discretionary policy decisions would be counted against the Operating Allowance in the year the decision was made. New discretionary initiatives are then incorporated into the base or the profile of forecasted spending for future years.

The third way in which expenses can change is when there are revisions to the forecasted expenses of existing programmes which are seen to be outside the direct control of government because they are demand, volume or index driven (these are referred to as “changes in forecasted costs”). For example, if there are revisions to the estimate of the population of aged 65 and over or revisions to the forecast wage track (as NZS payments are supported by a wage floor) the expected cost of NZS would increase. The forecasted cost of NZS for 2009-10 increased from an estimate of \$8.246 billion in Budget 2009 to an estimate of \$8.287 billion in Budget 2010.

These changes in forecasted costs are incorporated automatically through the Baseline Update process. This occurs twice a year as part of the updating of the fiscal estimates during the forecast round. Many of the non-welfare related Baseline Updates were originally envisaged as “counting” against the Operating Allowance. Overtime this practice has changed, and some spending increases have not been counted against the Allowance, e.g., the increased costs of KiwiSaver, a subsidised saving scheme, due to higher than forecast uptake. The Baseline Update process also incorporates other changes to baselines, such as those due to policy decisions (e.g., a decision to bring forward forecast expenditure) or valuation changes relating to impairments (mainly of student loans and tax receivables, and reflecting changes in future collectability of these assets).

This separation between demand-driven items that are automatically incorporated into the forecasts via the Baseline Update process and discretionary initiatives that count against the fixed Operating and Capital Allowances puts some pressure on the boundary between the two categories. The FMA specifies a set of rules as to what types of new initiatives must be agreed to within and outside the Operating and Capital Allowances. In addition, the government is ultimately responsible for setting the allowances in each Budget so as to achieve its fiscal objectives.

In setting the Operating and Capital allowances under the FMA, information on the macro-economy is also considered. The weight put on macro-stability issues (“macro headroom”) relative to sustainability issues (“fiscal headroom”) has varied through time depending on the stage of the cycle.

5 New Zealand’s economic and fiscal performance over the past decade

5.1 The 1998 to 2007 economic expansion

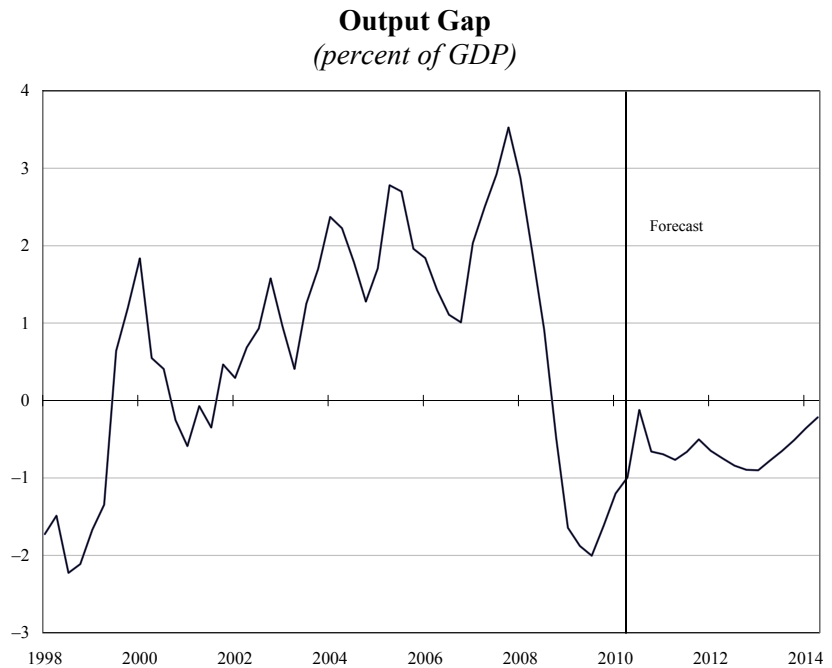
Between the September quarter 1998 and the December quarter 2007, New Zealand experienced its longest period of economic expansion since 1945. Although the expansion was not as long as those experienced in countries such as Australia and the United Kingdom, the length

of the expansion still made it difficult to establish at the time how much of the increase in economic activity was sustainable and how much was cyclical. Figure 1 presents the estimated output gap for that period, from the perspective of 2010.

A lot of that growth was based on fundamentals, such as population growth, a strong global economy and rising terms of trade. However, as the expansion continued, there was increasing concern about the build-up of imbalances, reflected in excess credit growth, increased net foreign liabilities and high non-tradable inflation.

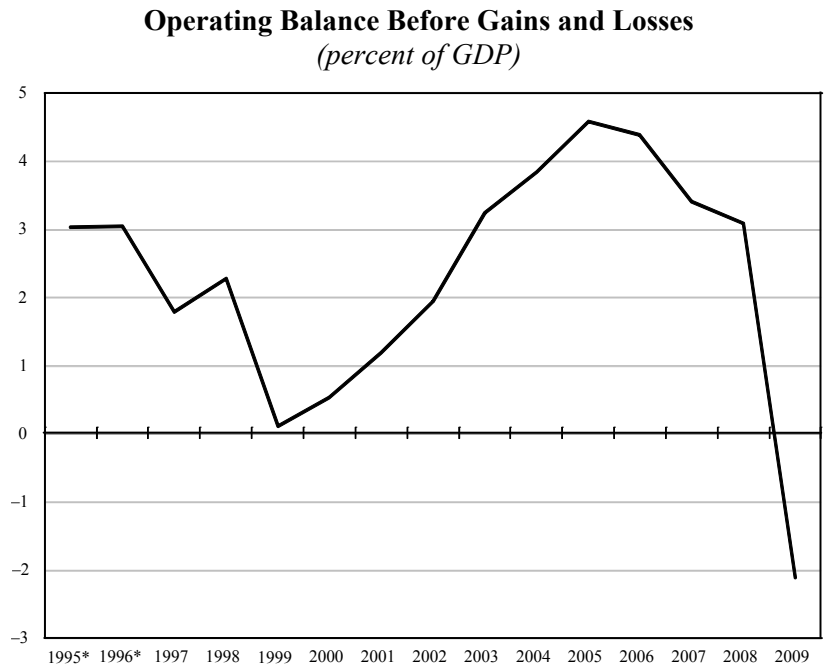
Throughout this period, the Government's fiscal strategy was to strengthen the fiscal position, both through debt repayment to achieve the debt objective and through accumulating financial assets in the New Zealand Superannuation Fund (NZSF). The Government established the NZSF in 2001 as a means to prefund out of current tax revenue some of the projected increase in fiscal costs associated with the ageing population (e.g., public pensions). This meant running successive operating surpluses –

Figure 1



Note: History based on a multivariate filter. Forecasts based on a production function. Source: New Zealand Treasury, Budget 2010.

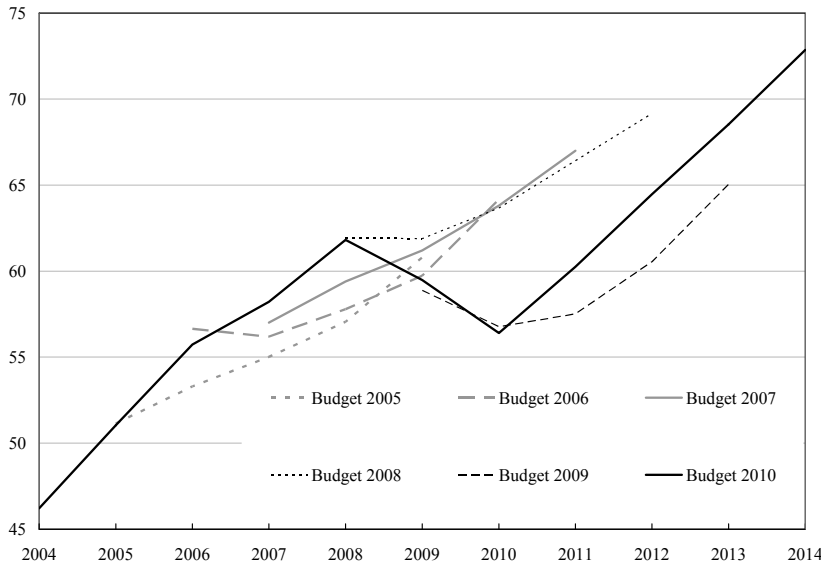
Figure 2



* GAAP data for Total Crown Operating Balance for these years has not been backdated on IFRS basis. Source: New Zealand Treasury.

Figure 3

Core Crown Revenue Forecasts
(billion dollars)



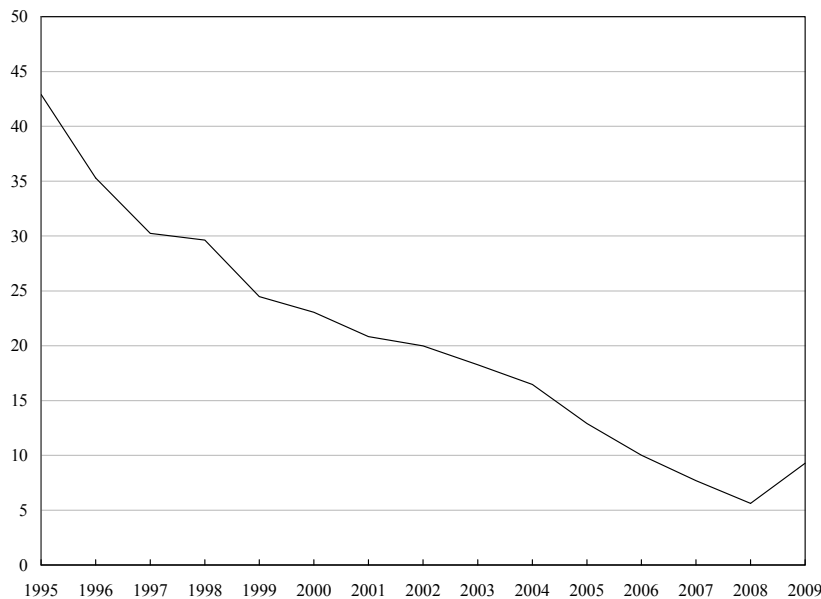
Source: New Zealand Treasury.

something that occurred up until 2008-09, as Figure 2 shows. This approach was in lieu of relying solely on increased future debt levels and future tax revenue or decisions to alter the public pension liability by changing eligibility or entitlements.

In the early 2000s, the fiscal strategy was achieved by relatively tight fiscal discipline. By the mid-2000s, the extended period of strong economic activity meant that the Government was presented with a series of upward revisions to its revenue forecasts (see Figure 3). For example, actual revenue for the 2008 financial year was about \$2.5 billion higher than the forecast figure produced at Budget 2007. These revenue surprises saw the fiscal position strengthen faster than planned.

Figure 4

Core Crown Net Debt
(percent of GDP)



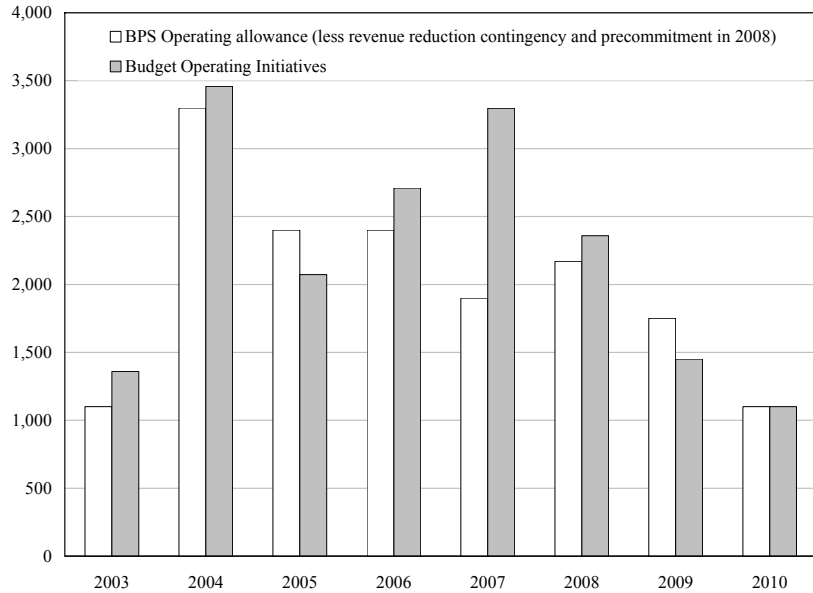
Note: Net debt excludes the NZS Fund and advances.
Source: New Zealand Treasury.

The Government's response to the stronger-than-expected revenues included faster debt repayment (see Figure 4) and an associated downward revision of its long-term debt objective, and increasing government spending. In addition, the corporate tax rate was reduced in 2007 and personal tax rates were reduced in 2008 with a reduction to the top threshold rate in 2009.

The process for increasing spending and reducing taxes was primarily by increasing the Operating and Capital Allowances. When the Budget management process was changed to the FMA, the allowances were expected to be medium-term concepts that were set with a view to achieving the Government's medium-term operating balance and debt objectives. They were not expected to be revised frequently. However, in practice, the Government tended to use the positive revenue surprises and lower-than-expected levels of other expenses (see Barker, Buckle and St Clair, 2008) to increase the size of the Operating Allowance. Thus, the Operating Allowance tended to be revised (usually upwards) twice yearly when the economic and fiscal forecasts were done. Figure 5 shows the *expense* component of the Operating Allowance and its final forecast year impact, as stated in the *Budget Policy Statement* (typically released in December) and the *Budget* (typically released in May). In most years, the level of new expenditure was revised upwards between the *Budget Policy Statement* and the *Budget*, with the revision at Budget 2007 being the largest.

Figure 5

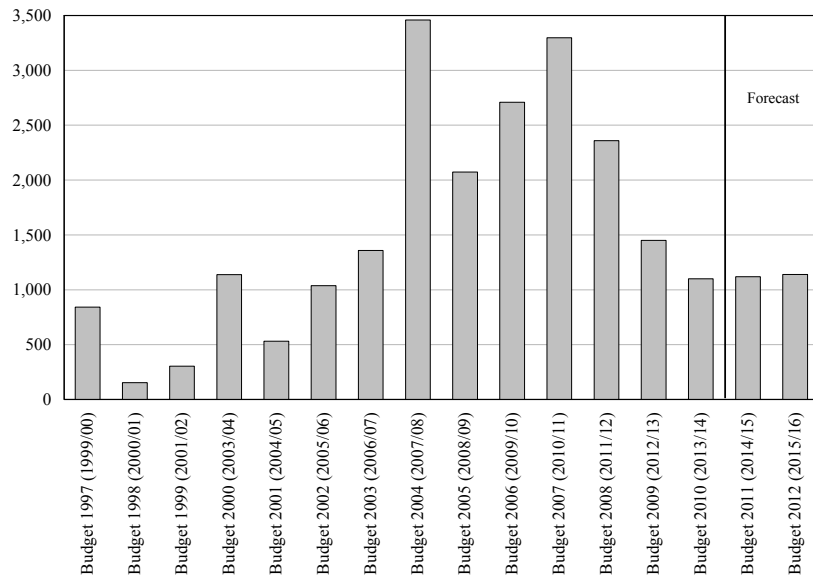
Stated Allowance Versus Budget Operating Initiatives, 2003-10
(million dollars)



Source: New Zealand Treasury, *Budget 2010*.

Figure 6

Operating Allowances:
Final Forecast Year Impact of Budget on Operating Expenses
(million dollars)



Note: These amounts are GST (Goods and Services Tax) exclusive. The year in each bracket is the final forecast year associated with that Budget. The three-year forecast horizon was extended to four years in Budget 2000.
Source: New Zealand Treasury.

Figure 6 plots the final forecast year impact of the annual Budget increment of new operating expenses created by the fiscal provisions and operating allowances⁷. This shows the effectiveness of the fiscal provisions in limiting new operating initiatives during 1998-2000 and the increase in new operating initiatives that has occurred from the mid-2000s.

Government spending increased considerably as a share of GDP from the mid-2000s onwards. As Figure 7 shows, Core Crown expenses increased from 28.9 per cent of nominal GDP in 2003-04 to 34.7 per cent in 2008-09 – an increase of 5.8 percentage points over five years. Over half of this increase (3.5 percentage points) occurred as a single jump in the year to 2008-09. The economic cycle played a contributing role, for example, the 2008-09 recession led to higher unemployment expenses and slower growth in nominal GDP. Adjusting for these impacts of the cycle accounts for one percentage point, or 17 per cent, of the increase in expenses as a share of GDP.

Decisions to increase spending were the dominant driver of expenses rising as a share of nominal GDP. Average annual growth in Core Crown expenses of 8.9 per cent outstripped average annual growth in GDP of 4.9 per cent between 2003-04 and 2008-09.

Much of this increase reflected Budget decisions to direct new discretionary resources to expand existing services (e.g., health care, education and justice) and to increase transfers in the form of income subsidies for low and middle income working families, interest-free student loans and a subsidised saving scheme (KiwiSaver).

Figure 7

Core Crown Expenses
(percent of GDP)



Source: New Zealand Treasury.

But a considerable share of the growth in Core Crown expenses over this period – around 40 per cent – occurred as a result of both the changing profile of costs over time and the changes in forecasted costs. For example, the actual cost of NZS grew by \$190-\$540 million per annum. For existing programmes like NZS it is not straightforward to distinguish between the changes due to the rising profile and the forecast changes in the historic data. For newer initiatives like KiwiSaver, it is possible to identify the changes to forecasted costs because the initial forecasts were counted against Operating Allowance in the year in which

⁷ The chart focuses on the final year impact as the profile across the forecast horizon varies.

it was introduced. KiwiSaver subsidies in 2008-09 were \$1.28 billion, or 49 per cent higher than the \$860 million forecast at Budget 2007.

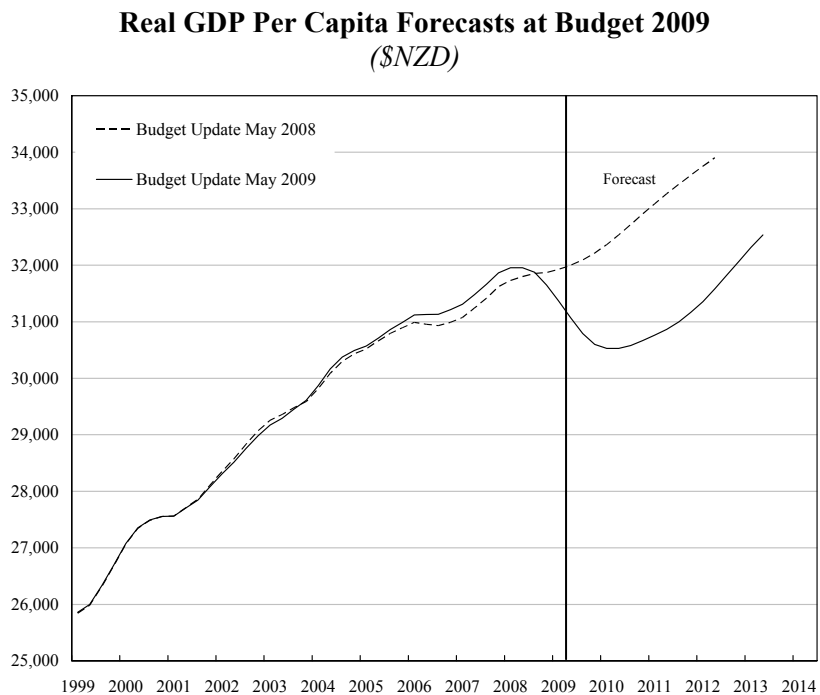
As will be discussed below, it is these sorts of changes to forecasted costs that could have been subject to an indicative limit and the associated trade-offs of a spending cap.

5.2 The 2008-09 recession and the global financial crisis

Although the New Zealand economy has performed much better than many other developed economies during the global financial crisis, it still contracted 3.4 per cent in real terms from the beginning of 2008 to the middle of 2009. As well as bringing the earlier expansion to an abrupt end, it prompted most forecasters to significantly revise down their projections for trend economic activity going forward – including the Treasury, as Figure 8 shows.

Therefore, not only did the fiscal position deteriorate as revenues declined through the recession and as a result of the tax cuts, but structural deficits emerged because some

Figure 8

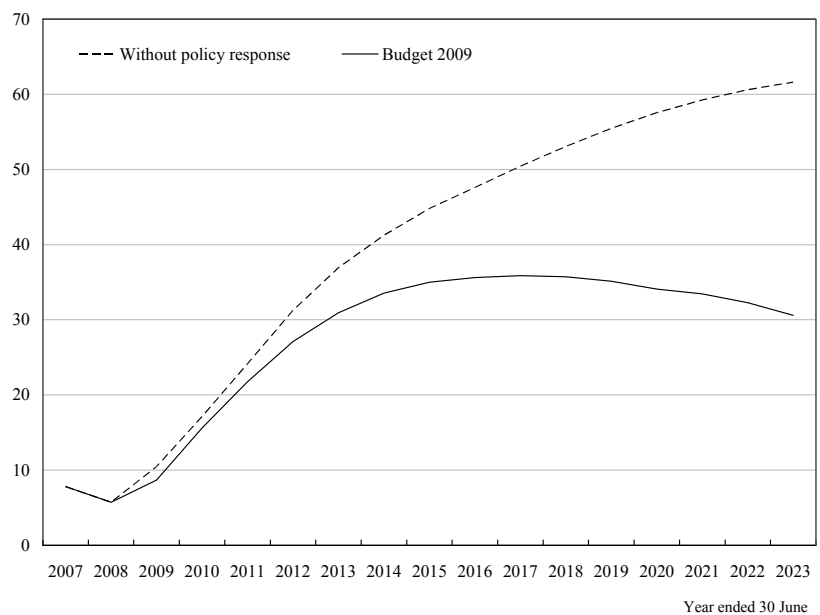


Source: New Zealand Treasury.

Figure 9

Core Crown Net Debt Projections at Budget 2009

(percent of GDP)



Source: New Zealand Treasury (2009), *Fiscal Strategy Report*.

of the previous fiscal expansion was premised on the earlier – but ultimately overly optimistic – view of trend economic activity. As a result, net debt was projected to rise faster and further than previously projected.

Whatever the cause of the structural deficits, it was apparent at the time of Budget 2009 that a significant period of fiscal restraint was going to be required to return the forecast fiscal accounts to a sustainable position (see Figure 9). Budget 2009 included the postponement of scheduled personal tax cuts, a temporary suspension of contributions to the NZSF and a downward revision of future Operating Allowances.

5.3 Overall assessment of the past decade

Over the past decade New Zealand's fiscal position has strengthened considerably as a result of a combination of fiscal consolidation, improved institutional arrangements that had been established earlier, and improved economic performance.

In particular, the debt objective has been a key fiscal anchor that has helped communicate the Government's fiscal strategy and acted as a Budget management tool. By 2006, net debt had returned to below 10 per cent of GDP, where it remained until the advent of the global financial crisis. However, the fiscal framework did not constrain expenditure growth during a period of sustained economic expansion. Although a trend increase in government expenses as a share of GDP is permissible under the PFA, self-imposed expenditure objectives were either not achieved or revised upward, and there was insufficient attention paid to the base of spending – both its level and composition.⁸ These broad conclusions are reflected in a number of papers assessing New Zealand's fiscal framework (see Janssen, 2001; OECD, 2002; Wilkinson, 2004; and Buiter, 2006).

The macroeconomic stabilisation role of the FMA, particularly in an environment of revenue surprises, and the potential role of alternatives is considered by Barker and Philip (2007). Barker and Philip conclude that the challenges of identifying and adjusting to permanent changes in the fiscal outlook are likely to have remained under any alternative Budget management approach.

In its 2008 *Briefing to the Incoming Minister* the Treasury wrote: "Given your priority around disciplining government spending we think there would be merit in adopting an additional fiscal anchor in the form of a medium term expenditure or revenue constraint (e.g., as a share of GDP)". The benefits to the Government of adopting such an anchor were seen as:

- signalling an intent to restrain the growth in spending and commitment to particular revenue levels to better manage expectations over the next three years and beyond;
- potentially increasing the contribution of fiscal policy to macroeconomic stability by providing more certainty and better supporting monetary policy over the longer term; and
- assisting the government to achieve a slowing in expenditure growth from current rates over the longer term to manage future spending pressures.

Similarly, the OECD also recommended consideration of a spending cap for New Zealand (OECD, 2009).

This focus was reinforced by the Minister of Finance, who stated in the 2009 *Fiscal Strategy Report* and the 2010 *Budget Policy Statement* that the Government was investigating a spending cap as a way of strengthening its fiscal strategy. The next section outlines some of the key design choices that the Treasury considered when preparing advice on whether or not a spending cap would be appropriate for New Zealand.

⁸ Figure 26 in OECD (2002) illustrates the inconsistency between stated expense objectives and outcomes.

Table 1

Changes in Core Crown Operating Expenses
(billion dollars, June years)

Item	2011	2012	2013	2014
Core Crown expenses (year ended 30 June 2010)	64.791	64.791	64.791	64.791
Impact of Budget 2010 decisions	1.212	1.124	1.101	1.100
Forecast new spending for Budget 2011	-	1.122	1.122	1.122
Forecast new spending for Budget 2012	-	-	1.146	1.146
Forecast new spending for Budget 2013	-	-	-	1.167
Contingency for weathertight homes	-	0.060	0.195	0.395
Impact of tax package on expenses	0.179	0.104	0.080	0.096
New Zealand Superannuation payments ⁽¹⁾	0.493	1.053	1.455	1.897
Other benefit payments ⁽¹⁾	0.506	0.592	0.902	1.087
Emissions Trading Scheme	0.907	0.275	0.581	0.727
Finance costs	0.866	1.469	1.959	2.181
Other changes	1.697	0.874	0.892	1.340
Total changes	5.860	6.673	9.433	12.258
Core Crown Expenses	70.651	71.464	74.224	77.049

⁽¹⁾ Excludes the impact from the tax package.

6 Designing a spending cap for New Zealand

6.1 Objectives of the cap

The main objective of the proposed spending cap was to help the Government deliver on its fiscal strategy. The fiscal strategy is focused on achieving the debt objective by managing the operating balance and capital spending. For a given revenue track, the way to manage the operating balance is to control government spending. For example, the Budget 2010 fiscal strategy projects a reduction in core Crown expenses from a peak of 34.7 per cent of GDP in 2011 to 28.4 per cent by 2024 – the final year of the projection period.

There are several ways in which a spending cap could potentially achieve that fiscal control:

- Increase transparency around the total level of spending (in 2010-11 around \$70 billion), with more focus on baselines and less on the new discretionary initiatives (the \$1.1 billion Operating Allowances). The cap would have been (in theory) a simple number against which the public could assess the actual level of government spending.
- Provide some built-in inertia in response to revenue surprises. Any upside revenue surprise would not immediately translate into higher spending, although it could have been factored in when resetting the cap.
- Improve fiscal management by putting a cap on total spending not just on discretionary new initiatives. The expenses that currently go through the Baseline Update process are subject to a lower degree of scrutiny than those expenses that count against the Operating Allowance as they are seen as outside the direct control of Government. However, many of the changes in costs are flow-on effects of policy choices made by the Government (e.g., benefit indexation is a policy choice).

Table 1 (reproduced from Budget 2010) shows that the Operating Allowance only accounts for a small portion of the forecasted increase in total spending expected in each financial year.

However, as discussed below, many of these other items would have remained outside the spending cap for various reasons.

6.2 *Design of a spending cap*

This section outlines the main design features of a possible spending cap designed to work within New Zealand's existing institutional framework. We have drawn on the experiences of the Netherlands, Sweden and Finland, adopting the aspects that best suit our objectives and New Zealand's economic and fiscal environment.

On the face of it, the idea of a cap on government spending sounds relatively simple. However, as noted below, many of those countries with existing expenditure caps have a range of exclusions. On reflection Treasury considered that some exclusions would likely be appropriate in the New Zealand context, for the reasons outlined below.

The proposed spending cap would have been for an absolute dollar figure for government spending based on core Crown expenses – this is a measure of operating expenses. The measure would have therefore excluded capital spending and the spending undertaken by State Owned Enterprises (SOEs). Crown funding of Crown entities would fall under the cap. The rationale for excluding capital spending was so that governments would be less likely to cut back on potentially productive capital projects instead of stopping or scaling back ongoing programmes out of operating expenditure. While this runs the risk of expenditure that should be considered as operating expenditure being classified as capital spending, prudent accounting practices and the maintenance of the debt objective would likely have helped limit such practices.

To reduce the risk of the spending cap making fiscal policy more pro-cyclical (e.g., to prevent the need to cut spending during times of recession in order to reduce the deficit), we thought it would have been appropriate to exclude unemployment benefit spending and debt finance expenses from the coverage of the cap.

We also thought it would have been appropriate to exclude remeasurements, losses and debt impairment because these are large and volatile items of spending which are seen to be outside the direct control of the Government.

Given data limitations and the compliance costs of overcoming those limitations, tax expenditures would not have been included. However, the Treasury is working to improve the accountability and transparency of tax expenditures (Fookes, 2009), which will likely make it more difficult and transparent for Governments to use tax expenditures to circumvent other budgetary processes. As part of Budget 2010, the Government released some information about tax expenditures as a step towards increasing transparency.⁹

The proposed spending cap would have been set in nominal terms to avoid the need to deflate a target set in real terms. In addition, a nominal target would tend to result in less pro-cyclicality of fiscal policy than would a real target or a short-term ratio to GDP target.

Under the proposed design, the expenditure cap would have been set for three years with the third year out being set on a rolling basis. For example, Budget 2011 could have set the caps for 2011-12, 2012-13 and 2013-14. In Budget 2012, the cap for 2014-15 would have been set. The cap for 2014-15 would then have been set in light of the overall expense path needed to remain on track

⁹ See: <http://www.treasury.govt.nz/budget/2010/taxexpenditure>

to achieve the fiscal strategy. The caps for 2012-13 and 2013-14 could not have been revised upwards in Budget 2011, though they could have been revised down.¹⁰

The Operating Allowance for new operating initiatives would have been retained. The Operating Allowance seeks to limit new discretionary spending and revenue initiatives, while the spending cap would have sought to limit total spending. However, there is a link between the two. The expense forecasts assume that all of the Operating Allowance will be used for expenses rather than revenue. If a portion of the Operating Allowance was subsequently used for revenue initiatives, that amount would not be available for new operating spending. Thus, the new path of forecast expenses would be lower than the original forecast. As a result, with an unchanged spending cap, there would appear to be extra room under the cap (*i.e.*, a larger margin) equal to the size of the revenue initiative. Therefore it would be important to ensure the Government did not revise the Operating Allowance to try to make use of the extra room under the cap.

6.3 Setting the cap

Consistent with the intent of the PFA, the level of the proposed cap would have been set by the current administration, rather than prescribed in a way that attempts to set the cap for future, yet-to-be-elected governments. Although an incoming Government would have the ability to reset the spending cap, the transparent nature of New Zealand's fiscal framework means that the new Government would have been expected to explain and justify any change.

To set the cap, the Government would have started with the forecasts of expenses being subject to the cap. These forecasts would have included the base as well as the expected profile over time plus the Operating Allowance for new operating initiatives – The forecasted amount is the amount the Government expected to spend. The Government would then add a margin (itself not in the forecasts) to that forecast level of spending. That margin would be designed to provide a buffer for unforeseen movements in forecast expenses (e.g., those that go through the Baseline Update process). The forecast amount plus the margin would determine the level of the cap – this is the amount the Government promises not to exceed.

The spending cap would have reinforced the limit on new discretionary spending imposed by the Operating Allowance as well as placing an indicative limit on the changes to forecasted costs – described in Section 4. However, because the calculation of the cap is based on the existing forecasts, the spending cap would not have placed any limit on the increase in expenses due to changes in the profile of existing spending. For example, it would have incorporated the existing forecast increase in NZS, expected over time as increasing numbers of people reach 65 years of age.

The level of the cap, and therefore the margin, would have essentially been an explicit commitment by the Government not to increase spending above that level. As such, the cap (and the margin) would not have represented an amount of money that is available for spending (unlike the Operating Allowance). Even if the Government only used a small amount of the margin (*i.e.*, did not exceed the cap), it would still have been spending more than it originally forecast.

The size of the margin would have been an important element in the credibility of the spending cap. If it was set too tight, the Government may have been required to make significant cuts to spending in other areas to accommodate forecast changes, or risk revoking the cap. If it was set too loose, the spending cap would exert no effective fiscal discipline.

¹⁰ Some countries do allow for revisions for technical changes or changes with justification.

But the appropriate size of the margin is dependent on the other measures used to provide flexibility within the cap. If most of the cyclical or other volatile elements were excluded from the coverage of the cap, the size of the margin would be smaller than if those elements remained. The rules around what happens if the Government exceeds the cap are also pertinent. If exceeding the cap was not permitted or was reputationally costly, we would expect the margin to have been higher than if there were softer penalties for breach.

In assessing the size of the margin we looked at the size of the margin in other countries. The largest margin of 1 per cent of government expenditure in any one year is used by Sweden, which does not exempt any items from its expenditure ceiling, but governments there are able to use some of the margin for new discretionary spending. Their experience suggests that the lack of other exclusions significantly helps with the communication and monitoring of their cap. The Netherlands' ceiling covers about 85 per cent of government expenditure and has a margin of about 0.5 per cent. Additional leeway was provided by a deliberate policy of using conservative forecasts. Finland's ceiling covers 75 per cent of government expenditure and their margin is about 0.25 per cent.

To help determine an appropriate margin for New Zealand we undertook an analysis of past changes in expense data to assess how large a margin would have had to have been to cover the fluctuations that occurred. This could only be a hypothetical analysis given that a spending cap was not in place at the time and fiscal circumstances were different (*i.e.*, the revenue surprises discussed in Section 4).

In assessing the size of the margin, we also considered other differences between New Zealand and the countries that currently operate spending caps. For example, New Zealand is a small open economy, meaning that the economy and the fiscal position are likely to be more volatile than in larger, less open, economies. Furthermore, New Zealand is one of just a handful of countries that reports its fiscal accounts on an accrual basis rather than a cash basis. This has the potential to add to the complexity of communicating outturns relative to a cap.

Weighing up all of these factors, our preference was for a margin of around 1 per cent of spending covered by the cap. For 2008-09 this would have been \$550 million. A margin of 1 per cent would have been at the upper end of the margins used in other countries. This largely reflects the fact that the proposed New Zealand cap captures a larger share (95 per cent in 2008-09) of total spending than many of the caps of these other countries.

6.4 Breaching the cap

Under the proposed design, if spending exceeded the cap, the Government would have stated either in the *Budget Policy Statement* or in the *Fiscal Strategy Report* the reasons for the breach and what steps it would take to reduce spending to ensure it did not breach subsequent caps. There would not have been any explicit sanction for breaching the cap, but unless action was taken to reduce spending by the amount that the cap was breached, there would be an increased likelihood of further breaches. A breach of the cap in any one year would have used a portion of the margin available for subsequent year(s).

Any spending above the forecast level of expenses (even if it did not breach the cap) would have, subject to a given revenue track, reduced the operating balance (*i.e.*, reduce a surplus or increase a deficit) and increased debt. If spending increased to a level close to but not above the cap, this would have been revealed in the *Budget Policy Statement* or *Fiscal Strategy Report* documents. There would have been an expectation that the Government would comment on the likelihood of a breach and what the Government would do to avoid the breach occurring.

The cap would have been monitored at the aggregate level so it would be a collective Cabinet decision about where spending is reduced to address any excess. There would be a number of options for Cabinet; for example, it could:

- require the department with higher-than-expected expenditure to reduce baseline spending to accommodate the additional costs;
- find baseline savings in another vote; or
- reduce new operating initiatives (*i.e.*, the Operating Allowance).

Thus, if spending was higher than expected because of higher-than-forecast school enrolments, the Cabinet might choose either to reduce baseline spending in Education or find savings elsewhere to increase the Education baseline by the amount of the overspend or charge the overspend against the Operating Allowance.

6.5 *Main changes from the current system*

The biggest change from the current system would have been the inclusion under the cap of changes in forecasted costs that currently go through the Baseline Update process such as higher than expected costs of benefit indexation. This would mean that large increases in those items could potentially have resulted in tradeoffs with other spending, which does not occur in the current system.

The spending cap process would have put a lot more focus on the generation of the spending forecasts. There might have been an incentive for departments to pad their forecasts of spending to provide additional room for unexpected expenditure. However, this would have to have been balanced by the risk that if Ministers consider a department's spending to be inefficient they could be a target for savings to be made.

The spending cap would also have been a fixed commitment to an annual level of spending over a three year period. Given that the cap would have been introduced under the existing PFA, revisions to the cap could not have been ruled out, but any increase in the cap would have to be transparent and would have needed to be justified.

The commitment to the spending cap would also have committed the Government to a maximum level of the Operating Allowance in those years. Revisions to the Operating Allowance would generally have required revisions to the spending cap as well. The main implication of this is that temporary increases of revenue above the forecast level would not have been able to be used to increase spending during the period of the cap. The main reason for this was to ensure that increases in revenue that occurred for cyclical/temporary reasons were not spent. While the increases in revenue may be structural or permanent, it can take a number of years to identify the change in trend. If those revenue increases are in fact structural, they could then have been built into expectations about increased spending and tax cuts when the cap was reset for the third year out.

6.6 *Risks around adopting a cap*

The adoption of a spending cap would have carried some risks, as outlined below.

- It could have reduced the flexibility to deal with shocks as the spending cap could have reduced a Government's ability to engage in counter-cyclical spending during times such as the recent global financial crisis. The placement of unemployment benefit spending outside the cap helps to mitigate against this risk because this is the main cyclical item of expenditure. Countries such as Sweden and Finland have come through the global financial crisis without technically

breaching their expenditure ceilings. In Sweden, this was assisted by the fact that some of the margin can be used for new discretionary spending which has been counter-cyclical in recent years. Others, such as the Netherlands, have made temporary amendments to their spending cap during the recent recession.

- It could have hampered the Government in dealing with other shocks such as a population shock where a migration boom lead to a spike in economic growth and revenue but also health, education and other spending. While a sharp increase in population could happen quickly, the spending implications are likely to follow over time. The occurrence of such a shock may be an instance where the Government could have been prepared to explain a revision to the cap.
- It could have been complex to communicate, in simple terms, the entire design specification of the cap. This could have undermined its effectiveness.
- Implementing the cap within the existing framework of the PFA might have meant the cap was not durable as any incoming Government would not have been bound to follow the same protocol.
- The spending cap would not have solved the problem of the inability to accurately differentiate temporary and permanent revenue surprises. Governments might still have decided to increase spending in the third year in response to a surprise increase in revenues, only to find by the time the third year came around that those revenues were temporary. The Government would still have had the option of revising down the cap if they chose.
- The cap could have become a target rather than an upper limit – the Government might have faced pressure to increase spending up to the maximum permissible even in situations where it would have been prudent to reduce spending.

6.7 *Other proposals for managing government spending*

The above-mentioned questions about the attention paid to the base of spending, as well as questions around how a cap on total spending could bolster existing arrangements, have prompted discussion around alternative approaches to managing government spending. There are a range of alternative proposals. Two that have been discussed within New Zealand are detailed below.

A recent Government-initiated taskforce proposed that the PFA be amended to require the Minister of Finance to specify a five-to-ten year target for future operating spending – either the real per capita level of spending, or spending as a share of GDP (2025 Taskforce, 2009). The Minister would also be required to report publicly on progress relative to that goal. The proposal seeks to put the spotlight on the implications of the fiscal strategy for the size of government. The Taskforce holds the view that growth in government spending should be restrained, so that core Crown expenses decrease as a share of GDP – initially to 2005 levels (30 per cent of GDP), with the medium-term goal being 20 per cent of GDP. The PFA allows for spending intentions and objectives to be couched as a target share of GDP. The Minister of Finance set such a target in the 1995 *Budget Policy Statement*, although this practice has not been consistently applied.

A more prescriptive spending rule, in the form of a Taxpayer Rights Bill, has been proposed by the ACT Party, one of the governing National Party's support parties in Parliament. A similar Bill was proposed in Wilkinson (2004), drawing on the experience of Colorado in the United States. Such a Bill would limit spending growth to the rate of inflation plus the rate of population growth, with any proposal for higher spending being subject to a referendum. Furthermore, it would require any revenue above that limit to be refunded to taxpayers, unless retention of this excess revenue is approved by referendum. A legislated limit on expenses and revenue would require the PFA's principles of responsible fiscal management to be revisited. This is because the

principles are based on requiring governments to be transparent when setting their fiscal strategy, whereas a highly-prescriptive fiscal rule would, in effect, largely be determining the fiscal strategy.

While this report has focussed on one possible design for a cap on total spending, there are other possible designs which may be relevant, depending on the objectives of the cap. For example, a cap could be used to place a limit on a particular type of expenditure rather than total spending.

7 The Government's response

Reflecting on the above analysis, the Government decided not to introduce a formal cap on total spending in Budget 2010. Although a cap on total spending could have brought some benefits, there are also some risks, particularly associated with the complexity of the proposal. The Government considers that the current system, which includes a cap on new initiatives (including both revenue and expenses), namely the Operating Allowance, achieves some of the key objectives of a total spending cap. In particular, the Government's commitment to maintaining the Operating Allowance of \$1.1 billion (increased by 2 per cent per annum from 2011-12) suggested that any future revenue surprises will not be used to increase spending.

Meanwhile, the Government continues to look for ways to address the other issues identified such as increasing the range of expenses subject to an effective limit and increasing the focus on the base rather than just the marginal spend. For example, for Budget 2010, the Minister of Finance initiated a reprioritisation process that resulted in \$1.8 billion of savings within existing baselines being redirected to higher priority areas over the four-year forecast period. Budget 2010 also indicated that various aspects of the current FMA will be reconsidered with a view to improving the Government's ability to scrutinise expenditure increases that at present are not counted against the Operating Allowance.

8 Conclusion

New Zealand's existing fiscal framework – centred around the principles embedded in the Public Finance Act – contributed to New Zealand entering the global financial crisis with historically and internationally low levels of public debt. However, the focus on debt did not prevent Government spending increasing as a percent of GDP. This paper considered whether a spending cap would be a beneficial addition to the fiscal tool kit.

To be effective, a spending cap needed to fit into the existing FMA and be supported by a strong political will to be bound by the cap. The proposal considered in this paper entailed a rolling three-year nominal target for core Crown expenses, as set by the government. It was designed to have a range of exclusions, such as unemployment benefit expenses (which are cyclical and part of the automatic stabilisers). In addition, there was to be a margin to accommodate unexpected changes in forecast expenses.

The benefits of the proposed spending cap are that it would have reinforced the commitment to the existing limit on new initiatives (the Operating Allowance) and placed an indicative limit on changes to forecasted expenses that go through the Baseline Update process. However, the complexity of the proposal would have led to significant communication challenges. There may have been some confusion about how it would operate alongside the existing system.

The review of the FMA, signalled in Budget 2010, will assess whether more of the changes to forecasted expenses should be "counted" within the Operating Allowance. Ideally, future arrangements will also allow the fiscal pressures associated with the rising profile of some categories of demand-driven expenses (e.g., New Zealand Superannuation, some categories of

welfare benefits) to be more clearly identified and compared at the same time as decisions are being made around new spending initiatives. A simple and transparent approach will ensure that the underlying trade-offs around current policy settings and their long-term fiscal effects are visible. This will contribute to New Zealand having a sustainable future fiscal path and being well-placed to respond to long-term fiscal challenges.

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FISCAL MULTIPLIERS IN THE EURO AREA

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In a standard linear structural VAR framework we analyse the size and sign of fiscal multipliers in the euro area, using a newly available quarterly dataset of fiscal variables for the period 1981-2007. From a policy perspective, the analysis of fiscal multipliers in “average times” provides insights on the impact of both fiscal stimulus and fiscal consolidation measures, provided “good” and “bad” times are on average similar.

1 Introduction

The discussion on the negative impact of fiscal consolidation measures is nowadays extremely topical, as it was slightly more than half a year ago the symmetric discussion on the positive impact of discretionary fiscal measures to stimulate the economic activity implemented to soften the economic downturn. Indeed, by June 2009 almost all OECD economies and many emerging countries had announced or implemented some sort of fiscal stimulus packages. In the case of European economies, the European Commission launched at the end of 2008 the “European Economic Recovery Plan” (EERP), aimed at providing a coordinated fiscal stimulus for the European Union (EU) as a whole. Since the end of 2009 in some countries and more widespread in the course of 2010, the case for fiscal stimulus has turned into the case for fiscal consolidation.

The quantification of the potential negative effects of contractionary fiscal measures on the economy is now crucial. At first sight, given the quasi-agreement of both international organizations and academic economists on the beneficial effects of fiscal stimulus, one may guess that the symmetric policy should depress output.

At the current juncture, the economic impact of fiscal packages remains uncertain. This is certainly the case for the euro area, given the scarcity of relevant studies. Given the single monetary policy in the euro area since 1999, and the synchronization of monetary policies already since the beginning of the 1990s among core euro area countries, the aggregate analysis of fiscal policy shocks for the area as a whole is a pertinent endeavour. Even though fiscal policy has been a country-specific issue over the last two decades,¹ the use of historical data in euro area wide models is of practical relevance for policy makers.² And given the potential importance of spillover effects of fiscal policy in a highly integrated area such as the EMU, the results available for some

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¹ This has been the case even under the operation of the Stability and Growth Pact, the fiscal policies' coordination agreement in place in the EU since 1999.

² See, for instance, Smets and Wouters (2003, 2005); Fagan *et al.* (2005); Christoffel *et al.* (2008); and Ratto *et al.* (2009).

specific countries³ do not necessarily provide a good guidance for analysing the macroeconomic impact of fiscal shocks in the euro area as a whole.

Thus, the main aim of this paper is to assess the impact of fiscal policy shocks in a (weighed) representative euro area country (the euro area aggregate) on inflation and GDP, the key macroeconomic variables of interest for the ECB. We focus on the sample 1981-2007.⁴

Along the lines of the most recent and standard strand of the literature that started with Blanchard and Perotti (2002), the effects of fiscal policy shocks are assessed within a SVAR framework where identification of fiscal policy shocks is achieved by exploiting decision lags in policy making and information about the elasticity of fiscal variables to economic activity. Along the lines of our broader study Burriel *et al.* (2010), we focus on a standard methodology for comparability with previous results for other areas/countries. Thus, we aim at capturing the average impact of fiscal policies on GDP. Clearly, our analysis leaves aside the likely non-linear responses of consumers to changes in policies and differences in the extant policy regime (periods of expansionary fiscal policy vs periods of fiscal consolidation under fiscal stress) that might turn out to be crucial to rationalize the impact of fiscal policies in “good” and “bad” times.

We find for the euro area standard qualitative responses of GDP and inflation to government spending and net-tax shocks. Our results are within the standard ranges of results obtained in similar empirical studies for the US and euro area countries.⁵ To make it short: expansionary fiscal shocks do have a short-term positive impact on GDP and private consumption, with government spending shocks entailing, in general, higher effects on economic activity than (net) tax reductions.

The rest of the paper is organised as follows: Section 2 describes the data, Section 3 methodological issues and Section 4 the results. Finally, we present some concluding remarks in Section 5.

2 The data

As in Blanchard and Perotti (2002) and Perotti (2004), the baseline VAR estimated in this paper includes quarterly data on public expenditure (g_t), net taxes (t_t) and GDP (y_t), all in real terms,⁶ the GDP deflator (p_t) and the ten-year interest rate of government bonds (r_t).⁷ All variables are seasonally adjusted and enter in logs except the interest rate, which enters in levels.

The definition of fiscal variables follows Blanchard and Perotti (2002). In particular, government spending (g_t) is defined as the sum of government consumption and investment, while net taxes (t_t) are defined as total government current receipts, less current transfers and interest

³ For euro area country studies see Heppke-Falk *et al.* (2006) for Germany, De Castro (2006) and De Castro and Hernández De Cos (2008) for Spain, Giordano *et al.* (2007) for Italy, Marcellino (2006) for the four largest countries of the euro area or Afonso and Sousa (2009a, 2009b) for Germany, Italy and Portugal, and Bénassy-Quéré and Cimadomo (2006) and Beetsma and Giuliodori (2009) for a group of EU countries. On different grounds, Jacobs *et al.* (2007) incorporate a fiscal closure rule in a VAR for the euro area.

⁴ The scarcity of results analysing the impact of fiscal shocks for the euro area as a whole and the countries thereof, is ultimately due to the lack of quarterly data for the general government sector. In fact, until very recently, official data following national accounts conventions for the EMU and the countries comprising it, covering a wide set of variables, were only available in non-seasonally adjusted terms for the period 1999Q1 onwards. This limitation has been recently overcome by Paredes *et al.* (2009) that provide a quarterly fiscal database for the euro area aggregate for the period 1980Q1-2007Q4. The raw ingredients they use are closely linked to the ones used by national statistical agencies to provide their best estimates (intra-annual fiscal data, mostly on a cash basis), and they preserve full coherence with official, annual data.

⁵ For a discussion on fiscal multipliers in simulation models see Cwik and Wieland (2009) and Cogan *et al.* (2009).

⁶ In all cases the GDP deflator is employed so as to obtain the corresponding real values.

⁷ The long-term interest rate is preferred to the short-term one because of its closer relationship with private consumption and investment decisions. However, this choice turned out to be immaterial to the results in that the inclusion of short-term rates in the VAR led to similar conclusions.

payments on government debt.⁸ The reason for this grouping is that government spending on goods and services might have different effects, as it affects directly the aggregate demand of the economy, while transfers and taxes exert their effects through real disposable income that could be partially saved. These definitions have become commonplace in the most recent empirical literature. Given this definitions, the general government primary balance is obtained as the difference between the levels of t_t and g_t . We use data covering the period 1981:Q1 to 2007:Q4.

Fiscal data have been taken from a newly available quarterly fiscal data set compiled by Paredes *et al.* (2009). They employ intra-annual fiscal data, mostly on a cash basis, in a mixed-frequencies state space model to obtain quarterly fiscal data for the aforementioned period. These data ensure consistency with annual and quarterly national accounts data where available. The main advantage of the new Paredes *et al.* (2009) data set is that it avoids the endogenous bias that arises if fiscal data interpolated on the basis of general macroeconomic indicators were used with macroeconomic variables to assess the impact of fiscal policies. These variables are seasonally adjusted according to the statistical model used to draw the corresponding quarterly data.⁹ Other macroeconomic data for the euro area are taken from ECB's Area Wide Model Database (see Fagan *et al.*, 2005).

3 The (S)VAR model

3.1 Specification

We apply the structural vector autoregressive approach proposed by Blanchard and Perotti (2002) and Perotti (2004). The basic point in this approach is that identification of fiscal policy shocks is achieved by exploiting decision lags in policy making and information about the elasticity of fiscal variables to economic activity.

The reduced-form VAR is specified in levels and can be written as:

$$X_t = D(L)X_{t-1} + U_t \quad (1)$$

where $X_t \equiv (g_t, t_t, y_t, p_t, r_t)$ is the vector of endogenous variables and $D(L)$ is an autoregressive lag polynomial. The benchmark specification includes a constant term, but no deterministic time trends. The vector $U_t \equiv (u_t^g, u_t^t, u_t^y, u_t^p, u_t^r)$ contains the reduced-form residuals, which in general will present non-zero cross-correlations. The VAR includes two lags of each endogenous variable according to the information provided by LR tests, the Akaike, Schwarz and Hannan-Quinn information criteria and the final prediction error.¹⁰

3.2 Identification strategy

The reduced-form residuals have little economic significance in that they are linear combinations of structural shocks. In particular, the reduced-form residuals of the g_t and t_t equations, u_t^g and u_t^t , can be thought of as linear combinations of three types of shocks: a) The automatic responses of spending and net taxes to GDP, price and interest rate innovations,

⁸ More concretely, transfers include all expenditure items except public consumption, public investment and interest payments.

⁹ Another alternative would consist in using TRAMO-SEATS (see Gómez and Maravall, 1996) to extract the seasonal component.

¹⁰ In order to assess the robustness of our results to different specifications and transformations, we tried several alternatives, including estimating with variables in per capita terms, adding a time trend, allowing for four lags instead of two and substituting the long-term interest rate by a short-term one. These different alternatives showed broadly the same qualitative results and are available upon request.

b) systematic discretionary responses of fiscal policy to the macro variables in the system (for instance, reductions in tax rates that some countries could implement systematically in response to recessions), and c) random discretionary fiscal policy shocks, which are the truly uncorrelated structural fiscal policy shocks. Thus, from (1) the reduced-form residuals in the first two equations can be expressed as:

$$u_t^g = \alpha_{g,y} u_t^y + \alpha_{g,p} u_t^p + \alpha_{g,r} u_t^r + \beta_{g,t} e_t^t + e_t^g \quad (2a)$$

and:

$$u_t^t = \alpha_{t,y} u_t^y + \alpha_{t,p} u_t^p + \alpha_{t,r} u_t^r + \beta_{t,g} e_t^g + e_t^t \quad (2b)$$

where e_t^g and e_t^t are the “structural” discretionary fiscal shocks. As we are interested in analysing the effects of e_t^g and e_t^t , on the rest of the variables of the system, estimations for the $\alpha_{i,j}$'s and $\beta_{i,j}$'s in (2) are needed.

The approach we follow here is based on Blanchard and Perotti (2002). The key to this approach is the observation that approving and implementing new measures in response to innovations in the main macroeconomic variables typically takes longer than three months. Hence, the use of quarterly variables allows for setting the discretionary contemporaneous response of government expenditure or net taxes to GDP, prices or interest rate innovations to zero. Therefore, the coefficients $\alpha_{i,j}$'s in (2a) and (2b) only reflect the automatic responses of fiscal variables to innovations in the rest of the variables of the system, the first component aforementioned, and they can be estimated using institutional information on the elasticity of taxes and spending to GDP, prices and the interest rate. In particular, given that interest payments on government debt are excluded from the definitions of expenditure and net taxes, the semi-elasticities of these two fiscal variables to interest rate innovations, *i.e.* $\alpha_{g,r}$ and $\alpha_{t,r}$, are set to zero. While this assumption appears justified for government expenditure and plays no role when analysing its effects, it is slightly more controversial for net taxes.¹¹

Consider now equation (2a). Our choice of the items included in the definition of government expenditure, notably public consumption and investment, makes it hard to think about any automatic response of public expenditure to economic activity. Accordingly, we can set $\alpha_{g,y} = 0$. The case of the price elasticity is different, though. Some share of purchases of goods and services is likely to respond to the price level. In addition, the wage component is typically indexed (either formally or via *ex post* adjustments) to the CPI, even though indexation takes place with some delay. Thus, we adopted the same eclectic approach as in Perotti (2004), according to which the price elasticity of government expenditure was set to -0.5 .

The output and price elasticities $\alpha_{i,j}$ in (2b) are weighted averages of the elasticities of the different net-tax components, including transfers, computed on the basis of information like statutory tax rates and estimations of the contemporaneous responses of the different tax-bases and, in the case of transfers, the relevant macroeconomic aggregate to GDP and price changes. In general, contemporaneous output elasticities of net taxes can be calculated as:

$$\alpha_{t,y} = \sum_i \varepsilon_{T_i, B_i} \varepsilon_{B_i, y} \frac{T_i}{T} \quad (3)$$

¹¹ In many cases, the income tax base includes interest income as well as dividends, which in general co-vary negatively with interest rates. Nevertheless, the full set of effects of interest rate innovations on the different tax categories are very complex to analyse and, on the other hand, their contemporaneous effects are deemed to be very small.

with $T = \sum T_i$ being the level of net taxes,¹² ε_{T_i, B_i} the elasticity of the i^{th} category of net taxes to its own tax base and $\varepsilon_{B_i, y}$ the GDP elasticity of the tax base of the i^{th} category of net taxes. Price elasticities for some components of net taxes were, however, obtained directly by econometric estimation, whereas others were calibrated.

According to our estimations, output elasticity is 1.54, whereas price elasticity amounts 1.14.¹³ These elasticities are similar to those obtained in previous papers. For instance, Perotti (2004) gauges an output elasticity of 1.97 for the USA (for the subsample 1980-2000), while the price elasticity is set to 1.4. There are no reference values for the euro area though. The closer available results would be those for Germany, estimated at 0.72 and 0.98 in Heppke-Falk *et al.* (2006). The higher euro area results compared to Germany might indicate, among other factors, the presence of cross-country spill-over effects that potentially lead to higher multipliers than at the national level.

Once output and price elasticities have been estimated, the so-called “adjusted” fiscal shocks (u^{CA}) can be derived as follows:

$$u_t^{g,CA} = u_t^g - (\alpha_{g,y} u_t^y + \alpha_{g,p} u_t^p + \alpha_{g,r} u_t^r) = \beta_{g,t} e_t^t + e_t^g \quad (3a)$$

$$u_t^{t,CA} = u_t^t - (\alpha_{t,y} u_t^y + \alpha_{t,p} u_t^p + \alpha_{t,r} u_t^r) = \beta_{t,g} e_t^g + e_t^t \quad (3b)$$

As mentioned in Perotti (2004), there is little guidance, theoretical or empirical, on how to identify the two structural shocks in (3a) and (3b). We assume that expenditure decisions are prior to tax ones, which implies a zero value for $\beta_{g,t}$. This allows us to retrieve e_t^g directly from (3a) and to use it in (3b) in order to estimate $\beta_{t,g}$ by OLS.¹⁴ Since we are interested in studying the effects of fiscal policy shocks, the ordering of the remaining variables is immaterial to the results. Accordingly, the reduced-form output residuals are assumed to be a linear combination of the fiscal shocks.

$$u_t^y = \gamma_{y,g} u_t^g + \gamma_{y,t} u_t^t + e_t^y \quad (4)$$

By definition, some contemporaneous correlation between the reduced-form residuals of the fiscal equations and e_t^y is expected. Hence (4) is estimated by instrumental variables, using the structural uncorrelated fiscal shocks e_t^g and e_t^t as instruments for u_t^g and u_t^t , respectively. Likewise, the coefficients of Γ corresponding to the price and interest rate equations can be obtained in turn in a similar way.

The innovations model can be written as $\Gamma U_t = B V_t$, where $V_t \equiv (e_t^g, e_t^t, e_t^y, e_t^p, e_t^r)$ is the vector containing the orthogonal structural shocks. The respective matrixes Γ and B can be written as:

¹² The T_i 's are positive in the case of taxes and negative in the case of transfers.

¹³ Table A1 provides further details about the different elasticities behind these aggregate output and price elasticities.

¹⁴ As shown in Perotti (2004), the correlation between the two cyclically adjusted fiscal shocks is very low, so the ordering is immaterial for the results.

$$\Gamma = \begin{pmatrix} 1 & 0 & -\alpha_{g,y} & -\alpha_{g,p} & -\alpha_{g,r} \\ 0 & 1 & -\alpha_{t,y} & -\alpha_{t,p} & -\alpha_{t,r} \\ -\gamma_{y,g} & -\gamma_{y,t} & 1 & 0 & 0 \\ -\gamma_{p,g} & -\gamma_{p,t} & -\gamma_{p,y} & 1 & 0 \\ -\gamma_{r,g} & -\gamma_{r,t} & -\gamma_{r,y} & -\gamma_{r,p} & 1 \end{pmatrix}$$

and (5)

$$\mathbf{B} = \begin{pmatrix} 1 & \beta_{g,t} & 0 & 0 & 0 \\ \beta_{t,g} & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 1 \end{pmatrix}$$

Accordingly, the reduced-form residuals are linear combinations of the orthogonal structural shocks of the form $U_t = \Gamma^{-1}\mathbf{B}V_t$.

3.3 Possible weaknesses of the SVAR approach to model fiscal policy shocks

One frequent criticism to the identification of quarterly fiscal policy shocks is that fiscal decisions are mainly taken on a year-by-year basis as embedded in the budget. However, while acknowledging that the yearly budget incorporates important policy measures, supplements to it and other decisions affecting fiscal policy during the year are always possible and, indeed, have been commonplace in most of the sample period under consideration.

Another important criticism relates to implementation lags, *i.e.* the typical long lag between the announcement of a fiscal measure, and the time the measure is actually adopted. Under rational expectations, economic agents adjust their decisions on consumption, saving and labour supply as soon as they have information on future changes in fiscal policy. If this is the case, the VAR-based estimated effects on the basis of quarterly data might be biased, although the sign of the bias is not clear. In particular, Ramey (2007) finds that failing to account for the anticipation effect causes the SVAR to capture shocks too late, missing some non-keynesian effects of fiscal policy (the initial decline in consumption that occurs as the news is known). By contrast, Blanchard and Perotti (2002) and Heppke-Falk *et al.* (2006) try to address this criticism including an indicator of future fiscal policy measures in their estimation procedure, finding qualitatively similar results. Perhaps, the existence of liquidity constraints or the presence of shortsighted consumers might reduce the significance of the announcement effect. Leeper *et al.* (2008) analyse the difficulties that fiscal foresight introduces in the estimation and interpretation of conventional analyses of fiscal shocks; even though they show that not accounting for anticipation effects might distort the interpretation of net taxes' shocks,¹⁵ they also hint that under certain circumstances foresight might not impinge on the identification of other shocks, like government spending shocks. However, Yang (2007) argues that including lagged interest rates and prices leads to lower responses to tax shocks in that lagged interest rates and prices contain information about macroeconomic variables related to current tax changes. Thus, the inclusion of prices and interest rate in our VAR might help assuage the foresight problem.

¹⁵ See also Yang (2005).

Finally, Favero and Giavazzi (2007) argue that the omission of public debt in the VAR leads to biased results as they fail to take into account the debt dynamics that arises after a fiscal shock and, more importantly, overlook the possibility of taxes and spending responding to the level of debt. We address this issue and include debt (changes in debt) in a similar way as Favero and Giavazzi in Burriel *et al.* (2010).

4 The effects of government spending and tax shocks

4.1 Interpreting the fiscal shocks

Figure 1 represents the fiscal shocks that we estimate in our baseline VAR for the EMU. In general, the largest fiscal shocks tend to be associated with episodes of discretionary government actions. Beginning with spending, negative shocks in public spending are found throughout the period 1994-97 related to the fiscal consolidation episodes previous to the euro adoption, as the decision whether or not a country entering EMU was taken on the basis of the fiscal deficit recorded in 1997. We identify also positive shocks in 1990-91 associated with the German reunification process that was followed by a significant increase in public spending. In the case of net revenue, we estimate positive residuals along the years 1995-97, related also to the fiscal consolidation process previous to the EMU accession.

4.2 The baseline VAR

Figure 2 displays the responses of the endogenous variables to a positive expenditure shock.¹⁶ Firstly, after a spending shock, GDP increases and remains significant for five quarters, becoming non-significant thereafter. This result is largely in line with previous evidence for the US and other countries. In general, government spending shocks are found to yield positive output responses in the short-term (Perotti, 2004; Neri, 2001; Mountford and Uhlig, 2009), although the size and persistence of output multipliers varies significantly across studies.¹⁷

As for the impact of a government spending shock on the other variables in the system, prices increase with respect to the baseline, leading to a hump-shaped response of inflation. Despite being a rather intuitive and, on the other hand, expected result, previous evidence is far from conclusive. For example, Fatás and Mihov (2001) and Mountford and Uhlig (2009) find negative effects on prices and inflation, whereas in the case of Marcellino (2006) the impact found is not significant in the case of Germany, Spain and Italy and positive in the case of France. In turn, Perotti (2004) reports mixed evidence depending on the country and period under consideration. Likewise, the long-term interest rate rises in response to the shock and remains significant for more than 2 years.¹⁸

Cumulative multipliers¹⁹ to expenditure shocks are shown in Table 1. Output multipliers are rather low, slightly below 1 in the first year following the shock, diminishing thereafter and

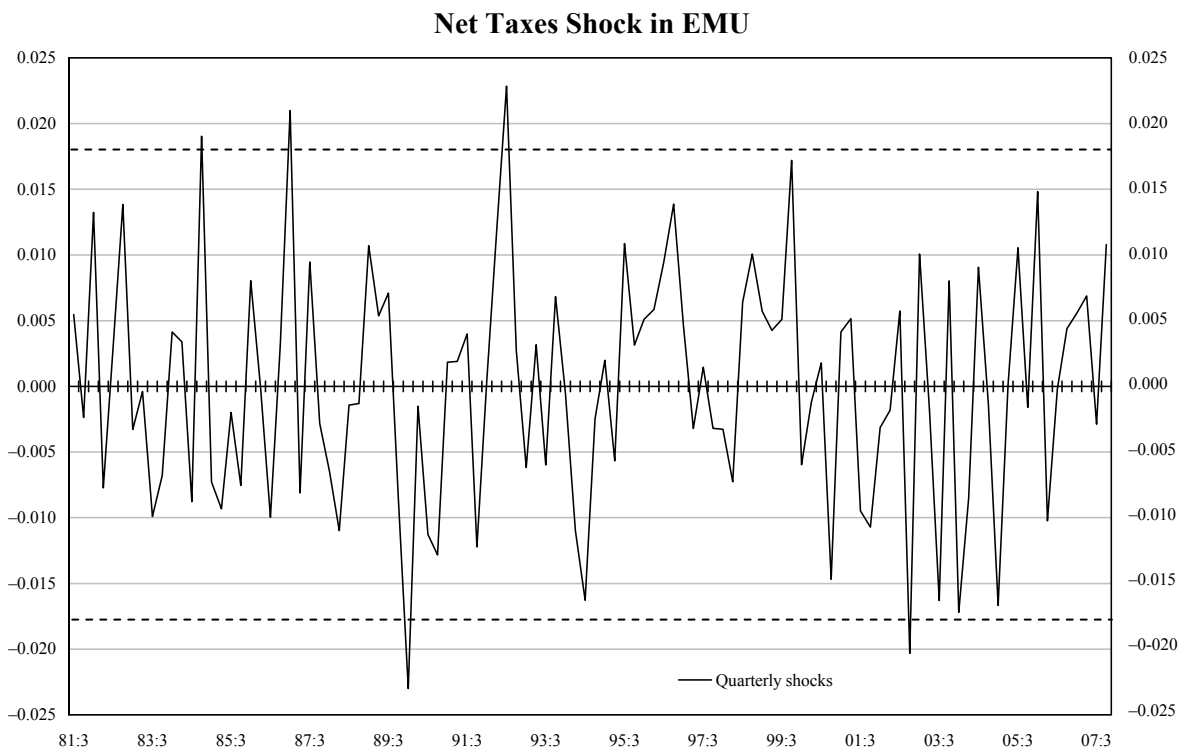
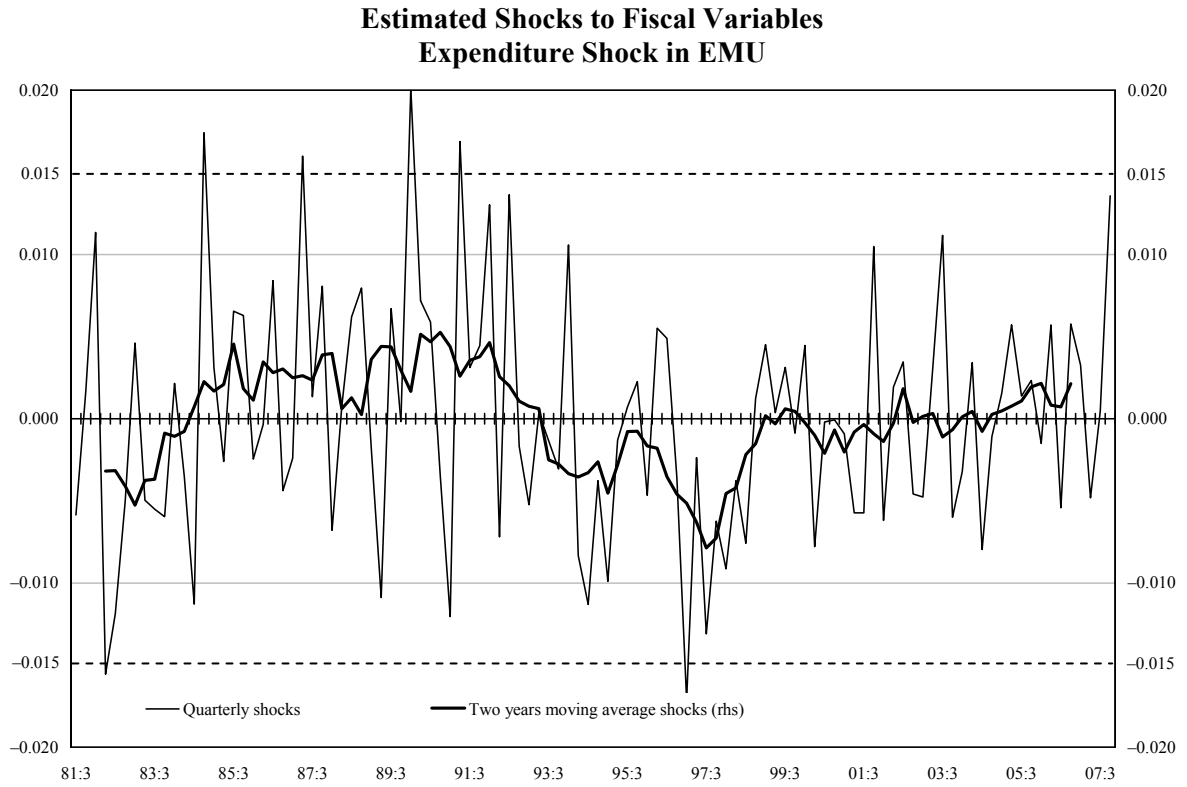
¹⁶ Impulse responses show deviations with respect to the baseline to a one-percent shock of the relevant fiscal variable. Hence, GDP responses cannot be directly interpreted as output multipliers.

¹⁷ Caldara and Kamps (2008) show that, after controlling for differences in the specification of the reduced form model, all identification approaches used in the literature yield qualitatively and quantitatively very similar results for government spending shocks. By contrast, they find strongly diverging results for the effects of tax shocks. These differences stem from differences in the size of the automatic stabilisers estimated or calibrated under alternative identification approaches.

¹⁸ In the literature, the impact of expansionary government spending shocks on interest rates tends to be positive, although rather small (see, for instance, Perotti, 2004).

¹⁹ The cumulative multiplier at a given quarter is obtained as the ratio of the cumulative response of GDP and the cumulative response of government expenditure at that quarter.

Figure 1



The dotted lines frame the one-standard deviation bandwidth.

Figure 2

Responses to an Increase in Government Spending in EMU
(percent)

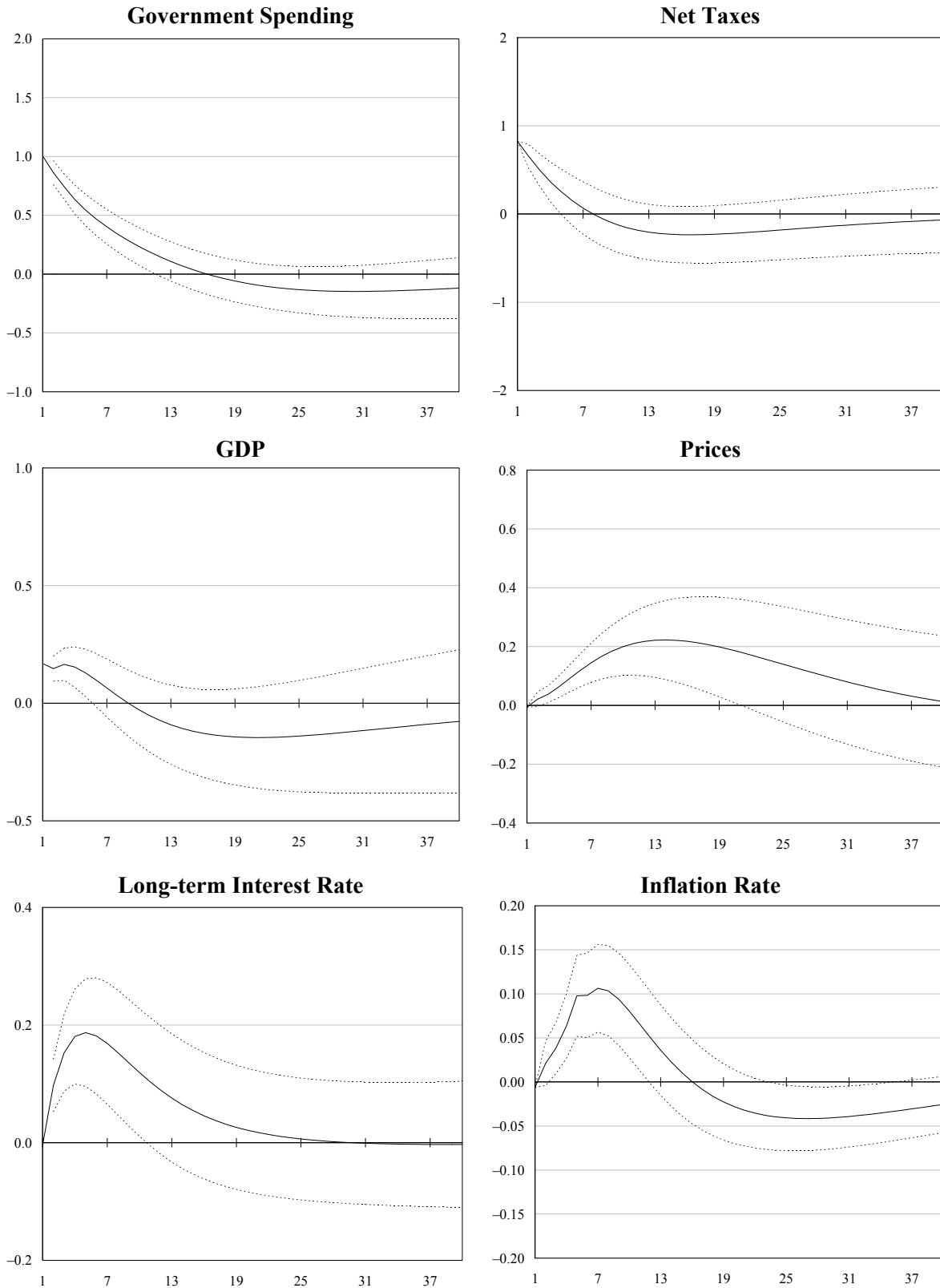


Table 1

Cumulative Output Multipliers

			Quarters					
			1	4	8	12	16	20
EMU	81-07	Government spending	0.75*	0.87*	0.85*	0.61	0.26	0.02
		Net taxes	-0.79*	-0.63*	-0.49	-0.49	-0.58	-0.74

Note: The asterisks indicate significance within the one-standard deviation bandwidth.

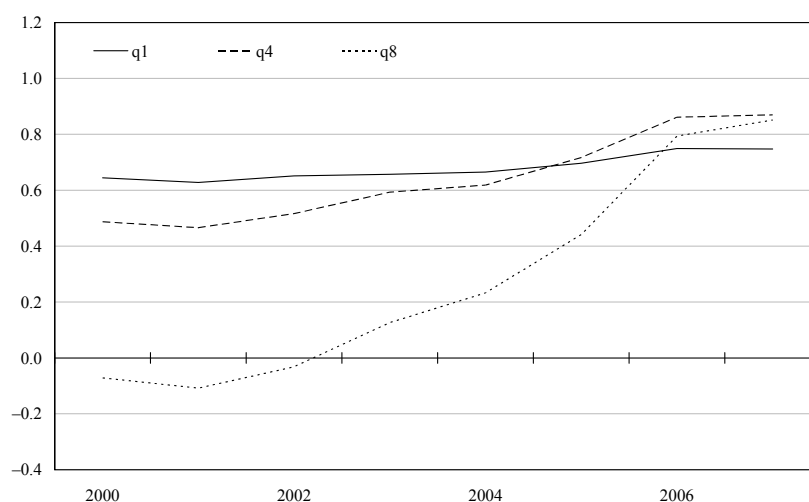
becoming non-significant from the third year onwards. Such low multipliers are indicative of sizeable crowding-out effects.

On the other hand, our output multipliers are significantly larger than those reported in Perotti (2004) for the US, using a sample covering the period 1980-2000. However, if our sample period is restricted until 2000, we obtain multipliers for the EMU very similar to those obtained by Perotti. Thus, our larger output multipliers seem to be due to what has happened between 2000 and 2007. Actually, Figure 3 shows that recursive output multipliers have increased steadily since 2000, especially at the 4th and 8th quarters after the shock. The cause of this result may be related to the “global saving glut” which might have caused a decrease in global risks premia, diminishing the crowding-out effects of fiscal policy on private investment.²⁰ However, this fact remains an open question that might deserve further research in the future.

The responses to net-tax shocks are depicted in Figure 4. Specifically, GDP falls on impact in response to net-tax increases in the EMU, but the GDP response remains significant for only three quarters. Likewise, prices, and consequently inflation, fall in the quarters following the shock, presumably due to lower demand pressures. and interest rates fall on impact, although the response become non-significant three quarters after the shock. Finally, government expenditure eventually falls. In turn,

Figure 3

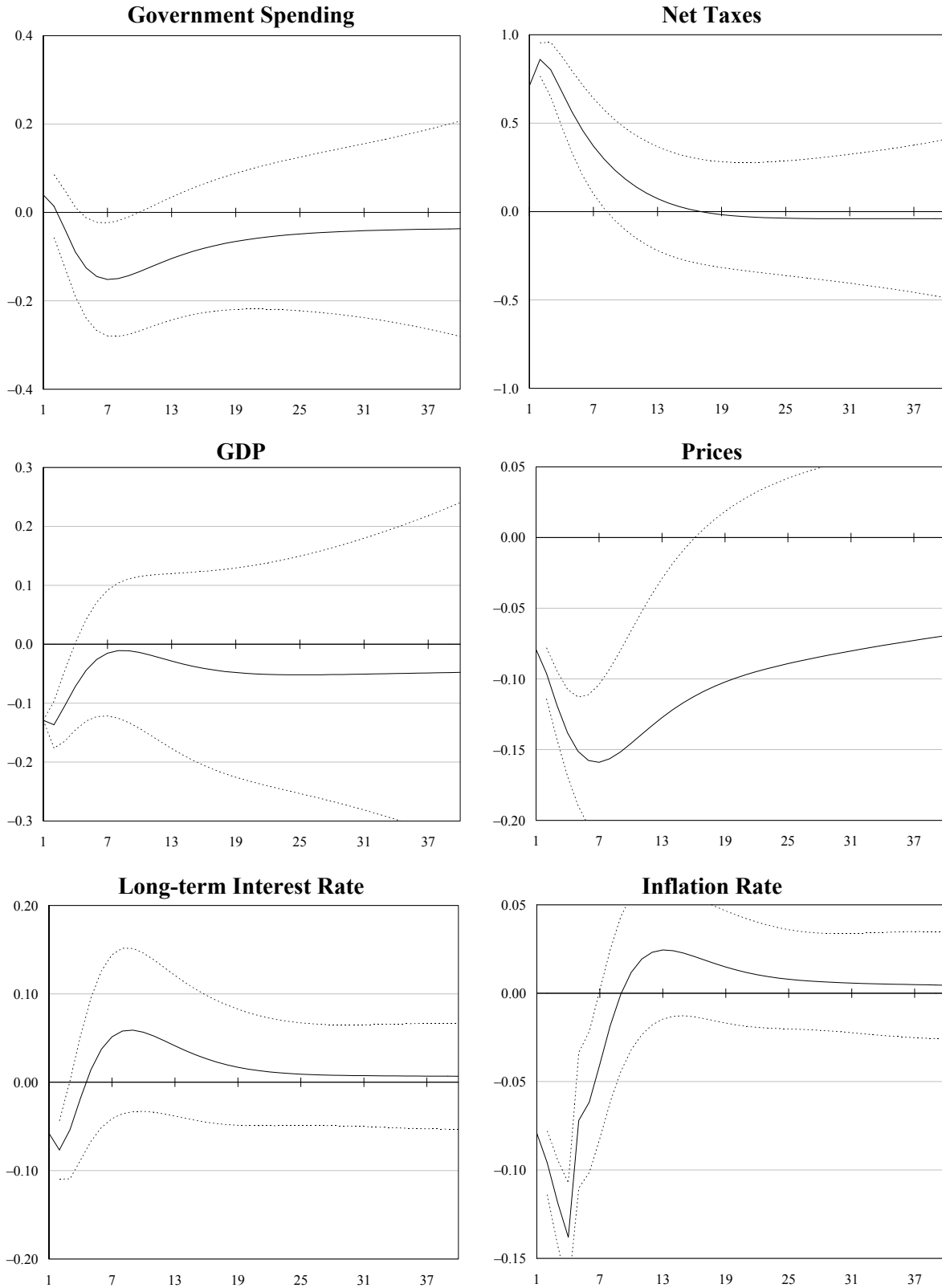
Recursive Output Multipliers to Government Spending Shocks in EMU



²⁰ Laubach (2009) analyses the effects of public deficits and debt on interest rates and finds that the relationship between deficits and interest rates turns from positive to negative in the period after 1999:Q1.

Figure 4

Responses to an Increase in Net Taxes in EMU
(percent)



output multipliers turn out to be negative and lower in absolute value than government spending output multipliers when significant (see again Table 1).

As in the case of spending shocks, these results are qualitatively similar to the findings in previous studies. In general, many empirical papers find that tax multipliers are lower than spending ones in the short-term, which is consistent with the theoretical prediction that part of the higher disposable income stemming from tax cuts is saved. This is the case in Blanchard and Perotti (2002) and Mountfourd and Uhlig (2009). However, some evidence suggests that in the longer term tax multipliers could be higher than spending multipliers. Additional changes in the model specification, alternative variables and a broader sensitivity analysis of the results can be found in Burriel *et al.* (2010).

5 Conclusions

This paper contributes to previous literature analysing the effects of fiscal policy for the euro area as a whole, employing a new database that contains quarterly fiscal variables.

In line with previous evidence, we find that GDP and inflation increase in response to government spending shocks, although output multipliers are below unity. However, we provide evidence of output multipliers increasing steadily after 2000 in the EMU, possibly related to the “global saving glut”. In turn, net-tax increases weight on economic activity, with the negative response being short-lived. In line with previous studies, we find that tax multipliers are lower than spending ones in the short-term.

APPENDIX A CONSTRUCTION OF OUTPUT AND PRICE ELASTICITIES

In order to calculate the output and price elasticities we basically follow the OECD methodology proposed in Giorno *et al.* (1995), which focuses on four tax categories, *i.e.* personal income tax, corporate income tax, indirect taxes and social security contributions. In addition, they consider the elasticity of transfer programmes, notably unemployment benefits. On this issue, in more general terms see Golinelli and Momigliano (2009) for a survey of the cyclical response of fiscal policies.

According to this methodology, the output elasticity of the personal income tax can be obtained as:

$$\mathcal{E}_{dirh,y} = (\mathcal{E}_{dirh,w} \mathcal{E}_{w,emp} + 1) \mathcal{E}_{emp,y} \quad (6)$$

where $\mathcal{E}_{dirh,w}$ is the elasticity of personal income tax revenues to earnings, measured by the compensation per employee, $\mathcal{E}_{w,emp}$ is the employment elasticity of the real wage and $\mathcal{E}_{emp,y}$ the GDP elasticity of employment. Analogously, the output elasticity of social security contributions is:

$$\mathcal{E}_{ss,y} = (\mathcal{E}_{ss,w} \mathcal{E}_{w,emp} + 1) \mathcal{E}_{emp,y} \quad (7)$$

with $\mathcal{E}_{ss,w}$ being the elasticity of social contributions to earnings.

The output elasticity of corporate income tax revenues stems from:

$$\mathcal{E}_{dirc,y} = \mathcal{E}_{dirc,gos} \mathcal{E}_{gos,y} \quad (8)$$

where $\mathcal{E}_{dirc,gos}$ is the elasticity of tax revenues to the gross operating surplus and $\mathcal{E}_{gos,y}$ the output elasticity of the gross operating surplus. In the same fashion, given that the main tax base for indirect tax collections is private consumption, the output elasticity of indirect taxes is obtained as:

$$\mathcal{E}_{tind,y} = \mathcal{E}_{tind,c} \mathcal{E}_{c,y} \quad (9)$$

where $\mathcal{E}_{tind,c}$ and $\mathcal{E}_{c,y}$ are the private consumption elasticity of indirect taxes and the output elasticity of private consumption, respectively.

Since we employ data on a national accounts basis, collection lags should not affect the elasticities to the respective tax-bases significantly. Hence, these have been taken from Van den Noord (2000) and Bouthevillain *et al.* (2001). The output elasticities of the relevant tax bases were, however, obtained from econometric estimation on a quarterly basis. In general, the general equation used for estimating these elasticities was:

$$\Delta \ln(B_t^i) = \gamma + \varepsilon_i \Delta \ln(Y_t) + \eta_t \quad (10)$$

where B^i is the relevant tax base for the i^{th} tax category and ε_i is the output elasticity of such tax base. These equations, given the likely contemporaneous correlation between the independent variable and the error term, were estimated by instrumental variables. However, if the variables B^i and Y are cointegrated, equation (10) contains a specification error. In this case, the following ECM specification would be preferable:

Table 2

Output and Price Elasticities of Net Taxes

	EMU
$\varepsilon_{dirh,w}$	2.0
$\varepsilon_{w,emp}$	0.65
$\varepsilon_{emp,y}$	0.39
$\varepsilon_{ss,w}$	1.0
$\varepsilon_{dirc,gos}$	1.0
$\varepsilon_{gos,y}$	1.08
$\varepsilon_{c,y}$	0.97
$\varepsilon_{ind,c}$	1.0
Output Elasticities	
$\varepsilon_{dirh,y}$	0.90
$\varepsilon_{ss,y}$	0.64
$\varepsilon_{dirc,y}$	1.08
$\varepsilon_{ind,y}$	0.97
$\varepsilon_{transf,y}$	-0.2
$\varepsilon_{t,y}$	1.54
Price Elasticities	
$\varepsilon_{dir,p}$	1.0
$\varepsilon_{ss,p}$	0.0
$\varepsilon_{ind,p}$	0.0
$\varepsilon_{transf,p}$	-1.0
$\varepsilon_{t,p}$	1.14

$$\Delta \ln(B_t^i) = \gamma + \mu(\ln(B_{t-1}^i) - \lambda \ln(Y_{t-1}) - \phi) + \varepsilon_i \Delta \ln(Y_t) + \sum_{j=1}^k \varphi_j \Delta \ln(Y_{t-j}) + \sum_{j=1}^k \nu_j \Delta \ln(B_{t-j}^i) + \eta_t \quad (11)$$

where λ measures the long-term contemporaneous elasticity we are interested in.

Information on the output elasticity of net transfers is more limited than in the former cases. Although unemployment benefits respond to the underlying economic conditions, many expenditure programmes do not have built-in conditions that make them respond contemporaneously to employment or output. Therefore, recalling Perotti's argument, an output elasticity of net transfers of -0.2 has been assumed.

As for price elasticities, following van der Noord (2000) the elasticity of direct taxes paid by households, corporate income taxes and social contributions were obtained as $\varepsilon_{dirh,p} = \varepsilon_{dirh,w} - 1$ (yielding 0.9), $\varepsilon_{dirc,p} = \varepsilon_{dirc,gos} - 1$ (with a value equal to 0) and $\varepsilon_{ss,p} = \varepsilon_{ss,w} - 1$ (being -0.1), respectively. Indirect taxes are typically proportional. Hence, following Perotti (2004), a zero price elasticity was assumed. Finally, although transfer programmes are indexed to the CPI, indexation occurs with a considerable lag. Thus, the price elasticity of transfers was set to -1. Table 2 shows the resulting output and price elasticities.

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THE CRISIS, AUTOMATIC STABILISATION, AND THE STABILITY PACT

Jérôme Creel and Francesco Saraceno***

This paper describes recent trends on the effectiveness of stabilisers in the European Union. Using both macro evidence on the cyclical sensitivity of budget deficit to economic activity and micro evidence on the tax and expenditure profiles, we conclude, in agreement with the recent literature, that the importance of automatic stabilisation has decreased. After remarking that this trend is contradictory with the current economic institutions of Europe, which rely exclusively on automatic stabilisation for the conduct of fiscal policy, we argue that increasing flexibility, one alternative way to reduce cyclical fluctuations, does not seem a viable path. The paper concludes defending the appropriateness of discretionary fiscal policy. We argue by means of a simple model that the theoretical arguments against its use are not conclusive, and we describe a recent stream of literature, based on structural VAR models, that concludes rather robustly for the effectiveness of discretionary fiscal policy in the short and long run.

1 Introduction

The recent economic crisis and financial turmoil had an unexpected consequence: fiscal policies, for a longtime banned from the policymaker toolbox following the conclusions of the New Classical Macroeconomics (NCM) School, have been praised for their capacity to sustain aggregate demand and to dampen the cycle (Arestis and Fontana, 2009).

Though fiscal policies have gained legitimacy in the policymaking sphere, the NCM influence remains present, for example because it is still embedded in the European Stability and Growth Pact. Due to large swings in public deficits and debts, European institutions, like governments, the European Commission and the European Central Bank, are beginning to call for a reversal of fiscal stances in order to gain credibility and have public deficits converge below the 3 per cent of GDP threshold. The underlying message is simple: deficits have grown in bad times, through the full play of automatic stabilisers and the implementation of fiscal stimulus packages. Provided good times are coming back, a symmetric evolution of deficits is required, through automatic stabilisers, still, and fiscal contractions.

The underlying analysis seems reasonable, but under specific assumptions that need to pass a comprehensive empirical test. Among these assumptions, one of the most dramatic is surely the one related to the full play of automatic stabilisers. For well-known political economy mechanisms, it is easier to have deficits reduced automatically than through a political inertial process that is generally not prone to encompassing the academic ideas of reducing the scope of governments (the ratchet effect argument). Were automatic stabilisers strong, then smaller fiscal packages would be required to counter a given shock like the current crisis; more importantly, on one side it would be easier to bring back deficit and debt under control, and on the other the requirement for reducing the scope of governments after the crisis is over would also be smaller.

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As a consequence, in order to assess the consistency of the current thinking on EU fiscal policies, it is important to review the level, evolution over time and effectiveness of automatic stabilisers in the EU. A strong or increasing role for automatic stabilisers in the EU would reinforce the current arguments about exit strategies and the necessity of a fast reduction of public deficits. If the opposite were true, an inconsistency would emerge, between the severeness of the crisis and the call for a quick reversal of discretionary fiscal policies. Our paper aims at shedding light on this issue.

If automatic stabilization does not (or no longer) suffice to ensure macroeconomic stabilization, there may be the need to bring discretionary policies to the foreground. The second objective of this paper is thus to provide a summary of the recent debate, both from a theoretical and an empirical viewpoint.

In fact, if it were to be concluded that discretionary fiscal stances are detrimental to macroeconomic stability, it seems reasonable to favour a quick reversal of the current fiscal stimulus policies. Thus we give an assessment of the effects of fiscal policy on GDP. First, we discuss the effectiveness of discretionary fiscal policies as a growth-enhancing factor; second, we assess the actual ability of the Stability and Growth Pact to enhance macroeconomic stability.

The rest of the paper is organised as follows. Part 2 provides a reduced-form model that helps shedding light on the precise and crucial assumptions for fiscal policy to entail non-Keynesian effects. Part 3 reviews and discusses different approaches to estimating the scope and effectiveness of automatic stabilisers. Part 4 turns to the question of macroeconomic stability and presents estimations of the cyclical components of real GDP for the euro area for a different set of frequency bands. Part 5 concludes on the pros and cons of going beyond automatic stabilisers *via* discretionary fiscal policies.

2 Preliminary thoughts about non-Keynesian effects of fiscal policy

The economic institutions of Economic and Monetary Union in their actual design stem from two main sources. The first is the founding Treaty signed in Maastricht in 1991, and the second is the Amsterdam Treaty of 1997, that completed the setup with the Stability and Growth Pact (hereafter SGP).

The Maastricht Treaty defined the convergence criteria that countries had to fulfil in order to be admitted to the single currency area. In particular, it required a deficit to GDP ratio of no more than 3 per cent, and a public debt below 60 per cent of GDP, or approaching that level at a satisfactory pace.

The Amsterdam Treaty contains further provisions regarding fiscal policy that have the objective of increasing transparency and control on public finances. The Stability and Convergence Programmes that each year Member States present to the Commission have to contain a medium-term objective for the budgetary position of close to balance or in surplus, together with an account of the adjustment path towards the objective. The Excessive Deficit Procedure states what deviations from the 3 per cent budget deficit ceiling are acceptable and describes the sanctions for the violators. As of March 2010, no country has been fined, although disapproval of budget positions in some countries has been expressed, and the current crisis in Greece is highlighting the powerful effect of the SGP as a peer-pressure instrument.

The prolonged period of low growth experienced by most Euro area countries (especially the largest ones), and the increasing number of countries struggling to maintain their deficits within the limits set by the Stability and Growth Pact (SGP), have triggered a debate on the flaws of the current fiscal framework, and on possible reforms aimed at a better functioning of fiscal policy in

Europe.¹ The reform adopted by the European Council in March 2005 relaxes somewhat the medium term objective of a zero structural deficit for countries with low debt and/or with high potential growth; furthermore, it contemplates a number of circumstances (e.g., a strong engagement in costly structural reforms) allowing temporary deviations from the deficit ceiling, and longer delays for correcting them.

The requirement to attain a position of close to balance or surplus in the medium term is an important innovation of the SGP with respect to the Maastricht Treaty, and it was left substantially unchanged by the reform of 2005. In fact, it implies the strong consequence that public debt as a ratio to GDP should tend asymptotically to zero, a position hard to justify *per se* (de Grauwe, 2003).

Even after the reform of 2005, the focus of the Stability and Growth Pact has been on the full operation of automatic stabilisers which would allow the implementation of a counter-cyclical short run fiscal policy. However, recent assessments of fiscal policies in the EU-15 have either pointed to their a-cyclicality (Galí and Perotti, 2003) or to their pro-cyclicality (Farina and Ricciuti, 2006). This raises doubts about the effectiveness of automatic stabilisers all over Europe.

Before turning to an evaluation of this latter point, it is worth recognising that the EU fiscal framework is based upon an unfriendly view of fiscal policy that largely stems from the New Classical Macroeconomics. Under the assumption of perfect sighted households and firms, the effects of fiscal policy are consistent with the so-called Ricardian approach *à la* Barro (1974). Consequently, higher (lower) deficits produce higher (lower) private savings and lower (higher) consumption that may more than compensate the effect increase (decrease) of public demand. This mechanism, according to Giavazzi and Pagano (1990), explained why fiscal contractions in Denmark and Ireland proved expansionary. Bertola and Drazen (1993) and Sutherland (1997) developed theoretical models with non-linearities in the consumption function that led to non-Keynesian effects of fiscal policy.

It may be useful then, to better understand the conditions under which non Keynesian effects may appear. A very simple model allows to show that a crucial role is played by public spending irresponsibility and very few liquidity-constrained households.

Take an economy in which a proportion μ of households are liquidity constrained. As in Hayashi (1982) and Campbell and Mankiw (1990), liquidity-constrained individuals cannot borrow or lend, so that they consume all their disposable income in each period. The economy lasts 2 periods. During the first, labelled “Keynesian”, demand drives production, while during the second, labelled “Classical”, the contrary holds. Assuming there is no investment, the usual demand equations give:

$$y_1 = c_1 + G_1 \quad (1)$$

$$y_2 = \bar{y} \quad (2)$$

where subscripts refer to time periods, y is production or demand, c is private consumption and G are public expenditures.

Unconstrained individuals smooth consumption over their entire horizon: their consumption depends on their permanent income. They maximise their intertemporal utility function subject to the usual intertemporal budget constraint:

¹ For detailed accounts of the debate on reforming the Pact, see, e.g., Arestis *et al.* (2001); Buti *et al.* (2003); Farina and Tamborini (2007); and Fitoussi and Le Cacheux (2007).

$$\begin{aligned} \text{Max } u &= \ln(c_1) + \beta \ln(c_2) \\ \text{s.t. } c_1 + c_2 &= R \end{aligned}$$

where $R = y_1 + y_2 - (T_1 + T_2)$ is lifetime income, defined as the sum of disposable incomes, β is the discount factor, and T is total taxes on individuals. To simplify the exposition and without loss of generality, a zero interest rate on savings and a constant intertemporal price of consumption are assumed. Under perfect foresight, the solution gives:

$$\begin{aligned} c_1 &= \frac{1}{1+\beta} R \\ c_2 &= \frac{\beta}{1+\beta} R \end{aligned} \quad (3)$$

Aggregate consumption of liquidity-constrained and unconstrained individuals in period 1 can thus be written as:

$$c_1 = \mu(y_1 - T_1) + (1-\mu) \frac{1}{1+\beta} R \quad (4)$$

The government has an intertemporal budget constraint (BC):

$$B_0 + G_1 + G_2 = T_1 + T_2 \quad (5)$$

where B_0 represents the initial level of public debt in the economy.

Following Perotti (1999), present and future public expenditures are assumed to be correlated, *i.e.* to follow an inertial process whose strength depends on the value of a “stickiness” parameter ρ :

$$G_2 = \bar{G} + \rho G_1 \quad (6)$$

where \bar{G} are discretionary expenditures in period 2.

Defining $B_0 + \bar{G} = \Gamma$, the BC becomes:

$$\Gamma + (1+\rho)G_1 = T_1 + T_2 \quad (7)$$

Substituting (4) in (1) gives:

$$\begin{aligned} y_1 &= G_1 + \mu(y_1 - T_1) + \frac{(1-\mu)}{1+\beta} (y_1 + y_2 - \Gamma - (1+\rho)G_1) \\ &= \frac{\beta + \mu - \rho(1-\mu)}{\beta(1-\mu)} G_1 - \mu \frac{1+\beta}{\beta(1-\mu)} T_1 + \frac{1}{\beta} (y_2 - \Gamma) \end{aligned} \quad (8)$$

from which the multiplier effect of public spending on short-run GDP can be computed:

$\frac{\partial y_1}{\partial G_1} < 0 \Leftrightarrow \rho(1-\mu) > \beta + \mu$. It is then straightforward to show that non-Keynesian (NK) effects

occur if and only if:

$$\mu < \frac{\rho - \beta}{1 + \rho} \quad (9)$$

Assume for the time being that no household is liquidity constrained ($\mu=0$). In that case, the necessary and sufficient, condition to satisfy inequality (9) is $\rho > \beta$. Intuitively, in this simplified framework, if an increase in expenditure today is perceived as permanent (high ρ), and consumers are not patient enough (low β), then G crowds out private expenditure and has negative effects on income. NK effects would thus appear if the degree of persistence of fiscal policy is larger than the discount factor: long-lasting expenditure cuts would improve permanent income as individuals would expect lower taxes in period 2. If some households are liquidity constrained ($\mu > 0$), then the condition $\rho > \beta$ is necessary but not sufficient, as a number of households are unable to smooth consumption over periods. There are a number of reasons for considering that condition (9) is not likely to be met. First, it is really tricky to obtain: with a share of liquidity-constrained households (μ) equal to one third, and a discount factor (β) equal to 0.95, the degree of persistence in public expenditures necessary to yield NK effect would have to be extremely high ($\rho \geq 1.95$), *i.e.*, we would need to assume that government expenditure follows an explosive path, and that the model diverges from the steady state. More in general, as the fraction of liquidity-constrained agents increases, the area of NK effects decreases, so that assuming NK effects is equivalent to assuming the existence of a large enough number of Ricardian consumers; however, the empirical validity of the second assumption is very disputable (see Ricciuti, 2003, for an assessment and survey of the literature).

If NK effects emerge as the exception rather than the rule, especially when the proportion of liquidity constrained individuals is large and increasing, fiscal policy becomes a tool available for smoothing economic fluctuations. Because of the design of European fiscal institutions, automatic stabilization, is particularly important, through its direct incidence on disposable income and through increased social expenditure.

3 About the effectiveness of automatic stabilisers in the EU

The current crisis, and the subsequent increase in the number of liquidity constrained households and firms, has renewed interest in automatic stabilizers; this is evident from the number of recent papers devoted to this topic in the very recent past, that contrast with the relative neglect of the previous decade. Still today, the number of published articles is very limited.²

Afonso and Furceri (2008) are critical on the strength of automatic stabilizers in the Euro area and the EU-15. Crespo Cuaresma *et al.* (2009) study the smoothing impact of EU automatic stabilizers and call for a full account not only of the variation but also of the level of government size in order to better assess the non-linearities in this smoothing impact. Both papers endorse a panel data methodology and limit automatic stabilizers to the usual five elements of the government budget: household direct taxes, business direct taxes, social security contributions, indirect taxes and unemployment compensation (see Giorno *et al.*, 1995 and Van den Noord, 2000). These are then studied independently.

In contrast, Darby and Mélitz (2008) enlarge the definition of automatic stabilizers. They depart from the usual taxonomy as they extend the analysis to a wider set of public spending: they show that age- and health-related social expenditures and incapacity benefits have a role to play as automatic stabilizers: they also help to cushion the business cycle. Though Darby and Mélitz

² A quick search of “automatic stabilisers” or “automatic stabilizers” in the abstract of “journal articles” under EconLit leaves us with 72 articles; as a matter of comparison, searching for “inflation target” gives 726 results over the same period.

helped to renew interest for automatic stabilizers, they do not investigate their changing strength over time since the euro has been adopted. They split their sample in 1992, before the convergence process began in the EU.

From earlier literature, a consensus emerged on fiscal policy, which has to be limited to automatic stabilisation, banning discretionary intervention from the toolbox of policy interventions. The standard argument maintains that the limit of total deficit to 3 per cent, coupled with the requirement of structural balance, could avoid fiscal indiscipline (thus protecting central bank independence, and ensuring fiscal sustainability), while letting enough room for automatic stabilisation to take care of country specific shocks (see, e.g., Brunila *et al.*, 2002). Nevertheless, some empirical studies (see, e.g., Barrell and Pina, 2004) pointed to the fact that the initial levels of debt-to-GDP ratios and cyclically-adjusted deficits in some Euro area Member States might have been too high on the wake of adopting the euro to permit the automatic stabilisers to operate freely within the constraints of the SGP.

It is well-known that the effectiveness of automatic stabilisers depends on the sensitivity of government revenues and spending to economic fluctuations and on the sensitivity of economic activity to cyclical changes in government revenues and spending. Among the factors affecting budgetary sensitivity, the literature highlights the size of the public sector, the progressivity of the tax and benefit system, the sensitivity of tax bases to economic fluctuations, the institutional time profile of the tax system,³ the level of unemployment benefits and the sensitivity of unemployment to fluctuations in economic activity. Other factors, such as the nature and size of shocks, have an influence on the effectiveness of automatic stabilisers. Finally, the overall flexibility of the economy may also dampen the shocks; that may in turn overstate the effectiveness of automatic stabilisers.

In the following, we review the evolution of these different factors over time, distinguishing the macro evidence from the micro evidence on the effectiveness of automatic stabilisers in the EU since the adoption of the euro.

3.1 *Automatic stabilisers: macro evidence*

We begin with a summary, in Table 1, of the main conclusions of different well known macroeconomic models that estimate the percentage of fluctuations in output which are smoothed by automatic stabilisers. We also report recent estimations of the smoothing contribution of automatic stabilisers by OECD economists. Though some models have been recently updated (for example, the QUEST model of the Commission), it has not been possible to find updates of estimates of the smoothing national properties of automatic stabilisers.

The most striking result is the heterogeneity among countries in terms of the sensitivity of economic activity to the cyclical changes in government revenue and spending. The standard error of business cycle smoothing through automatic stabilization across countries goes from 2 to 8 per cent, for an average of 19 per cent across models and countries. Moreover, the extent of smoothing for a country is quite different from one model to the other and the standard errors across models are large, ranging from 6 per cent for Germany to 12 per cent for the Netherlands. In spite of these discrepancies, which stem from the different model properties (the early inclusion of Ricardian consumers in NiGEM explains why the smoothing contribution is so small), overall, Table 1 shows that the scope of automatic stabilisers in the EU is low: at best, they smoothed a

³ By this we mean that automatic stabilisers are more effective if, e.g., main tax revenues come from taxes which are very sensitive to economic fluctuations and whose lags are short. For example, corporate taxes are generally very sensitive to the economic cycle but delays in collection reduce the overall effectiveness of this tax as a prominent automatic stabiliser.

Table 1

Effectiveness of Automatic Stabilisers Across EU Countries
(percent)

	Bundesbank Model	QUEST Model	NiGEM Model	INTERLINK Model
	(1)	(2)	(3)	(4)
France	19	23	7	14
Italy	14	21	5	23
Netherlands	14	20	6	36
United Kingdom	24	18	n.a.	30
Germany	23	17	18	31
Unweighted average	18.8	19.8	9.0	26.8
Std error	4.8	2.4	6.1	8.5

Note: percentage of fluctuations in output which are smoothed by automatic stabilisers.

Sources: (1) Scharnagl and Tödter (2004); (2) European Commission (2001); Barrel and Pina (2004); Van den Noord (2000).

maximum of 36 per cent of economic fluctuations and at worst only 5 per cent of them. This latter outcome is definitely consistent with Afonso and Furceri (2008) recent EU estimates with panel data: between 1980 and 2005 economic smoothing by social contributions and social benefits is close to 5 per cent, and to 7 per cent respectively. Moreover, the authors do not find a substantial change in economic smoothing once they limit the sample to more recent years.

Drawing on estimations by Blix (2008), it can be shown that the average cyclical sensitivity of public expenditures to a 1 percentage change in the output gap in EU countries is low (-0.2) and varies much across the sample of countries (standard error equal to 0.2). It comes that the homogeneity of fiscal rules at the level of countries in the EU is contradictory with the heterogeneity of empirical rules since the 1980s.

To summarize, there is evidence that the sensitivity of economic activity to cyclical changes in government revenues and spending has been rather low. If the macro effectiveness of automatic stabilisers is dubious, what about the efficiency of automatic stabilisers viewed as the sensitivity of government revenues and spending to economic fluctuations?

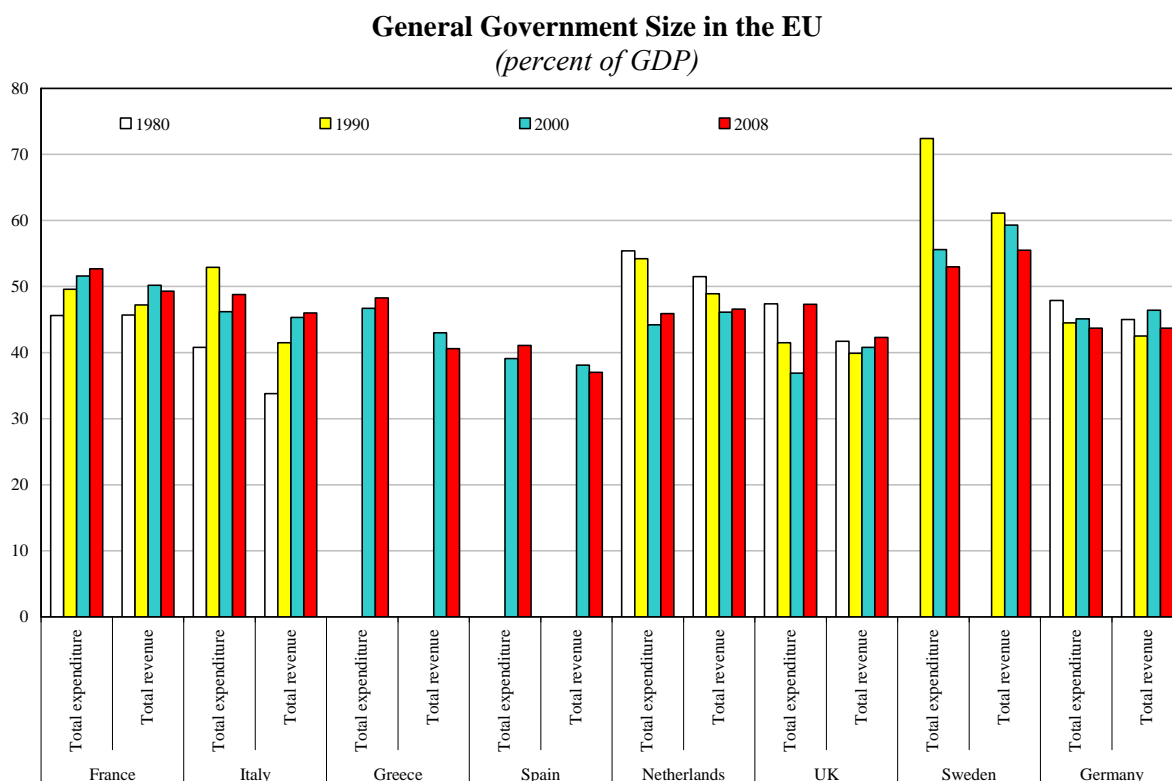
3.2 *Recent changes in revenue and expenditure trends: Micro evidence*

It was recalled earlier that the full working of automatic stabilisers rests predominantly on the size of the public sector, on the structure of the tax and benefit systems and on the level of unemployment benefits and their sensitivity to economic fluctuations. The evolution of these factors is described in the next subsections.

3.2.1 *The size of the public sector*

Since the seminal paper of Galí (1994), there have been many attempts to link the size of

Figure 1



Source: Eurostat.

governments, using either the levels of expenditures or tax receipts, to output volatility/stability. Galí opted for a cross-country study involving only tax receipts, whereas Van den Noord (2000) used public spending. Both showed that higher government size corresponds to lower output volatility.

Using a sample of 20 OECD countries, Fatás and Mihov (2001) also showed that government size and the volatility of the business cycle were negatively correlated; they concluded that larger governments had more effective automatic stabilisers. Government size was measured by the ratio of public expenditures or tax revenues to GDP. Lee and Sung (2007) confirmed earlier results by Fatás and Mihov (2001), though they improved the methodology, using IV empirical techniques and making a distinction amongst public spending. Debrun *et al.* (2008) found out that above a threshold level of public spending, the effectiveness of automatic stabilisers was sharply reduced. They also pointed to a decrease in effectiveness since the 1990s.

Figure 1 displays the level and evolution of government size in eight EU countries. Three groups of countries emerge with one outlier. The Netherlands, Sweden and Germany have reduced the size of their governments, in terms of revenues and expenditures, whereas France and Italy have rather increased it. Greece and Spain, over a shorter sample, constitute a third group in which spending has increased whereas tax receipts have been reduced. The UK is the outlier: until 2006, this country joined the first group, but the financial turmoil has been so dramatic that public spending (over GDP) has recently sharply increased. This evolution stands in sharp contrast with what had happened since the 1980s. For the countries of the first and, to a lesser extent, the third

Table 2

Reduction of Interdecile Inequality After Fiscal and Social Transfers
(percent)

Country	D5/D1		D10/D5	
	1998	2001**	1998	2001**
EU-15*	-43.7	-42.0	-31.1	-32.4
France	-40.1	-37.6	-29.0	-29.4
Germany	-59.5	-66.5	-30.4	-34.1
Italy	-16.7	-17.2	-25.7	-28.7
Netherlands	-59.3	-57.0	-28.1	-23.4
Spain	-27.9	-29.1	-41.2	-34.6
Ireland	-91.7	-90.2	-33.0	-41.7
United Kingdom*	-76.4	-78.5	-35.1	-35.5

* indicates XXX euros adjusted for PPP.

** indicates the year 2003 for Germany, the Netherlands and UK; 2005 for Spain.

Sources: EUROMOD statistics on Distribution and Decomposition of Disposable Income, accessed at: www.iser.essex.ac.uk/msu/emodstats/DecompStats.pdf on 1998 and 2001 (2003, or 2005) using EUROMOD version 31A; computations by the authors.

group, and following Fatás and Mihov (2001), it can be concluded that automatic stabilisers are now less effective than in the past. An opposite conclusion holds for France and Italy. On average, total expenditures and total revenues have decreased since the 1990s. As for the discrepancy across EU countries, when measured by the standard error of cross-country public spending, it was at its lowest in 2008 (4.1 per cent), in comparison with 11 and 6 per cent in 1990 and 2000 respectively: there has been strikingly more homogeneity in government spending in the EU than in the past, and a time when the size of governments was on average on a downward trend. The same conclusion holds for total revenues.

3.2.2 *The progressivity of the tax and benefit system*

Since the end of the 1990s, there has been a sharp modification in the tax and benefit systems of the EU-15 countries: In many of them the redistributive role of the system⁴ has been attenuated, while at the same time top marginal tax rates were reduced.

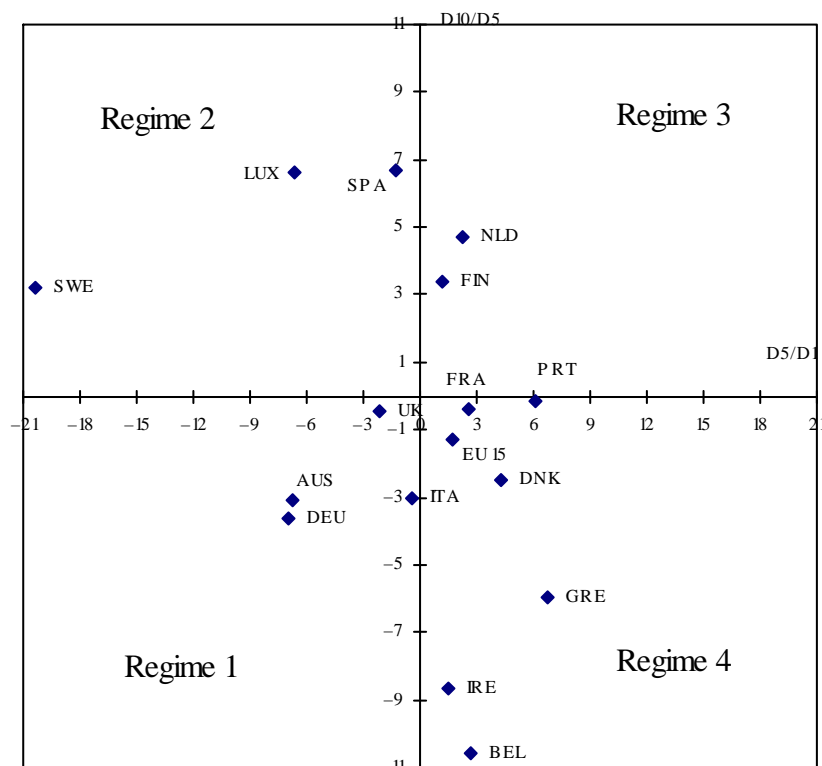
Aggregate data at the EU-15 level tell a mixed story. Between 1998 and 2001 (comparable data are not available for other years), the distribution of disposable income⁵ remained constant, the three first deciles receiving 14 per cent of total disposable income, the next four 35 per cent, and the highest income groups more than 50 per cent. A comparison of interdecile ratios for disposable and pre-tax incomes shows instead a change between 1998 and 2001: Table 2 shows that the

⁴ A redistributive system is viewed as a system improving the situation of the households earning the lowest income, on the one hand; and making the households earning the highest income contribute more to welfare and social expenditure, on the other hand.

⁵ Disposable income is original income (from employment, investment, private pension) minus taxes plus received benefits, from maternity allowances to public pensions.

Figure 2

Evolution of Interdecile Disposable Income Between 1998 and 2003*



Notes: Regime 1: improvement in the two objectives; Regime 2: improvement in objective 1, deterioration in objective 2; Regime 3: deterioration in the two objectives; Regime 4: improvement in objective 2, deterioration in objective 1; Objective 1: reducing inequality for low-income earners; Objective 2: increasing the contribution effort of high-income earners.

* indicates the year 2001 for Denmark, France, Ireland, Italy and Sweden; 2005 for Greece and Spain.

Source: EUROMOD (see Table 1), computations by the authors.

benefit and tax systems permitted a reduction in inequality between Decile 5 and Decile 1 of 43.7 per cent⁶ in 1998, but only of 42.0 per cent in 2001. In the meantime, redistribution between Decile 10 and Decile 5 was more substantial in 2001 than in 1998. As a consequence, the property of the tax and benefit system in the EU taken as a whole to redistribute between the middle income decile and the lowest income decile has not improved between 1998 and 2001, whereas redistribution between the upper decile and the median decile has improved. For the EU, improvement in the redistributive role of the tax and benefit system has gone half way. Except Germany, Italy and the UK, other reported countries in Table 2 reflect an inability to improve both sides of the redistributive role of the system.

Based upon the Euromod statistics, some of which have been updated in 2003 or 2005, we can draw a picture of the evolution of redistributive properties of EU-15 countries since 1998, as shown in Figure 2. Countries are distributed on the graph according to the time profile of the redistributive properties of their tax and benefit system. On the x-axis, a positive (resp. negative) value means that the relative situation of households from Decile 1 has deteriorated (resp. improved) *vis-à-vis* that of Decile 5 between 1998 and 2003.⁷ On the y-axis, a positive (resp. negative) value means that the relative situation of households from Decile 5 has deteriorated (resp. improved) *vis-à-vis* that of Decile 10 over the same time span. If the two objectives – improving the situation of the households earning the lowest income, and making the households earning the highest income contribute more to welfare and social expenditure – are reached by a country (we label it Regime 1 and we consider that it is the best performing regime), both values

⁶ In 1998, for the EU-15 countries on average, the ratio of Decile 5 to Decile 1 original income was equal to 473 per cent; with disposable income data, it was equal to 266 per cent: thus, a variation of minus 43.7 per cent.

⁷ 2001 for Denmark, France, Ireland, Italy and Sweden; 2005 for Greece and Spain.

should be negative. Regime 2 holds when the households with the lowest and highest incomes are better-off at the expense of middle-income earners; Regime 4 holds when the situation of middle-income earners improves *vis-à-vis* the households with the lowest and highest incomes. Last, Regime 3 holds when the situation of the households with the highest income improves *vis-à-vis* low-income and middle-income earners.

Few EU-15 countries have actually reached regime 1 over this short period: only Austria and Germany,⁸ and Italy and the UK to a lesser extent, have been able to reduce both types of income inequality since 1998. Six countries (Denmark, France, Ireland, Greece, Belgium, Portugal) are in Regime 4, where the situation of middle-income earners⁹ has improved *vis-à-vis* low-income and high-income earners. On the opposite, Luxembourg, Spain, and Sweden have seen the relative situation of the lowest-income earners improve, and substantially so, at the expense of middle-income earners whose relative position with respect to the households earning the highest income decreased (Regime 2). Finland and the Netherlands are in Regime 3, witnessing deterioration in the situations of low-income and middle-income earners, at the benefit of the highest-income earners.

To sum up, countries are quite unevenly distributed across the four regimes and, except in Austria and Germany, the progressivity of the tax and benefit system decreased between 1998 and 2003 and with it, the effectiveness of automatic stabilisers on the side of public receipts.

One can also assess progressivity by looking at marginal income tax rates. Table 3 reports central government marginal tax rates of a few European countries, together with the number of tax brackets. While this measure is only partial (the overall degree of progressivity also depends on the structure of the tax base, on thresholds, exemptions, and so on), the trend is unequivocal. One can easily see that in most countries there was a sharp decrease in both the marginal rate and the number of brackets, going thus towards a less progressive tax system. The complexity of the tax system on the other hand may hide other trends of inframarginal rates and threshold, that may redistribute income towards the very poor, thus implying an increase of average propensities to consume and of multipliers, in spite of the overall decrease of progressivity.¹⁰ The above analysis of interdecile distribution, nevertheless, together with recent studies on the long run evolution of income distribution (CITE IMF OECD), suggests that this possibility is not very realistic.

Table 4 displays corporate tax rates in EU-15 countries. Except in Spain where the change occurred later, corporate tax rates have decreased since 1990 or 2000. The common wisdom maintains that this significant and widespread reduction enhances production, incentives and entrepreneurship. In the short run, lower corporate tax rates may induce higher profitability that may fuel investment and employment. Nevertheless, they may also induce to distribute more profits which may then be invested elsewhere in the world economy and which may be missing for financing domestic social benefit systems. Moreover, if lower corporate taxes do not succeed in fuelling production and growth, the consequent rise in public deficits in Europe may push governments to reduce transfers and other public expenditures; in this sense, lower taxes may have as a side effect the reduction of automatic stabilisation.

Possible tensions on public finances because of lower taxes do not come exclusively from corporate tax rates: taxes on labour incomes have also decreased in the recent past (see OECD, 2006). Only Denmark and, to a lesser extent, Finland, Greece and Sweden, have not witnessed such a decrease. Apart from these countries, tax cuts are general and they may have had a bad influence

⁸ Both countries are close to the 45° line for which the improvements in the two objectives are comparable.

⁹ The situation of the “middle-class” in these societies is well beyond the scope of this contribution which intends to give some macroeconomic and microeconomic clues on the effectiveness of automatic stabilisers. By “middle-income earners”, we only refer to Decile 5. It is possible that the “middle-class” starts at, say, Decile 4 or 6 and, were it the case, conclusions related to the possible improvement or deterioration *vis-à-vis* the “upper-class” (also to be precisely defined) might be different.

¹⁰ We owe this remark to Richard Hemmings.

Table 3

Number of Tax Brackets and Marginal Income Tax Rates*

		1981	1991	2001	2008
Belgium	Number of Brackets	23	7	7	5
	Maximum Rate	72%	55%	55%	50%
France	Number of Brackets	12	12	6	4
	Maximum Rate	60%	56.80%	52.75%	40%
Germany	Number of Brackets	2	2	2	2
	Maximum Rate	56%	53%	48.50%	45%
Italy	Number of Brackets	32	7	5	5
	Maximum Rate	72%	50%	45%	43%
Spain	Number of Brackets	30	16	6	4
	Maximum Rate	65.09%	56%	39.60%	27.13%
Ireland	Number of Brackets	5	3	2	2
	Maximum Rate	60%	52%	42%	41%
United Kingdom	Number of Brackets	6	2	3	2
	Maximum Rate	60%	40%	40%	40%

* Central government rates.

Source: OECD Tax Database (www.oecd.org/ctp/taxdatabase) and calculations of the authors.

on the effectiveness of automatic stabilisers. The latter are also currently hurt by the implementation of the OECD Employment Strategy: Belgium, Denmark, Germany, and the Netherlands all experienced declining replacement rates and/or shortened benefit duration.

The decreasing size of the government may thus impair economic stability, as Fatás and Mihov (2001) argued (*cf. supra*), but it may also fuel social discontent or unrest. A quick look at Table 5 shows that except in a few countries (France, Ireland and the UK, even if the latest two experienced reductions in the replacement rates and benefit duration), the employment protection legislation (EPL) index¹¹ has been reduced since the mid-1980s and, quite often, sharply so like in Belgium, Germany, Italy, Portugal, Spain and Sweden. Lower taxes and lower protection may impair the effectiveness of automatic stabilisers and may contradict their advocates during the current crisis.

3.2.3 Unemployment expenditures

Some items of public spending, in particular those linked to the support of the unemployed, help to balance the consequences of shocks. A negative shock on aggregate demand is partly dampened by generous unemployment benefits which sustain consumption of those most dramatically hit by the shock. More active unemployment public expenditures – those labelled

¹¹ The EPL, introduced by Nicoletti *et al.* (2000), is extensively discussed in OECD (2004). It is built by aggregation of 18 indexes from three main areas: Employment protection of regular workers against individual dismissal; specific requirements for collective dismissals; and regulation of temporary forms of employment. As all aggregative indexes, it is not exempt from criticisms (see, e.g., Bertola *et al.*, 2000 and Fitoussi, 2003). Nevertheless, it is a useful representation of the trends in employment protection over time.

Table 4

Main Corporation Tax Rate
(percent)

Country	1990	2000	2005	2009
Austria	30		25	20
Belgium	43	40.2	35.5	35.5
Denmark	50		28	25
Finland	33	29	26	26
France	42 (distributed profit) 37 (retained profit)	37.8	34.9	34.4
Germany	36 (distributed profit) 50 (retained profit)	52	39.3	15.8
Greece	46 (40: industry)		32	25
Ireland	43 (10: industry)	24	12.5	12.5
Italy	36	37	33	27.5
Luxembourg	34	37.5	30.4	21.8
Netherlands	35		31.5	25.5
Portugal	34		27.5	25
Spain	35	35	35	30
Sweden	52		28	26.3
United Kingdom	35	30	30	28

Sources: *European Tax Handbook* 2005 and 2009, year 1990 reproduced from Sterdyniak (2005, p. 24), and year 2000 reproduced from Saint-Etienne and Le Cacheux (2005, p. 22).

under the heading of active labour market policies (ALMP), mostly training – also reduce the costs of unemployment for the unemployed, promoting their employability and improving their probability of finding a new job, thus shortening unemployment duration. Expenditure aimed at fighting unemployment can help to maintain economic stability through a combination of supportive measures for the demand for labour and enhancing the effective supply of labour.

Consequently, the sum of passive *and* active unemployment public expenditures reveals the stabilisation properties of unemployment expenditures: passive expenditures like benefits undoubtedly impinge very quickly on the aggregate demand whereas active expenditures are meant to reduce the duration of unemployment for those unemployed.

In general, the responsiveness of unemployment expenditures to the unemployment rate has decreased, thus reducing the stabilising properties of the system. Figure 3 displays pairs of yearly variations¹² in unemployment public expenditures (active and passive expenditures) and yearly variations in unemployment rates, for the EU-15 countries, distinguishing two sub periods: 1991-97 and 1998-2005.¹³

¹² With a short sample it has not been possible to perform a panel test with fixed effects, so that we have chosen a specification in first differences to remove country effects.

¹³ The Amsterdam Treaty in 1997 made clear that the transition period towards the adoption of the Euro would not be followed by a benign-neglect attitude towards public deficits: the convergence criterion of a public deficit below 3 percentage points of GDP was soon to become a rule of conduct within the newly constituted Euro area.

On this figure, we expect pairs to be evenly distributed on an upward line whose slope would reveal the average elasticity of unemployment expenditures to the unemployment rate. There is actually a very interesting pattern in Europe: since 1998, the elasticity of unemployment public expenditures to the unemployment rate has been significantly lower than before (0.1 rather than 0.2 on average). Stated differently, the relationship between variations in unemployment expenditures and unemployment rates was stronger in the preceding period despite the Maastricht public finance criteria.

It is also noteworthy that the level of unemployment expenditures for the same rate of unemployment has decreased since 1998, in comparison with the preceding period. This latter property of the European social system appears clearly in the cases of Italy, France, Spain, Austria and, to a lesser extent, Germany (Figure 4). The UK is an outlier in this respect: With the exception of one point in the 1998-2005 sample, the relationship between unemployment expenditures and unemployment rate has hardly changed.

The stylised facts on the reduction of tax rates, the reduction in the progressivity of the tax and benefit systems, and the reduction in the Employment Protection Legislation, all seem to point unequivocally towards a decrease of the effectiveness of automatic stabilisation in European countries.

Therefore, public deficits may be less and less cyclical, or less and less able to dampen fluctuations. In the literature, (e.g., Girouard and André, 2005) it is customary to report elasticities of taxes, transfer payments and other expenditures with respect to GDP growth, elasticities which have generally remained constant over time. Looking at unemployment expenditures only, it is however possible to suggest that for most of EU countries their relationship with GDP growth rate has changed substantially since the end of the 1990s.

4 How to substitute for automatic stabilisation?

If the effectiveness of automatic stabilisers has decreased, as we documented in the previous

Table 5

EPL Index, * Selected Years

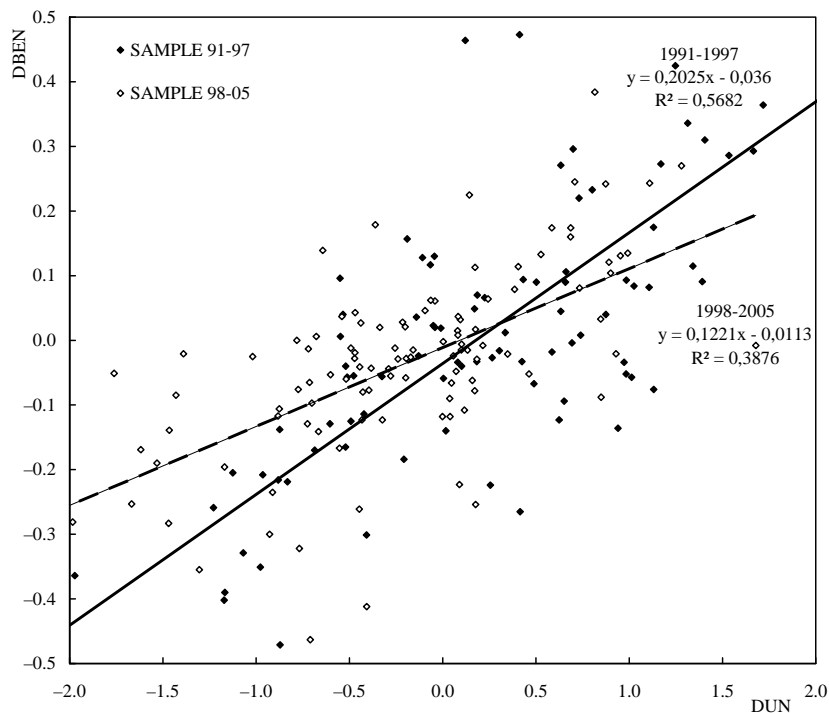
Country	1985	1995	2005	2008
Austria	2.21	2.21	1.93	1.93
Belgium	3.15	3.15	2.18	2.18
Denmark	2.4	1.5	1.5	1.5
Finland	2.33	2.16	2.02	1.96
France	2.79	2.98	3.05	3.05
Germany	3.17	3.09	2.12	2.12
Greece	3.56	3.5	2.73	2.73
Ireland	0.93	0.93	1.11	1.11
Italy	3.57	3.57	1.82	1.89
Netherlands	2.73	2.73	2.12	1.95
Portugal	4.19	3.85	3.46	3.15
Spain	3.82	3.01	2.98	2.98
Sweden	3.49	2.47	2.24	1.87
United Kingdom	0.6	0.6	0.75	0.75
US	0.21	0.21	0.21	0.21
EMU11**	-	2.75	2.23	2.2

Source: OECD, Employment Outlook, 2004. Data for 2005 and 2008 from OECD STATS (<http://stats.oecd.org/index.aspx>).

* Version 1 (unweighted).

** EMU11: Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, Slovak Republic, Spain.

Figure 3
Relationships Between the Variation in Unemployment Public Expenditures (Expressed in Percentage Points of GDP) and the Variation in Unemployment Rate, Both Stated in Percent, EU 15, 1991-1997 and 1998-2005



Source: OECD and computations by the authors.

section, we need to ask whether something else emerged, that could allow the system to adjust. In fact, it may be argued, that in a competitive world, where markets (for labour, goods and services or finance) are highly flexible, prices adjust rapidly to bring output fluctuations under control. The operation of automatic stabilisers could thus turn out to be less necessary than in the past.

Although the above-mentioned argument is common among economists who promote more flexibility and “structural reforms” in Europe (see, e.g., Sapir *et al.*, 2003), it needs to be supported by identifiable empirical facts. In the vein of McConnell and Perez-Quiros (2000), who documented the decline of US output

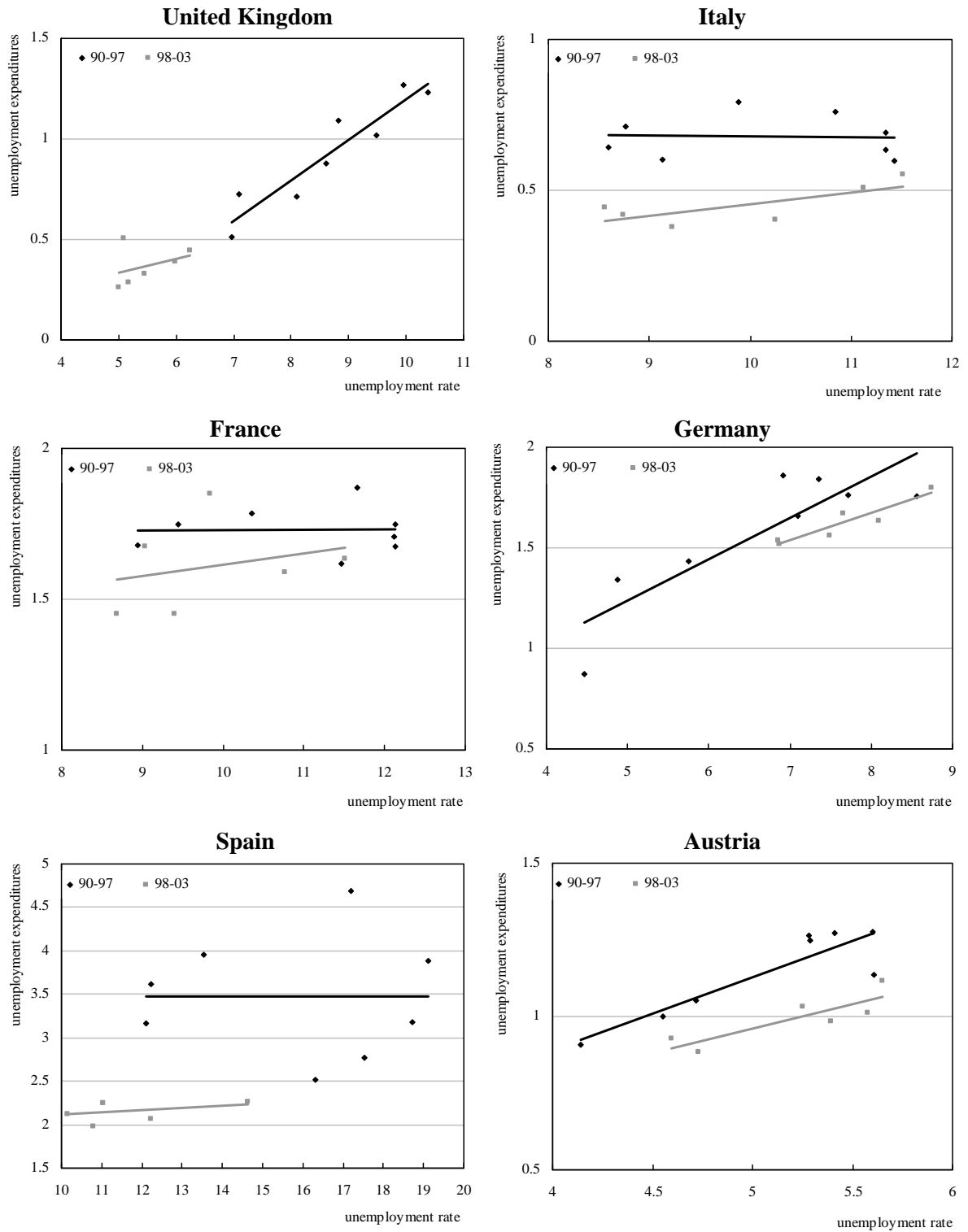
volatility, we study output volatility in Euro area countries taken as a whole, and in some EU-15 countries taken individually. We remove the mean of GDP growth from yearly GDP growth rates; we then fit a constant and a linear trend to the ensuring gap; and we perform a CUSUM and CUSUM of squares test on the cumulative sum of the recursive residuals.¹⁴ The CUSUM of squares test reports possible instability in the variance of the parameters.

For the Euro area taken as a whole, parameter instability occurs only around the German reunification years (Figure 5). Nevertheless, although not statistically significant, parameter instability increased between 1985 and 1991. The CUSUM of squares test for the Euro area detects statistically significant instability in the variance during the crisis of 1993. Movements outside the critical lines, which are suggestive of variance instability, are also revealed in the UK from 1975 to 2000, in Italy from 1978 to 1986, in the Netherlands from 1980 to 1997, and in Sweden from 1981 to 1998 (figures available upon request). Over the recent years, like the US, Europe seems to have experienced a decline in output volatility.

¹⁴ A well-known drawback with a CUSUM test based upon recursive residuals is that a shift late in a sample is likely to go relatively unnoticed. A CUSUM test using OLS residuals gives better results for late-sample data, but none of the tests can be considered significantly superior to the other (Ploberger and Krämer, 1992).

Figure 4

Relationships Between Unemployment Public Expenditures (Expressed in Percentage Points of GDP) and Unemployment Rate, 4 Main EU-15 Countries, 1991-97 and 1998-2003



Source: OECD and computations by the authors.

Figure 5

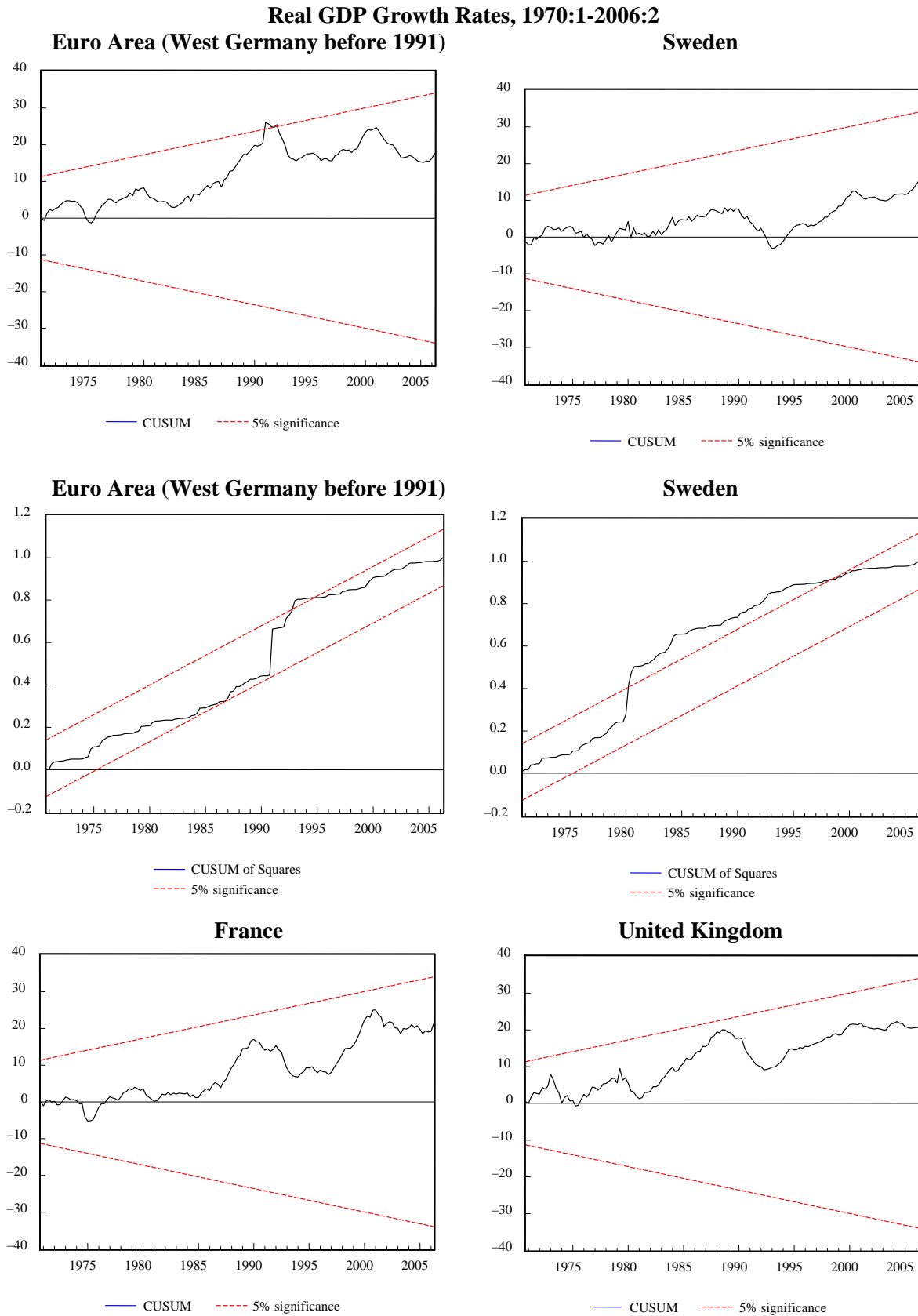
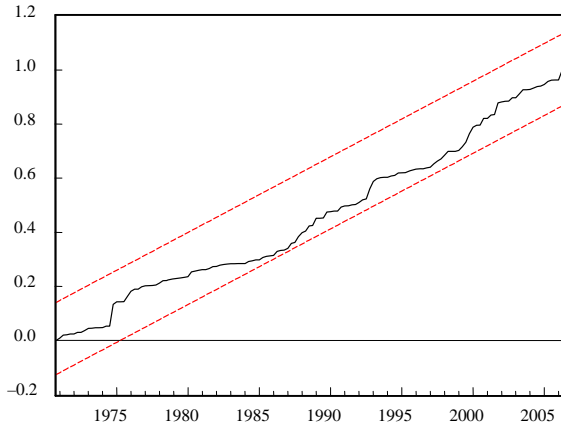


Figure 5 (continued)

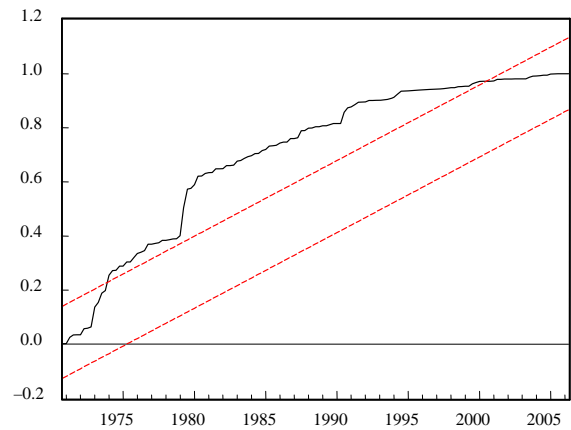
Real GDP Growth Rates, 1970:1-2006:2

France



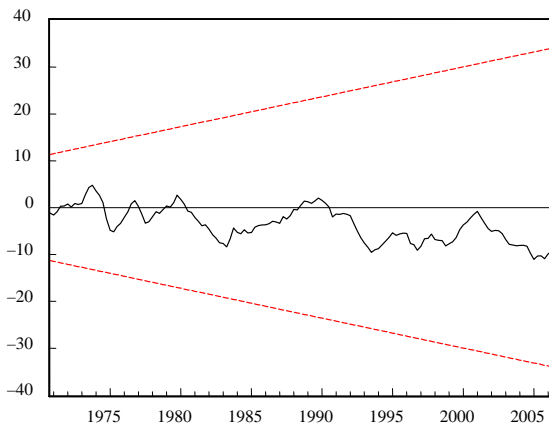
— CUSUM of Squares
- - - 5% significance

United Kingdom



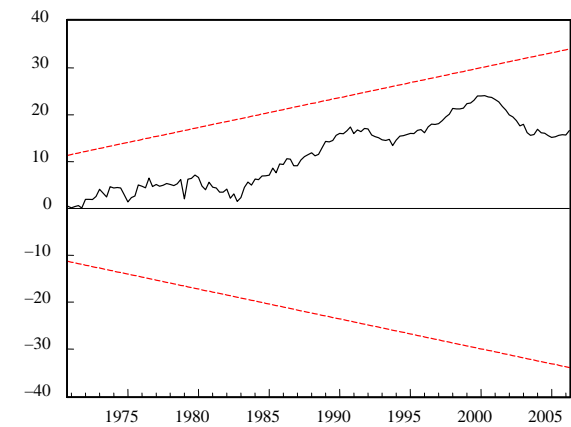
— CUSUM of Squares
- - - 5% significance

Italy



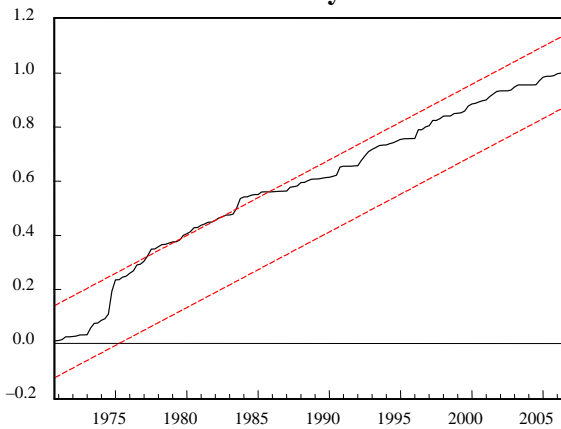
— CUSUM - - - 5% significance

Netherlands



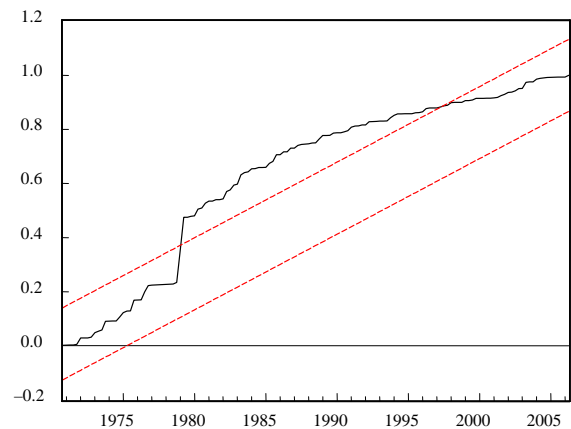
— CUSUM - - - 5% significance

Italy



— CUSUM of Squares
- - - 5% significance

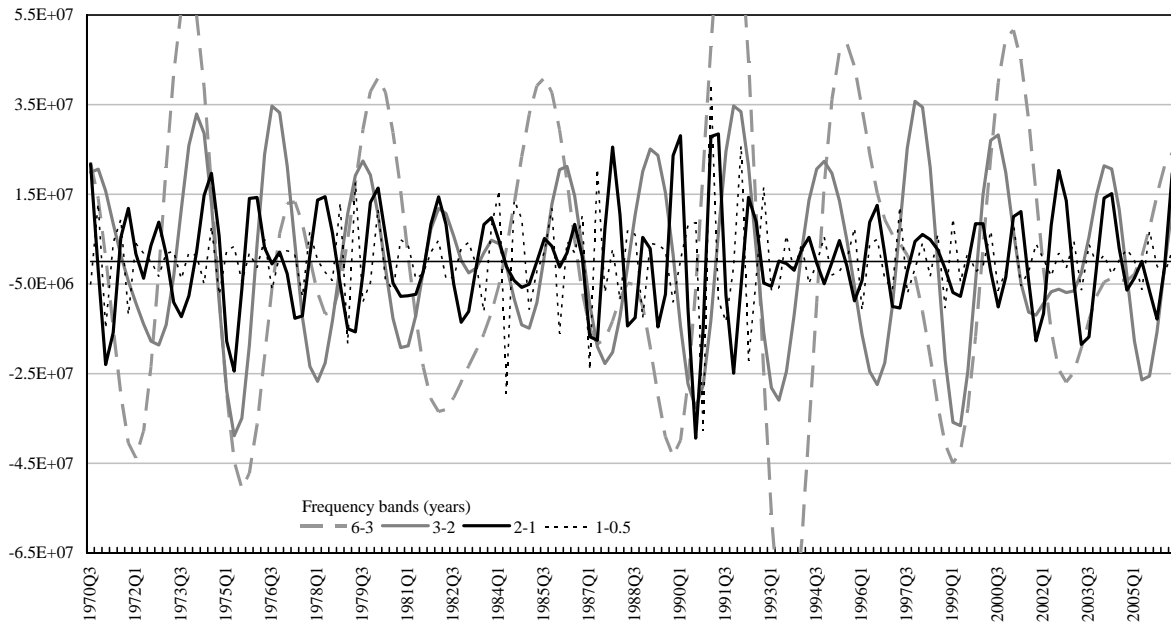
Netherlands



— CUSUM of Squares
- - - 5% significance

Figure 6

Cyclical Components for the Euro Area Real GDP
(selected frequencies)



Source: OECD. Series obtained using the Iacobucci and Noullez (2005) filter.

Nevertheless, contrary to what happened in the United States, the decreased variability in Europe happened against a background of soft growth through the 1990s, with the largest European countries, notably Germany and Italy, which experienced growth rates close to zero (in 2002-3) and significantly below the EU average. In a context of low growth, it is not surprising that the variability of growth decreased. To eliminate the effect of changing growth trends, we detrended the series and analyzed the behaviour of cyclical components. We used the filter proposed by Iacobucci and Noullez (2005) that over short samples has a better performance with respect to more widely used filters (like Baxter-King or Hodrick-Prescott). Figure 6 shows the cyclical components of real GDP for the euro area for a number of frequency bands, from medium (6-3 years) to very short (1 year-6 months) cycles. A visual inspection shows that, in particular for the 6-3 year band, we observe an increase in variability in the early 1970s, and in the early 1990s, two periods of macroeconomic turbulence. Nevertheless, the picture shows no clear reduction in variability in recent periods, no matter what frequency we examine. To obtain a less impressionist assessment, we computed, for each of the frequency bands, the standard errors of two subperiods of equal length (1970Q3 to 1988Q2, and 1988Q3 to 2006Q2). The results, reported in Figure 7, show that for all the frequencies (except the very long cycles 18-6 years) the variability in the second period is slightly larger than in the first. Using a cut-off between the periods linked to institutional changes (for example the Single European Act of 1986, or the Maastricht Treaty of 1992), does not alter significantly our findings, which are also robust to detrending the series with the HP filter. Furthermore, this cyclical pattern is confirmed for most individual countries, with the exception of the UK.¹⁵

¹⁵ Figures are not reported. They are available from the authors upon request.

Finally, we may notice that, contrary to the US, the EMU countries are confronted with a very specific policy architecture which leaves monetary and fiscal policy uncoordinated and whose federal budget is both small (1 percentage point of EU-25 GNP) and not allowed to contribute to stabilising the economies. This fetters domestic fiscal policies.

Thus, we can conclude that the likely occurrence of asymmetric shocks in the EU and the institutional framework question the belief that increasing flexibility will be sufficient to assure income stabilisation (especially when average growth will go

back to more standard levels). This is somewhat confirmed if we analyze Figure 5 together with Table 5, that documents a significant increase in labour market flexibility. This flexibility did not yield a significantly improved capacity of the economy to react to shocks. In the next section we argue that in light of a number of recent articles on the subject, and of the decreased effectiveness of automatic stabilisation described above, discretionary fiscal policy should be reconsidered as a possible tool for economic stabilisation, either to dampen output fluctuations or to sustain potential output through public investment expenditures.

5 Concluding remarks

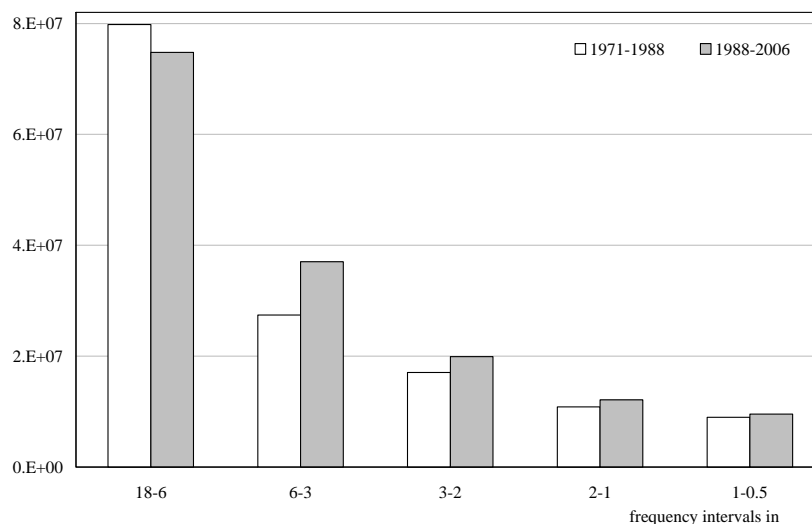
In this paper we highlighted a contradiction between the spirit of the Stability and Growth Pact, and the actual behaviour of fiscal policies in Europe. On the one hand the Pact is designed with the objective to rule out any discretion in the conduct of fiscal policy, thus leaving to automatic stabilisation the task of countercyclical policy; on the other hand, though, a number of stylized facts that we reported points to a significant decrease of the role of automatic stabilisation. Progressivity of the tax system and the size of the public sector have been reduced in most European countries, and the sensitivity of unemployment benefits to the unemployment rate has decreased since the late 1990s.

Thus, even if we were to adhere to the principles behind the setting chosen by European countries to rule economic policy, and we gave importance only on automatic stabilisation, we would be forced to admit that nowadays fiscal policy in the EMU is mostly dysfunctional.

We believe that this moment of crisis may actually be an opportunity. The debate opened at the beginning of this decade on the flaws of the Stability Pact has been closed by the reform of

Figure 7

Standard Error of the Filtered Series at Different Frequencies (two subsamples of equal length)



Source: OECD; series obtained using the Iacobucci and Noullez (2005) filter, and calculations of the authors.

2005 that took it out of the political agenda. Maybe that reform was too hasty, and what is needed is a more radical rethinking of the framework for fiscal policy. The institutional framework that rules the economic governance of Europe, restricting fiscal policy to the working of automatic stabilisers, was not fortuitous, as it stemmed quite logically from the widespread aversion of the academic profession for discretionary fiscal policy, which emerged over the 1980s and 1990s. Four main sets of arguments have been advanced to justify this aversion: the first is that discretionary fiscal policy is subject to a number of delays (from decision to implementation) that make it impossible to use in reaction to shocks. By the time the effects of policy are felt, the shock it was supposed to address may have vanished.

The second set of arguments against discretionary fiscal policy deals with crowding out effects on private expenditure (in particular investment) up to the point at which the overall increase in income becomes negligible. This may happen because the deficit is financed with borrowing, thus increasing interest rates (directly and because of the inflationary pressure of deficit) and the cost of investment; or because public spending is aimed at moving the economy away from some sort of optimal or “natural” position, so that rational consumers react in order to bring the system back to its natural level. A weaker version of this argument focuses on the intertemporal budget constraint of rational consumers (whose role we highlighted in the model of Section 2 above) who anticipate future tax increases to repay for current deficits, and hence react by increasing their current savings and reducing their expenditure (the Ricardian equivalence, see Barro, 1974).

A third argument against fiscal policy discretion, made popular by the recent experience in the US, is the *twin deficits* hypothesis; based on the national accounting identity it is possible to show that an increase in budget deficit may create an equivalent deficit of the current account, so that total domestic income may not increase, and the expansionary effect may benefit other countries through increased imports.

Theoretical counter arguments or empirical weaknesses may be found for each of these reasons against the use of discretionary fiscal policy as a tool for stabilisation (see, e.g., Arestis and Sawyer, 2003; and Blinder, 2006). Beyond the “critique to the critique”, there is at least one prominent reason for defending discretionary fiscal policy: a recent strand of literature, started by Blanchard and Perotti (2002), confirms that the empirical evidence is unable to rule out a positive role for discretionary fiscal policy. If anything, it generally shows significant short term effects and also, in some studies, a significant effect in the long-run (the multiplier values for some of these papers are reported in Table 6).

The papers in the vein of Blanchard and Perotti (2002) borrow from the structural VAR methodology. Very simple reduced form VAR models are estimated, and then the identification is obtained by imposing to the contemporaneous residual correlation matrix a number of constraints that originate in the institutional system, in estimated elasticities, and so on. Contrary to Taylor’s (2000) methodology, Blanchard and Perotti (2002) attempt to extract purely discretionary fiscal components. They do not use computed structural deficits which rely on estimations of the output gap and the biases they are associated with. Moreover, the discretionary stance is corrected for interest payments.

The impulse response functions for these exercises usually show short term Keynesian effects across countries (Blanchard and Perotti, 2002; Perotti, 2004; Biau and Girard, 2005; Giordano *et al.*, 2007; Benetrix and Lane, 2009). Perotti (2004) is an exception in this respect: he found low and even negative fiscal spending multipliers in the short run in the UK, Australia, and Canada, depending on the sample (1960-2000, 1960-79, 1980-2000). Benetrix and Lane (2009) found out a positive multiplier effect in the short run in Ireland, and pointed to the superiority of public investment on government consumption to produce Keynesian-like effects of fiscal policy.

Table 6

Fiscal Multipliers in the Recent VAR Literature

Authors	Country	Multiplier of ...	
Blanchard and Perotti (2002)	USA	expenditure	= [0.9; 1.3] (short run)
Perotti (2004)	USA	expenditure	= [0.1;0.7] (short run) = [-1.3;1.0] (long run)
	Germany	expenditure	= [0.8;1.3] (short run) = [-0.7;1.1] (long run)
	UK	expenditure	= [-0.2;0.5] (short run) = [-1.1;0.8] (long run)
	Canada	expenditure	= [0.1;0.6] (short run) = [-2.2;0.9] (long run)
	Australia	expenditure	= [0.0;0.6] (short run) = [0.2;0.6] (long run)
Biau and Girard (2005)	France	expenditure	= 1.4 (short run) = 1.8 (long run)
Giordano <i>et al.</i> (2007)	Italy	expenditure	= 1.7 (short run)
Creel <i>et al.</i> (2007)	France	primary balance	= 0.8 (short run) = 2.0 (long run)
Creel <i>et al.</i> (2009)	UK	investment	= 3.1 (long run)

Creel *et al.* (2007, 2009) recently extended the methodology of Blanchard and Perotti (2002) by imposing longer run constraints (namely through the introduction of a debt accumulation equation); neglecting these constraints, as done in the existing literature did not seem justified, especially when trying to assess the effect of public investment. They show that, if the long term interaction between debt, fiscal policy and monetary policy is not artificially shut off, the long run multiplier remains significantly positive and equal to 2 in France after a discretionary shock on the primary deficit and to 3 in the UK after a discretionary shock on public investment.

It is therefore possible to conclude that, on empirical grounds, a discretionary fiscal policy has a positive and persistent impact on output. From a short run perspective, it also means that this policy has an impact on long-run economic growth, and hence on potential output. This empirical conclusion is consistent with a strand of the literature which argues that the natural rate of growth is sensitive to aggregate demand (see, e.g., Leon-Ledesma and Thirlwall, 2002) or with papers which argue that fiscal contractions impinge negatively on potential output (see, e.g., Fazzari, 1994-95, p. 245). This paper, also drawing on the small illustrative model that we presented, suggests that a reformed fiscal rule for Europe should leave some room for discretionary policy, at least in compensation for the ineffectiveness of automatic stabilisers.

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EU FISCAL CONSOLIDATION AFTER THE FINANCIAL CRISIS LESSONS FROM PAST EXPERIENCES

Salvador Barrios, Sven Langedijk* and Lucio Pench**

The global financial crisis has led to a sharp deterioration of EU countries' public finances. Views are split regarding the most appropriate consolidation strategy to follow, in particular considering: the timing of fiscal consolidation in relation to the path of economic recovery reflecting (a) the trade-off between consolidation and stabilisation; (b) fiscal consolidation in the context of a distressed banking system where the credit channel is hampered and without which economic recovery can hardly take place, (c) the absence of exchange rate adjustment in the euro area which could make it more difficult for countries with competitiveness problems to achieve successful fiscal consolidation. The existing literature on fiscal consolidations provides only partial evidence on these issues. In this paper we set out to investigate these questions by drawing on EU (and non-EU OECD) experiences during the period 1970-2008. We estimate econometrically the determinants of successful fiscal consolidations and show that: (i) in the presence of a systemic financial crisis, the repair of the banking sector is a pre-condition for a fiscal consolidation to succeed in reducing debt levels, especially so when fiscal consolidations are sharp, (ii) even after the banking sector is repaired, fiscal consolidations are usually less successful than in absence of financial crises, although more vigorous fiscal consolidations (i.e., cold shower) tend to yield higher results, (iii) current debt dynamics in the EU are very unfavourable and in some cases, coupled with rising debt servicing costs and much deteriorated growth outlook warranting differentiated consolidation strategies across EU countries, (iv) we do not find conclusive evidence in support of exchange rates (including real exchange rate) depreciation/devaluation as enhancing the success of fiscal consolidation as their effect appear to be low and insignificant.

1 Introduction

Following the financial crisis, rising government deficits, low economic growth and support to the financial sector are leaving a legacy of rapidly growing government debt ratios. A phasing out of the stimulus measures and cyclical recovery, including a rebound in tax revenue from the crisis-related lows, will be insufficient to prevent government debt ratios rising to even higher levels before the end of the next decade. By historical standards, the projected sharp increase in government debt ratios is nothing out of the ordinary in a financial crisis, however, although the rise in debt in most EU countries comes on top of comparatively high starting levels, reflecting the increase recorded in the 1980s which was only partially stemmed subsequently. Significant consolidation will be needed to reduce public debt and limit its negative impact on output and growth.

Views are split regarding the most appropriate route to follow in the current context given that the need to reduce debt levels comes in a difficult time where growth is still fragile, the credit channel is still impaired and tensions are heightened in financial markets. Many questions remain unanswered, in particular regarding the appropriate timing of the fiscal consolidation in relation to

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The views expressed in this paper are not necessarily those of the European Commission.

the economic recovery, the role played by the financial turmoil and potential shoot-up in debt servicing cost and the macroeconomic adjustment mechanisms countries avail of, in particular the exchange rate, to weather the difficult times to come.

Although the current situation is exceptional in many respects, in particular regarding the simultaneity of the debt rise across developed economies, it shares many common features with past debt increases episodes which can be investigated in order to yield relevant policy messages. In this paper we therefore consider past evidence regarding the determinants of successful fiscal consolidations considering a panel of EU and non-EU OECD countries during the period 1970-2008. We use as criteria for defining a successful fiscal consolidation the reduction in the debt level after a fiscal consolidation episode has started while other authors, and in fact most existing studies, have focused on the post-consolidation behaviour of the budgetary balance (or the cyclically-adjusted budgetary balance). We opt for a debt-based criterion in order to highlight the most immediate objective of policy makers of EU policy makers which is to halt and eventually reverse the increase in public debt following the eruption of the global financial crisis in 2008. The success of fiscal consolidation in reducing the debt-to-GDP ratio depends not only on the improvement of the primary fiscal balances however, but also *inter alia* on the repair of the banking sector as well as on the dynamic of the growth/interest rate differential. A number of factors are of importance in determining the best strategy for debt reduction in such a context, in particular (i) the trade-off between consolidation and stabilisation and the timing and time profile of fiscal retrenchment in relation to the financial crisis (ii) the role played by high starting debt level position that prevail across EU countries; (iii) the composition of the adjustment (*i.e.*, expenditure cut or tax increase) (iv) the role of nominal and real exchange rate adjustment.

The existing literature on fiscal consolidations provides a number of indications regarding the determinants of successful fiscal consolidations, in particular regarding their composition (*i.e.*, consolidations based on expenditure cuts vs. tax revenue increase or both), nature (gradual or sharp consolidation), the role played by flanking policies (monetary easing, exchange rate devaluation, structural reforms and reforms of fiscal institutions) and the influence of macroeconomic conditions (starting business cycle position) which are of direct relevance to guide fiscal policy making in the present situation. This literature remains silent on two important aspects specific to the current situation, however, namely, the interplay between the banking crisis resolution and fiscal consolidations on the one hand and the role played by the starting debt level on the other hand. We argue that fiscal consolidation strategies in the current EU circumstances should pay special attention to these two elements for a number of reasons.

First the current debt increase in most EU countries can be thought (at least in part) as representing a transfer from the private – banking – sector to the public sector of the liabilities linked to the financial crisis. The substitution of private sector liabilities by public sector liabilities takes place in a context of deleveraging economies in time where access to credit is hampered following a period of sharp increase in private indebtedness in a number of EU countries. In presence of declining asset prices, subdued credit activity and weak private demand, fiscal consolidations cannot by themselves stabilise and, in the medium-run, even reduce public debt levels without being accompanied by credible policy actions to repair the financial sector. In the present context, therefore, the classical macroeconomic trade-off between consolidation (requiring sharp fiscal contraction) and stabilisation (requiring a soft fiscal retrenchment or even a continuation of the fiscal expansion) gets blurred as long as the credit channel remains impaired. We set out to examine these questions building on previous papers describing and analysing the consequences of systemic financial crises, in particular on Laeven and Valencia (2008) and Reinhart and Rogoff (2009).

Second, a specific feature of the prospective debt increase in the EU is that in today's crisis starting debt level were notably higher compared to past experiences. Countries starting off from

high debt level risk experiencing higher increase in interest rates under a no-policy change scenario and are thus more inclined to curb debt level decisively. Countries with already high debt levels before the global financial crisis will thus have greater incentives to undertake a fiscal consolidation which may also influence their likelihood of success. Put differently, the conditions determining the decision to consolidate might directly influence the chances of achieving successful fiscal consolidation which poses the well-known issue of sample selection bias of direct relevance when conducting econometric analyses. In this paper we investigate these issues econometrically by making use of two-stage probit estimation techniques, see in particular Heckman (1979). While standard in the microeconomic literature (especially in the field of labour economics) sample selection bias has, to the best of our knowledge, not been considered in the existing literature of the determinants of successful fiscal consolidations. In practice, such a selection bias might be especially relevant in the context of fiscal consolidations however, since the decision to initiate a fiscal consolidation episodes is contingent on the starting macroeconomic (including fiscal) conditions which in turns influence directly their chances of success.

In this paper we also address an additional question which has been given special attention recently in the EU, namely the role played by exchange rate adjustment in facilitating successful fiscal consolidations. While this issue has been treated by previous studies, it has often been argued in the current public debate that countries within the euro area would have additional difficulty to succeed in their fiscal adjustment effort as the nominal exchange rate cannot be devalued. While the existing literature has provided some evidence suggesting that exchange rate depreciations preceding fiscal retrenchment can play a favourable role to facilitate it, it has to the best of our knowledge not considered the case where the success of fiscal consolidation is assessed against a benchmark reduction in the debt level which, in the present circumstances, seems more relevant.

Our findings show that controlling for sample selection bias when analysing the determinants of fiscal consolidation is important to determine the role played by the starting debt level and interest rate increases (and associated snowball effects) in explaining the success of fiscal consolidations. In particular, we show that, contrary to existing studies making use of simple probit estimations, the use of a two-step estimation procedure *à la* Heckman suggests that the starting debt level (including its indirect effect via the snowball effect) tend to play a secondary role to explain the success of fiscal consolidations. This result suggests that, despite the high starting debt level of EU countries entering the current financial crisis, this feature in itself does not compromise the chances of success of fiscal consolidation plans currently devised by the EU Member States although a differentiation depending on country-specific situations seems warranted. Our results indeed suggest in particular that countries facing high starting debt level and high interest rate/low GDP growth potential have better chance of achieving successful fiscal consolidations if these were sharp and sustained while other countries where such constraints are less binding would be better off by undertaking more gradual fiscal retrenchment. However, in presence of a financial crisis a far more important factor appears to be represented by the need to repair the financial sector. While our results show that fiscal consolidations tend to be less successful in the aftermath of systemic financial crises (even controlling for sample selection bias), fiscal consolidation undertaken after such crises tend to be significantly more successful than fiscal consolidation undertaken while these are not yet over, especially so when fiscal consolidations are sharp (*i.e.*, cold showers). The repair the EU financial system thus appears to be a paramount condition for maximising the chances of success of current and future fiscal consolidation plans in the EU. Finally we do not find any conclusive evidence regarding the effect of exchange rate devaluation in facilitating successful fiscal consolidations, independently of the exchange rate considered (either nominal or real) or the currency regime (fixed vs. floating exchange rate). However, this result does not necessarily mean that a devaluation/depreciation might not facilitate fiscal consolidations per se, it does however suggest that devaluations/depreciation do not necessarily lead to significant reduction in the debt level.

The rest of the paper is organised as follows. Section 2 examines the empirical literature on the determinants of successful fiscal consolidations and considers more specifically the incidence of financial crises and high starting debt levels on the success of fiscal consolidations. The third section defines and discusses fiscal consolidations and the criteria used to gauge their success. The fourth section provides econometric evidence gauging the effect of specific factors and conditions on the probability of successful fiscal consolidations. Finally, we summarise the novel aspects of our analysis and draw some policy conclusions for successful debt reduction in the fifth section.

2 Empirical literature on the determinants of successful fiscal consolidations and questions specific to the current debt increase episode

The existing literature on fiscal consolidations covers a range of possible determinants of success from economic (business cycle, state of public finance, etc.) to political factors (fiscal governance, electoral outcome, gradual vs. cold shower consolidations, etc.). The overview provided below focuses on the most relevant aspects of fiscal consolidations in the current EU context, namely the nature of fiscal consolidation (tax increases and/or expenditure cuts), the timing of fiscal consolidations in relation to the business cycle the importance of fiscal institutions, the role of exchange rates devaluations/depreciations. In the sequel we draw a number of questions specific to the current financial crisis.

2.1 Existing literature

Fiscal consolidation based on expenditure cuts are found to be more effective, see, for instance, Alesina and Perotti (1995); Alesina *et al.* (1998); Alesina and Ardagna (1998); Von Hagen *et al.* (2002) and Maroto and Mulas-Granados (2007).¹ Tax-based consolidations can also be successful if the starting tax-to-GDP ratio is relatively low and implementation is gradual, see in particular Tsibouris *et al.* (2006). One important explanation of the superiority of expenditure cuts is that they are often accompanied by reforms aimed at improving public services' efficiency, see European Commission (2007). Tax-increases, on the other hand, often signal weak commitment to undertake structural reforms, see in particular Kumar *et al.* (2007). Measures directed toward long-run spending containment also send reassuring signals to financial markets on the long-run sustainability of public finances, see in particular Cottarelli and Viñals (2009). Improvements in fiscal institutions, medium-term budgeting and improved expenditure control help laying the foundations for sound long run public finances management, see European Commission (2007) and Kumar *et al.* (2007). A special case in point concerns the run-up to the EMU as many EU countries adopted explicit budgetary rules including balanced budget and expenditure rules, to qualify for euro area membership, see Debrun *et al.* (2008).

The evidence regarding the role played by the economic situation (both domestic and international) and monetary conditions is inconclusive: some argue that it is easier to build a consensus in support of fiscal consolidation during or shortly after a sharp downturn, see Drazen and Grilli (1993) and Kumar *et al.* (2007) while others suggest the opposite is true, see von Hagen and Strauch (2001). The role played by monetary policy is equally inconclusive with Hagen and Strauch (2001) and Lambertini and Tavares (2005) analyses suggesting that monetary policy actions have no influence on the success of fiscal consolidations. In a recent contribution Corsetti *et al.* (2010) further suggest that prospective spending cuts generally enhance the expansionary effect of current fiscal stimulus due to anticipation of lower inflationary pressure and long-term

¹ We do not discuss here results concerning the nature of public expenditure cuts, be it wages, consumption or investment cuts which also play a role. A more detailed review of these papers and econometric estimates can be found in European Commission (2007).

interest rates, although the timing of fiscal consolidation remains crucial if short-term interest rates are at their zero lower bound. Even in absence of the zero lower bound constraint, the fiscal contraction must not come too early and remain gradual in order to secure the economic recovery.

Finally, it has been argued that successful fiscal consolidations would be more difficult to achieve in the euro area given that countries cannot devalue their nominal exchange rate paving the way for an export-led recovery that would make successful fiscal consolidation easier to achieve. Two conditions must be fulfilled in order for this strategy to be successful, however: (i) it needs a strong and credible policy commitment to lower inflation in the long-run, though a pick-up in inflation in the short run may help reducing the debt ratio (ii) exchange rate pass-through must be contained in order to effectively improve competitiveness. While fiscal consolidation is needed to fulfil condition (i), fulfilling condition (ii) hinges on structural policies (that increase productivity) and the export-market structure (and foreign vs. domestic mark-ups) and are harder to monitor and control, see Goldberg and Knetter (1997) and Alesina and Perotti (1997). Only a handful of papers have so far provided evidence on fiscal consolidation and exchange rates suggesting that the effect of exchange rate (including both nominal and real) on the success of fiscal consolidations albeit significant is relatively small, see in particular Lambertini and Tavares (2005) and Hjelm (2002), while others have found that real exchange rate depreciation favours the start and continuation of fiscal consolidation episodes but fail to find evidence that real exchange rate depreciation favour debt reduction significantly, see Ahrend *et al.* (2006).

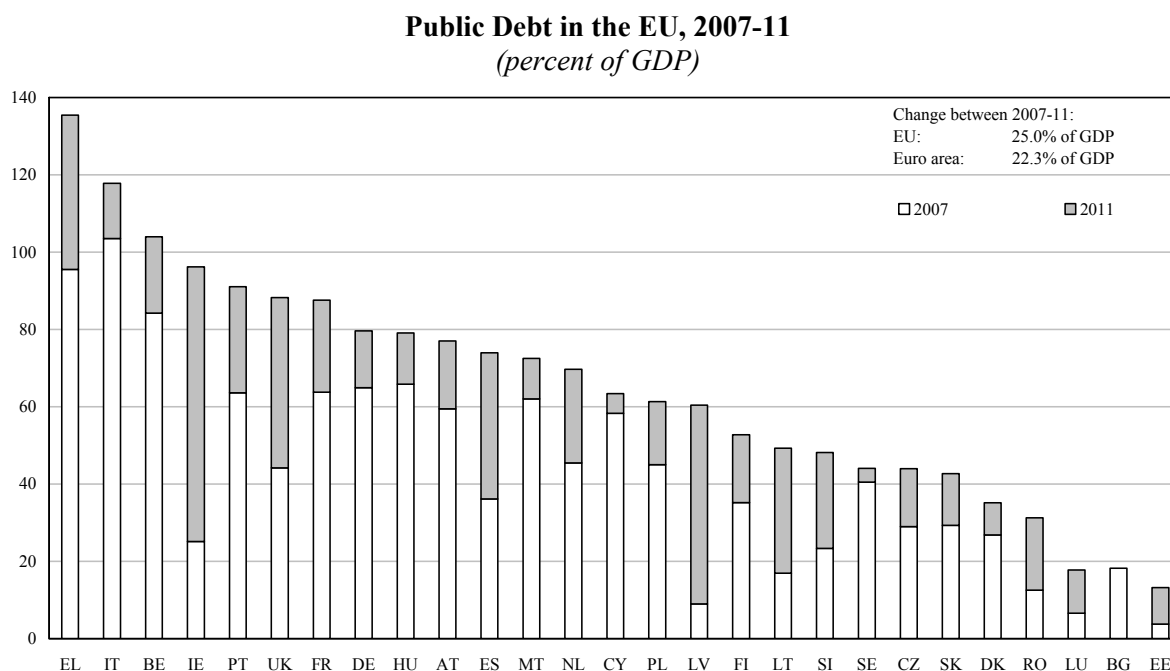
While these papers provide useful policy messages, they remain silent on a number of aspects which are especially relevant in the aftermath of the 2008-09 global financial crisis. We discuss two prominent aspects of the current crisis, namely, the interplay between the banking crisis resolution and fiscal consolidations on the one hand and the role played by high starting debt levels on the other hand.

2.2 Consolidation, public debt and financial crises

The current debt increase in most EU and non-EU OECD countries can be thought (at least in part) as representing a transfer from the private banking sector to the public sector of the liabilities linked to the financial crisis. Importantly, a high starting debt level renders the no-policy change debt dynamics very unfavourable in the EU, see in particular European Commission (2009a). Such context is expected to favour fiscal consolidation while the effect of the debt level on the success of consolidations depends on other conditioning factors, notably the resolution of the financial crisis. Generally speaking, financial crises are characterised by public sector liabilities replacing those of the private sector. Such substitution takes place directly as governments step in to inject liquidity and capital in the banking sector and guarantee its liabilities and indirectly as a consequence of a sharp contraction in private demand and private sector deleveraging in time where access to credit is particularly difficult (usually after a period of boom in credit). It follows that fiscal consolidations need to be accompanied by credible policy actions to repair the financial sector in order to achieve policy objectives including resuming growth and reducing debt levels.

The existing literature on systemic financial crises has underlined the distressful effects such crises may have on public finances, see in particular Laeven and Valencia (2008) and Reinhart and Rogoff (2009). In particular, an early consolidation with respect to the resolution of the financial crisis is likely to be ineffective if the economy settles at a (permanently) lower level of output. Factual evidence suggests that the potential fiscal costs of financial crises are directly linked to the time taken or needed to repair the financial sector. For instance the Japanese experience in the early 1990s suggests that too early fiscal retrenchment while the credit channel has not been fixed properly can prove highly counter-productive, see Bayoumi (2000). The case of Sweden in the early 1990s is often considered as a success as this country managed to quickly restructure its

Figure 1



Note: For Cyprus and Bulgaria, the public debt-to-GDP ratio is projected to fall by 1.3 percentage points until 2010.

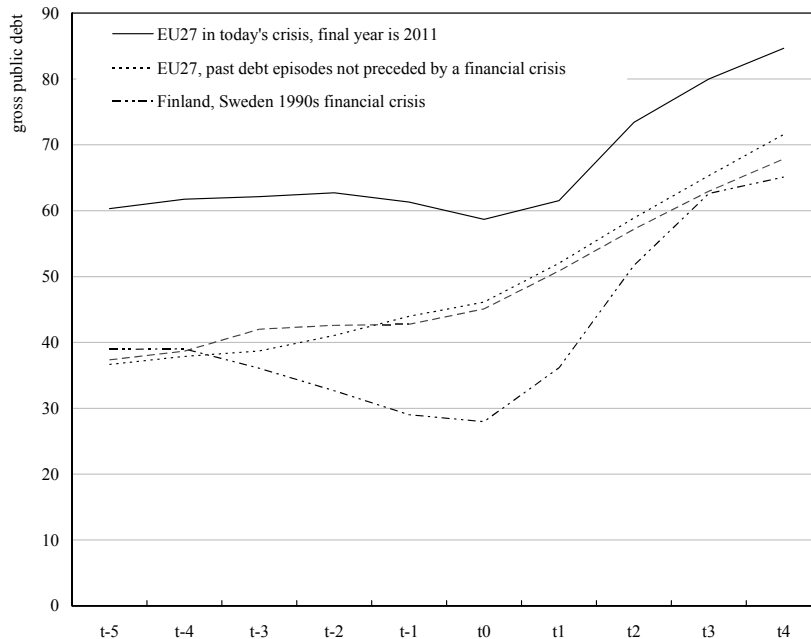
Source: Commission Services' *Autumn Forecasts 2009*, final storage.

banking sector allowing the initial fiscal stimulus to effectively sustain economic activity and to be followed by successful fiscal consolidations throughout the second half of the 1990s, see European Commission (2009b). The existing evidence regarding successful fiscal consolidations during or after systemic financial crises remains largely anecdotal however, while before the 2008-09 global financial turmoil, EU countries had been relatively immune to systemic financial crises, see European Commission (2009a) and Table 8 in the Annex.

Nearly all EU countries are expected to experience sharp rises in their debt level in the coming years with those countries primarily concerned being also those most directly affected by the 2008/2009 financial crisis as suggested earlier. According to the European Commission Spring 2010 forecast, the increase in the debt-to-GDP ratio between 2007 and 2011 should equal 25.2 per cent of GDP on average in the EU, a figure in line with past experiences of systemic financial crises, see Figure 1 and European Commission (2009a). A specific feature of the debt evolution compared to past experiences, however, is that in today's crisis EU countries started from higher debt levels. The magnitude of the debt increase foreseen during the 2007-11 period does not represent an unprecedented event, however, as many EU countries have experienced large debt rises in the wake of the two oil shocks in the 1970s and the 1980s. Figure 2 illustrates this by plotting the evolution of the average debt-to-GDP ratio of countries having experienced major debt increases since 1970 (a major debt increase being defined here as an increase of at least 20 per cent in the debt-to-GDP ratio over a period of five years, this definition being chosen as it is close to the average EU figure in the current crisis). Compared to other large debt increase episodes, the global financial crisis makes the current situation of the EU resembles much that of Finland and Sweden during the 1990s, with pre-crisis period being preceded by a period of stable or even slightly declining debt ratio, which can be explained by the favourable economic conditions that preceded

Figure 2

**Evolution of Debt-to-GDP Ratio
During Major Debt Increase Episodes
(percent of GDP)**



Source: Commission Services.

Note: Debt increase episodes are identified as corresponding to a minimum of 20 per cent increase in a maximum of five years. The year t_0 corresponds to the first year marking the debt increase episode which in the current crisis corresponds to 2007. The last year in the current debt increase episode is 2011 (data taken from the Commission Autumn 2009 forecast) and the year $t-5$ is 2002 and is set in order to cover a period of 10 years. For the other debt increase episodes the last year $t+4$ is defined as the one where the debt increase over five year (on a moving average basis) reached its maximum value. The years t_0 and $t-5$ are then determined recursively to cover a time span of 10 years as for the current debt increase episode. The (unweighted) average value of the debt-to-GDP ratio for the following groups of countries (with time periods covered indicated in parentheses) are considered: *EU, past large debt increases*: Belgium (1974-83), Denmark (1974-84), France (1986-95), Greece (1978-87), Ireland (1975-84), Italy (1975-84 and 1985-94), Malta (1990-99), the Netherlands (1976-85), Portugal (1975-84), Spain (1976-85 and 1987-96), Sweden (1973-82). *Non-EU, OECD*: Japan (1970-79), Canada (1976-85 and 1984-93) and Iceland (1986-93). *Finland, Sweden 1990s financial crisis*: Finland (1985-94) Sweden (1985-94).

position also tending to rise.³ As previously indicated, several countries have experienced large debt increases comparable in magnitude (and sometimes in speed) to the one foreseen in most countries for the period 2007-11. This is the case in particular of Denmark, Belgium and Ireland during the 1970s, Greece, Italy and Sweden during the 1980s and Finland and Sweden during the 1990s. By contrast, countries such as Germany, France and Portugal have tended to experience an almost continuous increase in debt-to-GDP ratio since the 1970s with some rare episodes of stable or slightly declining debt levels.

the financial crises in both cases. The ratio of public debt to GDP appears to rise very fast in the current financial crisis (2008 for today's EU27 and 1991 for Sweden and Finland).² By contrast, in previous non-financial crisis-related debt episodes a comparable increase in the debt ratio took place over a much longer period of time.

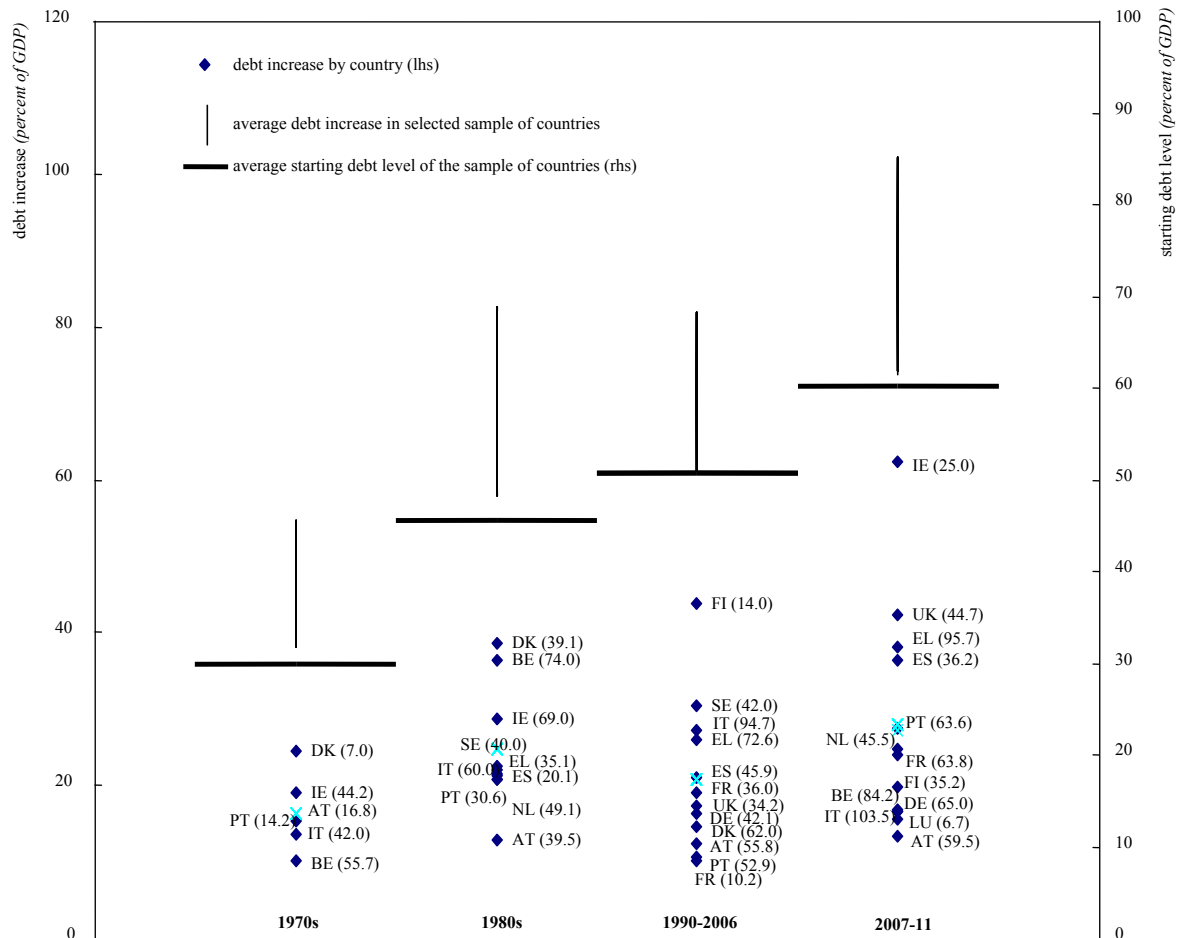
Since 1970 EU countries have experienced a growing number of large debt increase episodes, usually starting off each time from higher level of debt. Figure 3 broadens the set of large debt increase episodes considered by defining large debt increase episodes as an increase of at least 10 per cent (against 20 per cent in Figure 2) over a (maximum) period of three-years. Figure 3 shows that the number of countries experiencing such large debt increases has tended to grow over time with the average starting debt level

² This result also corresponds to the econometric evidence unfold in the European Commission (2009a) showing that the bulk of the debt increase in the aftermath of a systemic financial crisis usually takes place during the first two years of such crisis. This also corresponds to the descriptive evidence reported in Reinhart and Rogoff (2008).

³ Ireland stands out as having entered the current crisis with very low debt-to-GDP ratio (*i.e.*, 25 per cent of GDP in 2007).

Figure 3

Moving Up the Ladder: Debt Increases and Starting Debt Levels During Major Debt Increases Episodes in the EU15 Since 1970



Only debt increase over a (maximum of) three-year period and at least equal to 10 per cent of GDP are reported. Country-specific starting debt levels included in parentheses.

3 Defining fiscal consolidations and gauging their success

3.1 Defining a fiscal consolidation episode

To define a fiscal consolidation episode we use as criteria the value of the change in the cyclically-adjusted primary balance (hereafter CAPB). We follow the existing literature by defining a fiscal consolidation as an improvement in the CAPB of at least 1.5 per cent taking place in one single year (cold shower) or taking place over three years if each and every year the CAPB does not deteriorate by more than 0.5 per cent of GDP (gradual consolidation), see for instance Alesina and Perotti (1995) and European Commission (2007).⁴ With such definition, one-year

⁴ Alternatively, the OECD defines the start of a fiscal consolidation episode as an improvement in the CAPB by at least one percentage point of potential GDP in one year or in two consecutive years with at least a ½ percentage point improvement occurring (*continues*)

consolidations (*i.e.*, cold showers) are considered as full episodes while each year of multi-year consolidations episodes (*i.e.*, gradual consolidations) are considered as episodes on their own. Such definition was also used in Alesina and Ardagna (1998) and Alesina, Perotti and Tavares (1998). Alesina and Ardagna (2009) considered instead only one benchmark year for multi-year consolidation episodes. There is a priori no reason to consider that one definition is superior to the other as suggested by Alesina and Ardagna (2009) as results remain in general broadly similar in both cases.

3.2 Defining the success of fiscal consolidations

While the definition of a fiscal consolidation episode is quite homogenous across existing empirical studies, the success of fiscal consolidations can be gauged in different ways according to their impact on deficits and debt or on the growth performance, see Alesina and Ardagna (2009). Given that our intention to consider past experiences with fiscal consolidation to highlight features which are relevant to explain the current situation in the EU we use as measure of the success of fiscal consolidations the level of debt following a fiscal consolidation episode as in Alesina and Perotti (1995). Accordingly, a fiscal consolidation is considered as successful if it brings down the public debt level by at least five percentage points of GDP in the three years following a consolidation episode. Previous definition used in particular in European Commission (2007) considered instead that a fiscal consolidation episode was successful if the consolidation effort was safeguarded in the subsequent years (*i.e.*, whether the change in CAPB remained below a given threshold).⁵ Both criteria (*i.e.*, considered the post-consolidation episode debt or the CAPB level) have their pros and cons. By using the CAPB criterion one avoids classifying as successful consolidations episodes where the debt reduction is due to favourable, albeit non-policy related circumstances. At the same time, it cannot exclude that consolidations that were insufficient to stem the increase in debt are labelled as success. The debt criterion was also preferred here in light of policy considerations. The global financial crisis has significantly affected EU countries' public finances with debt increasing very fast in most countries as evidenced above. The most immediate objective of policy makers in the current circumstances shall therefore be halting and reversing the increase in public debt. Tensions in financial markets that have emerged since the end of 2008 have highlighted the risk of feedback loop between high and increasing debt and the cost of debt servicing and its possible ramification to the rest of the economy. One could also argue that the use of discrete variables based on definitions of successful consolidation based on a given value debt reduction is too arbitrary. One could for instance consider alternative thresholds to qualify consolidations as successful or consider the possibility of measuring success making use of truncated variable (although the latter would require to the use of different econometric estimation method). Although we acknowledge these other possible alternative definitions and methods, in the present paper we chose to follow the existing literature on the topic and dealing with European countries in particular as mentioned above.

in the first of the two years, see Guichard *et al.* (2007) and Ahrend *et al.* (2006). The fiscal consolidation continues as long as the CAPB improves. An interruption is allowed without terminating the episode as long as the deterioration of the CAPB does not exceed 0.3 percentage points of GDP and is more than offset in the following year (by an improvement of at least 0.5 percentage points of GDP). The consolidation episode stops if the CAPB stops increasing or if the CAPB improves by less than 0.2 percentage points of GDP in one year and then deteriorates. The consistency of the definition of fiscal consolidation episodes used here with the OECD one was checked. In most cases consolidation episodes are found to coincide. The correlation coefficient between the two series is equal to 0.71.

⁵ More precisely, in the European Commission Public Finances Report 2007, a consolidation was labelled as successful if in the three years after the end of the consolidation episode the CAPB did not deteriorate by more than 0.75 per cent if GDP in cumulated terms compared to the level recorded in the last year of the consolidation period, *i.e.*, at least half of the overall minimum fiscal correction required to qualify as consolidation was safeguarded three years after.

3.3 Fiscal consolidations and financial crises

Figure 4 provides evidence regarding the incidence of financial crises on the success of fiscal consolidations. When looking at the specific case of financial crisis episodes, this evidence suggests that fiscal consolidations tend to be more successful when the financial crisis is resolved before the fiscal exit. This result holds in particular for EU countries while for non-EU OECD countries there is no clear indication that successful consolidations depend on whether these started during or after a financial crisis episode. Considering the EU, success rates

are about 56 per cent when consolidation is started after the financial crisis ended and only 9 per cent when consolidation started during a financial crisis against a benchmark case (*i.e.*, no financial crisis) of 34 per cent of successful consolidations. The econometric analysis presented in the next section includes also both EU and non-EU OECD economies in order to get sufficiently large data sample, especially in order to include cases of fiscal consolidations during or in the aftermath of systemic financial crises as discussed earlier. Based on data for the EU and a set of other non-EU OECD countries (namely Australia, Canada, Switzerland, Japan, Mexico, Norway, Turkey and the US) during the period 1970-2008, econometric analysis the next Section provides more evidence on the determinants of successful fiscal consolidation coinciding with (or immediately following) the occurrence of a systemic banking crisis.⁶

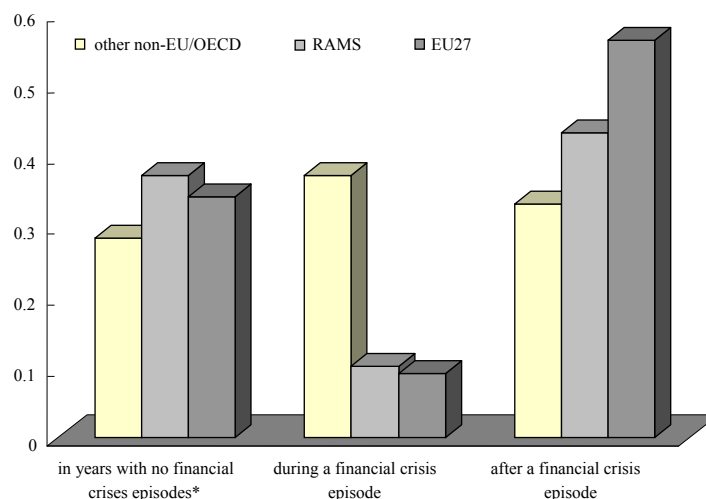
4. Fiscal consolidation with high debt and financial crises: descriptive evidence and econometric analysis

4.1 Descriptive results

Table 1 provides an assessment of the degree of success of past consolidation episodes in the EU15 by decade since 1970.⁷ Fiscal consolidations succeeded in only 1/3 of cases, with most

Figure 4

The Success Rate of Fiscal Consolidation and Financial Crises Episodes
(percent of consolidation episodes leading to reduction of debt level by at least 5 percentage points of GDP 3 years later)



* Years with no financial crisis episodes exclude both financial crisis and post- (up to five years) financial crisis episodes. RAMS stands for Recently Acceded Member States.
Source: Commission Services.

⁶ South Korea or Iceland could not be retained due to insufficient data coverage. Table 8 in the Annex provides information regarding the systemic financial crisis episodes of countries included in our sample.

⁷ The recently acceded Member States are not considered here in order to get consistent country groups over time.

Table 1

The Success Rate of Fiscal Consolidations Under Alternative Success Criteria, 1970-2008^(a)

	1970s	1980s	1990s	2000s [*]	Overall
Success criterion based on debt reduction ($t+3$) [*]	25.0 (16)	22.7 (44)	47.6 (42)	42.9 (14)	34.5 (116)
Success criterion based on debt reduction during or following major debt increase periods ($t+3$) [*]	0.0 (5)	25.9 (27)	31.6 (19)	0.0 (3)	24.1 (54)
Success criterion based on debt reduction during or following major debt increase periods ($t+5$) ^{**}	0.0 (5)	29.6 (27)	36.8 (19)	0.0 (2)	28.3 (53)
Success criterion based on debt reduction during or following major debt increase periods ($t+10$) ^{***}	0.0 (5)	3.7 (27)	47.4 (19)	-	19.6 (51)

^(a) Concerns EU15 countries only.

^{*} Consolidations are defined as being successful if during the three years following a consolidation episode the debt-to-GDP ratio is lower by at least 5 per cent relative to the level of debt in the last year of a consolidation episode. Last year of consolidation is 2005.

^{**} Successful consolidations defined as in (†) but extending the post-consolidation period to 5 years. Last year of consolidation is 2003.

^{***} Successful consolidations defined as in (†) but extending the post-consolidation period to 10 years. Last year of consolidation is 1998. Number of consolidation episodes considered in parentheses.

successful consolidations episodes occurring in the 1990s and 2000s. This result can be explained at least partly by the general fall in interest rates in the EU during these periods as suggested earlier. The second row of Table 1 shows that consolidations following large debt increases tend to be less successful with a success rate of 24.1 per cent, which could simply reflect the fact that debt-reduction objectives are especially difficult to achieve in the wake of large debt increases episodes. Extending the time span following a consolidation episode to gauge the success or failure of fiscal consolidation from three to five years only marginally increases the success rate of consolidations as indicated by the fourth row of Table 1 while extending the time span further, *i.e.*, till 10 years after a fiscal consolidation, brings the success rate down again, possibly reflecting the occurrence of successive debt increase episodes. Table 2 reports results on the success rate of fiscal consolidations by splitting consolidation episodes into cold showers against gradual consolidations. Overall, gradual consolidations tend to be more successful, a result also in line with the existing literature, see in particular European Commission (2007).⁸ It is worth noting, however, that the difference in the success rates between gradual consolidations and cold showers becomes much lower when considering consolidations during or immediately after large debt increase episodes as indicated by the third and fourth rows of Table 2.

While the success of fiscal consolidation seems at first sight limited, counter-factual analysis suggests that in the absence of fiscal consolidations, debt levels increased significantly more in the aftermath of large debt rises episodes. The low success rate of fiscal consolidations documented earlier could simply reflect the fact that consolidations are more often undertaken in cases where debt increases are large and starting debt levels are high.⁹ Thus, in order to gauge the benefit of consolidation one need to take into account the initial debt level and to consider only countries that

⁸ Gradual consolidation have also been less often implemented as indicated by the figures in parentheses indicating the frequency of consolidation episodes.

⁹ In the polar case, countries with initially low debt level and moderate debt increase undertaking consolidation are more likely to succeed.

Table 2

**The Success Rate of Fiscal Consolidations:
Gradual Consolidation Versus Cold Showers*, 1970-2008^(a)**

	1970s	1980s	1990s	2000s*	Overall
Gradual consolidations	42.9 (7)	41.7 (12)	62.5 (16)	50.0 (6)	51.2 (41)
Cold showers	11.1 (9)	15.6 (32)	38.5 (26)	37.5 (8)	25.3 (75)
Gradual consolidations after large debt increases*	-	50.0 (6)	0.0 (3)	0.0 (1)	30.0 (10)
Cold showers after large debt increases*	0.0 (5)	19.0 (21)	37.5 (16)	0.0 (2)	22.7 (44)

^(a) Concerns EU15 countries only.

* Consolidations are defined as being successful if during the three years following a consolidation episode the debt-to-GDP ratio is lower by at least 5 per cent relative to the level of debt in the last year of a consolidation episode. Last year of consolidation is 2005. Number of consolidation episodes considered in parentheses.

experienced large debt increases. Figure 5 illustrates this by depicting the evolution of the (average) debt-to-GDP ratio in the aftermath of a large debt increase episodes depending on whether a consolidation was or was not carried out in the EU15 during the period 1970-2007. To abstract from the differences in the initial debt level, the debt-to-GDP ratio at the end of a debt increase episode is set equal to 100 in both cases. Figure 5 shows that the post-crisis rise in the debt-to-GDP ratio is clearly more contained in cases where a fiscal consolidation was undertaken than in those where this was not the case.¹⁰ These results thus suggest that consolidations, even if not successful in reducing the level debt, help containing further upward drift in debt compared to a no-consolidation scenario.

The previous results highlight that not in all instances large debt increases led to consolidation efforts by governments nor were these efforts always successful in reducing debt. The causes and context of large debt increases episodes are presumably relevant in explaining policy responses and their outcome.¹¹

4.2 *Econometric approach*

The existing literature has generally considered the determinants of successful fiscal consolidations separately from the decision to undertake fiscal consolidations while these two questions are likely to be closely linked, especially in a high debt environment. Our approach is

¹⁰ When considering actual data underlying Figure 5, the debt-to-GDP ratio increase by 6.1 and 8.6 per cent for the three and five year time horizon respectively in case of no consolidation and by 3.4 and 4.4 per cent respectively in case a consolidation was undertaken in the aftermath of a major debt increase episode.

¹¹ For instance, as noted by Boltho and Glyn (2006) a fundamental difference exists between the consolidation efforts put in place in the 1980s (following the 1970s successive crises) and during the 1990s. During the first period, main concerns were geared towards inflationary pressures and balance of payment problems following a period of rapid rise in public expenditure. During the latter period, concerns regarding long-term debt sustainability (together with the pressure exerted by rising real interest rates at the beginning of the 1990s) became prominent, with the additional feature in the EU context linked to the run-up to EMU.

Table 3

The Probability to Achieve Debt Reduction Versus the Decision to Consolidate

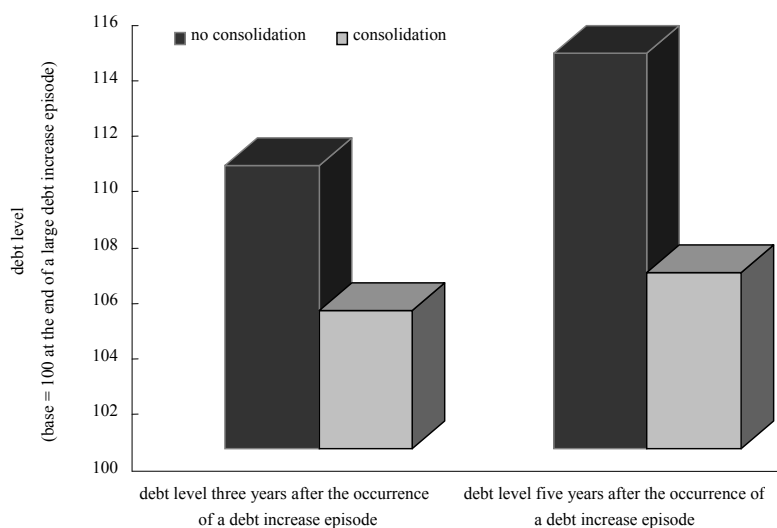
Consolidation ^(a)	Debt Reduction ^(b)	
	No	Yes
No	80.6% (518)	19.4% (125)
Yes	67.7% (159)	32.3% (76)

Figures in parentheses indicate number of country-year cases. Shaded area indicates cases where fiscal consolidations were undertaken.

^(a) Improvement of the CAPB of at least 1.5 percentage points over a maximum of three years.

^(b) Debt reduction of at least 5 percentage points over maximum of three years.

Evolution of the Debt-to-GDP Ratio Following a Large Debt Increase Episode



Based on major debt increase episodes as reported in Table 1.

Figure 5

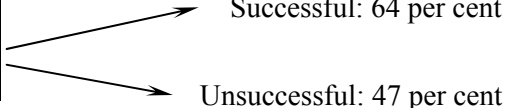
based on the premise that the determinants of the *success* of fiscal consolidation must be considered together with the factors influencing the *decision* to consolidate. This question has direct econometric implications given that the causes of fiscal consolidations are also likely to influence (at least partly) their probability of success. These questions are especially relevant to the current situation as high debt levels are likely to influence both the decision to undertake fiscal consolidation and the likelihood to achieve sufficient debt reduction which is the criterion used here to gauge the success of fiscal

consolidations. To illustrate this, Table 3 displays the observed probabilities of debt reduction depending on whether consolidation a fiscal consolidation is undertaken or not for the countries considered here. Table 3 shows in particular that a debt reduction is more likely to be achieved when a consolidation effort is carried out (*i.e.*, debt reduction is observed in 32.3 per cent of cases when a consolidation is undertaken vs. 19.4 per cent in absence of fiscal consolidation). Table 4 in turn shows that the starting debt level is higher when consolidation is undertaken, which simply

Table 4

Starting Debt Level With and Without Consolidation

Consolidation ^(a)	Average Starting Debt Level
No	0.48
Yes	0.53



^(a) Improvement of the CAPB of at least 1.5 percentage points over a maximum of three years.

reflects the fact that countries with higher debt may also have a greater incentive to undertake fiscal consolidation. It is thus rather logical to observe that fiscal consolidations in a context of higher debt are also more likely to be successful while this would not necessarily indicate that a higher debt favours successful fiscal consolidation. Table 3 and 4 considered together imply that the relationship between the debt level and the success of fiscal consolidation is likely to be biased upward as it may simply reflect the fact that the initial debt level tends to be higher when a debt reduction is observed for reasons which may have nothing to do with fiscal consolidation. This in turn may have direct consequences for the analysis of the determinants of successful fiscal consolidations. Ideally one would like to estimate the link between the initial debt level and the probability to achieve successful consolidation by controlling for cases where no consolidation is undertaken. In doing so one would also control for the fact that consolidations are more likely to take place with a high initial debt level.

The case for a sample selection in assessing the determinants of successful fiscal consolidations for a given level of debt could also be applied to other variables which, as the debt variable, can be thought as having an influence on the decision to consolidate and the success of consolidation. For instance, existing evidence suggested that the probability to achieve successful consolidation is facilitated with good fiscal governance, see European Commission (2007).¹² However, a good fiscal framework also means that consolidation is more likely for a given deterioration of public finances (keeping all other determinants constant) and debt reduction are more likely when consolidations are undertaken rather than when they are not undertaken as suggested earlier. An estimation of the role played by a fiscal governance variable for the success of consolidation might thus lead to biased estimate if such an estimate is not corrected for the influence of the quality of fiscal governance on the decision to consolidate. Generally speaking, given the above arguments, the success of fiscal consolidations cannot be considered as being the result of a random draw which is independent from the conditions influencing the undertaking of fiscal consolidations. When considering only cases where a consolidation is undertaken, one uses a draw which is in fact deterministic, leading to biased estimators. Because of this, one must also consider cases where fiscal consolidation was not undertaken as well. In order to deal with the issue of selection bias we make use of a Heckman probit two-step estimator to analyse first the determinants of the decision to consolidate and, in a second step, to estimate the determinants of successful fiscal consolidations. The following section explains in detail the estimation procedure as well as the explanatory variables retained for these estimations.

¹² The term “fiscal governance” (or fiscal framework) comprises all rules, regulations and procedures that impact on how the budget and its components are being prepared.

4.3 Main explanatory variables and equations estimated

The set of variables used to analyse the determinants of the *decision* and *success* of consolidations are the following: a dummy variable to measure the occurrence of a financial crisis episode, a variable measuring the business cycle position to deal with issues related to the timing of fiscal consolidation vs. a potential economic recovery, the debt level at the start of a fiscal consolidation episode, an indicator of fiscal governance measuring the quality of fiscal institutions, a variable controlling for cases where an IMF stabilisation programme was put in place and a variable controlling for the nature of the fiscal consolidation (*i.e.*, whether expenditure cut or tax increase based). In addition to these variables and, as commonly done when using Heckman probit estimator, we need at least one additional variable in the firsts-step estimation to explain the decision to undertake a fiscal consolidation which is not included in the second step estimation. The variable used here is a dummy indicating whether year prior or during a fiscal consolidation general elections took place in a given country. While such variable is likely to influence the decision to undertake a fiscal consolidation, its incidence on the outcome of fiscal consolidation (*i.e.*, whether fiscal consolidation leads to sufficient debt reduction) is a priori not clear. The set of explanatory variable used is summarised below. It is thus fair to believe that the occurrence of general elections is an important determinants of the first step estimation where the dependent variable is the decision to consolidate and can be excluded from the second step estimation where the dependent variable is the success of a fiscal consolidation.

The set of explanatory variables and expected impact are summarised below.

- We consider econometrically the role of financial crises as a determinant of successful fiscal consolidation including a variable indicating whether a country experienced such crisis in a given year. Following Laeven and Valencia (2008), financial crises episodes are defined in this paper as episodes during which a “country’s corporate and financial sectors face great difficulties repaying contracts on time, experience a large number of defaults, non-performing loans increase sharply and most of the banking system capital is exhausted”. The situation may be accompanied by falling assets prices, sharply rising real interest rates and a reversal of capital inflows. Thus, financial crises in this definition do not include banking stress limited to individual banks. However, banking crises may have coincided with and have been aggravated by episodes of currency and sovereign debt crises. Since Laeven and Valencia (2008) only define the starting points of banking crises but not their length, this paper uses for the latter the information provided in Demirgüç-Kunt and Detragiache (2005) and Reinhart and Rogoff (2008).¹³ A dummy variable indicating whether in a given year a country was experiencing a systemic financial crisis as described in Table 8 in the Annex. In addition we include a variable indicating whether a given fiscal consolidation episode takes place in the aftermath of a financial crisis (up to 5 years).
- The business cycle position is measured using dummy variables constructed according to the values taken by the output gap during the year (*t*) when a fiscal consolidation starts. “Expansion” are years of positive output gap level and positive annual change, “Recovery” are years of negative output gap level and positive annual change, “Downturn” are years of positive output gap level and negative annual change, “Protracted slowdown” are years of a widening negative output gap level. In the current context, the most relevant episodes are the one with negative output gap levels: recovery and protracted slowdown.

¹³ In case of missing or conflicting information in those sources, the end of the crisis was determined as the year when domestic credit growth bottomed out. Accordingly, in absence of additional indications, the end of the banking crisis episode corresponds to the year in which the private credit-to-GDP ratio recovers. Since the credit-to-GDP ratio fall often occurs with a delay, a credit ratio increase after the start of the crisis does not imply classifying the episode as lasting one year only, except if the credit-to-GDP ratio grows continuously for at least three years without interruption.

- The debt level in $(t-1)$ where t indicates the year a fiscal consolidation takes place, enters as determinant as explained earlier together with its interaction with the differential between the nominal GDP growth and implicit interest rate paid on all outstanding public debt (*i.e.*, the snowball effect of public debt).¹⁴ This effect is stronger when debt ratios are high. The role played by the starting debt level position and potential snowball effects are important to consider in the current EU context. When the no-policy change debt dynamics are less favourable, *i.e.*, with high starting debt level and deficits, or through rapidly increasing snowball effects of public debt, cold shower type of consolidations are more likely to be chosen to contain further debt rise. The debt-to-GDP ratio reflecting the incentives to consolidate and influencing the success of consolidation is thus considered as well as additional determinant of the success of fiscal consolidation together with its interaction with the differential between the growth rate of GDP and the implicit interest rate on public debt.
- An indicator of fiscal governance indicating whether or not a given country uses a budget deficit rule when setting its fiscal plans (drawing on Commission database and Guichard *et al.* (2007) for non-EU OECD countries).
- A variable indicating whether a given country is subject to IMF balance of payments assistance and conditionality in order to control for the fact that emerging economies and, depending on the period considered, some recently acceded Member States may have had additional incentives to undertake and continue a fiscal consolidation episode.
- The nature of fiscal consolidation is measured through the change between $t-1$ and $t+3$ of the cyclically-adjusted primary expenditure, with t being the year where a fiscal consolidation is observed.

The two equations estimated are therefore:

$$D_{i,t} = X_{i,t} + \delta \text{ general elections}_{i,t} + u_{i,t} \quad (1)$$

$$S_{i,t} = \beta X_{i,t} + v_{i,t} \quad (2)$$

Equation (1) is our *selection equation* and $D_{i,t}$ is a dummy variable indicating whether a country i undertakes a fiscal consolidation in a given year t or not. The set of variable $X_{i,t}$ includes all the variables listed above and, in addition to these we include a dummy variable indicating whether general elections took place during the same year or the year preceding the decision to consolidate as indicated earlier. The equation (2) describes the determinants of successful fiscal consolidations where the success is measured according to the debt level reached three years after a consolidation episode starts off. The error term $u_{i,t}$ of equation (1) is assumed to have the classical *iid* properties while the term v is correlated with u such that:

$$\text{Corr}(u,v) = \rho \quad \text{with} \quad \rho \neq 0 \quad (3)$$

Following Heckman (1979), the two-step estimates of β are obtained by augmenting the regression equation with a non-selection hazard term m obtained using probit estimates of the *selection equation* (1). A test of whether ρ is significantly different from zero can also be conducted in order to check whether estimating equations (1) and (2) using the Heckman estimator is justified.

All EU27 countries are considered together with a set of non-EU OECD countries including Australia, Canada, Japan, Mexico, Norway, Switzerland, Turkey and the US. Consolidations episodes are observed for the period 1970 to 2005, where 2005 is the last year of consolidation in a consolidation episode (and 2008 the last year during which the success of a consolidation episode

¹⁴ The snowball effect is also sometimes termed the debt-stabilising primary balance and is defined according to the following expression: $\text{Debt}/\text{GDP}_{(t-1)} * (i-y)/(1+y)$, where i is the interest rate and y is the nominal GDP growth in year t .

is gauged). Using the above definition of fiscal consolidation, we have set up a dataset of 235 consolidation episodes, with 160 consolidation episodes in the EU, of which 116 in the EU15.

4.4 Main econometric results

In this section we estimate econometrically the determinants of successful fiscal consolidations as represented by equation (2) conditional on the decision to consolidate and further control for the potential bias represented by the omission of the conditions that lead countries to start a fiscal consolidation episode which are represented by the same set of variables used to explain their success and, in addition, a variable indicating whether general elections took place the same year or the year before a fiscal consolidation is observed.

The estimations of the determinants of the success of fiscal consolidation conditional on the decision to consolidate are presented in Table 5. The main result concerns the effect of systemic financial crises. According to the estimates reported in column (1) of Table 5, the occurrence of a systemic financial crisis makes it less likely for fiscal consolidations to reduce debt significantly with the probability to achieve successful fiscal consolidation being 30 per cent lower when these consolidations take place during such crises. While fiscal consolidations taking place after a financial crisis also display on average lower chances of success, the effect is somewhat lower (–24.4 per cent chances of success) but still relatively large and significant. This result thus suggests that, while fiscal consolidation must come after the banking system has been repaired in order to increase chances of success, still fiscal consolidations undertaken in the aftermath of systemic financial crises have also significantly lower chances of success.¹⁵

We now turn to the coefficient estimate for the debt variable. As suggested earlier, the coefficient on this variable is not clear a priori as a higher debt level can provide additional incentive to fiscal retrenchment but also make successful fiscal consolidation more difficult to achieve through higher debt servicing, especially when GDP growth rates/interest rates are relatively low/high. The results reported in column (1) suggest that the debt level plays a positive and significant role favoring the success of fiscal consolidations while the snowball effect exerts a counteracting (negative) influence. Using the marginal effect reported in column (1) one find that a 25 percentage points increase in the debt-to-GDP ratio implies an increase in the probability of a successful consolidation by 15.1 per cent.¹⁶ However, a higher debt level, when considered together with the snowball effect of public debt (*i.e.*, a higher differential between the nominal GDP growth rate vs. the interest rate for a given starting level of debt) can also magnify the potential negative impact of the higher debt level on the success of fiscal consolidations. Estimating the joint effect of these two variables (*i.e.*, using their estimated marginal effect and multiplying those by the respective standard deviation of these two variables) yields a combined positive effect of 7.3 per cent, *i.e.*, once the positive and negative effect of higher debt are accounted for together, the debt level appear to exert a positive albeit small influence on the probability to achieve successful fiscal consolidation.

The rest of variables display coefficient estimates which are generally in line with prior expectations and the existing literature. Expenditure-cut based consolidations tend to be more successful, a result in line with the existing literature, while consolidations episode starting during period of protracted slowdown (*i.e.*, while the output gap is negative and declining) are more likely

¹⁵ We have also tested whether coefficients of the *during financial crisis* and *post financial crisis* dummy variables were significantly different using simple Wald test. We failed to reject the null according to which these two variables displayed identical coefficients (at 10 per cent).

¹⁶ This figure is simply obtained by multiplying the standard deviation of the debt variable for the estimation sample by the estimated marginal effect reported in Table 6. All probabilities are estimated at the average values of the variables.

Table 5

**The Determinants of Successful Fiscal Consolidations,
Financial Crises and the Business Cycle^(a)**

Method of estimation	All Cases	All Cases	All Cases	Cold Showers ^(b)	Gradual ^{(b)(c)}
	(1)	(2)	(3)	(4)	(5)
	Probit ^(d)	Heckman Probit	Heckman Probit	Heckman Probit	Heckman Probit
During financial crisis	-0.303*** (0.040)	-0.289*** (0.083)	-0.340*** (0.067)	-0.415*** (0.098)	-0.967*** (0.009)
Post financial crisis	-0.244*** (0.060)	-0.208** (0.102)	-0.174* (0.100)	0.311** (0.135)	-0.836*** (0.033)
Cold showers	-	-	-0.075*** (0.017)	-	-
Debt	0.605*** (0.138)	0.104** (0.055)	0.140* (0.076)	1.037*** (0.283)	0.656*** (0.145)
Δ cyclically-adjusted expenditure	-0.053*** (0.013)	-0.012* (0.007)	-0.015*** (0.004)	-0.037 (0.023)	-0.029*** (0.008)
Downturn	-0.112 (0.102)	-0.045 (0.050)	-0.050 (0.038)	-0.429*** (0.067)	0.082 (0.099)
Recovery	-0.093 (0.094)	-0.069 (0.052)	-0.072 (0.050)	-0.272* (0.156)	0.037 (0.121)
Protracted slowdown	-0.210** (0.087)	-0.150** (0.052)	-0.145*** (0.038)	-0.506*** (0.141)	-0.044 (0.118)
Snowball effect of public debt	-5.687*** (1.847)	-2.068** (0.092)	-2.147*** (0.372)	-6.312** (3.137)	-7.308** (2.949)
Fiscal governance	0.050 (0.087)	0.028 (0.034)	0.0362 (0.031)	0.111 (0.121)	0.098 (0.087)
IMF programme	0.441** (0.174)	0.131** (0.042)	0.131*** (0.042)	-0.101 (0.247)	0.700*** (0.046)
$\chi^2(\rho=0)$	-	12.79	2.87	3.76	0.75
<i>p</i> -value		[0.00]	[0.09]	[0.05]	[0.388]
Observations ^(e)	181	824	710	181	181

^(a) Marginal effect using Probit estimations, dependent variable is a dummy variable taking value 1 when consolidation is successful and 0 when it fails. * significant at 10 per cent; ** significant at 5 per cent; *** significant at 1 per cent.

^(b) Dependent variable success of gradual (cold shower) consolidation conditional on consolidation taking place.

^(c) The coefficient on systemic financial crises variables could not be estimated due to low number of non-zero outcome for these variables.

^(d) Success/failure are conditional on fiscal consolidation being undertaken.

^(e) The total number of observations reported in columns (1), (4) and (5) appears to be lower than the total number of consolidation episodes available in our dataset. The reason for this is that the explanatory variables, in particular the fiscal governance variable was not available for all countries/years.

Robust standard errors in parentheses.

Table 6

**The Role of Expenditure-Cut/Tax-Revenue-Increase-Based Consolidations
and the Business Cycle: Evidence from Heckman Probit Estimations**

	Δ Cyclically-adjusted Expenditure			Δ Cyclically-adjusted Tax Revenues		
	All Consolidations	Cold Showers	Gradual Consolidations	All Consolidations	Cold Showers	Gradual Consolidations
Downturn	-0.002 (0.017)	0.035* (0.011)	-0.093 (0.085)	0.013 (0.034)	0.014 (0.025)	0.026 (0.071)
Recovery	-0.040* (0.023)	-0.042* (0.022)	0.004 (0.093)	-0.017 (0.023)	-0.007 (0.016)	-0.160 (0.119)
Protracted Slowdown	-0.047* (0.025)	-0.069** (0.028)	-0.030 (0.047)	-0.028** (0.014)	-0.027** (0.011)	-0.113* (0.070)

Marginal effect using two-stage Heckman Probit estimations (first stage variables as indicated in Table 5, column 2 excluding “Δ cyclically-adjusted expenditure”. Dependent variable is a dummy variable taking value 1 when consolidation is successful and 0 when it fails. Success/failure are conditional on fiscal consolidation being undertaken. Robust standard errors in parentheses.

* significant at 10 per cent; ** significant at 5 per cent; *** significant at 1 per cent. Only explanatory variables concerning the interaction between expenditure/revenue based consolidation and starting business cycle conditions included.

to lead to failure.¹⁷ The dummy variable indicating whether countries were engaged into an IMF programme also displays a positive and significant coefficient which is also in line with our prior. Our variable measuring the quality of fiscal institutions, while playing a positive role, does not display a significant coefficient. While a priori surprising this result can be explained by the fact our measure of the quality of fiscal governance captures only one specific aspect of the quality of fiscal institutions, *i.e.*, the existence of a budget deficit rule, is rather loose and does not reflect the complexity of the role played by fiscal institution is ensuring sound budgetary outcome, see in particular Debrun *et al.* (2008). In addition, one could argue that the effect of fiscal governance may already be captured by the variable indicating the nature of fiscal consolidation to the extent that the quality of fiscal institutions reflects the commitment of governments to achieve their budgetary targets over a longer period (as in the case of gradual consolidations).

Column (2) of Table 5 shows the estimated elasticities using the two-step Heckman probit estimations of the determinants of successful fiscal consolidation (where the first step estimations concern the determinants of the decision to consolidate, results are reported in Table 4 and include as additional determinant a dummy variable indicating whether during the year preceding a consolidation episode general elections took place in the country concerned).¹⁸ Interestingly, all

¹⁷ It is important to note that when estimating the influence of the starting business cycle position one needs to make a choice about the benchmark cases (*i.e.*, the dummy variable to be excluded from the equation estimated). Here we use as benchmark are the cases where consolidations start during years of expansion, *i.e.*, when the economic recovery is firmly grounded. Conversely, one could also use as benchmark cases where consolidations started during years of economic recovery and therefore illustrate the trade-off between stabilisation and fiscal consolidation. We have also estimated all equations reported in Table 5 using this alternative specification. While the results were qualitatively similar (*i.e.*, years of protracted slowdown being negative and significant in most specifications), for specifications corresponding to columns (2) and (3) in Table 5 the marginal effect of the *protracted slowdown* variable, albeit still negative, was no longer significant. This suggests that our result concerning the influence of the starting business cycle condition is not totally independent of the specification used.

¹⁸ Table 9 in the Annex provides results of the first stage estimations concerning the determinants of the decision to undertake fiscal consolidation and used to estimate results reported in columns (2) and (3) of Table 4.

debt-related explanatory variable now display coefficients which are clearly lower than the probit estimate reported in column (1). These results thus tend to suggest that the influence of the debt level on the success of consolidation is biased upward when not controlling for the correlation between the decision to consolidate and the likelihood to achieve successful consolidation. Considering the case of the debt level for instance, one now finds that the impact of a 25 percentage points increase in the debt-to-GDP ratio increases the probability of success by barely 2.6 per cent (against 15.1 per cent previously). The negative influence of the snowball effect is also lowered such that the combined effect of higher public debt (*i.e.*, discounting the effect of the debt level from the effect of the snowball effect) decreases on average the probability of success of fiscal consolidation by -1.3 per cent. Two other coefficients estimates are also much affected by these new estimates: the positive influence of being in an IMF programme now falls down to 13.1 per cent (from 44.1 per cent previously) while influence of the nature of fiscal consolidation (*i.e.*, public expenditure-cut vs. tax revenue increase based) is much lower and only significant at 10 per cent (against 1 per cent previously). The financial crisis dummy variable and the business cycle variable remain highly significant and their marginal effect on the probability to achieve successful consolidation remains broadly similar, although more so for the financial crisis variable as these appear to exert the bigger influence on the likelihood to achieve successful fiscal consolidation. It is worth pointing out that the estimated overall probability of success increases when controlling for the sample selection bias from 26 to 30 per cent when estimating it using the Heckman two-stage procedure controlling for sample selection bias and to 36 per cent when further controlling for the lower probability of success concerning cold-shower based consolidations as in the specification of column (3) of Table 5.

We have also tested whether the use of a specification *à la* Heckman allows reducing the bias in the estimators of the determinants of successful fiscal consolidations, *i.e.*, whether the coefficient ρ of equation (3) can be considered as being significantly different from zero in which case simple probit estimators would be preferable. The χ -square statistics for the null-hypothesis reported at the bottom row of Table 5 suggests that the one-stage probit estimator yields biased estimators and that a Heckman procedure is warranted.

4.5 *Fiscal consolidations, growth and the interest rate*

As suggested by the descriptive analysis in Section 2 and the overview of the literature in Section 3, cold shower consolidations usually tend to be less effective than gradual consolidation when it comes to reduce debt level. Column (3) of Table 5 further extends the set of explanatory variable by including a dummy variable indicating whether the consolidation episode can be considered as a cold shower rather than a gradual consolidation according to the definition used here. The marginal effect for this variable appears to be negative and significant, suggesting that cold shower types of consolidation are effectively less likely to succeed possibly through their negative short-term effect on demand and economic activity. Despite the apparent lower probability of success, cold showers are still more often chosen compared to gradual consolidation as suggested earlier by the descriptive statistics

The estimates reported in column (1)-(3) suggest that the effect of higher debt levels is dual: on the one hand it enhances the chances of achieving successful fiscal consolidation and on the other hand it makes success more difficult through higher debt servicing costs if interest rates are large compared to nominal GDP growth. Once the selection bias related to the influence of the debt level of the decision to undertake fiscal retrenchment these effects remain somewhat subdued and tend to cancel out each other. It becomes clear that the influence of the starting debt level at the onset of a fiscal consolidation process depends much on broad monetary (*i.e.*, via the interest rates) and economic (*i.e.*, via nominal GDP growth) conditions, *i.e.*, a high debt level might or might not

compromise the chances of achieving successful fiscal consolidation depending on these conditions. Different consolidation strategies might thus be more or less warranted depending on these conditions: cold showers (gradual) consolidations will be more justified if debt levels are high (low), interest rates high (low) and GDP growth rate low (high), holding all other factors constant.

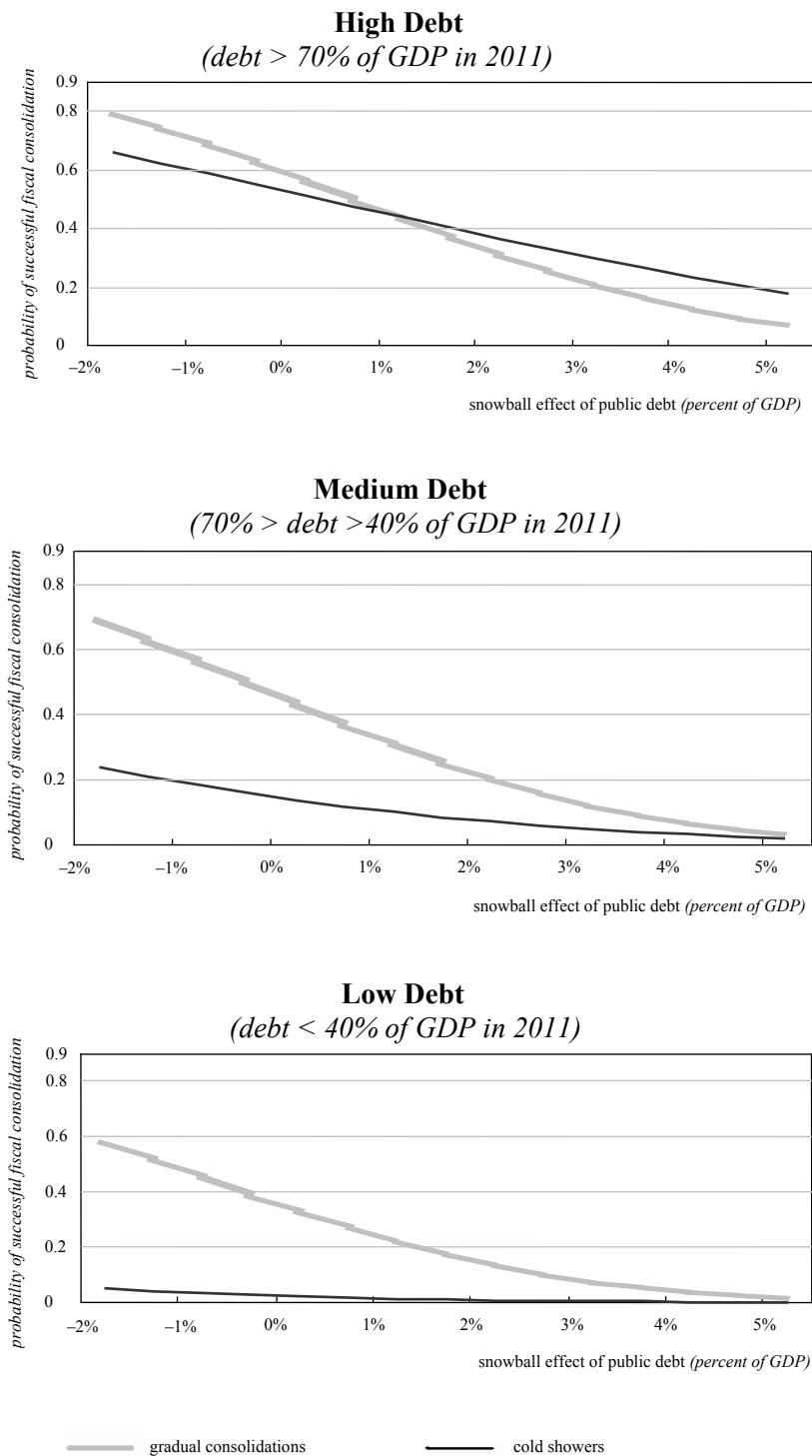
In the sequel we consider whether, depending on the debt level, gradual or cold shower types of consolidations are better suited depending on the value of the initial debt level vs. the snowball effect of public debt (which embeds the influence of the GDP growth rate and of the implicit interest rate paid on public debt). In order to be able to apply Heckman two-stage procedure we consider only cases where a consolidation was effectively implemented, therefore we do not control for cases no consolidation was implemented which may result in a higher sample selection bias compared to the general estimations reported in columns (2-3). The results of estimating separately the determinants of successful cold showers and gradual consolidations are reported in columns (4) and (5) of Table 5. The determinants of success appear to be rather different depending on whether one strategy is used instead of the other. Three results are relevant in this respect. First the influence of business cycle conditions appear to matter only for cold showers, with fiscal consolidations of this type having significantly lower chances of success when undertaken in years of downturn or protracted slowdown. Second, the negative coefficient obtained for the financial crisis and post-financial crisis dummy variable holds only for gradual consolidations while cold shower consolidations undertaken after a financial crisis is resolved have significantly higher chances of success. In addition we also used a Wald test to check whether the coefficients on the *financial crisis* and *post financial crisis* variables were statistically different and found strong evidence for this both when considering the cases cold shower (although this is already evident from the coefficients themselves) and gradual consolidations. These results thus suggest that when fiscal consolidations coincide with financial crises episodes, success is more likely if these consolidations take place after the banking sector has been repaired, and especially so in the case of cold shower types of consolidations.

The effect of the debt level and the snowball effect of public debt also seem to differ depending on whether a cold shower or gradual consolidations are undertaken. The impact of the snowball effect on the relative chances of success of gradual vs. cold shower types of consolidation is not uniform however, and depends also on the starting level of debt. In order to investigate how the level of debt and the snowball effect of public debt interact to determine whether a cold shower or a gradual type of consolidation yield better chances of success, we have estimated the probability of success of fiscal consolidations at three different values of debt for varying values of the snowball effect (from -2 to 5 per cent of GDP) holding all other variables constant (and equal to their average value) and using the estimations reported in columns (3) and (4).¹⁹ Results are reported in Figure 6 distinguishing three groups of countries according to the debt level of EU countries estimated for the year 2011 (using the European Commission's *Spring 2010 Forecast*): high debt (above 70 per cent of GDP), medium debt (below 70 per cent and greater than 40 per cent of GDP) and low debt (below 40 per cent of GDP). Figure 6 shows that the cut-off point of the snowball effect beyond which gradual or cold shower consolidation yield higher probability of success differ depending on the level of debt. In high-debt countries, cold shower consolidations are more likely to succeed than gradual consolidations in reducing debt if the snowball effect is positive and greater than 1 per cent of GDP. Gradual consolidations are warranted only in cases where the snowball effect is negative or positive but very small.

¹⁹ In other words, we do as if the parameters estimated were identical to the one reported in Table 2 although we only consider as explanatory variables the debt level, the three business cycle variables, the debt-stabilising primary balance and the fiscal governance variable in order to be able to compare the same model for cold shower and gradual consolidations. The range of values chosen for the debt-stabilising primary balance appear to correspond to the values observed for the countries included in the sample used to estimate results reported in Table 2.

Figure 6

The Probability of Success of Gradual and Cold Shower Fiscal Consolidation Depending on the Snowball Effect and the Level of Debt



Figures based on two-stage probit estimations as reported in Table 5 (specifications used correspond to columns 4 and 5).

Considering these results in the current EU context would suggest that countries that entered the 2008/2009 crisis with relatively low levels of debt but with fiscal positions substantially worsened by the current crisis (e.g., Ireland or Spain) do not appear to be exempt from pressure exerted by potential rise in interest rate and thus, despite relatively low initial level of debt before 2010, may be better off by undertaking a cold shower rather than a gradual consolidation. It is however difficult to make precise forecast about the value of the snowball effect for the post 2010 period given that this variable is highly sensitive to small changes in the interest rate and the GDP growth rate. Using the average value of the snowball effect between 2009 and 2011 as benchmark for Spain (2.5 per cent) and Ireland (4.3 per cent) for instance, these two countries would fall in the category of countries with both high debt and high snowball effect, however. In medium-debt countries, cold shower would yield higher probability of success for a snowball effect higher than 3.5 per cent of GDP. The cut-off point for the snowball effect is rather high, although it must be

noted that even above this threshold the probabilities of success of cold shower vs. gradual consolidations are both very low (around 10 per cent) in that case. In low-debt countries, cold shower consolidations are always less likely to succeed in reducing debt than gradual consolidations.

4.6 *Do exchange rate depreciations favour successful fiscal consolidations?*

It has often been argued in the press and policy circles that successful fiscal consolidations in the aftermath of the global financial crisis of 2008-09 would be particularly difficult to achieve in a context of unwinding of intra-EU imbalances where, in particular, peripheral EU countries would have to face the dual challenge of containing rising debt level and to restore competitiveness problems, see European Commission (2009). Some have in addition suggested that these countries would be better off being (temporarily) outside rather than within the euro area in order to let their domestic currency depreciate and to facilitate growth-led economic recovery and, by the same token, soften the consolidation and adjustment processes, see Feldstein (2010).

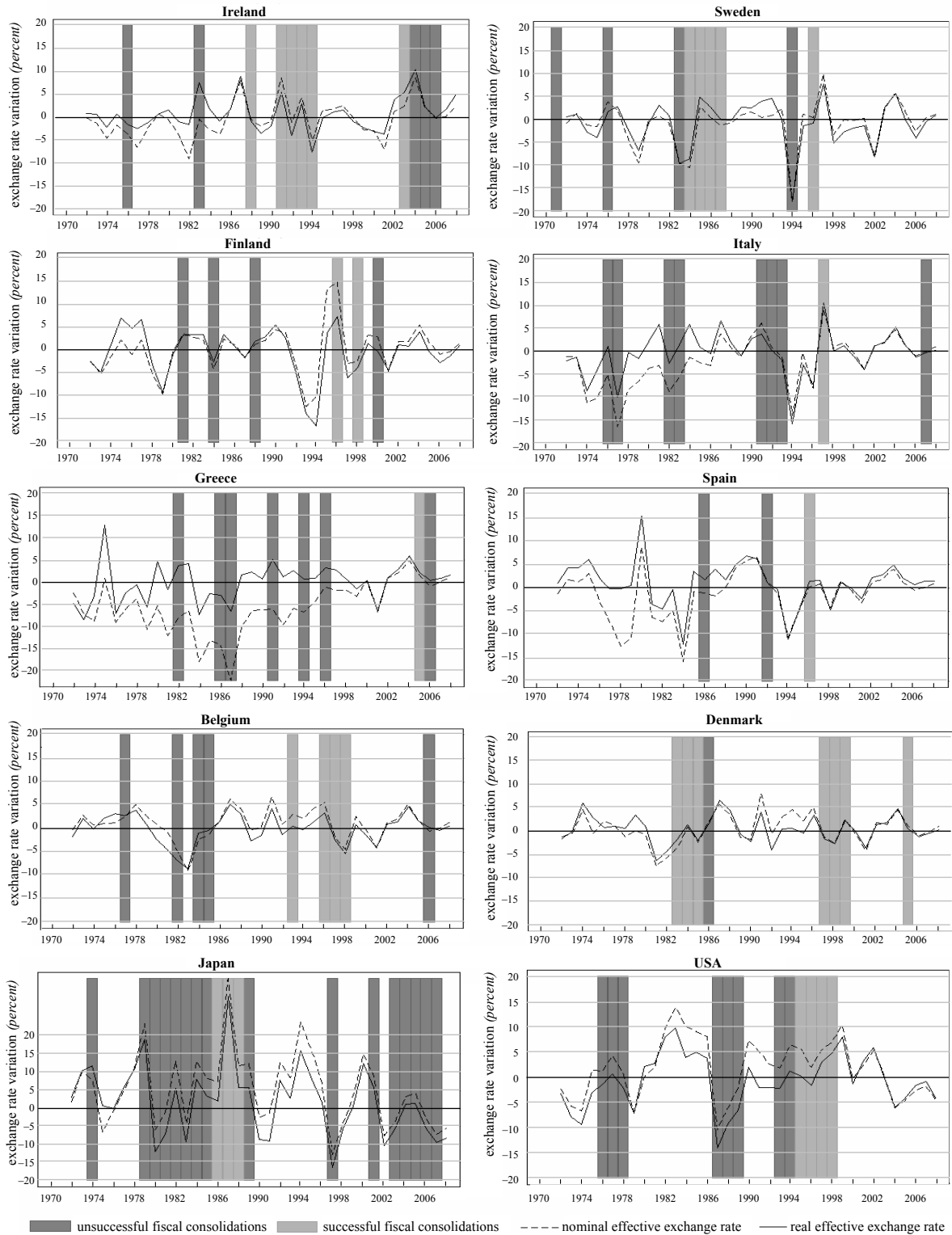
As suggested earlier, the existing evidence on the impact of exchange rate depreciation/devaluation on the success of fiscal consolidations is relatively scant and, when available, point to a significant albeit small positive effect of exchange rate depreciation/devaluations on the success of consolidations. Here we provide evidence on the link between exchange rate depreciation and the success of fiscal consolidations. Before turning to the econometric estimation, it is worth considering a number of descriptive statistics. Figure 7 plots the evolution of the annual change in the real and nominal effective exchange rate (trade weights against a sample of OECD and non-OECD countries).²⁰ Some small open economies appear to have successfully conducted fiscal consolidations while experiencing nominal and real exchange rate depreciations. Figure 7 includes evidence for Ireland and Denmark in particular, two economies often referred to in the literature as having performed successful fiscal consolidations in the wake of exchange rate devaluations during the 1980s and early 1990s respectively. Giavazzi and Pagano (1990) in particular suggested that these countries succeeded in taming down inflationary pressure related to devaluation partly thank to their subsequent peg to the German DM which allowed them to anchor inflation expectations. Indeed fiscal consolidations appeared to be successful and were effectively preceded or coincided with nominal and real exchange rate depreciations in these countries during their respective fiscal consolidation episodes. Importantly, in both these countries the real and nominal exchange rates moved closely enough, i.e., nominal exchange rate depreciation did not translate into substantive inflationary pressure which would have the potential to cancel out the benefit of depreciation via export-led growth. The Finnish and Swedish fiscal consolidations undertaken in the aftermath of their respective financial crises in the 1990s were characterised by successful fiscal consolidations and preceded by exchange rate depreciations with, here again, a close correlation between real and nominal exchange rate suggesting that in both cases upward labour cost pressures were relatively contained.

Many more such cases can be found that provide counter-arguments to the case for exchange rate devaluations that would be needed to conduct successful fiscal consolidations. An especially interesting case illustrated in Figure 7 is Greece which, as mentioned above, has often been considered as a clear example of how the absence of the exchange rate as adjustment device was especially damaging for peripheral EU countries in the current juncture. Greece has in the past undertaken several fiscal consolidations, however these were rarely successful. Here again, the

²⁰ Nominal and real effective exchange rates are calculated using trade-weighted average of bilateral exchange rates against 30 OECD countries and seventeen non-OECD countries (Argentina, Brazil, Chile, China, Chinese Taipei, Estonia, Hong Kong, China, India, Indonesia, Israel, Malaysia, the Philippines, Russia, Singapore, Slovenia, South Africa, Russia and Thailand).

Figure 7

**Successful and Unsuccessful Fiscal Consolidations
and Real and Nominal Exchange Rates Variation in Selected Sample of Countries**



Source: Commission Services.

large depreciation of the nominal exchange rate in the early 1980s did not lead to successful fiscal consolidation and an explanation for this can be found in the diverging evolutions of the nominal and the real exchange rates due to inflationary pressures. One reason which could be invoked in the Greek case is that Greece, while being a relatively small EU economy, is not very open by EU standards such that the devaluation/export-led growth nexus would be less likely to yield the expected benefits in the context of fiscal consolidation. Generally speaking one can also find counter-examples of successful large consolidations without exchange rate depreciation/devaluation such as for instance the case Belgium (another small open economy) in the mid-1990s where successful consolidations were not accompanied by strong devaluations/depreciations (actually some appreciation could be observed from 1992 to 1996).

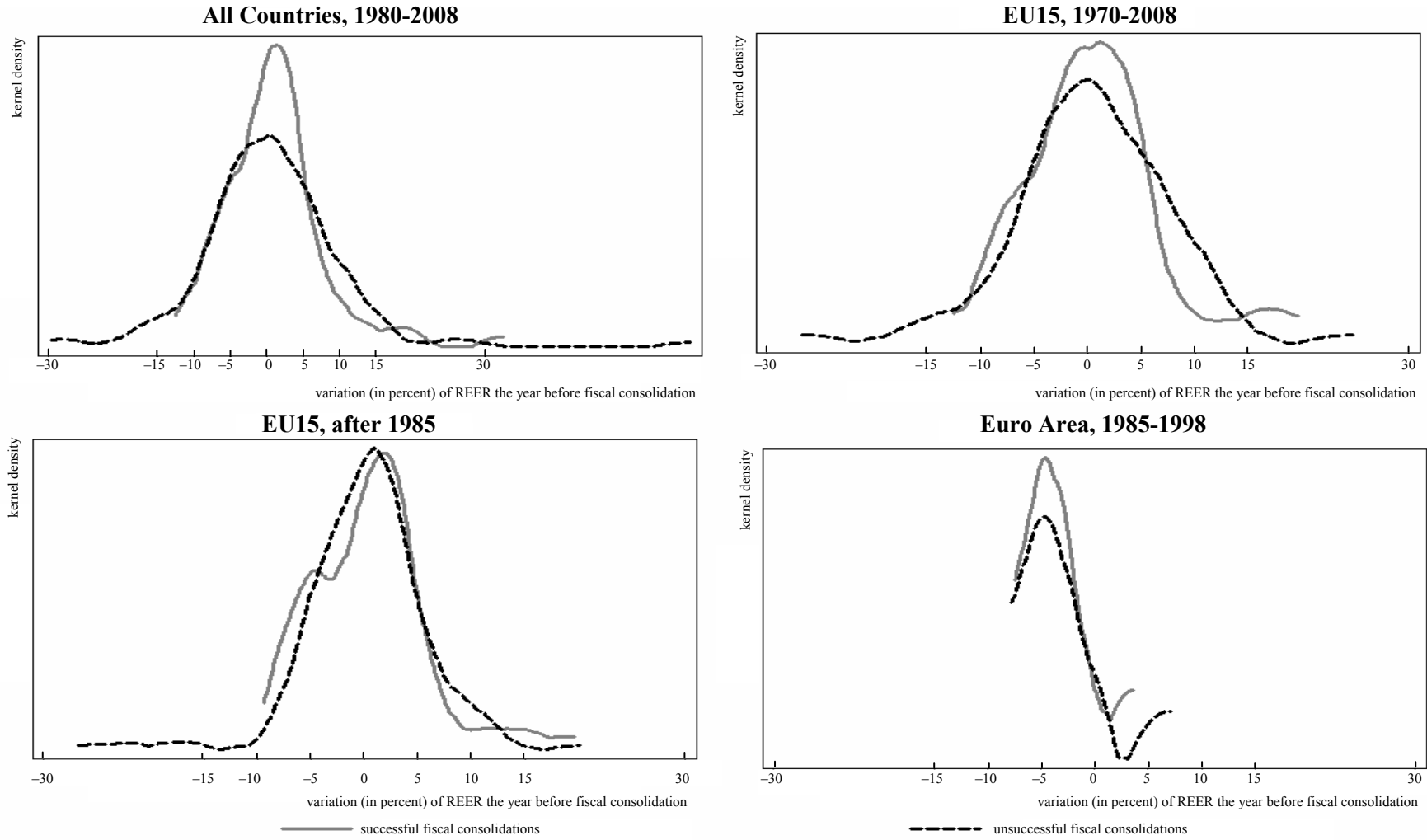
The cases of non-EU OECD economies also reflect the wide array of possible outcomes when it comes to analysing the link between exchange rate variations and the success of fiscal consolidations. For instance, in the case of Japan in the second half of the 1980s, successful fiscal consolidations were preceded or coincided with sharp exchange rate appreciations, both nominal and real. Such result would be at odd with the idea that devaluations are needed to boost export and smooth the negative impact of fiscal consolidations, even in the case of an economy like Japan where export are a key driver of economic growth. The US is another interesting cases given that this country experienced sharp devaluation in the mid-1980s (both nominal and real) but failed to achieve successful fiscal consolidations in the following years. On the contrary, fiscal consolidations in the second half of the 1990s were granted with success and were accompanied by real and nominal exchange rate appreciation.

Overall, it is rather difficult to draw a clear picture regarding the link between the success of fiscal consolidations and exchange rate evolutions prior consolidation when considering country-specific evidence in detail. Furthermore, the exchange rates used to construct Figure 7 concern bilateral exchange rate against virtually all potential trade partners. In the case of the EU, EU-wide effective exchange rates might be more appropriate, especially in relation to recent evolutions in real exchange rates within the euro area. Figure 8 provides complementary evidence in order to partly deal with these issues by plotting kernel density curves (which are equivalent to histograms) indicating the density (or frequency) of successful and unsuccessful fiscal consolidations depending on one-year lagged exchange rate percentage change (indicated in x-axis). If the kernel density curve corresponding to successful fiscal consolidations was centered around a given value of the change in the real exchange rate then this would tend to indicate that such value of the exchange rate variation is more likely to be associated with a successful fiscal consolidation. Inspection of the cases concerning all countries in the sample as indicated in the top left diagram (*i.e.*, EU27 + OECD no EU countries) suggest that in general, exchange rate variation do not exhibit any particular change before successful consolidations. The same applies when considering the EU15 (top right figure), the EU15 with EU-specific real effective exchange rates during the period after 1985 (bottom left figure). Some bias toward devaluation can be observed however for the euro area countries also during the period preceding the launch of the euro 1985-98 (bottom right figure) although, here again, the pattern of successful and unsuccessful fiscal consolidations seems fairly similar.

Several econometric tests were also performed using the Heckman two-stage probit estimation procedure and the results of these are reported in Table 7. The specification used is identical as the one employed in and several effective exchange rates are included as potential determinants together with their interaction with the exchange rate regime to which countries adhered at the time fiscal consolidation was observed using the data provided by Reinhart and

Figure 8

Successful and Unsuccessful Fiscal Consolidations and Real Exchange Rates Variation: Evidence Using Kernel Figures



Sources: Commission Services.

Table 7

**Exchange Rate Variation, Exchange Rate Regime and the Success of Fiscal Consolidations
Results from Heckman-Probit Estimations^(a)**

	No Distinction of Exchange Rate Regime	Fixed/Quasi Fixed Exchange Rate Regimes ^(b)	Floating/Quasi Floating Exchange Rate Regimes ^(b)
Nominal effective exchange rate	0.003 (0.004)	0.003 (0.005)	0.003 (0.006)
Real effective exchange rate <i>Unit labour cost</i>	0.002 (0.003)	0.003 (0.005)	-0.001 (0.005)
Real effective exchange rate <i>cpi</i>	0.001 (0.005)	0.005 (0.007)	-0.005 (0.008)
Real effective exchange rate EU15 <i>Unit labour cost</i>	-0.009 (0.007)	-0.016 (0.012)	-0.004 (0.010)
Real effective exchange rate EU15 <i>cpi</i>	-0.013 (0.009)	-0.014 (0.011)	-0.008 (0.012)

Robust standard errors in parentheses.

^(a) Non-reported control variables include the Debt level in $t-1$, Business cycle indicators for years of economic recovery downturn and protracted slowdown, an indicator on the quality of fiscal governance, snowball effect of public debt and a dummy variable indicating whether consolidation took place during a systemic financial crisis as defined in the PFR 2009.

^(b) Coefficient estimates obtained using interaction term between exchange rate variable and exchange rate regime using data provided in Reinhart and Rogoff (2004).

Rogoff (2004).²¹ This table shows that independently of the exchange rate type and countries considered, the exchange rate variation is never a significant determinant of successful fiscal consolidation. Interestingly though, in the case of the EU15 the observed sign is the expected one (*i.e.*, negative thus indicating that exchange rate depreciation tend to be associated with successful fiscal consolidation) but is never significant. Several robustness checks were performed to consider two-year instead of one-year lag in exchange rate depreciation. In addition, regressions were run for separate groups of countries according to an openness indicator (equal to the sum of export and import in percent of GDP) and also according to the export ratio to GDP ratio indicator to consider the possibility that the expected positive effect of a depreciation on the success of fiscal consolidation is more likely to take place in countries where exports have a potentially higher bearing on growth. None of these additional regressions significant coefficients on the exchange rate variables independently of the specification used.

²¹ Reinhart and Rogoff exchange rate regime classification is used here as traditional classification (*i.e.*, IMF) have long been questioned in the literature as these rely on self-reported country information on exchange rate arrangements which may differ from practice where dual exchange rate markets may better reflect reality and, in particular, monetary policy and inflation dynamics. We thus also rely upon an alternative exchange rate classification proposed by Reinhart and Rogoff (2004) who propose instead a taxonomy based on a broad variety of statistics measuring exchange rate volatility matched to official arrangements and chronologies on exchange rate intervention to derive a “natural” grouping of exchange rates regimes taking into account of differences between announced exchange rate regime and real ones (derived from the statistics) and thus relying on market-determined rather than official exchange rate regime.

Are these results at odd with the existing literature? There are a number of reasons suggesting that this is not necessarily the case. First of all the criteria for defining successful consolidation used is not necessarily the same: for instance, Lambertini and Tavares (2005) consider a definition of successful consolidation as one where the CAPB does not fall below a given threshold after a consolidation episode is kick-started. Hjelm (2002) on the contrary, considers non-fiscal variables as indicator of success of fiscal consolidations such as private consumption, non-residential private investment, exports and changes in unemployment). Furthermore, previous analysis did not use causality analysis but rather simple statistical association or case-study analysis concerning small open economies (e.g., Alesina and Perotti, 1997) while existing evidence considering the role of devaluations/depreciations in reducing debt significantly remains inconclusive (see in particular Ahrend *et al.*, 2006).

5 Summary of results and policy implications

The 2008/2009 global financial crisis has seen public debt to reach unprecedented levels since the second World War prompting EU governments' actions to stem rising debt level by undertaking fiscal consolidations. In this paper we highlight a number of issues of direct relevance for fiscal consolidation in the aftermath of the financial crisis by studying the determinants of successful fiscal consolidations considering EU countries and a sample of non-EU OECD economies during the period 1970-2008. Our analysis in particular focuses on a number of important and novel aspects not yet considered in empirical studies:

- In this paper we make use of the two-stage Heckman probit estimator to obtain estimates of the determinants of successful fiscal consolidations which allow us to link the determinants of successful consolidation with the decision to start off a fiscal consolidation episode. We discuss the reasons why not controlling for sample selection bias in fiscal consolidations is important to derive meaningful policy implications, especially with regards to the role played by the starting debt level which is likely to condition the potential success of EU countries' consolidation strategies in the years to come.
- We consider explicitly the role played by systemic financial crises using information regarding financial crises duration and find evidence suggesting that restoring the financial sector is a pre-condition for achieving successful fiscal consolidations although fiscal consolidations conducted in the aftermath of financial crises tend to be significantly less successful compared to cases where no such crises took place. Our results further show that when considering separately gradual consolidations and cold shower, then it becomes clear that fiscal consolidations are significantly more likely to be successful when these are undertaken after a financial crisis is resolved, although such effect is especially apparent for the cases where cold shower consolidations are undertaken.
- We analyse the incidence of high debt levels on the success of fiscal consolidations which is a feature common to almost all EU and non-EU OECD economies in the aftermath of the 2008/2009 crisis. We show that countries facing high starting debt level and high interest rate/low GDP growth potential have better chance of achieving successful fiscal consolidations if these were sharp and sustained while other countries where such constraints are less binding would be better off by undertaking more gradual fiscal consolidations.
- Our results concerning the influence of real and nominal exchange rate depreciation/devaluations remain broadly inconclusive suggesting that the arguments according to which fiscal consolidations would be facilitated by such depreciations/devaluations in order to promote export-led growth recovery are not backed by the data.

ANNEX
VARIABLES DEFINITIONS
AND FIRST-STAGE HECKMAN PROBIT ESTIMATION RESULTS

Dependent variables

Table 3: Success of fiscal consolidation: =1 if the debt-to-GDP ratio is lower by at least 5 percentage points three years after the start of a fiscal consolidation episode (Source: European Commission, DG ECFIN).

Table 4: Start of fiscal consolidation episode: =1 if $\Delta CAPB \geq 1.5$ per cent of GDP in one year or in three years (in the latter case as long as annual $\Delta CAPB \geq -0.5$ per cent) (Source: European Commission, DG ECFIN).

Explanatory variables

Debt: corresponds to the debt-to-GDP ratio the year a fiscal consolidation episode is started. *Source: European Commission, DG ECFIN.*

Business cycle variables: The business cycle is measured using output gap level and annual change: *Recovery* are years of negative output gap level and positive annual change, *Downturn* are years of positive output gap level and negative annual change, *Protracted Slowdown* are years of a widening negative output gap level. In the current context, the most relevant episodes are the one with negative output gap levels: recovery and protracted slowdown. Business cycle dummy variables are estimated against benchmark case of expansionary years which are years of positive output gap level and positive annual change (Source: European Commission, DG ECFIN).

Financial crisis: Financial crises episodes are defined as episodes during which a country's corporate and financial sectors face great difficulties repaying contracts on time, experience a large number of defaults, non-performing loans increase sharply and most of the banking system capital is exhausted following the study by Laeven and Valencia (2008). The situation may be accompanied by falling assets prices, sharply rising real interest rates and a reversal of capital inflows. Thus, financial crises in this definition do not include banking stress limited to individual banks. However, banking crises may have coincided with and have been aggravated by episodes of currency and sovereign debt crises. Since Laeven and Valencia only define the starting points of banking crises but not their length, this study uses for the latter the information provided in Demirgüç-Kunt and Detragiache (2005) and Reinhart and Rogoff (2008b)²² (Sources: Laeven and Valencia, 2008; Demirgüç-Kunt and Detragiache, 2005; Reinhart and Rogoff, 2008; and European Commission, DG ECFIN).

Snowball effect of public debt: this variable corresponds to the debt-stabilising primary balance which is measured by $\text{Debt/GDP } (t-1) * (i-y/(1+y))$, where i =interest rate and y =nominal GDP growth. The value of this variable the year before the start of a consolidation episode is considered (Sources: European Commission, DG ECFIN).

²² In case of missing or conflicting information in those sources, the end of the crisis was determined as the year when domestic credit growth bottomed out. Accordingly, in absence of additional indications, the end of the banking crisis episode corresponds to the year in which the private credit-to-GDP ratio recovers. Since the credit-to-GDP ratio fall often occurs with a delay, a credit ratio increase after the start of the crisis does not imply classifying the episode as lasting one year only, except if the credit-to-GDP ratio grows continuously for at least three years without interruption.

Table 8

Systemic Financial Crises Duration in EU and Other Non-EU OECD Countries

Country	Systemic Financial Crisis Experienced During 1970-2007
Australia	-
Austria	-
Belgium	-
Bulgaria	1996-99
Canada	-
Switzerland	-
Cyprus	-
Czech republic	1996-97
Germany	
Denmark	
Spain	1977-80
Estonia	1992-95
Finland	1991-94
France	-
United Kingdom	2007
Hungary	1991-95
Ireland	-
Italy	-
Japan	1997-2002
Lithuania	1995-97
Luxembourg	-
Latvia	1995-99
Mexico	1981-82, 1994-97
Malta	-
Netherlands	-
Norway	1991-93
Poland	1992-95
Portugal	-
Romania	1990-99
Slovakia	1998-99
Slovenia	1992-94
Sweden	1991-94
Greece	-
Turkey	1982-85, 2000-03
USA	1988-91, 2007

Table 9

Fist-stage Heckman Probit Estimations Concerning Table 5^(a)

	(2)	(3)	(4) ^(b)	(5) ^(b)
Debt	0.374** (0.190)	0.403*** (0.169)	-0.146 (0.290)	0.204 (0.325)
Downturn	0.009 (0.167)	-0.013 (0.126)	0.394* (0.226)	-0.490 (0.324)
Recovery	0.142 (0.139)	0.124 (0.138)	0.458* (0.286)	-0.546** (0.277)
Recession	0.292** (0.131)	0.272** (0.105)	0.387 (0.261)	-0.454* (0.250)
Financial crisis	0.221** (0.110)	0.227** (0.103)	0.213 (0.520)	-0.276 (0.446)
Post financial crisis	0.302 (0.213)	0.355 (0.214)	-0.127 (0.217)	0.002 (0.383)
Parliamentary elections	-0.077 (0.091)	-0.058 (0.076)	-0.125 (0.192)	-0.056 (0.189)
Fiscal governance	-0.022 (0.112)	-0.023 (0.103)	-0.293 (0.207)	0.286 (0.222)
IMF programme	-0.145 (0.194)	-0.154 (0.193)	0.309 (0.484)	-0.304 (0.433)
Snowball effect of public debt	1.671 (2.441)	2.062 (0.194)	3.191 (5.217)	-3.435 (4.862)

^(a) First-step elasticities using two stage Heckman Probit estimations, dependent variable is a dummy variable taking value 1 when consolidation is implemented and 0 when it is not. Robust standard errors in parentheses.

^(b) Dependent variable success of gradual (cold shower) consolidation conditional on consolidation taking place.

* significant at 10 per cent; ** significant at 5 per cent; *** significant at 1 per cent.

IMF programme: indicates whether a given country is subject to IMF balance of payments assistance and conditionality in order to control for the fact that emerging economies and, depending on the period considered, some recently acceded Member States may have had additional incentives to undertake and continue with a fiscal consolidation (Source: IMF).

Fiscal governance: dummy variable indicating whether or not a given country uses a budget deficit rule (Sources: European Commission, DG ECFIN fiscal governance database and Guichard *et al.* (2007) for non-EU OECD countries).

General elections: dummy variable indicating whether or not general elections took place a year before in a given country (Source: The International Institute for Democracy and Electoral Assistance).

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IMPACT OF THE GLOBAL CRISIS ON SUB-NATIONAL GOVERNMENTS' FINANCES

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1 Introduction

The financial crisis unleashed by the difficulties in the sub-prime mortgage markets of some industrial countries propagated quickly across the globe in the last quarter of 2008, reflecting a vicious circle of frozen credit markets, plunge in business and consumers' confidence, and sharp decline in world trade. Nearly two years after the onset of the crisis, the recovery is still not firmly entrenched in most countries (with the exception of some emerging markets) despite massive monetary and fiscal stimulus. Much has been written about the causes and effects of the crisis and its impact on the public finances of countries across the globe (see, for example, Fiscal Affairs Department, 2010; OECD, 2009; and European Commission, 2009). Most of the latter literature has focused on the impact of the crisis on the finances of federal/central governments (CGs), with significantly less analysis devoted to the effects on the finances of sub-national (regional and local) governments (SNGs). This is likely to reflect both the fact that active counter-cyclical fiscal policy responses to the crisis have been spearheaded by CGs and the lack of timely data on developments in sub-national finances in most countries around the world.

This paper focuses on the impact of the crisis on sub-national finances, utilizing qualitative information, as well as the limited quantitative one available for some countries. Following a brief review of national fiscal policy responses to the crisis and of the effects of such responses on sub-national budgets in a range of countries, the paper analyzes the various channels through which the downturn has impacted SNGs in different types of countries and their own policy responses. It finds that, while some SNGs have been able to avoid a pro-cyclical policy response, through increased support by their respective CGs and by utilizing their own available "fiscal space",¹ many have been forced to respond to the reduced availability of revenues and/or financing by cutting their expenditures, often on socially sensitive programs. The paper concludes with some reflections on the appropriate role of SNGs in fiscal stabilization and on reforms in intergovernmental fiscal arrangements that could facilitate such a role in a fiscally sustainable way.

2 National fiscal responses to the crisis

The 2008-09 global financial crisis imparted a shock to the global economy unprecedented in several decades in terms of both reach and intensity. In its latest World Economic Outlook (April 2010), the IMF estimates that world output fell in 2009 by 0.6 per cent, with the GDP of advanced economies declining on average by 3.2 per cent and that of emerging and developing countries rising by 2.4 per cent, which implies little, if any, growth in real per capita income. The crisis has taken a steep toll on living standards of vulnerable income groups, as a result of the increase in unemployment, which, especially in countries with less developed social safety nets, has pushed many families below the poverty level.

While the shock affected most countries in the world, its impact was felt in different measures by different countries, reflecting their relative vulnerabilities, in particular their degree of

* Formerly IMF.

** IMF.

An earlier version of this paper was published in the 2009 World Report on Fiscal Federalism of the Institut d'Economia de Barcelona.

¹ For a discussion of the concept of fiscal space, see Heller (2005).

trade and financial openness and exposure to sectors (such as housing, financial and automotive) most affected by the downturn in demand. These factors have also caused a wide variance in both the economic and the social effects of the crisis in different regions and localities within individual countries. For example, in the U.S. the impact of the crisis has been felt most strongly in those states (such as California, Florida, Nevada and Michigan) and cities (such as New York) where housing prices have declined more sharply, or which were more dependent on especially affected sectors, such as the automotive or financial ones. The declines in oil, metals and other basic commodities' prices from their peak levels in mid-2008 impacted more strongly countries (such as Russia, Mexico, Chile, Venezuela and Nigeria) and regions more heavily dependent on resource revenues.

The limited effectiveness of monetary policy in conditions of dysfunctional credit markets brought again to the forefront the stabilization role of fiscal policy. Depending on the intensity of the shock and their perceived availability of fiscal space, countries:

- accommodated the impact of the crisis on revenues and cyclically-sensitive expenditure (a "passive" counter-cyclical policy). Figure 1 shows the decomposition of the estimated 2009-10 budgetary expansion in the G-20 countries into endogenous factors and discretionary measures. The former include both the so-called automatic stabilizers (responses of revenues and expenditures to developments in the output gap) and other factors (such as declines in asset prices and commodity prices; and in tax compliance and enforcement);²
- adopted discretionary stimulus packages, including tax cuts and/or increases in a variety of social and infrastructure expenditure programs (discretionary or "active" counter-cyclical policy). Figure 2 shows the average composition of such packages for the countries in the G-20 group (which account for almost 90 per cent of global GDP); and
- undertook a variety of extra-budgetary or "below the line" operations (such as equity injections or purchases of troubled assets) to support public or private (financial and non-financial) enterprises. These operations are not necessarily reflected in the measures of government deficits, but they do increase the public debt. In addition, many countries provided such support through the granting of guarantees, thereby creating substantial contingent liabilities for their future budgets (see Horton *et al.*, 2009, for details).

These steps resulted in large increases in the deficits and public debt of many advanced countries and of a number of developing ones (Figure 3). These deficits were financed through the use of accumulated reserves, increased borrowing from domestic and external markets and, in many emerging and low-income countries, from multilateral lenders, such as the IMF, the World Bank and regional MDBs. However, some countries with initially high levels of deficits and debt and more limited financing possibilities, were unable to avoid a pro-cyclical fiscal tightening. This has been the case for instance in a number of countries in Central and Eastern Europe and in some countries heavily dependent on resource revenues, such as Venezuela and Ecuador (CEPAL, 2009; and IMF, 2009). More recently, market concerns about the medium-term sustainability of the increased debt have forced an early tightening of budgets in a number of advanced countries as well (e.g., in the U.K. and Southern Europe).

The escalation of public deficits and debt, which is unlikely to be reversed simply by the unwinding of temporary stimulus measures and by the foreseeable recovery of revenues as activity picks up (see Fiscal Affairs Department, 2010), will pose difficult challenges for policy makers to ensure longer-term fiscal sustainability, especially in the face of the increasing cost of pension and health systems in rapidly aging societies. Undoubtedly, given their rising share in expenditure responsibilities, SNGs will be called to make contributions towards the fiscal consolidation efforts looming ahead.

² See Brondolo (2009) for a discussion of tax compliance during crisis periods.

Figure 1

Decomposition of Fiscal Expansions in G-20s, 2009-10
(percent of GDP)

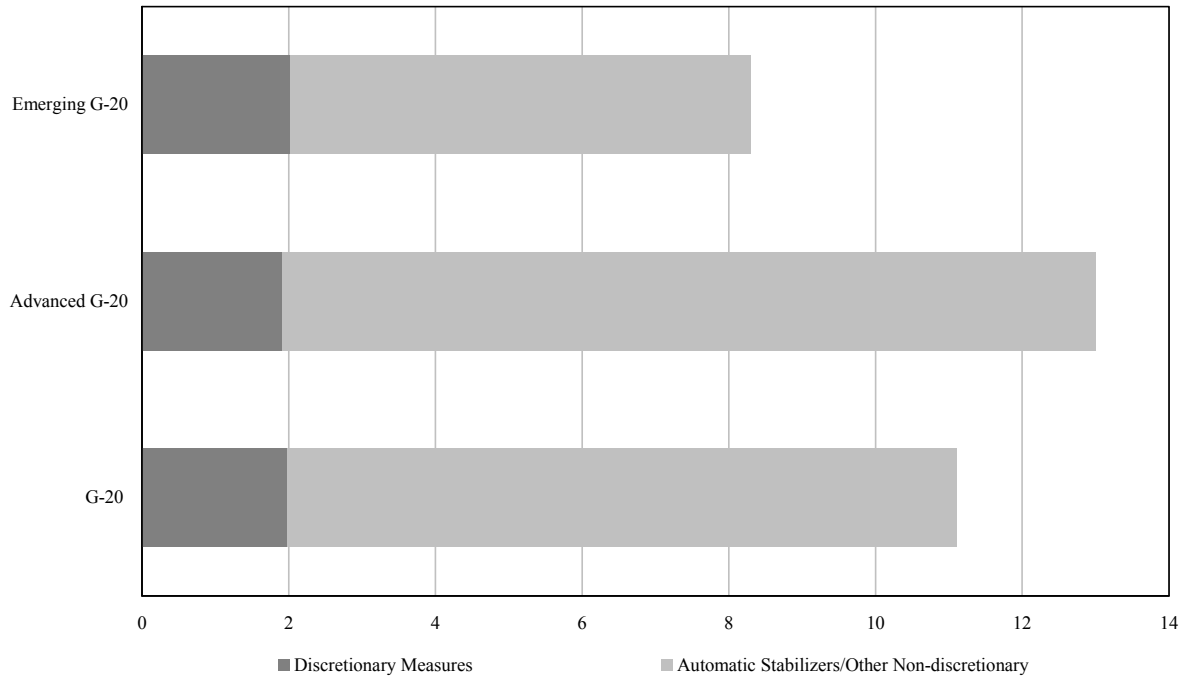


Figure 2

Composition of G-20 Stimulus Packages
(percent of total, based on 2009-10 averages)

Advanced G-20

Emerging G-20

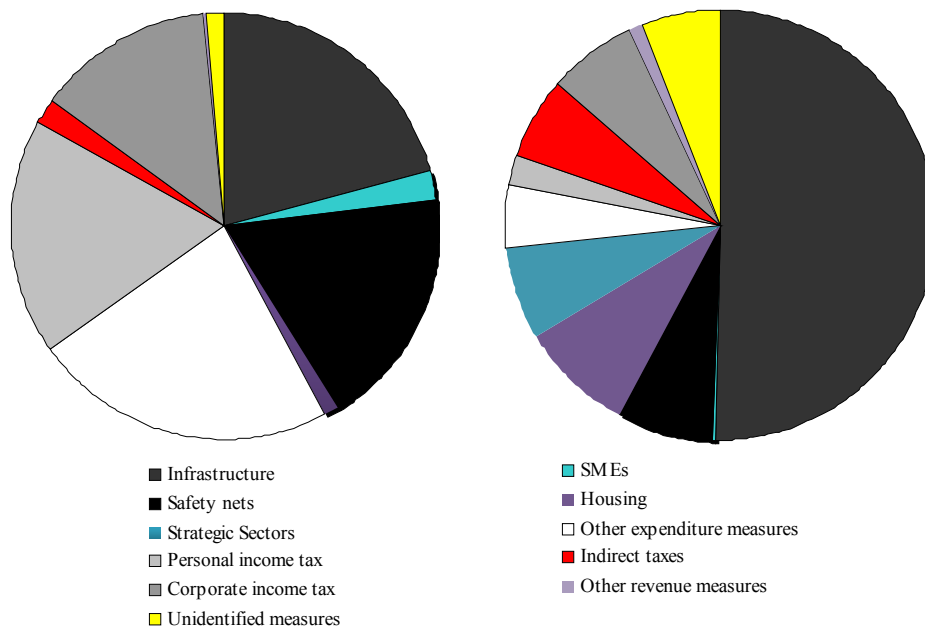
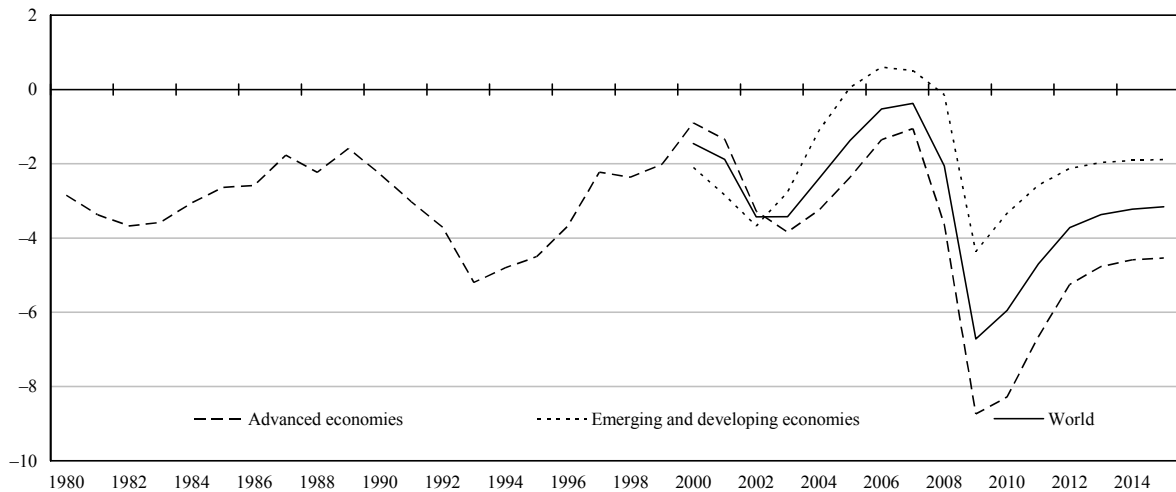
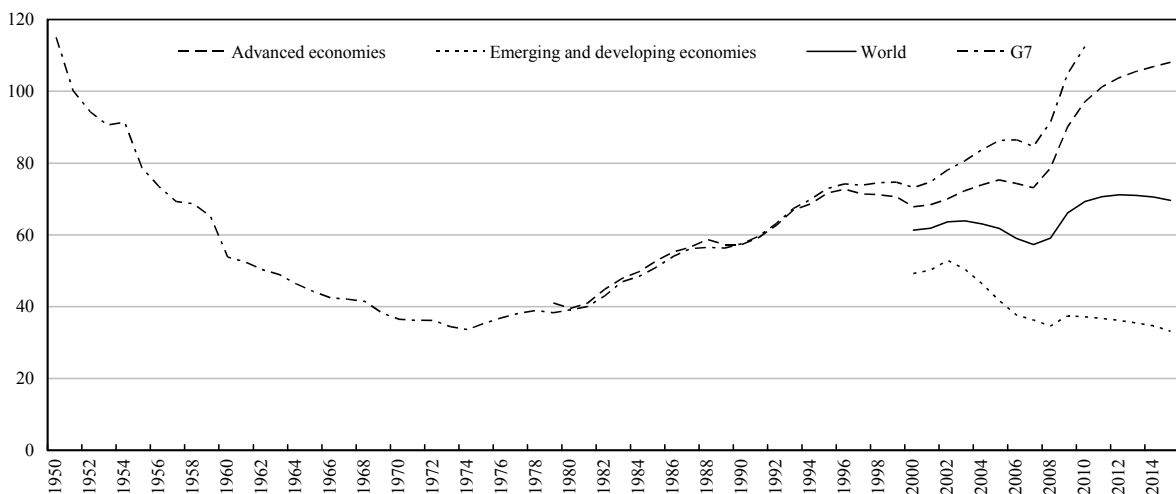


Figure 3

Fiscal Balances and Public Debt, 1990-2014
(percent of GDP)
Fiscal Balance



Public Debt



3 Effects of the crisis on SNGs' finances

The crisis has affected SNGs' finances both directly and through its impact on the budgets of CGs and their policy responses. This section of the paper reviews the various channels of impact. Unfortunately, given the significant delays with which data on SNGs' accounts become available (see Box 1 for details), most of the analysis in this section has to be based on qualitative (in some cases anecdotal) information. Boxes 2 and 3 present more specific information for, respectively, the U.S. states, where national sources of recent data are more easily available, and Brazil, where the existing Fiscal Responsibility Law requires the publication of bi-monthly summary fiscal accounts for all levels of government.

Box 1

Cross-country Data Sources on Sub-national Finances

Timely and reliable information on sub-national public finances is unfortunately scarce. When available, such data are often not comparable across countries (and even within countries), and are subject in most cases to substantial delays. The lack of standardized recording and reporting practices across government levels – and even among jurisdictions at the same level – hampers the collection of sub-national fiscal statistics. The countries for which sub-national data are more easily available tend to be federal ones, with well-developed sub-national governments, thus not necessarily being representative of the majority of countries.

A few cross-country databases are available, but they offer limited coverage.

- The Government Finance Statistics (GFS) database, maintained by the International Monetary Fund, is probably the best source of internationally comparable data on fiscal variables by government level. It currently contains fiscal data for 152 countries, but includes disaggregated data on sub-national government operations for only about 60.^(a) Even for those countries, however, time series are incomplete, and subject to substantial lags. Moreover, no information is available on a more disaggregated basis, thus making it impossible to analyze differences among (relevant groups of) jurisdictions within the same government level. Finally, the database does not provide information on the degree of sub-national autonomy in revenue and spending programs.
- The OECD, under its Network on Fiscal Relations across Levels of Government,, has promoted efforts to collect data on sub-national finances, and information on relevant institutional dimensions – such as the design and management of expenditure and revenue assignments, transfers and borrowing arrangements, largely based on country surveys. This information is generally limited to the 30 OECD countries.
- The EUROSTAT database on public finances includes annual data on SNGs for the EU members, but only at an aggregated level. The latest values refer to 2008.
- The World Bank, under its Decentralization Thematic Group, has made available a database on quantitative and qualitative fiscal, political and administrative variables at the sub-national level. The database provides a useful consolidated source of data, put together largely by collating information from GFS, OECD, and other sources. However, it has not been updated in recent years; and its coverage on qualitative information, for about 40 countries, remains limited.
- The Economic Commission for Latin America and the Caribbean (CEPAL) has assembled a well-developed historical database on sub-national government operations for the region, currently extending to end-2007.

^(a) The tally is based on countries for which there is at least one entry over the period 2002-06.

Box 2

The Impact of the Crisis on the U.S. States

In the United States, virtually all states (Vermont being the exception) are mandated to balance their budgets.^(a) This has proved an impossible task in the current crisis, given the spending pressures and drop in revenue induced by the crisis: in FY2009, revenues dropped significantly below levels recorded in FY2008 in virtually all states, while spending pressures, especially on social safety net programs, continued to increase. As a result, the states' budgetary gaps totaled some US\$110 billion. The gap widened further in FY2010, to around US\$ 210 billion. Part of these gaps was covered by increased transfers from the Federal Government under the American Recovery and Reinvestment Act (ARRA) of 2009, to fund additional investments, as well as selected social programs (e.g., Medicaid). The remaining gaps could only partly be filled by drawing down accumulated liquid balances (the so-called "rainy day funds"), thereby requiring varying combinations of (pro-cyclical) tax increases and spending cuts. States' contributions to pension funds for their employees were also reduced in some instances, creating (or increasing) future liabilities in this area.

California offers a dramatic example of the impact of the crisis. Its initial budget gap for FY2010 was \$24.8 billion, which, along with the US\$14.8 billion gap for FY2009, was supposed to be resolved in a February 2009 budget agreement. The resolution included five ballot measures that were rejected by voters in a May special election; meanwhile the projected budget gap continued unabated, reaching US\$60 billion by July – unprecedented in size and stemming for the largest part (80 per cent) from revenue shortfalls (California had to start issuing IOUs as means of payment to taxpayers and suppliers over the summer). The 2010 budget finally agreed between the Executive and the Legislature included wide-ranging measures to close the gap, covering revenue increases and drastic cuts in practically every state program financed by the general fund (by about US\$31 billion). Federal stimulus funds provided an additional US\$8 billion.

According to a recent report by the Center On Budget and Policy Priorities, budgetary prospects for U.S. states are worsening further in FY 2011, since the recovery is relatively subdued, the growth of personal and company incomes remains sluggish and unemployment is hardly declining. Although the overall *ex ante* budgetary gap is projected to moderate (to around US\$ 180 billion), states will be facing also a sharp decline in support from the federal government, given the expiration of ARRA and Congress' refusal to date to extend the funding of Medicaid for unemployed workers. Thus, most states' approved budgets for FY2011 include further substantial cuts in social assistance and education programs (with attendant layoffs of state employees), as well as in a number of cases increases in sales, excise taxes and user fees, or cuts in tax exemptions.

^(a) These rules have constitutional or statutory basis and apply *ex ante* (beginning-of-the-year) or *ex post* (end-of-the-year). They limit ability to run deficits in the state's "general fund;" other funds – capital, pensions and social insurance – can be used as potential sources of deficit financing. For more detail, see Bohn and Inman (1996). Most states' fiscal years begin on July 1 of the preceding calendar year.

Box 3
Preliminary Evidence on the Impact of the Crisis on SNGs in Brazil

In contrast with many advanced and most developing countries, Brazil compiles and publishes bi-monthly summary budgetary accounts of states and municipalities. These accounts complement the monthly cash accounts of the federal government, published by the National Treasury, and the monthly below-the-line accounts of the public sector (disaggregated by level of government) published by the Central Bank. This commendable, but unfortunately uncommon, wealth of information on sub-national finances is the result of the Fiscal Responsibility Law, enacted in 2001, which established standardized accounting and reporting requirements for each entity of the Federation.

The impact of the global financial crisis on Brazil's economy was intense but relatively short, with a recovery starting already in the second quarter of 2009. As a result, GDP fell only modestly (by 0.2 per cent on average in 2009) and is projected to grow strongly again in 2010. The primary surplus of the consolidated non-financial public sector (NFPS) deteriorated significantly (from around 3.5 per cent of GDP in 2008 to around 2 per cent of GDP in 2009), reflecting both the operation of automatic stabilizers and discretionary stimulus measures (selected temporary tax reductions and significant increases in both current and capital spending). However, the deterioration in the fiscal accounts was more pronounced in the federal than in the sub-national budgets. The primary surplus of the CG fell by the equivalent of 1 percentage point of GDP while the consolidated primary surplus of the states declined by only 0.3 per cent of GDP and that of municipalities was nearly unchanged from the previous year. Restrictions on sub-national borrowing, stemming from the existing debt refinancing agreements with the federal government, limited the extent to which states and municipalities could accommodate the cyclical decline in own and shared revenues, requiring some pro-cyclical adjustment in spending in most of them. States more dependent on revenues shared with the federal government were comparatively more affected, as in general own revenues of the states (mainly the VAT-type ICMS) and municipalities (in particular the tax on services) outperformed shared ones. Some of the larger states intensified their programs of concessions, to complement increased spending on infrastructure.

Available data for the first five months of 2010 indicate that the fiscal performance of the SNGs (as well as of the federal government) broadly stabilized at the level of 2009, despite the pronounced recovery in activity, pointing to a pro-cyclical stance of fiscal policy during the upturn, as well as the downturn, phase of the cycle.

3.1 *Effects of national fiscal responses on sub-national finances*

The significant increase over the last decades in the shares of SNGs in total general government expenditures (which currently exceed 30 per cent on average and 60 per cent for capital spending in the OECD area) has implied that a sizable part of stimulus spending, albeit decided and financed by CGs, had to be executed by SNGs. The capacity of individual sub-national jurisdictions to execute quickly and efficiently the additional spending affected significantly the effectiveness of stimulus packages. Predictably, measures focusing on support to households through various social expenditure programs were implemented more quickly than infrastructure investments. A number of countries (e.g., Australia, Canada, France and the U.S.) took steps to speed up regional and local implementation of the additional spending by, *inter alia*, simplifying procedures for approval and disbursement of the additional CG transfers earmarked for the stimulus expenditures; stipulating short sunset clauses and setting up strengthened monitoring procedures for the utilization of the funds by SNGs; and through other financial incentives (e. g., the French Fonds de Compensation de la TVA).³ A reliable assessment of the success of such steps will, however, have to await the publication of outturn data for SNGs' operations. Even more difficult would be an assessment of the extent to which quality may have been traded off for speed in the implementation of investment projects.

On the revenue side, some tax measures implemented by CGs as part of stimulus packages involved losses of shared revenues for sub-national budgets. These losses were not always fully compensated by increased transfers from the CG to the affected SNGs (e.g., the abolition of the local business tax in France; the temporary cut in the excise (IPI) tax on automobiles in Brazil). More importantly, SNGs' budgets in many countries were adversely affected by losses in shared CG revenues entailed by the operation of the automatic stabilizers and the other factors mentioned in Section 2 above. As in many countries shared revenues account for more than half of the total tax revenues of regional governments (less for local governments),⁴ a passive counter-cyclical policy by the CG, accommodating the endogenous decline in its revenues, would shift a significant part of the revenue loss to the SNGs, unless compensated by increased transfers to the latter. Although little firm quantitative evidence is available yet, it is likely that losses in shared revenues were more pronounced in countries relatively more affected by the cyclical downturn and/or by commodity price declines, or with larger automatic stabilizers.

3.2 *Direct effects of the crisis on SNGs' budgets*

The crisis also impacted sub-national budgets directly, through a number of channels:

- declines in the bases of own (income, sales or property) taxes, induced by falls in aggregate demand, output and employment; asset prices (especially real estate); and commodity prices (for resource revenues-dependent regions);
- A weakening of tax compliance by liquidity- and financing-constrained taxpayers; and possibly political pressures on tax authorities to ease enforcement on such taxpayers;
- upward pressure on cyclically-sensitive sub-national spending programs, such as assistance to the rising number of unemployed or families falling under poverty thresholds;
- pressures to bail out financial and non-financial enterprises, either publicly owned or deemed of strategic importance to regional or local economies;

³ The Fonds de Compensation de la TVA has been set up by the French government to fund accelerated VAT refunds to SNGs that commit to increase investments above their average 2004-07 levels. See Dexia (2009).

⁴ According to OECD estimates, shared revenues account for about 47 per cent of total state revenues, and for 33 per cent of local revenues in the OECD area. These figures are likely to be higher on average for non-OECD countries.

- increases in interest payments, reflecting higher financing needs and/or financing costs;
- in some cases (e.g., some states and municipalities in the U.S., U.K. and France), losses on financial investments, including of pension funds for state or local employees, or on structured loans.⁵

The severity of these impacts on individual SNGs is likely to have varied significantly across and within countries, reflecting in particular:

- the extent of the decline in regional/local output and employment, as explained in Section 2 above;
- the structure of own revenues, with regions relatively more dependent on resource revenues, or on business taxes, comparatively more affected;
- the extent of sub-national responsibility for more cyclically sensitive expenditures, for example unemployment compensation (which in most countries is a CG responsibility, but in some others, such as the U.S., is shared with state governments); and
- the structure of the sub-national debt, with SNGs having debts of shorter average maturities and at variable rates, or (in countries with depreciating currencies) debts denominated in foreign currency, comparatively worse off.

4 SNGs' policy responses

Policy responses by SNGs to the crisis have ranged widely, reflecting not only the extent and expected duration of the shock, but also a number of other factors, in particular:

- the nature and extent of support by the CG;
- the degree of autonomy of different SNGs in revenue-raising and spending decisions;
- the presence or absence of binding legal constraints on sub-national deficits and debt;
- the existence, or not, of accumulated reserves to finance higher deficits;
- the availability and cost of additional market or official financing.

The varying combined impact of these factors facilitated an active, or at least a passive, countercyclical stance by some SNGs, but required a pro-cyclical one by others. This section discusses some of the factors in greater detail and illustrates through some representative examples the range of sub-national policy responses to date.

4.1 Increased CG support to SNGs

Increased budgetary support by CGs to their sub-national jurisdictions has taken different forms across countries:

- *Increases in general-purpose or earmarked transfers*

Increases in general purpose transfers (which in principle could include temporary modifications of revenue-sharing formulas) have the advantage of greater transparency in the allocation of additional resources across regions and localities; and also of greater respect of sub-national autonomy in spending decisions. On the other hand, increases in general purpose-transfers (or changes in revenue-sharing arrangements) may be more difficult to reverse during the upturn of the cycle than those in transfers earmarked to fund specific stimulus

⁵ Munnell *et al.* (2008) present an interesting analysis of the impact of the financial crisis on defined benefits pension plans of state and local governments in the U.S.

measures. They are also less appropriate to compensate for asymmetric effects of the crisis across SNGs within a country.

In contrast, special-purpose transfers facilitate the targeting of the increased support by the CG to the most impacted regions and localities, as well as the coordination of stimulus spending programs across government levels. They are, however, more easily subject to political manipulation, unless the criteria for their allocation and their use by recipient jurisdictions, are clearly spelled out and can be adequately monitored and enforced (which is not frequently the case, given the data limitations mentioned above).

A survey of its members by the OECD (2010) suggests that national governments in the area preferred earmarked transfers to general-purpose ones, the latter having been chosen only by Japan and the Scandinavian countries (for example, Finland raised the local governments' share of the corporate tax from 22 per cent to 32 per cent for the period 2009-11). Outside the OECD area, Russia also increased general-purpose transfers, alongside special-purpose ones, and Argentina raised temporarily the share of its export tax devoted to the provinces. The increased special-purpose transfers were used mainly to fund additional investment projects, and in some cases were targeted to regions especially affected by the crisis. As indicated in Section 2 above, some countries, such as Australia, took steps to strengthen existing mechanisms to monitor the use of the increased transfers by the recipient governments.

- *Temporary easing of legal borrowing constraints on SNGs*

Some CGs took steps to suspend balanced budget rules, or to temporarily ease budget or debt limits for SNGs, to allow them to accommodate wholly or partly the impact of the recession on their finances. For example, Sweden replaced temporarily the balanced budget rule for local governments with a less stringent "sound financial management" requirement. Spain passed legislation to allow municipalities to borrow in the market to settle arrears to their suppliers. Argentina enacted a new, significantly watered down, version of its Fiscal Responsibility Law. In Italy, as part of the anti-crisis package passed in early 2009, the Domestic Stability Pact – the set of rules governing sub-national fiscal behavior – was modified to provide some room for counter-cyclical policies, by allowing the exclusion of some additional expenditure from defined spending limits and the sale of assets to meet debt obligations. The experience of China, where the CG issued bonds for the provinces, is briefly described in Box 4. Finally, in some other countries, CGs simply did not react to breaches by their SNGs of existing debt or deficit limits.

While such approaches may have been instrumental in avoiding a pro-cyclical fiscal stance by SNGs in a number of countries, they involve significant moral hazard risks, potentially harming the credibility of fiscal rules and fiscal responsibility legislations in the future. Temporary suspensions of fiscal rules may not be easily reversed during the next upturn of the cycle, which argues for more permanent changes in the fiscal framework that would explicitly facilitate counter-cyclical responses in the future (see Section 5). Finally, a removal (or easing) of legal constraints on borrowing may not provide effective relief to SNGs, if they face market constraints on such borrowing.

- *Increased CG financing of SNGs*

A number of national governments moved to facilitate the financing of increased sub-national deficits through direct loans to their SNGs, or through guarantees of SNGs' borrowing from market or official (e.g., multilateral development banks) sources. For example, the Canadian government approved CAN\$ 2 billion in subsidized loans to municipalities, to finance improvements in housing-related infrastructure. The U.S. federal government subsidized (as part of its stimulus package) the so-called Build America Bonds, to fund a range of state and local infrastructure projects. Similar mechanisms were introduced in Switzerland. Brazil offered credits at below market terms to its states as a partial compensation for the loss of shared IPI

BOX 4
China's Relaxation of Sub-national Borrowing Constraints

Local governments in China are in principle subject to strict borrowing constraints. According to the 1994 Budget Law, local governments are not allowed to borrow from banks or issue bonds without prior authorization of the State Council. Similarly, the 1995 Guarantee Law requires prior authorization of the State Council for issuance of guarantees. On-lending from the central government has been the main financing channel available to local governments, mainly via external loans and treasury bonds issued by the central government.^(a) This channel has been used more intensely in the years following the 1998 Asian crisis, in particular to finance investment projects in specific sectors.

In 2009, as part of the fiscal stimulus measures, the central government decided to issue "sub-national government bonds" in the amount of RMB 200 billion (US\$30 billion). These bonds represent a novelty, as the issuer and debtor is nominally a provincial government, but the Ministry of Finance actually issues the bonds and guarantees principal and interest payments. According to the government, this initiative offers several advantages, compared to on-lending. These bonds can be more transparently recorded as sub-national liabilities; at the same time, the issuance by the central government lowers financing costs for sub-nationals; finally, the central government has more expertise in this area, thus ensuring some efficiency and promoting uniformity and common treatment in these transactions.

^(a) On-lent resources are usually earmarked for capital projects and disbursed directly to the project management; in these cases, the local government acts as a guarantor.

Source: China Ministry of Finance, 2009.

revenues resulting from selective cuts in that tax. Australia stepped up its guarantees for market borrowing by the states.

Interventions of this type may provide effective temporary relief for SNGs affected by the credit crunch, but pose moral hazard risks and should be granted only on the basis of fully transparent criteria, to avoid the risk of being used for political favoritism. At a minimum, CGs should create the right incentives for SNGs to repay these loans in the future by requiring adequate collateral (e.g., by allowing the withholding of shared revenues or other inter-governmental transfers to defaulting jurisdictions, as is done in Brazil).

4.2 SNGs' options to increase financing

A number of options are in principle available to SNGs to finance automatic or discretionary revenue reductions and/or expenditure increases. The availability and extent of these options in practice is likely to vary widely across and within countries, reflecting a range of economic and institutional factors. These options include:

- the launching of new public-private partnerships (PPPs) to fund planned expansion or maintenance of infrastructure. PPPs can be a useful mechanism to involve the private sector in

infrastructure projects, but, to ensure the desired efficiency gains from the partnerships, they need to be well structured, with an appropriate sharing of risks between the private and the public partners, and therefore require substantial know-how and lead-time for preparation. (Hemming, 2006) As such, they are unlikely to be usable on a significant scale for counter-cyclical sub-national investments;

- the launching of new concessions for the operation and maintenance of existing infrastructure. Although less demanding than new PPPs, these contracts also require significant local negotiating capacity and time;
- sales of existing sub-national real assets (e.g., buildings). The scope of this option may be limited during a crisis like the recent one, in which real estate values fell steeply in many countries;
- use of accumulated financial assets or bank balances (e.g., the so-called “rainy day funds”).⁶ This option may also be constrained by financial market conditions (*i.e.*, to avoid fire sales of the assets). Moreover, the experience so far in the U.S. states suggests that rainy day funds were not sufficient to finance the increases in deficits originated by the crisis. In any event, it is important that the use of such funds be guided by transparent criteria, specified in advance of the crisis, leaving little room for discretion, for example in the decision to start drawing on the fund and the speed of its utilization. In some other countries (for example, Colombia and Indonesia) previously accumulated cash balances have provided a useful buffer to mitigate the impact of the crisis;
- increased borrowing. As indicated above, this option may be more or less severely constrained by existing legal limitations. Even in the absence of such limitations, market conditions are likely to affect adversely the availability and terms of sub-national borrowing during a financial crisis. This was vividly demonstrated by the financing difficulties experienced by some U.S. states (e.g., California) and municipalities (that witnessed a sudden collapse of the municipal bond market in the peak months of the crisis). Finally, even if not constrained by statutory limits and/or market conditions, increased borrowing should only be undertaken by SNGs to the extent consistent with their medium-term debt sustainability. This of course implies that SNGs with initially low and well structured debts are better positioned to avoid pro-cyclical fiscal responses to a crisis like the recent one.

4.3 Counter-cyclical fiscal responses by SNGs

A number of SNGs used their available fiscal space – whether created by increased CG support, use of various financing options, or a combination thereof – to respond to the global financial crisis in a counter-cyclical way. In some cases (e.g., Denmark and Korea), this involved simply accommodating the operation of the automatic stabilizers discussed in Section 3 above (a passive counter-cyclical response). But others engaged in more active fiscal stimulus measures, through reductions in own taxes and/or discretionary spending increases.

In the OECD area, examples of counter-cyclical sub-national tax cuts can be found in Canada, Japan and Switzerland, as well as in some EU members (see OECD, 2010 for details). In general, tax reductions at the sub-national level would seem to be less efficient stimulus instruments than spending increases of equivalent cost to the budget. This is the case not only because multipliers tend to be higher for spending than tax measures, but also because tax cuts may promote a “race to the bottom” in sub-national taxation (which is already relatively low in most countries). Moreover, measures involving increases in exemptions or preferential treatments under

⁶ See Balassone *et al.* (2007), for an analysis of experiences with rainy day funds.

existing sub-national taxes reduce horizontal equity and strain the already limited resources of sub-national tax administrations.

Discretionary spending increases (sometimes as local counterpart for CGs' stimulus spending programs) were implemented by SNGs in a wide range of countries, both inside and outside the OECD area. They tended to focus in particular on: infrastructure investment, improvements in social assistance programs and, in some cases, support to local enterprises. The latter can in principle be effective in providing temporary, targeted support to activity and employment in especially affected, but ultimately viable, sectors. But, in practice it is often difficult to avoid that the support becomes entrenched and props up ultimately unviable firms.

4.4 *Pro-cyclical policy responses by SNGs*

Binding (statutory or market) financing constraints forced, however, pro-cyclical responses by many SNGs worldwide. These included both measures to boost own revenues and selective cuts in spending programs. The former ranged from increases in the rates of sub-national taxes, to reductions in exemptions, to increases in non-tax revenues, such as user fees. Rates increases (especially in excises on tobacco, alcohol, luxury goods and services, and out of state purchases; and in business and property taxes) were enacted by some SNGs in Australia, France, Sweden, the U.K. and the U.S. But more prevalent have been selective cuts in expenditure programs, including postponement of some previously planned investments. The composition of such cuts has been influenced in some cases by institutional rigidities, such as the entitlement nature of some spending programs, earmarking provisions, or other legal restrictions (such as the requirement that California devote a fixed share of its budget to education). Many SNGs implemented hiring freezes and/or used available flexibility in their employment legislation to enact layoffs of civil servants on their payroll.

5 **Lessons from experience**

As noted above, the recent global crisis has brought once again to the fore the stabilization function of fiscal policy. At the same time, it has rekindled a long-standing debate about the appropriate role of SNGs in this function. The traditional view in the literature (first put forward by Musgrave in his seminal textbook of 1959) has been that the comparative advantage of SNGs is in resource allocation; redistribution and, even more, economic stabilization are best carried out by the CG. Under this approach, SNGs should refrain from active counter-cyclical fiscal policies, although they may act as agents of the CG in carrying out expenditure stimulus measures decided and funded by the latter. This view reflects a number of considerations:

- first, the need to coordinate fiscal stabilization with other macroeconomic policies, notably monetary and exchange rate ones, that are a prerogative of CGs;
- second, the risk that SNGs engage in counter-cyclical fiscal expansions even if they do not have adequate fiscal space for such policies, a risk heightened by the "common pool" problem and by any perceived likelihood of eventual bailouts by the CG;
- third, the likelihood of significant leakages in the effects of sub-national countercyclical policies in an economic space (the nation) that is typically characterized by high mobility of goods and factors of production;
- fourth, the risks of adverse spillovers of individual SNGs' actions on other jurisdictions. For example, during a recession, some SNGs could engage in predatory tax competition, to bid away dwindling investment and job creation opportunities from other SNGs. Also, excessive borrowing, especially by large SNGs, to finance counter-cyclical spending could put upward

pressure on domestic interest rates, or lead to a generalized deterioration of spreads for the whole country;

- fifth, the fact that typically CGs have greater access to financing, and at better terms, than their SNGs, and therefore are better placed to finance countercyclical fiscal expansions during downturns;
- finally, the fact that CGs can redistribute budgetary resources across their SNGs, to counteract asymmetries in exogenous shocks affecting lower-level governments.

While these considerations are very significant, there are also counterarguments that are acquiring increasing importance as decentralization progresses around the world:

- first, with decentralization reducing CGs' share of total public spending and concentrating it in the less flexible expenditure categories, such as pensions and interest payments, CGs' scope for conducting counter-cyclical expenditure policies on their own is being progressively eroded;
- second, as demonstrated by the experiences of many SNGs discussed in the preceding sections, the impact of counter-cyclical policies of CGs can be significantly offset by pro-cyclical policies of SNGs;
- third, an approach that places the whole burden of economic stabilization on CGs' budgets undermines incentives for SNGs to build both fiscal space and institutional capacity to respond to cyclical developments and exogenous shocks;
- finally, sub-national fiscal responses to regionally asymmetric shocks (such as a decline in commodity prices) may be appropriate if the CG's response to the shocks does not properly take into account such asymmetries. Political economy considerations point to a risk that, in deciding the regional distribution of discretionary counter-cyclical measures, a CG may be unduly influenced by factors such as the political alignment of individual sub-national jurisdictions with the center. Even if the CG's countercyclical response takes the form of an increase in non-discretionary transfers, the allocation formula for such transfers across jurisdictions may not take adequately into account asymmetric effects of the shock.

Given the considerations above, we would argue that a more balanced view of the respective roles of CGs and SNGs is called for, especially in federal countries and in unitary ones that are characterized by relatively high degrees of fiscal decentralization. Such a view would center on the following main principles:

- first, it is increasingly crucial to minimize pro-cyclicality in sub-national budgetary policies. This would require SNGs to accommodate the operations of automatic revenue stabilizers, by saving the fiscal dividends of booms and sustaining expenditure levels in the face of cyclical revenue downturns. The case for such "passive" counter-cyclical policies rests on economic, as well as social, reasons. There is substantial empirical evidence (albeit mainly at the CG level)⁷ that pro-cyclicality tends to be stronger during upswings than during downswings, with upward ratchet effects on deficits and the public debt. Thus, minimizing pro-cyclicality also helps promote more sustainable fiscal positions over the longer term. Moreover, sharp fluctuations in public expenditure programs tend to have significant efficiency costs. This is evident in the losses generated by delays or cancellation of already initiated sub-national investment projects; but efficiency costs of abrupt changes in funding levels can be also significant for current expenditure programs, e.g., in education and health, which are increasingly a responsibility of sub-national governments. Finally, sharp retrenchments in socially sensitive sub-national spending programs during cyclical downturns can carry substantial social and political costs;

⁷ See, e.g., Balassone and Kumar (2007).

- second, there may be a case for “active” (discretionary) countercyclical sub-national fiscal measures to respond to regionally differentiated shocks across a national territory, especially if the CG response does not adequately take into account such asymmetries;
- third, it is essential to ensure that sub-national counter-cyclical policies:
 - are consistent with longer-term debt sustainability (see further below)
 - are symmetric over the cycle (*i.e.*, equally restrictive during booms as accommodative during downturns)
 - do not conflict with the fiscal stance of the CG; and
 - do not impose significant adverse externalities on other sub-national jurisdictions;
- fourth, it is important that SNGs build up their capacity to design and implement active countercyclical measures, when appropriate, in a transparent, relatively rapid and reasonably efficient manner, for instance by improving the targeting of their social safety nets, as well as their systems to select and execute public investments. This is the case also for countercyclical measures executed by SNGs on behalf of, and funded by, the CG. SNGs’ capacity weaknesses in this respect have often hindered the timeliness and effectiveness of CGs’ countercyclical fiscal policies in many countries.

The challenge is to design or reform inter-governmental fiscal arrangements so as to promote sub-national fiscal policies consistent with such principles. Although, of course, such reforms should be tailored to individual countries’ economic, political, social and institutional circumstances, a number of steps could help in this area:

- sub-national fiscal rules mandating the running of surpluses during boom periods, to build-up adequate reserves to finance cyclical deficits during downturns. The design of such rules is not a simple matter, especially in view of data limitations that hinder reliable calculations of the cyclical component of sub-national budgets.⁸ Nevertheless, approximate indicators, based on estimates of the national cycle, may be better than unadjusted balances to minimize pro-cyclicality in sub-national budgets. As an alternative, a combination of expenditure- and debt-based rules can help promote savings of revenue over-performance during boom periods and facilitate a sustainable countercyclical expansion during downturns;
- the creation, or strengthening, of institutional mechanisms to promote coordination of budgetary policies across government levels (such as exist in Australia, Germany and Spain to name a few). Discussions in such forums could include the coordination of planned sub-national tax measures, to minimize adverse inter-jurisdictional spillovers; and the identification of a pipeline of well-prepared investment projects – to be funded by the CG (or co-financed with SNGs) and implemented by the SNGs – that could be activated quickly as part of a counter-cyclical fiscal stimulus package;
- the (partial or total) assignment to SNGs of revenue bases (such as personal incomes and property) that tend to be relatively less elastic to the cycle. Similarly, the assignment to the CG of responsibility for expenditure programs (such as unemployment insurance) that are especially sensitive to the cycle;
- the introduction of smoothing (e.g., use of a moving average of CG revenues) or other counter-cyclical mechanisms in revenue-sharing formulas;
- strengthened cooperation between national and sub-national tax administrations, (e.g., through use of a common taxpayer identification number; conduct of joint audits; or at least systematic

⁸ As a copious literature on fiscal rules (see, e.g., Kumar and Ter-Minassian, 2007; and IMF, 2009) makes clear, the calculation of structural balances is fraught with significant difficulties concerning the estimation of output gaps and elasticities of various budget aggregates to changes in such gaps, as well as to other factors, such as developments in commodities and asset prices. These difficulties are magnified for SNGs by the frequent lack of reliable estimates of potential output at the regional or local level.

exchange of relevant information) to improve monitoring and enforcement of compliance with shared and sub-national taxes during recessions;

- reduction of earmarking and other rigidities hindering an appropriate prioritization of any unavoidable spending cuts by SNGs during downturns;
- the arrangement, on the part of SNGs with market access, of contingent credit lines to be activated during downturns to finance the increased deficits; alternatively, overfunding during boom periods, with the excess balances placed in rainy day funds to be drawn down during recessions. Of course, the financial cost of such strategies should be carefully analyzed and weighed against their benefits in terms of reduction of pro-cyclicality.

Many of these reforms could also contribute to the medium-term fiscal consolidation efforts that will be needed in many advanced and developing countries around the world in the years ahead.

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COMMENTS ON SESSION 3 FISCAL POLICY AND FISCAL RULES

*David Heald**

I have three quite diverse papers to discuss:

- 1) “The Great Crisis and Fiscal Institutions in Eastern and Central Europe and Central Asia” by Luca Barbone and Luis Álvaro Sanchez Baracaldo of The World Bank,
- 2) “Fiscal Multipliers in the Euro Area” by Esther Gordo and colleagues at the Bank of Spain and the European Central Bank,
- 3) “Fiscal Policy in Colombia and a Prospective Analysis After the 2008 Financial Crisis” by Ignacio Lozano of the Central Bank of Colombia.

These comments relate to the versions presented at the Perugia workshop, not to subsequent revisions.

Although their coverage and methodologies are different, there is a common theme – whether fiscal policy works. That sub-divides into two questions: (a) whether fiscal policy only works in extreme circumstances; and (b) whether there has been a rethinking of the consensus that the main weight should be on monetary policy, with fiscal policy set for the long or at least the medium term. That is not just a technical question for policymakers and economists, as governments have issues about this with their electorates. If not just in extreme circumstances, why has what seemed an established consensus suddenly collapsed with the global financial crisis?

Turning to Barbone and Baracaldo, my comments relate to the Powerpoint slides in the absence of a formal paper. It is striking that there are many things happening in overlapping time periods. First, there is the collapse of Communism and the transition to market economies, very variable experiences across the countries that are considered. Second, for some countries, there is preparation for membership of the European Union (EU), and for other countries it is actual membership of the EU. Thirdly there were big shocks in 1998 and again in 2008. The latter seems to have led to a rethink about the role of fiscal policy in a way that I do not believe happened equivalently after 1998.

Therefore, I want to pose a set of questions and then make a number of suggestions. These questions resonate across the workshop as a whole. The first question is the extent to which the evolution of events has changed views on the role of fiscal policy, and, if so, does that apply to “normal times” or solely to “abnormal times”? Moreover, one of the Powerpoint slides shows that GDP growth rates, and the changes in them from year to year, are exceptionally large in these countries.

The second question is to what extent a country can or indeed should prepare for unlikely but extreme events. Obviously if every country tries to run balance of payments surpluses and fiscal surpluses, that in aggregate has significant implications for world trade and the global economy.

The third question is how to distinguish false dawns from genuine transformations whereby one suddenly manages to run the economy at a macro level and a micro level much more efficiently and hence government finances are in a much better state. How does one distinguish between false dawns and real structural changes in economies?

Fourth is the question of how to respond to the big increases in government debt associated with the global financial crisis. These countries face quite different absolute levels of debt and, if

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they have access to capital markets, some countries would seem to have the ability to accept an increase in debt whereas other countries would not.

The fifth question relates to conservative oil price assumptions. I am not sure quite when “prudent” becomes “conservative”, meaning that the government is deliberately understating potential oil revenues. If the government is doing that, over time that will become obvious with a resulting loss of trust in government forecasts. This runs completely contrary to more general arguments in favour of transparency.

I will now move on to specific comments on the Powerpoint slides, which might be useful when Luca and Luis proceed from the slides to writing a formal paper. First, a difficulty with the slides is that there is a lot of moving backwards and forwards between different groups of countries and individual countries, particularly Russia; I found that difficult to follow at times.

Second, the formal paper needs to go back to the three questions¹ asked at the beginning of the presentation and either say they can answer those questions or they cannot.

My third suggestion is in the context of access to finance for infrastructure, where Public-Private Partnerships (PPP) are mentioned. That is one of the themes of my own research (Heald and Georgiou, 2010). I would very strongly urge countries to concentrate on the possible value-for-money benefits of PPPs and to resist using them as a way around fiscal rules.

Fourth is the question about putting fiscal institutions in place. It came up in Richard Hughes’ discussion of G20 (Hughes and Ljungman, 2010) but applies here probably even more. One has to be very careful about the distinction between what formal institutions are in place and how those institutions work in practice. One needs a large amount of country knowledge to be confident about the latter.

Moving on to the Gordo *et al.* paper, I would like to congratulate Esther and her colleagues at the Bank of Spain for an exceptionally informative paper which is helpful in allowing the reader to follow complex arguments. It is fairly standard in the way that it adopts a Structural Vector Autoregression (VAR) approach. One of the positive features of the paper is that it clearly relates what it does to other research, thereby positioning itself within the emerging literature of the 2000s, within which it emphasises Blanchard and Perotti (2002). Where necessary, the paper holds the reader by the hand and takes them through the comparisons and contrasts very clearly. This is a background research paper, not explicitly about policy at the moment and not about policy in terms of the response to the global financial crisis.

I have some issues that the authors should consider. Firstly, I was struck by the period covered which runs from the first quarter of 1981 to the fourth quarter of 2007, hence my comment that it does not cover the global financial crisis. I would need to be convinced that the United States, which has been a single country over that period, is actually comparable to the Eurozone where fiscal policy was run entirely independently in those countries for the first twenty years and has been run within the context of the EU Stability and Growth Pact and membership of the single currency for the subsequent period. One of the reasons why I think that is important is that the paper gets very plausible econometric results which tie up very neatly to the US findings. At one level this is very attractive but I think the paper needs to offer greater justification of why that comparison is believed to hold, given the entirely different constitutional and fiscal circumstances that exist in the US and the Eurozone.

¹ Those three questions are: (1) How the fiscal institutional reforms introduced over the last decade help manage the crisis and mitigate its impact; (2) How did fiscal policy prior to the crisis affect the readiness of the countries to deal with the crisis; and (3) What are the lessons and what fiscal priorities are emerging after the crisis?

My second point relates to the issue of data measurement. This might be covered in Paredes *et al.* (2009), Paredes being one of the joint authors of the Gordo paper. The issue is about generating quarterly fiscal data. I am an accountant by academic background and the reference to “mostly on a cash basis” is a reminder that one has to think carefully about the cash-accruals distinction. I did not understand the very brief reference to methodology where it talked about a mixed-frequencies state space model; this is outside my expertise.² I have been very heavily involved in the UK’s move from cash accounting to accruals accounting in government. When the UK moved in 2001-02 from cash to accruals one thing that emerged was that there were problems with the previous cash figures.

My third point is about periodisation. The Gordo *et al.* paper discusses the fact that the results for the US differ from those of Perotti (2004) when the sample length is taken as a whole, but for 1981 to 2000 the results are actually very similar. They make the point that the output multipliers are higher for both the US and EMU from 2000 onwards and I think it needs more discussion about why that might be so during that period. There was a suggestion that it might possibly be due to the global savings glut or to a decrease in global risk. Given what we now know about what happened in 2008 I find it difficult to believe that there was actually a decrease in global risk in the period 2000 to 2007. They also include dummy variables but the dummy variables for the period are not significant. This is an issue that I think needs further discussion.

Fourth, there is a reference in the paper to the decision whether or not a country entered EMU being taken on the basis of the fiscal deficit recorded in 1997. There is evidence of data manipulation, on which I would cite James Savage of the University of Virginia on the discussions between Eurostat and Greece in the run up to membership of the Eurozone (Savage, 2006). There is an issue about the data and what incentives there might have been to manipulate. In addition, this is another place where PPPs are mentioned and this raises the whole question of off-balance sheet transactions. The way in which these might affect the data used in the study is something that could usefully be discussed.

Ignacio Lozano’s paper is quite different from the first two because it is a case study of Colombia. The key results are that fiscal policy by central government in Colombia has been procyclical in the period 1960 to 2008. I would have been interested to know what would have happened if the measure was for general government but I do not know how important sub-national government is in the context of Colombia. Another interesting finding is that fiscal volatility was highest in the 1990s during the period of highest growth. Colombia generally seems to be coping well with the global financial crisis. If the increase in public debt is only 10 per cent as a result of the crisis and that is for the consolidated public sector, then many other countries would be pleased with that outcome.

When the paper is revised for publication there needs to be more discussion about how much confidence one can have in output gap calculations. Again, I do not know about Colombia but output gap calculations for the UK suggest that one should be somewhat careful; obviously, the cyclically adjusted figures depend on what you think the output gap is.

Secondly, Lozano (p. 488) notes that “The adoption of fiscal rules has become an institutional strategy for most OECD countries and for several [Latin American countries]”. I can see why Colombia is attracted to fiscal rules. The circumstances whereby it lost its investment grade rating in the 1990s are not explained but, given that other countries around it have investment grade rating, I can see the attractions of trying to re-acquire it. I can see that fiscal rules have some potential significance but when you can get hit by fiscal shocks, whose severity nobody could have

² In the words of Gordo: “In the case of the euro area ..., fiscal data have been taken from a newly available quarterly fiscal data set compiled by Paredes *et al.* (2009). They employ intra-annual fiscal data, mostly on a cash basis, in a mixed-frequencies state space model to obtain quarterly fiscal data for the aforementioned period [1981 Q1 to 2007-08 Q4]” (p. 521).

anticipated, I would take the view that fiscal rules need to be supplemented by very clear escape clauses and also by a requirement on governments to be transparent and give explanations.

Finally, returning to the data manipulation problem, we know that if governments are tied in by what they perceive as arbitrary rules unconnected with present circumstances, they will find ways to circumvent them. While understanding why Colombia would be attracted to fiscal rules in terms of its international profile, I would reinforce the general point that transparency about what is happening is just as important as fiscal rules.

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COMMENTS ON SESSION 3 FISCAL POLICY AND FISCAL RULES

*Christian Kastrop**

Some remarks on the papers by Barrios, Langedijk and Pench and by Creel and Saraceno

I would like to discuss both papers not on technical terms but taking them as an important part of an ongoing debate about the outgoing (?) crises.

Not only the present but also the future role of fiscal policy is at stake. The role of fiscal policy is a crucial part of the exit strategies, but it is also very important to strengthen our future crises mitigation and adaption system.

Both papers reflect quite important questions on fiscal policy, e.g., on the possible interplay of nominal/real exchange rate depreciation/devaluation with consolidation results and on the role of discretionary fiscal policy concerning (also potential) output.

The main finding of Creel and Saraceno is that empirical evidence shows that discretionary policy could and should still play an important role, and that it could still be a necessary complement, as automatic stabilizers might be ineffective. The Ricardian view conditions are not met, there are no full rational expectations.

Generally speaking, this could lead to a more critical view of rule-based fiscal policy as the underlying paradigm of the SGP. A follow-up question, however, would be if the partly/temporary missing rational conditions could really be crucial for a rule-based policy or whether we have to look at other variables too to judge a concrete case.

The main finding of Barrios *et al.* is that, analyzing consolidation episodes, the best chance of a successful consolidation is given rescuing the banks first, and then implementing a vigorous consolidation policy (“cold showers”). If the initial debt level is high, this approach should be tough and sustained, while in countries better off, *i.e.* with some “fiscal space”, a more gradual approach seems preferable.

This result supports the main core of arguments concerning high-debt countries. The general reasoning here might be that better-off countries (Germany *et al.*) might be too tough now. Again, the question might be whether there are other elements to take into consideration. If, in the single currency zone, one anchor country loses credibility – even if this happens only within the country – there could be negative spill-overs in the whole Eurozone. And this might happen even if that country’s electorate is oversensitive to debt, compared to other countries.

Barrios *et al.* also conclude that nominal or real exchange rate variations, enacted in order to affect export-led growth, do not facilitate consolidation efforts, even if databases show that for certain cases this statement looks like a generalization. It probably should be checked against different packages of structural reforms, e.g., macro wage packages/social security packages and micro measures enhancing competitiveness and their respective fiscal costs.

It seems somewhat odd that a well-designed export-led growth strategy would not eventually give some positive impact on (potential) growth.

Having said this, let me offer some German views, which of course are entirely personal and do not reflect the view of the Ministry. It is very valuable and timely to discuss such questions.

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Indeed, the institutional architecture and the design of “real” policies might be more crucial now, as globalization will not vanish – quite the opposite, in fact. Therefore, cross-fertilization via financial, fiscal and macro/micro channels will be the forced rule in the 21st century economies.

We still see a rule-based policy in line with a (reformed) SGP as the foundation of the house of fiscal policy. It is an indispensable mainstay for a stable and successful monetary union. In the short run, this means a sensible consolidation as part of a credible exit strategy. At the very least, the German view is that, in addition to the argument that fiscal space in this context does not come too late, there is also the risk that a belated withdrawal of macro/fiscal support (tax cuts, expenditure increase) could be pro-cyclical, hamper credibility and create higher deficits – especially when the population gets used to some of the measures implemented.

Let’s take Germany as an example: the large scale enlargement of short-term labour support really played a part in the German success in crises response. Trade unions soon come to look very favourably on an instrument that nevertheless bore high public and private costs. However, making use of this enlargement as a regular recourse would worsen considerably both labour costs and public budgets.

However strong Ricardian effects might be in specific times/cases, in the medium and long run a balanced budget approach makes sense, together with a focus on potential growth. This especially holds for highly developed ageing societies that do not have natural resources, anticipating their respective foreseeable and unavoidable fiscal challenges.

Therefore, in the long run, we clearly see a Ricardian approach in fiscal policy focussing on sustainability and quality of public finance. And, of course, this is the core philosophy behind the German paradigm change concerning the deficit rule in the constitution, which will be very close to the MTO of the SGP.

The last point I would like to make concerns the question whether this is sufficient to tackle the crises.

First, of course, I would not wish to argue that the German view applies necessarily to other countries, as all specific conditions – in the economy, in policy and in society – differ, and this variety of situations is acceptable and even favourable for a federal EU architecture. Each country should make up its own mind – aware, however, of the possibility of spillovers. There should perhaps be some outer limits of policy responses for the eurozone countries, but this is beyond the scope of these comments.

However, I strongly believe that the German response is not only good for Germany but also a big safeguard for the credibility of the eurozone as a whole – positive even for those countries in trouble with sovereign debt. But, of course, Germany has to deliver more, also on macro/structural terms, on opening markets, education and health and it is clear it has to strengthen the internal demand – with one condition: not at the expense of competitiveness, fiscal solidity and credibility.

Second, there is something missing. We have to build additional credible and market-oriented support/debt restructuring mechanisms for sovereign liquidity and, most of all, for solvency problems – complementary to the SGP. This has to be worked out within this year or we will all be in serious trouble.

COMMENTS ON SESSION 3 FISCAL POLICY AND FISCAL RULES

*Jana Kremer**

1 Introductory remarks

Fiscal policy needs rules. This is because policy makers (and their voters and advisers) tend to accept high deficits and debt “in the short term” in the pursuit of various worthy goals, while leaving the task of achieving sustainable public finances for the future. Excessively high debt is the consequence, which eventually limits the room to manoeuvre in terms of fiscal policy. As the financial market crisis and the rapid swings in confidence in public finances in some countries have shown, there is a need for both effective rules for ordinary times and appropriate exemption clauses for exceptional circumstances. A key challenge when designing an exemption clause is to provide some flexibility while at the same time preventing the exemption from becoming the rule and ultimately subverting the objective of the original rule. The discussion about fiscal stabilisation measures in the context of the crisis and about how to exit from them underscores the difficulty in this regard as it shows that there is no consensus about the exact nature of an “extraordinary event” (as distinct, for example, from an unpleasant event) and the appropriate policy response.

An important aim of fiscal rules for ordinary times is to support a sustainable fiscal policy by curbing the deficit bias. As a side product, this helps to ensure that public finances are in good shape when an emergency arises. A major difficulty for fiscal rules in crisis as well as ordinary times is the significant uncertainty when forecasting public finances and the difficulty defining (conceptually and in practice) appropriate indicators and quantitative thresholds to mechanically assess the state of public finances. Here, an independent fiscal agency or another monitoring arrangement that provides policy makers and the public with information on public finance developments and prospects, and evaluates specific fiscal policy measures can play an important role. However, since there is often no consensus about the state of public finances and the best policy measures, responsibility ultimately lies with elected parliaments and governments (or sometimes, where the issue is compliance with legislation, with the courts). At the same time, the large degree of uncertainty suggests the advisability of prudent fiscal planning and an adequate adjustment mechanism, which implies a smooth (preferably non-cyclical or anti-cyclical) and efficient correction after unintended deviations from fiscal plans. Another issue is enforcement in case of intentional rule-breaking. Besides political economy aspects, enforcement is complicated since plausible reasons will often be put forward to justify a violation of the rule. If the rule includes smooth adjustment mechanisms for cases of truly unexpected developments, enforcement can be more rigorous, however.

The two interesting contributions “Fiscal Institutions in New Zealand and the Question of a Spending Cap” by Tracy Mears, Gary Blick, Tim Hampton and John Janssen, and “Impact of the Global Crisis on Sub-national Governments’ Finances” by Teresa Ter-Minassian and Annalisa Fedelino highlight important aspects relating to fiscal institutions, fiscal rules and fiscal stabilisation policy. The discussion in the following sections partly draws on the observations outlined above.

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The views expressed here are those of the author and do not necessarily reflect those of the Deutsche Bundesbank.

2 Comments on “Fiscal Institutions in New Zealand and the Question of a Spending Cap” by Tracy Mears, Gary Blick, Tim Hampton and John Janssen

The paper starts by describing fiscal developments and the performance of the fiscal policy framework in New Zealand over the past decade. Generally, the authors attest a good performance regarding net debt. This raises the question of how the institutions would have performed in bad times and how reliable net debt, which is difficult to measure, is as an indicator. As a crucial problem within the current fiscal framework the authors identify that it did not prevent the strong rise in government spending in relation to GDP after 2004-05. Even though the expenditure ratio is still relatively low by international standards, the increase is problematic if it is related to the spending of temporary revenue windfalls and reflects a suboptimal rise in spending in good times. To the extent that spending was too high because of a lack of timely information on the true state of the economy and public finances – which is probably the case at the current junction, but may not have been the problem in the first years after 2004 – one would not necessarily speak of a failure of institutions, but rather rethink the quality of budgetary forecasts and the set of fiscal indicators employed. However, taking into account the known forecast uncertainties and considerable forecast errors, which complicate public finance analysis,¹ it also seems warranted to consider additional thresholds or limits that can support a sustainable fiscal policy with a medium-term orientation.²

Against this backdrop, the authors propose a spending cap as an additional element of fiscal institutions in New Zealand. Several general caveats apply to spending rules. For example, the delineation is often unclear, in particular in terms of tax expenditures, outsourcing activities or price effects. Furthermore, an increasing expenditure ratio might not be due to a spending bias and therefore be suboptimal. Instead it might be the consequence of evolving preferences over time (e.g., increasing preference for social security). Keeping these caveats in mind, the proposed spending cap can help to prevent unexpectedly high revenue from being spent immediately (as would be possible within the confines of the current deficit rule). It has to be noted, however, that the proposed cap is relatively complex. *Inter alia*, several budgetary items are excluded from the cap, which might aggravate the problem of delineation. With regard to unemployment expenditure, it seems to be more straightforward to adjust this item for cyclical factors than to exclude also its structural development from the cap. Generally, one might consider defining the cap in terms of cyclically-adjusted expenditure and to take (expected) developments of trend nominal GDP – as a reference line for a neutral expenditure path – into account.

As an alternative to the spending cap that would avoid some of the problems with spending rules outlined above and address more directly the problem that unsustainable revenue windfalls might be spent under a deficit rule, one might consider capping fiscal loosening after unexpectedly favourable developments in terms of cyclically adjusted tax revenue. This forms part of the proposals by Kremer and Stegarescu (2009).³ It – as similarly in Mears *et al.* – also addresses the problem that overly strict rules might be procyclical in case of negative revenue surprises (which often coincide with bad times). To this end, it is proposed to combine a target for the cyclically adjusted deficit ratio with a symmetric and gradual adjustment mechanism to return to the target after an unexpected revision of the forecast for cyclically adjusted tax revenue. Furthermore, the

¹ See, e.g., Morris *et al.* (2009), “Explaining Government Revenue Windfalls and Shortfalls: An Analysis for Selected EU Countries”, ECB, Working Paper, No. 1114, regarding the problem of measuring the “underlying fiscal position”.

² In addition, it might be worthwhile further investigating the role of the distinction between formula-driven indexed items and others in the current framework. Ex ante indexation might be particularly problematic in times of negative growth surprises. Furthermore, with stricter rules – as for example with an additional spending cap – the issues of transparency, bypassing and enforcement of rules might become more relevant.

³ Kremer, J. and D. Stegarescu (2009), “Neue Schuldenregeln: Sicherheitsabstand für eine stetige Finanzpolitik”, Wirtschaftsdienst 09/2009, pp. 630-36 (English version available).

need for and adequate size of safety margins – which is also an issue in the proposal of Mears *et al.* – are discussed.

3 Comments on “Impact of the Global Crisis on Sub-national Governments’ Finances” by Teresa Ter-Minassian and Annalisa Fedelino

Against the backdrop of the recent experiences, Ter-Minassian and Fedelino address problems that arise if cyclical conditions and economic shocks differ between regions and if fiscal policy is not adequately coordinated between different government levels. In this case, the policy pursued in one region or government level may offset the (discretionary or automatic) fiscal impulse of another region or level. Furthermore, spillover effects or the specific assignment of competences mean discretionary fiscal stimulus may be more effective if coordinated between regions and levels. In addition, achieving sustainable public finances is a common task for all government levels. Generally, these observations demonstrate that the design of fiscal rules at all government levels should be consistent with the overall fiscal policy aims and highlight, in particular, the importance of sub-national fiscal rules – where details naturally depend on country-specific federal structures.

In this context, the distinction between the rules for ordinary times (e.g., ordinary economic cycles) and exemptions for extraordinary events (e.g., current crisis) appears highly relevant. Generally, the recent experiences in times of crisis do not seem to suggest a fundamental review of discretionary stabilisation policy and fiscal federalism issues in ordinary times. Given the familiar problems of regular economic fine-tuning, a discretionary stabilisation policy during ordinary economic cycles does not appear advisable – be it coordinated or uncoordinated between different government levels and regions. In terms of major obstacles, namely the lack of suitable methods to assess economic conditions in real time (where scepticism has grown rather recently) and the asymmetry of fiscal policy interventions owing to the political debt bias, the fine-tuning of fiscal policy to specific regional developments is most likely even more error-prone than stabilisation policy at the national level.

On the other hand, reforms that allow a smoother working of automatic stabilisers in federal states, for example a better alignment of the fiscal rules at specific government levels and improvements to the degree of volatility of the respective budgets, could be addressed more seriously. In this context, shifting cyclical budgetary fluctuations to higher (central or state) government levels by providing regional levels – in accordance with mainly exogenous expenditures and balanced budget rules – with stable revenue (via transfers from higher to regional level) and a moderate fiscal equalisation system among regions to dampen asymmetric regional shocks on public finances seems relevant. In addition, the crisis underscored the need to design exemption clauses for “extraordinary events” more carefully. An important task here is to prevent over-fulfilment in the sense that overly broad exemption clauses might undermine fiscal policy aims in ordinary times. With a view to federal structures, some shortcomings in dealing with extraordinary events were revealed during the recent crisis. In particular, for the timely and efficient implementation of discretionary stabilisation measures in the case of an extraordinary, self-reinforcing economic downturn (e.g., speedy increases in government investment by regions that might face binding budget constraints), the demands placed on a fiscal federation in terms of coordination and monitoring might be higher than in ordinary times.

