INTRODUCTION

Marika Cioffi,[*] Daniele Franco[*] and Maria Rosaria Marino[*]

The economic downturn and its severe impact on public finances and long-term growth prospects have rekindled the debate on the role, design and priorities of fiscal policy. The limited effectiveness of monetary policy when interest rates are very low, together with the added challenge of dysfunctional credit markets, gave rise to a renewed consensus on the complementarity of monetary and fiscal policies. The role of fiscal policy in stabilising the economy and providing stimulus for a prompt recovery was largely recognised.

As the consequences of the crisis became more and more dramatic, policymakers began inquiring whether the role of fiscal policy for stabilisation purposes should differentiate between ordinary and extraordinary times. In particular, the adequacy of automatic stabilisation under exceptional circumstances was questioned. In fact, while the timely and temporary "free play" of the automatic stabilisers is commonly considered sufficient to ensure fiscal stabilisation during ordinary times, their scope has been found to be too narrow when there is a severe recession.

Despite initial reluctance, the risk of economies being locked into a state of depression paved the way in many countries for exceptional resort to discretionary fiscal stimuli. Crisis-related discretionary stimulus measures in the G-20 countries averaged about 2 per cent of GDP in both 2009 and 2010. The design of stimulus packages varied significantly in size, depending on macroeconomic conditions and priorities. While the United States swiftly approved massive increases in government expenditure, European governments adopted comparatively prudent measures, relying on the working of larger automatic stabilisers. The composition of stimulus packages was also highly heterogeneous.

The overall budget deficit of the advanced G-20 economies increased from about 1 per cent of GDP in 2007 to 9 per cent in 2009. Structural budgetary positions, in some cases already relatively weak on the eve of the crisis, grew substantially worse in many countries. This, and the rapid build-up of public debt in many countries, constrained the further use of fiscal policy to support the economy and made prompt fiscal consolidation a necessity.

The policy debate rapidly shifted to the timing, pace and procedure for withdrawing extraordinary measures, seeking to balance concerns about fiscal sustainability and consolidation with the need to avoid an overly rapid phase-out of fiscal support. In the aftermath of the crisis, it became evident that the pace of financial consolidation and the optimal debt-reduction path are highly dependent on government credibility: if markets are not completely confident in the government's solvency, the high risk premia paid on public debt provide the rationale for a programme of rapid debt reduction, in contrast with the theoretical prescription of optimal tax smoothing and debt stabilisation.

The reform of fiscal frameworks gained momentum. A strengthening of national fiscal institutions, in the three dimensions of evaluation, planning and implementation, was recognised as crucial to consolidation. The need for rules requiring budget surpluses during cyclical upturns and the maintenance of prudent levels of public debt became even more evident. Medium-term frameworks were deemed essential to ensure the sustainability of public finance. The debate focused on expenditure rules and the role of independent fiscal councils. In the European framework, a consensus emerged on strengthening the Stability and Growth Pact and introducing additional provisions for addressing macroeconomic imbalances.

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[*] Banca d'Italia, Structural Economic Analysis Department.

Fiscal developments during and after the crisis pose several challenges to fiscal policy analysis. Were automatic stabilisers adequate? Which discretionary actions were more effective? What is the additional evidence about the size of multipliers? Was international cooperation adequate? Which fiscal frameworks proved more effective? How should fiscal priorities and tools be modified to cope with the consequences of the crisis? In the euro area there is both a national and a European dimension.

The papers presented at the workshop were organised in four sessions, mirrored by the sections of this volume. Section 1 examines the lessons of the crisis for the role of automatic stabilisers and discretionary fiscal policy. Section 2 investigates the effects of policy actions on the economy. Section 3 considers the impact of the crisis on fiscal policy rules and procedures. Section 4 deals with the legacy of the crisis and the policy actions required in the coming years.

1 Automatic stabilisers and discretionary fiscal policy

Session 1 contains papers dealing with the role of automatic stabilisers and discretionary fiscal policies during the crisis. The first paper focuses on the discretionary measures introduced by EU member states. The second examines the differences in the effectiveness of policy measures in recessions as opposed to normal times. The third paper discusses fiscal policies before, during and after the crisis. The last four papers present empirical exercises evaluating the effects of automatic stabilisers and discretionary measures in different countries using different methodologies.

The paper by Fischer and Justo deals with the discretionary measures introduced by EU member states in response to the crisis. It provides a broad overview of the types of crisis-related measures taken and an estimate of their size. On the aggregate level, it appears that the discretionary support was timely, temporary and targeted, and that the countries with limited fiscal room did generally take a more restrictive stance than those with more room for manoeuvre. The paper also looks at how discretionary measures complemented automatic stabilisers. Fischer and Justo find that about half of the discretionary measures involved areas already covered by automatic stabilisers, while the other half supported especially hard-hit industrial sectors and population groups as well as public investment. The overall outcome suggests that it was helpful to have *ex ante* principles for the provision of discretionary stimuli. The actual provision of discretionary stimuli under such conditionalities reinforced the budgetary stabilisation capability in a flexible way.

Bouthevillain and Dufrénot use a transition probability Markov switching model to argue that the impact of changes in budgetary variables on real GDP, investment, consumption and employment varies in sign and magnitude in times of crisis and non-crisis. The analysis shows that fiscal variables have an asymmetric effect on these macroeconomic variables. These nonlinearities are both frequent and significant. In particular, if one considers the GDP aggregate, public expenditure has a stronger impact during crises and the expenditure multiplier is greater than the tax multiplier. The consequence is that, during periods of crisis, an expenditure-oriented stimulus plan can be more effective than a tax-based recovery plan. Tax-oriented measures are effective only when private investment and employment are at stake. If households are sensitive to the unemployment situation, tax cuts will not bring about an increase in consumption; larger transfers would be much more effective.

Schuknecht discusses activist fiscal policies during good times, the crisis period and the post-crisis period. First, during the boom, fiscal policies were overly imprudent, due in part to real-time measurement problems. Then, during the bust, the analysis of the roots of the crisis should have gone deeper, avoiding the excessive emphasis placed on the need for activist fiscal demand support. Although the balance sheet nature of the crisis was largely unacknowledged,

significant fiscal measures to support balance sheets were introduced. Scant attention was paid to the fiscal consequences of facilitating the restructuring of economic sectors and the downward adjustment of aggregate demand that had reached unsustainable dimensions during the boom. The author recognises that fiscal exit strategies are being developed and implemented to correct unsustainable fiscal balances. However, policymakers are taking too long to focus on the underlying strategies, as in the case, Schuknecht argues, of expenditure reforms. The paper draws three lessons for activist fiscal policies: i) apply prudent expenditure policies during the boom years and improve the gauging of the fiscal stance; ii) target fiscal policies to the true causes of a crisis; and iii) avoid delay in correcting fiscal imbalances and focus on remedying unsustainable expenditure ratios.

Hamburg *et al.* examine public finance developments in Germany and Italy in 2009 and find that the larger stimulus measures adopted in Germany were associated with a more favourable underlying trend in the German budget balance. Overall, the cyclically-adjusted primary balances deteriorated by a similar extent in the two countries. The automatic stabilisers are estimated to have had an impact of a similar magnitude on the deficit in Germany and in Italy. Given the fiscal conditions in 2008, it is not surprising that the size of the discretionary measures adopted by the two countries were at the opposite extremes of the gamut of reactions of all European governments. Hamburg *et al.* then assess the macroeconomic impact of discretionary measures and automatic stabilisers on the basis of counterfactual simulations with the econometric models of the two countries developed by Deutsche Bundesbank and Banca d'Italia. Altogether, discretionary measures and automatic stabilisers counteracted the fall in real GDP in 2009 by more than 2 percentage points in Germany and by 1 point in Italy. The difference reflects both the size of the stimulus measures and the higher fiscal multipliers in Germany.

Follette and Lutz examine fiscal policy in the United States at both the federal and state and local levels and look at the effects of automatic stabilisers and discretionary fiscal actions in three steps. First, they provide the figures for the effects of the automatic stabilisers on budget outcomes at the federal and then at state and local levels. For the federal government, the deficit increases by about 0.35 per cent of GDP for each 1 percentage point deviation of actual GDP relative to potential GDP. For state and local governments, the deficit increases by about 0.1 per cent of GDP. The authors then examine the response of the economy to these automatic stabilisers by comparing the reaction to aggregate demand shocks with and without them. Second, the paper discusses the effects of discretionary fiscal policy actions at the federal and state and local levels. Federal policy actions are found to be counter-cyclical: expenditures and tax actions are more stimulative after a business cycle peak than before it. By contrast, state and local policy actions are pro-cyclical, probably reflecting constitutional restrictions on general fund budget balances. Lastly, Follette and Lutz evaluate the impact of the budget, through both automatic stabilisers and discretionary measures, on economic activity over the past two years.

The paper by Daude *et al.* measures the cyclical component of fiscal balances using the standardised OECD methodology. At the onset of the international financial crisis of 2008-09, many indicators suggested that Latin American economies were facing it on relatively more solid macroeconomic ground than in the past, both in monetary and fiscal terms. Inflation-targeting regimes made monetary policy more credible; large budget surpluses and low debt-to-GDP levels gave some countries unprecedented fiscal margins to pursue sustainable counter-cyclical fiscal policies. The success of these counter-cyclical responses is still unclear, and will largely depend on the size of the programmes and their actual impact. Besides, in the wake of the international financial crisis, there was no consensus on whether the recent fiscal improvements were cyclical or structural. The paper presents updated original estimates of cyclically-adjusted fiscal balances for eight Latin American countries from the early 1990s to 2009, implementing the standardised

OECD methodology and regional-specific adjustments for the impact of commodity prices. Standard debt sustainability exercises are also performed.

Rezk *et al.* argue that the impact of the world financial crisis on Latin America was buffered by lower external private and public debt exposure and better macroeconomic fundamentals, which reduced the negative effects of turbulences on financial systems. Nevertheless, negative effects soon arose from the external sector. The paper stresses that the main causes of the recent weak economic performance of Argentina lie in domestic economic policies. These policies sometimes amplified the negative impact of the international crisis. Government revenues grew in relation to GDP, though at a decreasing pace. The increase in primary expenditure in 2008 was not due to measures aimed at counteracting the effects of the international financial crisis but rather to decisions to maintain subsidies and freeze the tariffs of public services and utilities, and to generalised increases in capital outlays. The low level that the primary surplus fell to in 2009 originated in expansionary fiscal policies decided in 2007. Although the sensitivity of tax revenue to the economic cycle increased and stabilised at around 30 per cent in 2009, the automatic stabilisation proved insufficient and discretionary measures became necessary.

Brender disagrees with the main point of Bouthevillain and Dufrénot's paper. He argues that one should consider non-linearity in the effectiveness of various policies during recessions (*i.e.*, evaluating whether effectiveness changes when a recession has exceptional features) rather than differences between the performance of policy measures during recessions compared with normal times. Brender recommends extreme caution in moving from theoretical analysis to actual policy prescriptions. He offers several suggestions to improve the specifications of the model so as to avoid results that are driven mainly by the specific features of the model. Turning to the Fischer and Justo paper, Brender recognises the usefulness of the dataset on the policy measures adopted by EU members and agrees with the approach taken in the paper, but objects that the paper provides too little analysis.

Langenus agrees with Schuknecht's analysis but adds some points to the discussion. He contends that as long as one accepts that the current assessment of the cyclical position depends on projected future developments, estimates of structural balances will continue to present some degree of uncertainty. In addition, it is necessary to bear in mind the unreliability of the government accounts of certain countries, a situation that demands reforms both at the national and the European level. Langenus also notes that the crisis provides an ideal opportunity to rethink the design and implementation of the EU fiscal rules. The crisis showed that a much broader assessment of fiscal risks is necessary: greater attention should be paid to public debt developments, implicit liabilities and macroeconomic imbalances. Langenus finds the paper by Hamburg *et al.* offers an excellent empirical assessment of the fiscal reaction to the crisis in Germany and Italy. However, he argues that, by focusing on stimulus measures and automatic stabilisers, the authors neglected the differences in budgetary trends, even though they recognise that these can be important and that the "bottom-up" measurement of fiscal stimulus may give a misleading picture of the actual fiscal policy loosening. Langenus recommends further developing the comparison of government actions in each country with a neutral benchmark. He also suggests working on qualitative issues pertaining chiefly to the third T of the 3T principles, to assess how appropriately "targeted" were the measures.

Larch observes that the papers by Follette and Lutz, Daude *et al.* and Rezk *et al.* illustrate the persistent lack of clarity about just what automatic fiscal stabilisers are and how their effectiveness should be assessed with respect to output smoothing. Follette and Lutz, as well as Rezk *et al.*, take the approach that automatic stabilisation results from changes in revenue and expenditure produced by cyclical swings in economic activity. Alternatively, Daude *et al.* interpret automatic stabilisation as resulting from the inertia of discretionary spending over the cycle, but with some inconsistencies. In particular, when discussing the concept of automatic stabilisation, they refer to

cyclical swings of revenues, but in estimating the size of automatic stabilisers they follow an approach – developed by the OECD – according to which the strength of stabilisation is largely determined by the size of government. This issue becomes important for assessing the effects of automatic stabilisation on output, because it affects the definition of the benchmark against which those effects are to be gauged. When simulating the effect of automatic stabilisers on output, Follette and Lutz and Rezk *et al.* define the neutral budget as one in which revenue and expenditure are invariant with respect to output; Daude *et al.*, by contrast, use a benchmark in which both revenue and expenditure change in line with output. While equally arbitrary from an *ex ante* point of view, the two benchmarks have very different implications when it comes to assessing the extent to which automatic stabilisers help mitigate output fluctuations.

2 Fiscal impulse

Session 2 examines the impact of policy actions on the economy. The first four papers look at the links between fiscal policies and the macroeconomic situation and assess and measure the effectiveness of fiscal policies in stabilizing the economy. The fifth paper provides an insight into the spillover effects of the fiscal measures adopted by foreign countries on a small open economy. The last three papers examine how fiscal policy may help lessen or, on the contrary, exacerbate financial turmoil.

Debrun and Kapoor revisit the empirical link between fiscal policy and macroeconomic volatility. Their analysis provides strong support to the view that fiscal stabilisation operates mainly through automatic stabilisers. By contrast, fiscal policies systematically linked to cyclical conditions do not appear to have a significant impact on output volatility, and changes in fiscal variables not systematically related to the business cycle generally seem to increase output and consumption volatility, possibly owing in part to conflicts with monetary authorities. Debrun and Kapoor are aware that the last two results may suffer from a simultaneity bias because certain sources of budgetary volatility are correlated with output volatility; and they observe that even if financial development seems to exert a moderating influence on income and on consumption growth, robustness tests indicate that it may proxy the role of other country-specific features not included in the analysis. Concerning monetary policy, central bank independence is associated with lower volatility, provided that the interaction between monetary and fiscal policies is taken into account. In terms of policy implications, Debrun and Kapoor claim that fiscal policy is unambiguously effective at stabilising the economy when it operates in the same way as automatic stabilisers, and that governments could also contribute to macroeconomic stability by subjecting the pursuit of other objectives, such as redistribution or efficiency, to a "stability test".

Van Brusselen focuses on fiscal stabilisation providing an overview of the theory and empirical evidence on the effects of fiscal policies implemented in the context of the recent global recession and financial distress. Using the NIME model of the Federal Planning Bureau, he calculates that in the first year of its implementation the European Commission's Recovery Plan would raise the GDP of twelve euro area countries by 0.77 percentage points with respect to the baseline. The initial effect would be to increase private sector output, creating about 200,000 jobs in response to the rise in public consumption. The ensuing increase in household income would raise private consumption expenditure. The second half of the stimulus package, to affect the economy in 2010, would raise GDP by 0.62 percentage points. This lesser impact is related to higher inflation and real imports and to a slight increase in nominal interest rates. Over the period 2011-15, the effects of the stimulus package on output would decline, with real GDP gradually falling back toward its baseline level. Finally, Van Brusselen addresses the question of where the world economy is headed, given the generally unsustainably high levels of public sector deficits

and debt and the possibility that the global financial crisis will have lasting adverse effects on potential output levels.

In Röger and in't Veld's paper a multi-region DSGE model with collateral-constrained households and residential investment is used to examine the effectiveness of fiscal policy stimulus during a credit crisis. The paper explores alternative scenarios that differ according to the type of budgetary measures, their duration, the degree of monetary accommodation and the level of international coordination. An increase in households facing credit constraints, together with the fact that the zero lower bound on nominal interest rates has become binding, increases the effectiveness of temporary fiscal stimulus measures. In particular, the presence of credit-constrained households raises the marginal propensity to consume out of current net income and makes fiscal policy a more powerful tool for short-run stabilisation; credit-constrained consumers react even more strongly to a fall in real interest rates, which can occur when monetary policy can be accommodative towards the fiscal stimulus. While this suggests a larger role for fiscal policy in the euro area, in many of the member states in central and eastern Europe interest rates were generally higher. As it is less likely that monetary policy in these countries can accommodate the fiscal impulse, their fiscal policy turns out to be less effective than in countries where nominal interest rates can be kept unchanged and real interest rates allowed to fall. However, even when monetary policy cannot accommodate the fiscal impulse, well-designed fiscal stimulus measures can still help to soften the impact of a crisis and mitigate its detrimental effects on potential growth.

Valli Jorge and De Carvalho use an extension of the ECB's New Area-Wide Model (NAWM) to model a fiscal policy that pursues primary balance targets in order to stabilise the debt-to-GDP ratio in an open and heterogeneous economy where firms combine public and private capital to produce their goods. The model has been extended by broadening the scope for fiscal policy implementation and allowing for heterogeneity in labour skills; the domestic economy is assumed to follow a forward-looking Taylor-rule consistent with an inflation-targeting regime. The model is then calibrated for Brazil to analyse some implications of monetary and fiscal policy interaction and explore some of the implications of fiscal policy in this class of DSGE models. Among other interesting results, Valli Jorge and De Carvalho find that an expansionary shock to the primary surplus is not equivalent to a shock to government consumption, as the former impacts both government consumption and investment to a different degree. Each of the fiscal shocks (primary surplus, government investment and government transfers) has a distinct effect on the model dynamics. The paper shows that under different specifications of monetary and fiscal policy rules, fiscal shocks have important effects on the model's dynamic responses and predicted moments. Stronger commitment to stabilisation of the public debt strengthens the contractionary impact of the monetary shock. Strongly (and negatively) correlated policy shocks also dampen the contractionary consequences of the monetary policy shock.

Kaniovski and Schratzenstaller present a macroeconomic simulation of the short-term effects of the fiscal stimulus measures adopted by Austria and by its most important trading partners to cushion the economic downturn. The rationale of their simulation is to assess the effectiveness, in terms of output and employment, of national stabilisation programmes and to evaluate the size of cross-country spillover effects, expected to be quite large for a small, open economy like Austria. Model simulation suggests that the fiscal packages may have dampened the downturn by a cumulated 2.1 per cent of GDP in 2009 and 2010. Almost half of the fiscal impulse is generated by national measures, while the incidence of the spillover, captured by the fiscal stimulus of partners, accounts for one third of the overall estimated effect. In addition, the total impact on GDP secured 41,500 jobs and curbed the rise in the unemployment rate by 0.7 percentage points. The authors conclude that, since some measures have a positive direct impact on employment that cannot be

captured by this kind of model, the simulation results should be taken as the lower bound of the overall employment effect generated by the fiscal stimulus programmes.

Baldacci *et al.* use an ordered logit model to assess the effects of fiscal stimulus packages during episodes of systemic banking crisis in advanced and emerging market countries over the period 1980-2008. Their results show that timely countercyclical fiscal measures can help shorten crises by boosting aggregate demand and offsetting the collapse of private investments. Nevertheless, these outcomes are weaker for countries with limited budgetary room and where fiscal expansion is prevented by funding constraints or limited access to markets. The composition of fiscal responses is important: fiscal expansions based on government consumption and income tax cut are more effective in shortening the recession, while a larger share of public investment yields the strongest impact on output growth. These findings suggest a potential trade off between short-run aggregate demand support and medium-term productivity growth objectives. Two stylised facts emerge: i) the fiscal measures enacted by G-20 countries may have curtailed the crisis by up to one year and ii) they may have stimulated post-crisis growth by 1 per cent of GDP compared with the counterfactual scenario of no fiscal stimulus. Results can be larger for emerging market economies than for advanced countries, since the former devoted a greater share of the stimulus to infrastructure, while the latter made greater resort to tax cuts and transfer increases.

Afonso *et al.* assess the extent to which government spending can mitigate economic downturns in the short run and whether the impact on real GDP growth differs during financial crises and ordinary times. In their panel analysis, conducted for a set of OECD and non-OECD countries over the period 1981-2007, the authors also control for reverse causality, as current economic growth may negatively affect government spending behaviour. Their results show that the increase in real government spending has a positive and significant impact on real GDP growth. The fiscal multipliers for the full sample of ordinary and crisis spending are estimated at 0.6-0.8. However, although the impact of government spending is greater in times of distress, the Wald test suggests that there is no statistically significant difference between spending in crisis and in ordinary times. This significant result, indicating that government spending has essentially the same impact on economic growth during ordinary times and during financial downturns, holds throughout the sample, using a diversity of controls, sub-samples and specifications.

Focusing on Australia, McDonald and Johnson analyse how tax systems may have increased economies' vulnerability to financial shocks. In particular, tax systems have a bias towards corporate debt financing over equity, thus contributing to excessive leverage; the tax preference for housing may have prompted housing booms, although its contribution to financial instability is unproven; in addition, concessional tax treatment of capital gains is likely to have distorted asset allocation and to have encouraged investment in riskier assets. Some recent tax proposals, such as a Tobin tax or other taxes and levies on the financial sector, could augment the vulnerability of the financial sector. As an alternative, the authors indentify a number of policy reforms aimed at correcting tax-policy-induced risk misallocation rather than concentrating on financial sector taxes. Among these, an allowance for corporate equity would reduce corporate debt biases, a flat tax rate on capital income would diminish tax arbitrage across classes of assets, and improved loss offset provisions would act as microeconomic stabilisers.

Lindh stresses that more caution than ever is required today in estimating automatic stabilisers and fiscal multipliers. It is likely that the current deep crisis will change some economic relationships even after new equilibrium paths have emerged. Referring to Debrun and Kapoor's paper, he suggests that it would be interesting to introduce some examples of fiscal activism not related to the cycle. He argues that the finding that monetary policy frameworks are stabilising depends in part on the data used and that the result could change if post-crisis data were included. Lindh also stresses that, at least in normal times, it would be important for fiscal policy to pave the way for monetary policy by remaining prudent, and agrees with Debrun and Kapoor that the

practical way to ensure this is to subject the budget to quantitative objectives or binding constraints defined in terms of structural balance or expenditure ceilings. Concerning the paper by Van Brusselen, Lindh concentrates on the role that fiscal policies can play in stimulating demand during deep crises. He observes that many stimulus packages include permanent measures and that it would be interesting to assess whether such measures increase growth rates in the upturn after the crisis. Lindh agrees with Van Brusselen that fiscal stimulus, to be effective, requires measures tailored to individual countries and keyed to specific conditions such as the degree of openness of the economy and the initial conditions of the government accounts. Nevertheless, Lindh stresses that policy coordination among countries can also play an important role.

Before commenting on the papers by Kaniovski and Schratzenstaller, Valli Jorge and De Carvalho, and Röger and in't Veld, Monacelli depicts the current state of the debate on the effectiveness of fiscal stimulus packages, on the size of fiscal multipliers and, more generally, on the forecasting power of macroeconomic models and their reliability as potential policy guides. More specifically, Monacelli describes Kaniovski and Schratzenstaller's paper as a typical example of macro model simulation; she appreciates the wealth of details on the Austrian economy and the analysis of spillover effects. She suggests providing a more detailed description of the functioning of the macroeconometric model, the channels through which the spillover works and the impact of the crisis on fiscal policy effectiveness.

Countryman comments on the papers by Baldacci *et al.*, Afonso *et al.* and by MacDonald and Johnson. He remarks that the three papers make valuable contributions to the debate on fiscal policy: the first two papers focus on how fiscal policy can mitigate the effects of the economic turmoil, while the third adopts a somewhat different perspective, examining how tax policies may have made the recent financial crisis deeper and longer. Countryman suggests that an interesting extension of the work by Baldacci *et al.* would be to evaluate the effects of fiscal measures on long-term fiscal sustainability; in this context, time-limited spending could be more flexible than tax cuts, which tend to be more permanent. Concerning the findings of Afonso *et al.*, he observes that there is no evidence that fiscal policy is more effective during a financial crisis than in "ordinary times". He argues that this result may be biased because the authors do not control for the monetary policy stance at the time of crisis. Finally, Countryman describes MacDonald and Johnson's paper as a very good overview of how microeconomic policy instruments, such as taxes, can have profound macroeconomic effects.

3 Fiscal policy and fiscal rules

The papers in Section 3 discuss the impact of the crisis on fiscal rules and procedures. The first three papers examine fiscal policy developments and the debate on national fiscal frameworks, respectively, in the area of Eastern and Central Europe and Central Asia, in Colombia and in New Zealand. The next two papers focus on the euro area. The last two papers are devoted respectively to the issue of fiscal consolidation, with an emphasis on periods of financial crisis, and the impact of the crisis on sub-national public finances.

Barbone *et al.* present an overview of the fiscal reforms enacted by the countries of Eastern and Central Europe and Central Asia (ECA) during the last two decades, with a focus on Poland, Russia and Turkey. In particular, most of the ECA countries adopted binding budgetary rules in order to reduce institutional fragmentation, enhance transparency and promote fiscally responsible behaviour. During the 1990s these countries were determined to accelerate the transition from the central-planning system. In a favourable external environment, they strengthened their fiscal institutions and improved their fiscal outcomes. This positive trend reversed when the global financial crisis struck and some reforms proved too inflexible for a period of economic downturn.

In the short term, the ECA countries reacted with measures to contain the deficit, boost aggregate demand or protect certain segments of the population. Later, once the crisis revealed the risks that volatile environments pose for long-term stability, the need for further institutional, social and fiscal reforms became paramount.

The contribution of Lozano is twofold. First, he offers an empirical characterisation of the fiscal policy in place in Colombia over the last decades. Estimating a standard fiscal reaction function, the author provides evidence of the pro-cyclicality of Colombian discretionary fiscal policy, its recently decreasing volatility and its long-term (weak) sustainability. This last result is confirmed by a cointegration test between taxes and spending. Second, Lozano evaluates the fiscal stance during the financial crisis of 2008. With little room to manoeuvre, Colombia's fiscal authorities adopted a rather neutral posture during the crisis, resulting in a deterioration of fiscal indicators, with a drop in tax revenue and a rise in public debt and the budget deficit. Lozano contends that the adoption of binding fiscal rules may strengthen policy credibility, thus hastening economic recovery and ensuring fiscal discipline in the long term. To be effective, these rules should include more than just numerical targets for the coming years: they should guarantee a decreasing trend for the debt-to-GDP ratio and allow for counter-cyclical fiscal policies in order to smooth out the business cycle.

Mears *et al.* present an overview of the fiscal framework in place in New Zealand and country's economic performance during the last two decades. The present fiscal policy framework, mainly designed by the Public Finance Act of 1989, is focused on maintaining prudent levels of public debt (as a precautionary buffer) and on running fiscal surpluses on average over time, while providing no specific indication for government spending. The existing fiscal institutions, along with the economic expansion enjoyed by the country since the late 1990s, contributed to New Zealand's entering the financial crisis of 2008 with a low level of public debt, but with an unprecedented level of government spending (as a per cent of GDP). In order to strengthen the government fiscal strategy, the authors propose the introduction of a spending cap, designed as a rolling three-year nominal target for operating expenses and excluding capital spending, unemployment benefits (cyclical and part of automatic stabilisers) and interest payments (which are beyond the government's control). This spending cap would narrow the scope for new discretionary spending, while allowing a margin to accommodate unexpected changes in forecast expenses. Nevertheless, the risks implied by the proposal, mainly in terms of reduced flexibility to deal with shocks, motivated the government decision not to introduce a formal cap.

Burriel *et al.* evaluate the impact of fiscal policy shocks – mainly on GDP and inflation – in the euro area. To this end, they implement a standard linear structural VAR model (as in Blanchard and Perotti, 2002) using a newly-available quarterly dataset of fiscal variables over the period 1981-2007. They also compare their results with the findings of previous exercises conducted for the United States. Government spending shocks are found to yield positive GDP responses during the first five quarters in both the euro area and the USA; output multipliers are below one (thus indicating sizeable crowding-out effects) and become insignificant after 3 years from the shock. Symmetrically, net tax increases have a negative impact on output, inflation and long-term interest rates. An interesting finding is that government spending multipliers increased in the sub-period beginning in 2001, presumably owing to the "global saving glut", which reduced the crowding-out effects of fiscal policy on private investment. In line with the evidence of previous literature, short-term tax multipliers are of a lower magnitude and less persistent (only three quarters following the shock) than government spending ones. This is also consistent with the theoretical prediction that a portion of the increase in disposable income deriving from tax cuts will be saved.

Creel and Saraceno join the debate on the effectiveness of the Stability and Growth Pact, which mainly relies on automatic stabilisers as counter-cyclical instruments to ensure shock resilience and income stability. They marshal several arguments to show that the effectiveness of

automatic stabilisers has diminished enormously: the sensitivity of economic activity to cyclical changes in government revenues and spending has waned; the responsiveness of unemployment benefits to the unemployment rate has decreased, as has tax progressivity; similarly, the size of government has been reduced almost everywhere in Europe. In addition, they employ a simple micro-founded model to show that, in the current setting of strong liquidity constraints, the scope for non-Keynesian effects of an expansionary fiscal policy is greatly reduced. Finally, they use the arguments above and the findings of a recent strand of literature (starting with Blanchard and Perotti, 2002) to challenge the current setting of the EMU institutional framework and to advocate a reform of the Stability and Growth Pact in the direction of a greater use of discretionary fiscal measures as valuable tools for stabilisation.

Barrios, Langedijk and Pench analyse past episodes of public debt expansion to provide relevant policy indications, exploiting features in common with the recent global crisis. They use a panel of OECD countries over the period 1970-2008 to investigate the determinants of successful consolidation strategies (in terms of debt reduction). The main innovation of the paper is the assumption that the causes of fiscal consolidation are also likely to influence its success rate. Under this assumption, the authors use a two-step Heckman probit estimator, which allows them to control for sample selection bias, mainly in terms of starting debt level, which is likely to affect both the decision to consolidate (a high-debt country is more likely to consolidate) and the success of the consolidation. Their two-step strategy shows that the overall effect of the starting debt level on the probability of successful consolidation is positive but lower compared with the ordinary one-step results, suggesting that the estimate is upward biased when one does not control for the correlation between the decision to consolidate and the likelihood of achieving a successful consolidation. Another interesting finding is that consolidations undertaken during financial crises and even in their aftermath are less likely to succeed, thus implying that restoring the financial sector is a pre-condition for success. Ultimately, there is no evidence that a fiscal consolidation would be facilitated by exchange rate manipulation to promote an export-led recovery.

Fedelino and Ter-Minassian assess the impact of the crisis on sub-national government (SNG) finances. The crisis hit sub-national budgets both directly (e.g., via the decline in own revenues and upward pressure on cyclically-sensitive spending programmes) and through the involvement of SNGs in the implementation of the national fiscal stimulus packages. Against these developments, central governments increased general-purpose and (prevalently) earmarked transfers; their support also took the form of a temporary relaxation of fiscal rules and borrowing constraints or a direct provision of loans. Thanks to the increased support and by using their own available "fiscal space", some SNGs could enact counter-cyclical responses. This proved insufficient: most of them had to resort to pro-cyclical revenue increases or expenditure cuts. The authors conclude by challenging the traditional view that excludes any role of SNGs in fiscal stabilisation. Consistently with the ongoing decentralisation of spending, desirable arrangements should allow sub-national counter-cyclical policies, while laying down sub-national fiscal rules to ensure the build-up of adequate reserves and reduce the risk of pro-cyclicality. Moreover, the introduction of institutional mechanisms for coordination across government levels should minimise adverse inter-jurisdictional spillover effects and improve the credibility of the overall fiscal strategy.

Heald begins his discussion of the first three papers by posing some preliminary questions about the role of fiscal policy and the most efficient way to manage "abnormal events" and large public debt contingencies. He goes on to urge Barbone *et al.* to give clear answers to the three research questions they pose and to carefully consider the potential gap between the formal design of institutions and their actual performance. In reviewing Burriel *et al.*, Heald acknowledges the contribution of the paper, extremely clear and informative in the strand of the emerging literature. However, he suggests that the authors provide a sound justification for the comparability, in terms

of fiscal policy impact, between the United States and the euro zone, given their entirely different constitutional and fiscal framework. He also raises two data-related caveats. Finally, commenting on Lozano, Heald recommends caution in calculating the output gap and advises the author to complement the focus on fiscal rules with arguments for transparency of government measures.

Kastrop comments on the papers by Creel and Saraceno and by Barrios, Langedijk and Pench. He challenges the empirical evidence, found in the first paper, that the effectiveness of automatic stabilisers and of a rule-based fiscal policy is undermined when the conditions of the Ricardian equivalence (such as the assumption of rational expectations) are not met. Kastrop agrees with Barrios *et al.* that the success of a national fiscal consolidation depends on the contingent economic conditions of each country (e.g., debt level and banking system), but he disputes the evidence that an export-led growth strategy has no impact on consolidation and potential growth. Kastrop advocates a reformed Stability and Growth Pact relying on a rule-based approach as an instrument to promote fiscal consolidation in the short run and to boost growth in the long run. By contrast, discretionary fiscal measures could turn out to be pro-cyclical if their timing is not appropriate. Finally, he calls for the introduction of a debt restructuring mechanism to tackle sovereign solvency problems and to complement the Stability and Growth Pact in the EU framework.

Kremer observes that the last two papers, by Mears *et al.* and by Fedelino and Ter-Minassian, shed some light on the debate about the suitability of fiscal institutions to cope with financial stability challenges with and without financial crises. Commenting on the first paper, Kremer points out some general pitfalls of spending rules (e.g., unclear targets, increasing expenditure ratio not reflecting a spending bias) and suggests two alternative definitions of the cap, both taking these pitfalls into account. Her recommendation is to define the cap in terms of cyclically-adjusted expenditure or, alternatively, to consider capping fiscal loosening after unexpectedly favourable periods in terms of cyclically-adjusted tax revenues. Finally, Kremer agrees with Fedelino and Ter-Minassian on the necessity of a better alignment of fiscal rules across different levels of government, but she asserts that fiscal stabilisation is less error-prone if orchestrated at the national level. She also stresses the importance of the distinction between rules for ordinary times and exemptions for extraordinary events (e.g., financial crises); in particular, she calls for a more careful definition of the exemption clauses to prevent overly-broad exemptions from undermining fiscal policy consistency in ordinary times.

4 The legacy of the crisis and the exit strategy

Session 4 examines the legacy of the crisis and the policy actions required in the coming years. The first paper deals with the effects of the banking crises. The next two are country studies highlighting the different impact of the crisis in developed countries and emerging market economies. Two papers consider the case of Japan, where the current recession is exacerbated by pre-existing problems. The last three papers examine, respectively, the theoretical case for debt reduction after the crisis, the design of an optimal fiscal rule and the implications of the EU medium-term targets.

Furceri and Zdzienicka assess the consequences of banking crises for public debt. They note that direct bailout costs are only a part of the fiscal cost associated with banking crises. The fiscal consequences also include the reduction in revenue due to output losses and the increase in expenditure due to automatic stabilisers and discretionary policies. On the basis of a panel of 154 countries from 1980 to 2006, the authors show that banking crises are associated with significant and long-lasting increases in debt-to-GDP ratios. Where there were severe output losses, banking crises were, on average, followed by a medium-term increase of about 37percentage points in the

gross debt-to-GDP ratio. The increase in debt ratios is greater in countries with relatively bad initial fiscal positions and with a high share of foreign public debt. The authors conclude that, given the severity of the current financial crisis and the associated fiscal policy response, countries should take measures to avoid putting fiscal sustainability at risk.

Reiss and Köhler-Töglhofer evaluate the implications of the economic crisis of 2008-09 for fiscal policy in Austria. They show that the recession and the impending demographic changes would cause the public finances to deteriorate significantly and permanently in the absence of consolidation. The overall consolidation effort in the medium term would be close to 4 per cent of GDP. The authors stress the need to: i) implement credible consolidation programmes in order to secure public confidence in the sustainability of the public finances as soon as possible, ii) cope with population ageing; and iii) build up margins for automatic stabilisers and discretionary measures in view of possible future crises. They emphasise that consolidation should rely mostly on spending cuts. In this regard, they point to the potential role of the medium-term expenditure framework introduced by the 2007 Federal Budget Reform. These measures should be supported by structural reforms to raise potential output. In particular, it would be important to raise employment rates; neither higher temporary inflation nor personal income tax increases are a useful option.

Vieira Levy examines the factors underlying the relatively brief and mild impact of the 2008 financial crisis on the Brazilian economy. He reviews the reforms undertaken since the mid-1990s and the economic situation of Brazil before the crisis. In the late 1990s Brazil introduced a new macroeconomic framework based on a flexible exchange rate, inflation targeting and fiscal responsibility. The commitment to fiscal discipline was formalised in the Fiscal Responsibility Law enacted in 2000. The law, applicable to all levels of government, sets constraints on the financing of the public sector, including state-controlled financial institutions, and provides for budgetary planning and disclosure rules. Fiscal targets were met every year up to 2009, with most of the fiscal adjustment falling on tax increases. The paper also examines the government's response to the crisis, which involved protection of financial markets and support to credit, full operation of automatic stabilisers and fiscal stimulus. Vieira Levy argues that Brazil's success in withstanding the crisis reflects the policies implemented since the mid-1990s. He also points to the risks ahead and notes that priority should be given to fiscal responsibility. Medium-term fiscal spending targets, together with further structural reforms, can reduce aggregate risks, bring down interest rates and help the private sector to grow with less support from government.

Saito examines the budgetary problems of Japan and points to the persistent mismatch between expenditure and revenue and to the difficulties in achieving consolidation targets. He notes that the tax system has not produced sufficient revenues. This reflects repeated tax reductions motivated by the need to stimulate the economy and to improve the competitiveness of Japanese companies. Saito argues that room for expenditure cuts seems rather limited while the relatively low tax burden suggests there is significant scope to increase revenue. He notes that interest expenditure is currently relatively small but could increase when economic growth and private investment pick up.

Ueda, Ishikawa and Tsutsui point to the difficulty of assessing fiscal sustainability when revenues fluctuate sharply and unexpectedly. They note that in recent years tax revenues in Japan have been considerably unstable, so it is no longer appropriate to calculate the amount of structural tax revenue using a standard elasticity. The paper examines the fluctuation of Japan's corporate tax revenue and its elasticity since 1980. In particular, it evaluates the role of structural and cyclical changes in the distribution of value-added, the relationship between interest rates and return on capital, asset price movements and return from foreign investment, the divergence of economic fluctuations among sectors and the deductions of carried-over losses. Finally, the paper discusses appropriate methods for the estimation of structural corporate tax revenue.

Caprioli, Rizza and Tommasino investigate the optimal path of debt reduction in the period following the crisis. Using a DSGE model, they inspect the inconsistencies between the policy advice offered by international institutions, recommending rapid debt reduction, and the indications of optimal fiscal policy literature, usually calling for debt stabilisation. After briefly reviewing the theory of optimal fiscal policy, the authors show that when agents have full confidence in government solvency there is no need to reduce the initial debt ratio. On the contrary, when agents are concerned about government default, a post-crisis fiscal consolidation is optimal because the risk premium demanded would make the interest rate on government debt too high. The cost of higher distortionary taxes during a period of fiscal consolidation is more than offset by the expected benefits of lower distortionary taxes in the following period. The optimal size of consolidation is a function of the degree of government credibility and of the post-crisis level of debt.

Yörükoğlu develops a dynamic fiscal model in order to delineate optimal fiscal rules for Turkey. Given the expectations about the future income trend, the optimal path of public expenditure and debt minimises a measure of the total sum of deviations from the ideal debt-to-output ratio and the desired smooth government expenditure path. Fiscal rules can help by easing the time-inconsistency problem, allowing government to borrow in bad times without paying high risk premia. To work as a successful commitment device, a fiscal rule must be simple, transparent and credible. The model is calibrated using Turkish data. Different coefficients and rules are tested. The author shows that the fiscal rule considered is successful, but an optimised linear rule would significantly reduce the volatility of government expenditure. An optimised non-linear rule would improve the performance further, significantly reducing the volatility of government expenditure and debt. The optimal parameter values for the linear and non-linear rules do not depend on the value of the political preference parameter.

Biraschi, Cacciotti, Iacovoni and Pradelli analyse the medium-term objectives (MTOs) adopted by the EU member states as a reference for the multilateral budgetary surveillance, assessing their ability to promote long-term fiscal sustainability. Using a calibrated algorithm that closely follows the formulation on which member states agreed upon (but which has not been disclosed), the paper evaluates two novel features of the algorithm for computing the minimum budgetary targets that EU countries can declare MTOs: i) an extra debt-reduction effort requested from high-debt countries, and ii) the partial frontloading of the expected future increases in age-related expenditure. The paper also evaluates the impact of the crisis on MTOs through higher public debt, lower growth potential and higher costs of ageing. It concludes that prospective MTOs would be more stringent than current ones. Therefore, a path for gradual fiscal tightening is already embedded in the European fiscal framework and should be considered when discussing exit strategies. Finally, the paper sketches a simple alternative method, introducing into the MTO determination new elements related to the growth of external and domestic imbalances, such as the composition of public debt by maturity and the structure of private sector debt.

Cottarelli agrees with the main points of the papers by Furceri and Zdzienicka and by Saito. He concurs with Furceri and Zdzienicka that banking crises have major implications for the fiscal accounts and that these implications depend on the specific features of the crises. He notes that the paper omits an important aspect – the potential interaction between banking crises and exchange rate. Cottarelli presents data in which the increase in general government gross debt in the advanced G-20 countries is broken down into its various components. He concludes that a large part of the shock to public debt is permanent and will require significant consolidation measures.

Hemming discusses the papers by Biraschi, Cacciotti, Iacovoni and Pradelli and by Reiss and Köhler-Töglhofer. He agrees with Biraschi *et al.* that the risk created by a particular debt level depends on a host of factors that varies across countries and that it would be better to take some of these into account when computing MTOs and the supplementary debt-reduction effort that a

country should make. He suggests that the authors take into account the work that has been done on emerging markets with the specific objective of determining their specific debt tolerance. Hemming welcomes the emphasis that Reiss and Köhler-Töglhofer place on growth-oriented adjustment and expenditure-based fiscal consolidation, regretting, however, the dearth of information about the specific expenditure cuts they advocate. He also agrees with their tax policy indications, but stresses that the reduction of marginal tax rates on labour should be given priority.

Jędrzejowicz comments on the papers by Caprioli, Rizza and Tommasino and by Yörükoğlu. He notes that both address the issue of the optimal debt ratio using a theoretical model. He advises Caprioli *et al.* to better model the possibility of default and to consider the level at which the ratio should be reduced when agents fear a possible default. He also notes that stabilising debt ratios at the post-crisis level, in the presence of full trust in government solvency, would lead to ever higher debt ratios after each successive crisis or downturn. Jędrzejowicz then addresses the dual objective of the rule proposed by Yörükoğlu. He remarks that maintaining a stable ratio of public expenditure to nominal GDP would result in pro-cyclical policy. An alternative option would be to target a stable ratio of spending to potential GDP, provided that the underlying fiscal position is sound. Maintaining a stable debt ratio can be problematic since fluctuations of the ratio over the cycle are the natural consequence of the operation of automatic stabilisers. If a government were to try to minimise these fluctuations, this would again imply a pro-cyclical policy. He concludes that the paper should take the cyclical impact of fiscal policy into account when discussing the design of an optimal fiscal rule.