INTRODUCTION

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The papers included in this volume provide an overview of recent work on the issue of fiscal policy and growth.

This is, of course, a vast and multi-faceted topic and the various parts of the conference where only able to discuss some of the aspects involved.

A first issue is the link between fiscal policy and short-term growth. This boils down to the hotly debated topic of the role of discretionary policy actions for macroeconomic management and, more technically, to the size of "fiscal multipliers". In the pre-crisis years, a certain consensus emerged, according to which monetary policy was to be preferred as a countercyclical tool to fiscal policy, mainly due to the long lags and to the not-completely-understood channels through which fiscal stimulus hits the economy. The recent crisis, however, has shaken this assumption. Indeed, conventional monetary policy in some countries reached its limits, while the length and the depth of the recession made the issue of implementation lags less pressing. In such a juncture, research on fiscal multipliers was also breathed new life into. While we still lack a new consensus, most economists would probably agree that multipliers are very much context- and time-specific. They are a function of the fundamentals of the economy (for example, the state of public finances) and of the business cycle.

A second issue is the relationship between fiscal choices and long-run growth. This issue has an extensive tradition in public finance studies, even if the recent crisis shifted the emphasis on the effects of fiscal policy at business-cycle frequencies. Fiscal variables influence long-run performance through several channels. First, sound public finances are a crucial element of a stable and predictable macroeconomic environment, which, in turn, is a precondition for growth. Second, expenditure and taxation policies influence individual behaviour: sometimes they are useful in correcting market failures, sometimes they induce distortions and discourage labour supply, therefore putting growth at risk.

Furthermore, as in modern economies the public sector is one of the biggest service provider, its efficiency and effectiveness are crucial issues, also in light of tighter budget constraints.

Finally, it is important to remark that governments have an impact on the economy (both in the short and long run) not only through the budget but also through regulation.

The papers presented at the Workshop were divided among four sessions, which correspond to the sections of the present volume. Session 1 examines the short-term impact of fiscal policy; Session 2 is about the link between government budgets and potential growth; Session 3 concentrates on taxation, regulation and public services; and in Session 4 policies to promote sustainable growth are discussed.

1 The short-term impact of fiscal policy

The contributions in Section 1 deal with the impact of fiscal policy on the macro-economy. The papers use a variety of methods, and touch both positive and normative ones. They differ both with respect to the dependent variable of interest and for the way in which fiscal action is measured. The first paper uses a theory-based economic model to assess the size of fiscal

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multipliers as a function of the features of the economy. The second focuses on the impact of discretionary fiscal action on aggregate consumption, merging original data on the size and composition of policy measures with previous estimates of fiscal multipliers. The third paper is also empirical, but focuses on the impact of fiscal policy on unemployment and job market flows. The fourth paper has a more normative focus and discusses optimal fiscal policy in a context in which the economy's trends are summarized by a relatively parsimonious VAR. The fifth paper discusses a more subtle issue: are the effects of fiscal policy stronger in recessions than in booms? To answer the question, it relies on relatively new time series models, estimated on Italian data. The last paper of the section discusses in depth a single case study, that of Latvia during the recent crisis, and highlights the reasons for the success of the Latvian fiscal consolidation.

Ray Barrell, Down Holland and Ian Hurst use the National Institute Global Econometric Model (NiGEM) to assess the size of fiscal multipliers in different countries under different scenarios. NiGEM is an open-economy macro-econometric model which incorporates forward-looking aspects. Among its key features are: a consumption equation which depends on future income streams and takes borrowing constraints into account; rational expectations in financial markets; and flexible exchange rates. The NiGEM features several fiscal variables: it distinguishes between corporate and personal income taxes and between direct and indirect taxes; on the spending side, it differentiates between public investment, public consumption, and transfers. To ensure public sector solvency, NiGEM assumes that the income tax rate rises (resp. decreases) if the deficit-to-GDP ratio is above (resp. below) an exogenously-given target level. The authors use the model (which is calibrated in part and partly estimated) to assess the effects of a reduction in deficit by 1 per cent of GDP in 18 advanced economies. It turns out that multipliers tend to be smaller in more open economies, in smaller countries, and if the short-run elasticity of consumption is smaller. Moreover, multipliers for government consumption tend to be larger than those of other budget items. If the fiscal action is temporary (*i.e.*, it is done keeping fixed the target level of the deficit) multipliers are greater than if the action is permanent (*i.e.*, if the target level of the deficit is permanently reduced by 1 per cent of GDP as well).

Glenn Follette and Byron Lutz aim at measuring the impact on aggregate demand of countercyclical fiscal policy in the US during the post-WWII period. To do this, as a first step the authors identify discretionary policy actions using a variety of public sources and documents (the so-called "narrative approach"). Contrary to other narrative studies, they do not drop the measures which were not explicitly motivated by countercyclical reasons. For each policy episode, Follette and Lutz assess the size of the change induced with respect to previous legislation, keeping track of which budgetary item was used. It turns out that discretionary fiscal policy was mostly counter-cyclical. As a second step, Follette and Lutz multiply the size of each policy change for an estimate of the associated multiplier, taken from the existing literature and from the FRB/US macro model (different budgetary items are assigned different multipliers). In this way, they are able to show that, on average, a 1 percentage point increase in the deficit for two years boosts demand by 0.4 percent of GDP in the first year and 0.6 percent of GDP in the second year. This figure is relatively small, mainly because countercyclical policy in the US has been mainly pursued through tax cuts, which have relatively small multipliers.

Alessandro Turrini estimates the impact of fiscal consolidation on short- and long-run unemployment, job creation, and job destruction in 13 EU countries for the years 1978-2009. To build its explanatory variable, he uses both the "narrative approach" (as do Follette and Lutz) resorting to a recent database of consolidation episodes built by the IMF, and a more standard cyclically-adjusted deficit measure. In this latter case, the fiscal consolidation measure is instrumented and only episodes in which the change in the parameter is above 0.5 percentage points of GDP are considered in the second stage. Results show that fiscal consolidations have a significant impact on cyclical unemployment. However, the effect is not large (about

0.1 percentage points), mostly due to expenditure-based consolidations. Results are mostly robust if one substitutes narrative measures of fiscal action to cyclically-adjusted measures. To shed light on the interaction between fiscal policy and labour market regulation, Turrini also runs his regressions separately for countries with high and low employment protection legislation (EPL), *i.e.*, countries with an average value of the OECD Employment Protection Indicator above (resp. below) the EU27 median. It turns out that the effect on unemployment is not different in the two sub-samples. However, while in low-EPL countries the effect operates through an increase in the job destruction rate, in high-EPL countries it operates through a decrease in job creation. Since a reduced job-finding rate corresponds to a longer average duration of unemployment spells, in high-EPL countries fiscal policy shocks also tend to raise the share of long-term unemployment.

Francesco Caprioli and Sandro Momigliano use Vector Auto Regression (VAR) models to capture the influence of the state of the economy on the effects of public expenditures shocks. Their focus is on the Italian economy over the period 1982-2011. They use quarterly fiscal variables recorded on a cash basis, and identify exogenous fiscal shocks using the methodology originally developed by Blanchard and Perotti (2002). In addition to variables which are standard in the literature (private GDP, inflation, interest rates, net revenue and government consumption), the authors include in their VARs government debt and foreign demand. To take into account the influence of the state of the economy on the effects of public expenditure shocks, the authors follow three approaches. First, they estimate a standard structural VAR model over the two sub-samples identified as "recessions" and "expansions" by the Italian statistical authorities. Second, they estimate an Endogenous Threshold VAR (ETVAR) using alternatively lagged private GDP growth and the output gap as business cycle indicators. With this approach, whether an economy is in a recession or in a boom is determined endogenously. Finally, the paper considers a Smooth Transition VAR (STVAR), where the probability of transition between booms and recessions is a continuous function of a business cycle indicator. The main results are the following. Without distinguishing across regimes, the response of private GDP to an expenditure shock is positive, hump-shaped and highly significant for approximately two years. The median value of the expenditure multiplier is equal to 1.04 on impact and reaches its peak (1.8) after three years. Furthermore, when the split-sample methodology is adopted, it emerges, as expected, that the effect of public expenditure shocks is larger in recessions than in booms. However, this difference is no more statistically significant when the ETVAR model is used. The difference becomes even less clear-cut when the STVAR model is estimated. These mixed results may be due to the limited size of the two sub-samples, and/or to the fact that most recessions in the sample are quite mild.

Francesco Di Comite, Gabriele Giudice, Julia Lendvai and Ingrid Toming discuss the severe fiscal consolidation engineered in Latvia in the period 2009-11 and its effects on growth. They notice that the size of the fiscal effort as measured in the government reports (as against an unchanged-policies scenario) is huge, and much bigger than if measured by the change in the cyclically-adjusted primary balance. They argue that this is mainly attributable to shortcomings of the latter indicator which, as is well known, does not take into account the composition in the drop of GDP matters for the effects of the cycle on revenues, nor considers fully the cyclicality of expenditures. They go on to describe the composition of the manoeuvre, which was mostly expenditure-based. Concerning the timing of consolidation, they argue that it was quite frontloaded, as the bulk of the adjustment was legislated and entered into force already in the second half of 2009. After the description of the size, timing and composition of the Latvian fiscal consolidation, the authors provide DSGE-based estimates of what should have been the effect of the package implemented in Latvia. They use a quite standard open-economy new-Keynesian model. Interestingly, it turns out that the model implies a much sharper and long-lasting contraction than the one observed in the data. According to the authors, this discrepancy means that non-Keynesian mechanisms were at play. This is suggested by the fact that consumer confidence indicators increased, and government bond yields decreased, soon after the main part of the package was implemented, therefore closely mimicking the recovery in output. From a policy perspective, the Latvian experience suggests that a quick, sizable and expenditure-based consolidation might be the best option when facing an unsustainable macroeconomic and fiscal status quo.

Jan Babecký comments on the first two papers. He argues that both contributions highlight the large variation in reported multipliers, be it across countries (the first paper) or over time (the second one). Difficulties in obtaining reliable estimates of fiscal effects obviously limit the role of economic analysis as guidance to policy. According to Babecký, a possible way out would be to explore this variation employing the methods of quantitative review of literature (Meta-Regression Analysis). Apart from understanding the reasons behind differences in the estimate of multipliers, Meta-Regression Analysis can also help identifying the "best-practice" specification. He also suggests, as further directions for future research, topics such as the role of debt sustainability expectations, the impact of consolidation on risk premia, and fiscal stress testing.

Adi Brender discusses the papers by Momigliano and Caprioli. Concerning the former contribution, he highlights four potential directions for improvement. First, the authors should tell if their framework ensures that the inter-temporal budget constraint of the government is always satisfied. Second, they could consider a more flexible model which allows for a change in the relationship between fiscal policy and interest rates when going from the pre-Euro to the Euro period. Finally, it should be investigated whether the response of short-term interest rates reflects only monetary policy, or also the sentiment of investors and whether there is an asymmetry between the consequences of negative and positive fiscal shocks.

Walpurga Köhler-Töglhofer reviews the papers by Di Comite, Giudice, Lendvai and Toming and by Arpaia and Turrini. As discussed above, Di Comite *et al.* argue that non-keynesian effects of fiscal consolidations are more likely to emerge if the fiscal retrenchment is large, frontloaded, and expenditure-based. Köhler-Töglhofer suggests to add to the list of relevant factors ownership, commitment, and fairness. Moreover, she questions the assertion that the Latvian adjustment was relatively painless, given that from 2007 to 2010 Latvia's GDP fell by about 25 per cent. Concerning the paper by Arpaia and Turrini, she argues that, given the absence of a fully-fledged theoretical model, one should be very careful in drawing policy implications from the authors' empirical findings. Moreover, she urges to consider in their analysis not only the employment protection legislation regime, but also other institutional features of the labour markets, such as unemployment benefits.

2 Government budgets and potential growth

Session 2 contains a series of studies on the relationship between government policies and economic outputs. The first two papers are econometric studies on the topic of the impact of public debt on growth, while the following three combine theory with data to illustrate different aspects of the implications of public policies for the potential growth of the economy. The session is concluded by a case-study on the effects of budget policies in Albania.

The paper by Anja Baum, Cristina Checherita-Westphal and Philipp Rother deals with the highly-debated topic of the relationship between government debt and growth. The authors focus on the euro area and on the 1990-2010 period. The study shows that additional debt has a positive effect on growth only if the stock of debt is relatively low, that is, when it is below 67 per cent of GDP. When the incidence of debt over product is very high (above 95 per cent), additional government debt is instead associated with negative growth. Moreover, Baum *et al.* claim that their results can be explained by the increased pressure on long-term interest rates which is usually associated with high levels of public debt. The authors conduct a series of robustness checks, which, for the most part, support their main findings: they expand their baseline specification with more covariates, including the 1980-1989 period and controlling for possible endogeneity problems and for the effect of excluding outliers. Unlike other studies in this particular area of public finance, this paper uses a novel dynamic threshold panel methodology by extending previous econometric work to the case of panel data and applying it to this topic for the first time.

Manmohan Kumar and Jaejoon Woo study the relation between initial public debt and subsequent growth rates in a sample of advanced and emerging economies over the 1970-2008 period. The authors use a variety of reduced form econometric techniques, such as pooled OLS, between estimator, fixed effects, and system GMM. In the main specification, they find that a 10 percentage point increase in the initial debt-to-GDP ratio is associated with a reduction of real per capita growth of about 0.2 percentage points per year. The authors find that their results are broadly robust to a series of specification tests. Using a model in which initial debt is interacted with dummies for ranges of initial debt, they find some evidence of a non-linear effect on the growth rate of the economy: debt-to-GDP ratios above 90 per cent are more strongly associated with subsequent slower growth. Finally, Kumar and Woo explore the determinants of the negative relationship between debt and growth: using a growth-accounting exercise, they find that higher initial public debt is associated with significantly weaker labor productivity growth, mainly due to a reduction in domestic investments.

Maria Rosaria Marino, Marzia Romanelli and Martino Tasso present some preliminary results from an ongoing project aimed at building a dynamic model of family labor supply to be used to conduct policy-relevant analysis for the Italian economy. In this version of the model, agents decide about female labor supply and asset accumulation, taking into account the main features of the Italian tax-and-benefit system. The model, which is estimated using both longitudinal and cross-sectional data for the 2004-10 period, replicates quite closely what is observed in the data in terms of female labor supply. This version of the study presents preliminary results for a small set of policy experiments: an increase in households' non-labor income decreases the overall poverty rates but lowers the incentives of married women to participate in the labor market. On the contrary, policies aimed at increasing the return of the hours worked (such as an increase in the amounts of individual work-related tax credits) have positive effects on both dimensions. The authors conclude with an agenda for ongoing and future work.

Nivedita Mukherji and Fuad Hasanov build a two-sector model of production to analyze the effect of public policies on informality: alongside the informal sector, the authors model formal firms which can produce either formal or informal goods. This paper finds an unconventional result: higher taxes may actually reduce informality. When both tax evasion and the payment of bribes by informal firms are allowed, higher taxes on formal firms increase the relative price of formal goods; as a consequence, there would be a reallocation of producers towards their production. Unlike previous literature on the relation between taxes and informality (which mainly focuses on reallocations between formal and informal sectors), this paper shows how public policies may impact the distribution of production within formal sectors too. The authors complement their theoretical analysis with a set of empirical tests based on cross-country data and focus on testing whether public policies which are responsible for promoting informality are associated with an increase in net revenue as well. They show that it is possible to increase net revenue by having higher taxes, a larger government, and a higher number of regulations. Almost all of these factors are found to be associated with an increased informality as well.

António Afonso and João Jalles develop a growth model that accounts for the role of the government: in it, the higher the level of resources devoted to financing the public sector, the lower the optimal level of private consumption and output per worker. Afonso and Jalles test the implications of the model using an unbalanced panel data of 108 countries for the period

1970-2008. They find that government size is negatively related to growth and that institutional quality (measured with a set of different proxies) has a positive effect on GDP per capita (this effect is weaker for countries of Scandinavian legal origin). Government consumption is found to be negatively associated with growth in all the groups of countries considered in the study. Moreover, the negative effect of government size on growth turns out to be even stronger in those countries with lower levels of institutional quality. These findings are robust to a set of checks.

Gerti Shijaku and Arlind Gjokuta analyze the relationship between fiscal policy and growth in the case of Albania. To this end, they derive some testable implications from an endogenous growth model for a small open economy. Their paper is divided in two main parts: in the first one, the authors review the Albanian fiscal policy in the last decades, while in the second they turn to their methodology and to the analysis of their econometric estimates. They find that economic growth is more responsive to changes in revenues than to changes in expenditures. Moreover, the authors find that the responsiveness of the growth rate to fiscal reforms varies according to the type of tax which is involved: one percentage point increase in the revenue collected by distortionary taxes would slow the growth rate by about 0.64 percentage points, whereas if the same resources were collected through less distortionary taxes, the growth rate would decrease by just 0.13 percentage points. Similarly, productive expenditures have a much stronger impact on growth than non-productive ones. The authors derive some policy advices from their study: in particular, should a tax increase be required, operating over indirect taxes would be preferable.

John Janssen comments on the first paper of the session, *i.e.* the work by Baum *et al.* on the relationship between government debt and growth in the Euro Area. Janssen appreciates the methodology which is used to estimate the threshold in the debt ratio over which additional debt becomes detrimental for economic growth. He points out, though, that the source of the increase of public debt may play a role too: additional debt incurred to finance productive investments may be quite different from that incurred to finance consumption. Janssen comments on the study by Kumar and Woo as well. While he appreciates both the methodology used and the robustness checks conducted by the authors of the paper, he suggests a series of possible extensions. In particular, he calls for a sensitivity analysis in which the sample period is extended over the years affected by the global financial crisis. He also suggests that a research on whether the maturity structure of debt plays a role could be an interesting research topic. Janssen concludes his comments on these two studies on the debt-to-growth relation by illustrating the role played by public debt in the New Zealand government balance sheet.

Finally, two papers in this session which deal with the topic of the effects of taxation (Marino *et al.* and Mukherji and Hasanov) are commented by Gilles Mourre. He starts by recognizing the importance of the fiscal system in explaining both labor force participation and informality. He then advises the authors of the first paper to explore the possibility of incorporating into the model a few additional features such as a more heterogeneous utility function and a more detailed treatment of childcare services and of the fixed costs of work. Finally, he observes that the model by Mukherji and Hasanov assumes perfect labor mobility, which he judges to be quite a strong hypothesis. As regards their empirical analysis, he underlines that the number of observations may be low and suggests a series of possible solutions. Mourre suggests to the authors of this paper to check whether their results are still valid in a sample of euro-area countries, and to use other variables rather than the top marginal personal income tax rates to measure tax pressure.

3 Taxation, regulation and public services

While all the papers discussed in the third session deal with the economic impact of the structure of the public sector, their approaches and methodologies vary. The session is opened by a theoretical study on the cost of government inefficiencies. It is followed by a descriptive study on the structure and size of public sectors and by a reduced-form cross-country econometric paper on service regulation. The fourth paper, on the topic of the efficiency costs of different forms of taxation, derives its results from a computational general-equilibrium model. The fifth paper of the session raises the concern that the rankings of countries by living standards would change quite dramatically if government inefficiencies could be quantified. The second-to-last paper of this session is a static labor supply model, while the last one is an *ex post* difference-in-difference study of the effects on public health of an institutional reform which took place in Mexico in 1997.

The work by Jorge Onrubia-Fernández and Jesús Sánchez-Fuentes deals with the topic of the cost of public-sector inefficiencies. The possible budgetary savings related with the improvement of the productive efficiencies of the government can indeed constitute an alternative fiscal policy tool. These savings can be sizeable: the OECD estimates that the gradual adoption of best practices in primary and secondary education could save resources for around 0.5 per cent of GDP, while improvements in the health sector could potentially lead to savings of the order of 2 per cent of GDP. This paper provides a theoretical framework to quantify the social welfare changes which derive from variations of public-sector performances: the authors of this paper derive one measure from the cost function and one from the production side of the economy. The authors claim that their approach could be adapted to be used in a variety of empirical applications with the aim of monitoring the performance of the government.

The composition of public expenditure and the tax structure can both influence the growth level of a country. The study of Hans Pitlik and Margit Schratzenstaller deals with this issue by analyzing the growth-friendliness of fiscal and regulatory structures in a cross-section of EU and highly developed OECD countries. On the basis of the indications of economic theory and previous empirical studies, the authors divide public expenditures between "productive" and "non-productive" ones: core public services, infrastructure spending, and expenditures for health and education services are among the former, redistribution, culture, religion, and interests payments among the latter. The authors then rank countries on the basis of the share of expenditures in 2004-08 which are considered productive: Korea, New Zealand, and Ireland are on top of the list, while Austria, Greece, and Germany are considered to have the least productive expenditure mix. A similar approach is used to rank countries with respect to several indicators related to their tax structure, to their approach to business regulation, and with respect to an average indicator about the "growth-friendliness" of their policies (in this case, New Zealand, and Korea still lead the ranking, while Germany, Italy, and Greece get the lowest marks).

Guglielmo Barone and Federico Cingano study the effect of service regulation on the performance of downstream manufacturing activities, using a panel data of OECD countries in the 1996-2002 period. They examine whether countries with a lower level of service regulation in 1996 saw faster value-added productivity and export growth in those manufacturing industries which used services more intensively. The authors rely on OECD indicators for anti-competitive regulatory frameworks for the energy sector, telecommunications, transportation, and professional services. They find that service regulation plays a non-negligible role in explaining subsequent growth in the manufacturing sector: in particular, this study suggests that strongest gains from deregulation would come from removing restrictions to price setting in professional services and from unbundling power generation from distribution in the energy sector.

Salvador Barrios, Jonathan Pycroft, and Bert Saveyn study the relative magnitude of the economic distortions imposed by different kinds of taxes. Given the need for fiscal consolidation in many European countries, the authors contrast the marginal cost of public funds (MCF, that is the costs imposed on the economy by levying an extra euro in tax revenue) of labor and environmental taxation ("green taxes"). Using a computational general-equilibrium model for the EU (the so-called GEM-E3), they find that the distortions provoked by a labor tax hike are larger than those related to green taxes: on average, raising 1 euro by taxing labor would result in a loss of efficiency of about 90 cents; on the other hand, this loss is quantified at around 8 cents in the case of environmental taxes. Even though these figures vary across countries, in any member state the MCF of labor taxes is higher than that of green taxes. The authors then study the robustness of their findings and show that, once spillovers effects between countries are accounted for, the advantage of green taxes over labor ones is weaker. They also find that their results are sensitive to different assumptions on the flexibility of the labor market. The authors leave the topic of the progressivity of the different forms of taxation to future work.

National account systems equate output to input costs when evaluating the value of government production. Since many countries are affected by large inefficiencies in the production of government services, Francesco Grigoli and Eduardo Ley argue that this method can lead to severe distortions when countries are compared in terms of GDP per capita. Purging GDP from the resources which are wasted in the provision of government services, the authors are able to build an alternative measure of living standards. For this, they rely on a series of pre-existing empirical studies which quantify "waste" in public sectors in several countries: in a cross-section of 24 countries, this loss is about 4.1 per cent of GDP on average, but it displays large variability. The results of the study indicate that the rankings of countries by standard of living would change dramatically if this correction were to be taken into account.

The paper of Péter Benczúr, Gábor Kátay, Áron Kiss and Olivér M. Rácz estimates the effect of income tax and welfare transfers on the labor force participation in Hungary. The authors use pooled cross-sectional data for the 1998-2008 period taken from the Hungarian Household Budget Survey. They define as "gains-to-work" the algebraic sum of lost welfare benefits and acquired salary which comes with the transition from unemployment to full-time work. This study finds that participation probabilities are strongly influenced by this variable: a 10 per cent increase in the gains-to-work increases the probability of being active by 2.9 per cent. Moreover, the strength of this effect is heterogeneous in the population: people around retirement age, married women, and women at child-bearing age exhibit larger elasticities. Finally, the authors use their model to simulate the effects of the 2012 Hungarian reform of the tax and benefit system, which eliminated an employee tax credit, cut the tax rate below a certain income threshold, and raised social security contributions by one percentage point. The results are heterogeneous in the population, but this study finds that this reform will have a slightly negative effect on aggregate activity (a decrease of about 1 percent).

André Martínez Fritscher and Carolina Rodríguez Zamora analyze the effects of the 1997 health sector reform in Mexico which transferred both financial resources and responsibilities from the central government to the states. This paper therefore falls within the large literature on fiscal decentralization. The authors exploit the specific features of the reform to evaluate its impact on several indicators of health status. The findings of the study indicate that the decentralization reform did not increase the overall efficiency of the provision of health services. Moreover, states which received higher transfers after the reform did not perform significantly better that the others. The authors suggest that these results could be explained by the sudden implementation of the reform on one hand, and on the lack of a funding allocation mechanism which encouraged the adoption of best practices by the states on the other. The authors conclude by arguing that, on the basis of their study, a successful decentralization is based on some requirements, such as revenue collection decentralization, and an improvement of transparency at the state level.

Stefan Bach comments on three papers presented in this section. He first analyzes the work by Onrubia-Fernández and Sánchez-Fuentes on the cost of public-sector inefficiencies. Bach recognizes the importance of this topic, given the potential for both budgetary savings and indirect welfare gains. He calls for an extension of the study to the area of pure public goods and their financing and he points out the difficulty of obtaining reliable data for the empirical analysis of this important topic. Bach then turns to comment the work by Grigoli and Ley: in this case as well, he stresses the need for better and more detailed data. He concludes by analyzing the study by Martínez Fritscher and Rodríguez Zamora on the impact of the 1997 Mexican reform on public health outcomes. His comments revolve around two main points: first, it would be interesting to study the impact of the reform on long-term indicators as well, and, second, the reasons for the ineffectiveness of the reform should be addressed in greater detail.

Sergio Clavijo comments on both the work by Barone and Cingano and the one by Pitlik and Schratzenstaller. As regards the former, he encourages the authors to extend their research in two directions: the study of a possible unbundling in the health sector between the provision of insurance and the provision of health services and the extension of the dataset to a sample of developing countries. He agrees with the main conclusion of the paper about the possible harmful consequences on the growth of an economy of added regulation in services, with the caveat that this result should be applied with caution to other industries. As for the second paper, Clavijo suggests the adoption of a theoretical model to better justify the categorization of expenditures between "productive" and "non-productive"; he also calls for the use of effective tax burden indices rather than marginal tax rates to rank countries on the basis of the distortions due to the tax system. Finally, he asks the authors for a deeper analysis of the relationship between the score assigned to different countries in 2008 and their subsequent different reaction to the most recent financial crisis.

Commenting the paper by Benczúr *et al.*, Yngve Lindh recognizes the importance of the design of taxes and transfers for labor force participation and thus for growth. He recalls that recent reforms which increased the "gains-to-work" in Sweden were found to have a positive effect on labor supply there too. He asks the authors for a more detailed description of the reforms to the tax and benefit system which took place in Hungary in the period analyzed and suggests to possibly consider the effects of the reforms on labor demand as well. Lindh lists a series of very detailed comments on the paper by Savey *et al.* too. In particular, he asks for a more accurate description of the model (in particular, about the mechanisms beyond the spillover effects), calling for an extension of the study to other kinds of taxes.

4 Policies to promote sustainable growth

The papers presented in Session 4 focus on how reforms and fiscal policies might promote sustainable growth. The contributions are very different from each other: from empirical to theoretical, plus three case studies concerning Argentina, Spain and Serbia.

The paper by Douglas Sutherland focuses on the implications of reducing debt levels for growth in the short and in the long term. Overall, the link between economic growth and the post-crisis debt overhang is complicated. On the one hand, high debt seems to be associated with lower growth. On the other, however, fiscal consolidation may weaken growth both in the near term and over a longer horizon. Realistically, debt problems are so serious in many countries that consolidation has the potential to strongly hamper growth. In the short run, consolidation may weaken demand and monetary policy may not be able to compensate for such effects for some time to come. This argues for the necessity of phasing in consolidation. Appropriate and clear fiscal objectives together with institutions that ensure accountability may help to preserve credibility in the process. However, to maintain it, it may also be necessary to take some action up-front, in which case instruments with small short-term multipliers may be given some weight. This may involve some political economy risks, in that this may skew consolidation because of inappropriate instruments. Slow consolidation may also entail a price insofar as it involves a higher debt and thereby higher interest rates. In the longer run, the effects of consolidation on growth will depend on the choice of instruments. Some instruments are available that will have limited detrimental impact on growth and enter in little or no conflict with other policy objectives. Notably, increasing spending efficiency, reforming unsustainable pension systems, putting prices on environmental externalities and maximising the benefits of structural reforms could make sizeable contributions to consolidation. In addition, reviewing tax and benefit systems within a wider horizon could help determine how policy objectives could be achieved at a lower cost and where, instead, support is less justified.

The essay presented by Ernesto Rezk, Maria De los Ángeles Mignon and Agustín Ramello De la Vega aims at assessing, using an Augmented Solow Model, the impact on GDP of the investment in education in Argentina. To this end, the author uses a proxy for the propensity to invest in human capital accumulation consisting in the percentage of the working age population enrolled in secondary school. In connection to this, one of the main contributions of the paper is having improved three aspects of the standard model: (a) finding a better representation for the average propensity to invest in human capital; (b) missing components, such as the opportunity costs incurred by parents and students, are added to all government and educational levels' budgetary expenditures; (c) a methodology has been developed for the measurement of the stock of human capital such that the variable can be used in a second stage of the analysis in place of human capital accumulation rate. Given the econometric problems caused by the variables' non-stationarity, the author discarded the usual estimation procedures and used alternative approaches, such as cointegration and the error correction model, including lags and dummies. Results point to the existence of long-run equilibrium relations among variables; the coefficients showed the expected signs and were, in all cases, significantly different from zero. Moreover, although the formation of human capital grew substantially during the analysed period, there didn't seem to exist a clear relationship between the characteristics and effectiveness of spending programmes and the needs of the country's productive technological matrix. As for the link between human capital formation and economic growth, the author shows that either human capital did not help enhancing Argentine growth or its effect was negligible. Rezk finds one of the possible reasons for that in a design of public policies in this field inefficient and ineffective to obtain an adequate contribution of human capital to GDP.

The paper by Ángel Gavilán, Pablo Hernández de Cos, Juan F. Jimeno and Juan A. Rojas concentrates on Spain and uses a large overlapping generations model of a small open economy featuring imperfect competition in the labour and product markets to understand which were the main determinants of the large expansionary phase experienced in that country from the mid-1990s until the arrival of the global financial crisis in 2007-08, what role fiscal policy and structural reforms could have played to avoid the build-up of large external imbalance over this period, and how these policies could affect the recovery of economic activity after the crisis. The authors find that falling interest rates and demographic changes were the main drivers of the Spanish expansionary phase and that, over this period, a tighter fiscal policy or structural reforms designed to foster competition in the labour and product markets could not have avoided the build-up of a large external imbalance. Concerning the macroeconomic aspects, the model is able to reproduce the trade-off faced by tighter fiscal policies after the crisis, *i.e.*, they may reduce output losses induced by the crisis in the medium term, but at the expense of (mild) output losses in the years immediately after the crisis. On the contrary, structural reforms do not face this trade-off and may contribute to reduce output losses in the short and medium term, while inducing a positive long-run effect on the level of output.

The paper by Carine Bouthevillain and Gilles Dufrénot argues against the widespread view at the European level that, in order to get out of the economic depression while maintaining the sustainability of public finances, the EU countries should implement common fiscal policies. The authors argue that higher growth rate in the EU cannot be achieved with the same fiscal mix in all member states and this view is based on quantile estimates showing heterogeneous reactions across EU countries. They claim it is important to distinguish between member states which were part of the EU since the beginning and the emerging countries which entered the EU in the early 2000's. Social security spending, direct taxes, welfare and sovereign expenditure and human capital expenditure have strikingly different effects on different countries' real GDP growth rate. An increase in human capital spending is growth-enhancing in industrialized EU countries, while welfare and sovereign expenditure play a more important role in fostering growth in emerging economies. Direct taxes exert a much more detrimental impact in countries that are growing rapidly than in those that experience a slow growth. When the growth rate is considered in per-capita terms, indirect taxes appear to exert an asymmetric effect on EU countries: they are harmful in the low-growth countries, but not inconsistent with stronger growth dynamics in countries that grow rapidly. Direct taxes are growth-enhancing if an economy has either a slow or fast growth rate and are neutral at moderate growth rates. The authors suggest that an implication of these results is that, analyzing growth-friendly fiscal policies, it may not be helpful to use average fiscal multipliers. It is necessary, instead, to consider the different growth impacts normal times and in times of crisis and to acknowledge the different ways in which the same policies can affect growth rates in different countries. This rules out the use of a single fiscal/growth model for all EU countries.

The paper by Jérôme Creel, Paul Hubert and Francesco Saraceno evaluate the macroeconomic impact of three different fiscal rules that have been, will, or might be implemented in Europe: a balanced (at 0.5 per cent of GDP) structural budget and constant debt reduction rule established by the Treaty on Stability, Coordination and Governance in the Economic and Monetary Union (known as Fiscal Compact), the 3 per cent ceiling on public deficit and an investment rule in the vein of the United Kingdom golden rule of public finances. The authors simulate a small-scale New Keynesian model with both forward and backward expectations and the calibration draws on the existing literature and on the 2011 values of public finance data for four euro-area countries which are taken as representative of the different types of eurozone member states. The authors focus on two different scenarios: the first involves assessing the path followed by the four economies under each fiscal rule during the fiscal consolidation from 2011 debt and deficit levels, towards the Maastricht steady state. The second assesses the impact of demand and supply shocks affecting the economy at the steady state. Results are manifold. First, abiding by the rules produces in all cases a short-run recession, even in a country with a small fiscal multiplier and a low initial public debt like the Netherlands. Second, during a consolidation phase, the investment rule performs better than the other rules, *i.e.*, the recession is milder and shorter, thus leading to a substantially lower average output loss over a 20-year horizon. Third, if the economy is hit by a demand or supply shock at the steady state, none of the rules emerges as superior in coping with them. Fourth, the Treaty on Stability, Coordination and Governance in the Economic and Monetary Union, with its constant debt reduction rule, generally imposes large costs to the economy, while not necessarily improving public finances' sustainability.

Balázs Égert recognizes that governments and central banks of developed countries swiftly reacted to the 2007-08 financial and economic crisis by implementing substantial fiscal and monetary policy easing, coupled with state aid to the troubled financial sector. These actions helped contain the Great Recession, but pro-cyclical discretionary fiscal expansion and the banking sector bail-outs led to an unprecedented rise in public debt-to-GDP ratios. Against this backdrop, a number of papers found that an excessively high public debt-to-GDP ratio hampers economic activity. In particular, Reinhart and Rogoff (2010) showed that there was a tipping point at 90 per cent of GDP, *i.e.*, economic growth slows down sharply if the debt-to-GDP ratio exceeds this level. The paper aims to check the robustness of the 90 per cent threshold, using a subset of a variant of the Reinhart-Rogoff dataset. The author estimates a bivariate relationship between growth and debt (and lagged debt) in a two-regime threshold model for a variety of thresholds. A robustness check of the threshold is also performed by jack-knifing the sample, *i.e.*, dropping one country from the sample at a time. Égert finds that the threshold may be different from 90 per cent and it varies a lot depending on the inclusion in the model of the contemporaneous or the lagged-debt variable. Furthermore, the negative impact of debt on growth is sensitive to outlier observations.

Nikola Altiparmakov and Milojko Arsić's paper starts by acknowledging that in the last two couple of decades the tax systems around the world have changed in response to the rapid globalization, which introduced international mobility of capital, goods and services and, to a lesser extent, labour. This caused a worldwide reduction in custom duties, corporate income taxes and tax wedges on labour and the reduction in tax rates was especially stark in emerging European countries, which experienced a fierce income tax competition in order to attract foreign investors (the so-called "race to bottom" phenomenon). Faced with reduced revenues, EU countries increasingly relied on consumption taxation, in particular VAT. But shifting the burden from income to consumption taxation is, in practice, challenging due to political considerations and the common belief that VAT is a regressive tax causing adverse distributional effects on poor households. However, recent research has unambiguously shown that much of the estimated extremely regressive incidence of consumption taxes against annual income originates from measurement errors inherent in expenditure surveys and that the theoretical basis for assessing the VAT incidence against annual income instead of annual expenditures or lifetime income is rather weak. Recent empirical estimates in EU member states, based on the lifetime tax incidence approach, reveal, on the contrary, a slightly progressive VAT incidence. A micro-simulation analysis of Serbian expenditure survey data conducted by the authors yields similar conclusions. However, the authors stress that this result is driven by some specific features of many emerging European countries (e.g., Poland, Romania and Serbia) compared to developed European ones. In particular, a significant presence of own-source small farming production and associated in-kind consumption, which enhances the progressivity of VAT systems, and the significant presence of a shadow economy and the evasion of direct income taxes, which suggests that household expenditure is a more meaningful indicator of the living standard and ability to pay taxes than the registered income. Overall, the authors conclude that common beliefs of regressive VAT taxation are overstated and poorly founded in economic reality of emerging European countries.

Werner Ebert and Sarah Ciaglia note that in the context of the current EMU debate on austerity and stimulus, the papers by Bouthevillain and Dufrénot and by Gavilán, Hernández de Cos, Jimeno and Rojas address important questions. In particular, the papers stress that, as fiscal policy is the only policy area in which instruments affect growth in different ways, the question on how heterogeneous growth patterns in the euro area can be shaped by fiscal policy measures compared to structural reforms is topical. Historical experience with fiscal policy measures shows that a "one-size-fits-all" approach does not work well, particularly in a common-currency area. To disaggregate and to be more country-specific in order to derive practical policy conclusions is wiser and this is done in both papers in two different ways: Bouthevillain and Dufrénot disaggregate public expenditures and revenues and select different growth periods; Gavilán *et al.* follow a country-specific long-term approach including open-economy and external-imbalances variables. The first paper concentrates on fiscal policy and growth and inquires whether a common fiscal policy would enhance or reduce growth in a similar way across countries; the second paper focuses on structural policies with a specific view on macroeconomic imbalances and growth and tries to explain how external imbalances evolved in Spain and in the euro area. Ebert and Ciaglia offer the authors suggestions for future extensions of the papers and advices to improve data. Finally, Ebert tries to draw from the papers lessons for strengthening the governance in the euro area. He argues that the approach of Bouthevillain and Dufrénot calls for a renewed agenda on the quality of public finances which should be integrated in Europe 2020 and the SGP, whereas the approach in the paper by Gavilán *et al.* could help to analyse the links between the Macroeconomic Imbalance Procedure and fiscal policy observation under the SGP. In particular, while currently no "one-size-fits-all" approach for EU member states' fiscal policies is possible or desired, alternative measures could be devised.

David Heald finds the Égert paper very interesting and admits that it almost convinced him that the Reinhart and Rogoff results that very high debt ratios are damaging are not robust. The paper makes patent its counter-intuitive result that, beyond 90 per cent, the effects on growth become less negative or neutral, but what is not clear is to what extent that is due to the particular data or econometric techniques used. In particular, concerning the data, Heald mentions that the Égert analysis is based on two time series: a longer one that looks at central government debt and a shorter one that looks at general government debt. The results are not substantially different, but it is important to choose which data to look at (central government, general government or public sector) in order to avoid arbitrage mechanisms. Another point is that net debt misses important information, such us pension liabilities. Finally, there is remarkable neglect of the assets side of the public sector balance sheet. In accruals-based government financial reports, the focus is on the net assets figure or, in national accounts, on the net worth figure. It is common knowledge that data often are not very good but, thinking about what kind of policy response there should be to particular levels of government debt, it is important to look at both sides of the balance sheet. Heald also reviews the paper by Jérôme Creel, Paul Hubert and Francesco Saraceno. He raises two main points: firstly, if the modelling assumptions determine the results and to what extent the judgements behind the model building prejudge the results that are going to be achieved; secondly, considering the criterion applied here, what official modelling has been done within the European Commission or elsewhere. The Saraceno results favour the old UK-style golden rule (where investment is outside the golden rule) rather than the new European Fiscal Compact. The point that Heald makes is that alternative modelling, which can be defended on technical economic grounds, might generate different results and that sometimes economic and political judgements can be obscured by modelling complexities. Commenting the paper by Rezk *et al.*, Heald finds the theoretical part on how human capital might influence growth very helpful and informative. As for the empirical part, the discussant concentrates on the issue of finding good data for human capital. He emphasises the importance of good social statistics, as well as reliable economic statistics, arguing that if there appears to be a complete separation between the social data and the economic data, it is possible to concentrate on securing good economic data. But, as soon as one starts arguing that human capital development is important in a growth context, it is essential to emphasise good social statistics and making sure that national statistics and social statistics do not themselves become a casualty of fiscal consolidation.

In discussing the paper by Douglas Sutherland, Sergey Vlasov notes that in the calculation of what has already been done or is under way, as well as what should be done in terms of adjustment in the long run, Greece, Portugal, Spain and Ireland – the countries more at risk with possible debt crisis in Euro area – not only have the largest cumulative fiscal tightening between the deficit trough and 2012, but also have the most modest adjustment need up to 2050, under the condition of bringing down gross financial liabilities to 50 per cent of GDP (with the only exception of Ireland). Then the discussant poses a few questions about how large the risk is that in 2012 the reporting figures would not correspond to those planned, how much the estimates are correlated with the low sovereign ratings given to these countries by international rating agencies and, finally, if there is a preliminary estimation on 2012 supporting authors' calculations. Vlasov argues that the debt overhang can be worked off in two ways: by a primary-balance tightening and by using the real-growth and real-interest rate effects. The authors analyze a wide range of possible instruments of fiscal consolidation and quantify their contribution to primary-balance tightening for each country. On this point the discussant casts some doubts related to: (i) the use of the OECD average as a target value for a set of instruments, as countries' peculiarities have to be taken into account too; (ii) the fact that the level of discontent among the population as a result of possible employees' layoffs, social spending cuts and increase in so-called "sin" taxes, and the way pension reforms should be carried out have been disregarded. Some other criticisms stem from the absence of (i) a discussion on how the primary balance might be substantially improved through the operation of automatic stabilizers and of (ii) an estimate of the effects of fiscal consolidation on GDP growth rates for OECD and/or individual countries. Commenting the paper by Nikola Altiparmakov and Milojko Arsić, Vlasov suggests to the authors to present their proposals of modifying the VAT system in Serbia as a way to offer special consumption incentives, boosting economic growth and improving fiscal sustainability. As for the methods, he argues to recur not only to the abolition of the reduced rate or to the elimination of certain exemptions from VAT, but to other forms of tax relief as well. This latter possibility would have the advantage of allowing to pursue specific goals on social ground (*i.e.*, increase fertility rate).