# TOWARDS A (SEMI-)NARRATIVE ANALYSIS OF FISCAL POLICY IN EU MEMBER STATES

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*This paper presents a new dataset for measuring discretionary – or action-based – fiscal policy in selected EU Member States. Drawing on experience of compiling estimates of the impact of fiscal policy measures over several years within the European System of Central Banks, it represents a first attempt to document, check and if necessary re-estimate the impact of these measures, as well as to extend this information further backwards in time. The intention is to produce a dataset which is reliable, detailed, available to the public, and which may be regularly updated, improved, and extended to other countries in the future. This dataset may have several potential uses, including the estimation of fiscal multipliers and tax elasticities, the assessment of fiscal effort, and the analysis of the stance of fiscal policy and its composition more generally. In this paper, we use a preliminary version of the dataset to present some estimates of fiscal multipliers.*

## 1 Introduction

The great recession and the subsequent sovereign debt crisis have brought with them renewed interest in the interaction between fiscal policy and the rest of the economy. But research in this area is hampered by the difficulty of actually measuring fiscal "policy".

It has long been understood that the government surplus/deficit is not a measure of the stance of fiscal policy, because tax receipts and spending on some social benefits react to fluctuations in economic activity. For this reason, in recent times, the analysis of fiscal policy has relied heavily on the measurement of the cyclically-adjusted (primary) balance. Various institutions and governments have developed methods of calculating this indicator (for the OECD, see Giorno *et al.*, 1995; Van den Noord, 2000; Girouard and André, 2005; for the European Commission see Larch and Turrini, 2009 and Mourre *et al.*, 2013; and for the ESCB see Bouthevillain *et al.*, 2001). For a number of years, the evolution of the structural budget balance (the cyclically-adjusted balance net of certain one-off and temporary measures) has played a prominent role in EU fiscal surveillance in the context of the Stability and Growth Pact.

It has nonetheless become increasingly understood that the change in the cyclically-adjusted primary balance (CAPB) is also not a particularly good gauge of the stance of fiscal policy, at least if the intention is to measure "discretionary" or "active" policy. Cyclical adjustment is based on estimated or assumed "typical" relationships between cyclical government revenue and spending and GDP, which may represent a fair, simplified view of the world "on average, over the medium-term". But in any given year, however, the tax-to-GDP ratio will tend to fluctuate because of changes in the tax composition of GDP (both at the macro and micro level),[1] because taxes are levied on things which do not form part of current period GDP (e.g., property transactions) and

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[1] At the macro level, the wage/profit and domestic/external demand shares of GDP will not be constant. At the micro level, amongst other things, the income distribution and the composition of consumption will not be constant.

because of leads and lags in tax collection (e.g., loss carry forward in corporation tax).[2] Similarly, spending on unemployment benefits will often depend not only on the rate of unemployment, but also unemployment duration (as the longer-term unemployed drop out of contributory benefit and move to less generous non-contributory benefits).

To this it is worth adding that cyclical adjustment implies that the "neutral" path of non-cyclical spending (*i.e.*, consistent with an unchanged structural balance) is growth in line with that of potential–trend GDP. But major shocks to GDP also affect potential/trend GDP. This has been seen during the recent recession in several euro area Member States, when potential/trend GDP growth actually turned negative. In crisis hit eurozone countries in recent years, steep spending cuts were necessary just to stabilise the structural spending-to-trend GDP ratio, let alone reduce it.

All this implies that the change of the CAPB is partly determined by factors correlated with the economic cycle. The assumptions underlying the identification of tax shocks in studies on the effects of fiscal policy on output using Structural VARs (e.g., Blanchard and Perotti, 2002) would be subject to the same critique.

Given the – by now quite well known – limitations of the change in the CAPB as a gauge of discretionary fiscal policy, there have recently been increasing attempts to seek alternative measures or complementary analyses.

Within the European System of Central Banks, the analysis of fiscal policy has for some years been based in large part on the "*Disaggregated Framework for the Analysis of Structural Developments in Public Finances*" (Kremer *et al.,*2006). The purpose of this framework is to explain the evolution of the structural balance in terms of the main driving factors. On the revenue side, these include – but are not limited to – changes to tax legislation.[3]

In the context of implementing the Stability and Growth Pact, the European Commission has recently started putting more weight on the "bottom-up" identification of specific "measures" to complement its traditional assessment of "fiscal effort" based on the evolution of the structural balance.[4] The EU Economic Policy Committee's Working Group on Output Gaps (OGWG) has also started collecting information on the impact of discretionary tax measures from EU Member States. This has been done primarily with a view to exploring the extent to which tax changes have contributed to fluctuations in the overall elasticity of tax receipts to GDP (Barrios and Fargnoli, 2010, and Princen *et al.*, 2013).

For the United States, Romer and Romer (2010) have pioneered the so-called "narrative approach" in their estimation of the macroeconomic effects of tax changes. They use narrative records such as presidential speeches and Congressional reports to identify the size, timing and principal motivation of tax measures during the period 1945-2007. Cloyne (2010, 2013) has replicated this analysis for the United Kingdom, using the estimates contained in financial statements to construct a narrative account of discretionary tax shocks for the UK during 1945-2009. Hayo and Uhl (2013) have replicated the approach for Germany, identifying tax

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[2] Cyclical adjustment does not assume a constant tax-to-GDP ratio per se, but as long as tax elasticities assumed in the method are close to 1, as they usually are, then cyclical adjustment does assume a tax-to-GDP ratio that is *ceteris paribus* fairly stable from one year to the next.

[3] In the case of government revenues, the framework involves analysing changes in the (structural) revenue-to-(trend) GDP ratio in terms of "fiscal drag", "decoupling of the tax base from GDP", "legislation changes" and a "residual" (*i.e.*, anything left over).

[4] The European Commission's AMECO database now contains series for "discretionary measures" broken down between current and capital revenue and current and capital expenditure, reflecting the aggregate total of measures reported by country desks in the context of producing the Commission's macroeconomic and fiscal forecasts. But the time series is very short, the data is very aggregated, and there is no information on compilation methods.

measures for the period 1974-2010 using the Finanzbericht, an annual publication of the German Federal Ministry of Finance.

At the IMF, Devries *et al.* (2011) have constructed an action-based dataset of fiscal consolidation for 17 OECD countries over the period 1978-2009. This dataset was built from information contained in contemporaneous policy documents, including budgets, budget speeches, central bank reports, stability and convergence programmes and IMF and OECD reports. It has been used to analyse the macroeconomic effects of fiscal consolidation (IMF, 2010).

Even so, the availability of narrative, action-based datasets of fiscal policy – and research using such datasets – is still very limited. This is not surprising given the considerable amount of time and expertise required to gather comprehensive and reliable information on individual measures.

This paper presents the development of a new action-based dataset by public finance experts working within the European System of Central Banks (ESCB). A first, preliminary version of the dataset is available for eight countries and presented in this paper. Datasets for three other countries are also largely completed and more may follow at a later stage.

Compared to the datasets previously mentioned, our dataset has the advantage of building on the experience of gathering information on fiscal policy measures developed over several years within the ESCB. At least for the last 10-15 years, it can draw to a large extent on estimates that have been compiled in real time (in the context of various ESCB projection exercises). It benefits from being compiled by public finance experts of the countries concerned, who, on the one hand, understand the specific nature of the budget documents, political processes, and fiscal data in their countries, while at the same time being subject to a process of peer review, to ensure that the data is compiled in a sufficiently consistent and harmonised way across countries. This largely overcomes an obvious problem – or limitation – with the dataset of Devries *et al.* (2011), namely that they take estimates from a wide range of different types of documents, with no guarantee that the nature of these estimates is consistent across countries and across time. This is likely to be particularly problematic in the case of expenditure for which we propose a measurement methodology rather different from the one adopted by Devries *et al.* (2011).[5] Finally, the dataset includes a rich set of information, being comprehensive and disaggregated, and as such it potentially opens up new avenues of research.

The data may have several potential uses, including the estimation of fiscal multipliers and tax elasticities, the assessment of fiscal effort, and the analysis of the stance of fiscal policy and its composition more generally. In this paper, we use a very preliminary version of the dataset to present some estimates of fiscal multipliers.

This paper is structured as follows. Section 2 explains the origins and the main features of our dataset. Section 3 discusses the issue of endogeneity for the estimation of fiscal multipliers. Section 4 summarises the data compiled so far. Section 5 presents some preliminary estimates of fiscal multipliers using this – still provisional – data. The Appendix describes in more detail the compilation methods as well as the main episodes of fiscal policy identified for each country.

## 2 Towards an ESCB action-based dataset of fiscal policy

For more than a decade now, public finance economists within the ESCB have collected information on tax and spending measures for EU Member States in the context of regular

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[5] See subsections 2.1.1 "*Combination of 'bottom-up' on taxes and benefits with 'top-down' on other spending"* and 2.1.2 *"Omitted spending"*.

projection exercises. This has been done on the basis of standardised questionnaires following commonly agreed principles and reporting conventions. Given this, public finance economists within the ESCB are relatively well-placed to carry out the task of compiling information on fiscal policy in a way which benefits both from local (country-specific) knowledge and horizontal (across-country) consistency.

Even so, the compilation of a reliable and well-documented dataset with a view to publication and use in research remains a very time consuming task. There are many practical difficulties to overcome. Reporting conventions, fiscal questionnaires and the experts responsible have changed over time. In some cases information may have been lost or discarded and needs to be re-built from scratch. It is not always easy for today's expert to quickly verify the work of his or her predecessor (*i.e.*, to know where a particular number came from or how it was derived). In the past, information was collected with a view to looking forward (understanding the projection) rather than looking back (analysing the past). There may, in particular, be cases where *ex ante* estimates used at the time of the projection should now, in the light of data, be revised *ex post*. The development of the present dataset is the first step in a process of checking the existing information on fiscal measures which may have already been collected over the past 10-15 years, identifying and rectifying potential errors and omissions, documenting sources and estimation methods, and, to the extent possible, extending the data further back in time.

### *2.1 Principals and methods of data compilation*

Our approach is both comprehensive and disaggregated. We look at fiscal policy (*i.e.*, the government accounts) as a whole. In this sense, our dataset differs from other action-based datasets that we are aware of, which are either limited to taxes (Romer and Romer, Cloyne, Hayo and Uhl, OGWG), or fiscal consolidation (Devries et al, 2011). At the same time we compile information at a disaggregated level in order to make possible studies on the effects of the composition of fiscal policy. Revenue and expenditure are disaggregated as follows:

| Revenue | Expenditure |
|---|---|
| Taxes on income and wealth | Social transfers in cash |
| Of which payable by corporations | Of which pensions |
| Of which payable by households | Of which other |
| Taxes on production and imports | Government consumption |
| VAT | Compensation of employees |
| Taxes on products other than VAT | Wages and salaries |
| Other taxes on production | Employers' social contributions |
| Actual social contributions | Intermediate consumption |
| Employers' actual social contributions | Social transfers in kind via market producers |
| Employees' actual social contributions | Other (including sale of goods and services) |
| Other actual social contributions | Subsidies |
| Capital taxes | Other current transfers payable |
| Property income receivable | Gross capital formation |
| Current transfers receivable | Capital transfers payable |
| Capital transfers receivable | |

Our dataset is annual because (spending) budgets, tax collection calendars and many tax liabilities (e.g., personal and corporate income tax) are essentially annual in nature. Most available estimates of the impact of measures are also annual as is much of the micro public finance data that may be used to construct our own estimates of the impact of measures whenever other published estimates are unavailable or unsatisfactory. Still, the systematic collection of information on when measures entered into force could facilitate the construction of quarterly data at a later stage. This has already been done to create a quarterly series of tax shocks for Portugal (Pereira and Wemans, 2013).

We aim to identify at the very least all measures the impact of which would round up to 0.1 per cent of GDP. But in general we try to include also much smaller measures (especially given that a number of small measures together can constitute a significant "package").

### *2.1.1 Combination of "bottom-up" on taxes and benefits with "top-down" on other spending*

In terms of how to go about measuring active fiscal policy, the correct distinction is not between "revenue" and "spending" but rather between "taxes and benefits" and "other spending".

In the case of taxes and benefits, it is relatively clear what is meant by a "measure", namely a change to the legislation which determines tax liabilities and benefit entitlements. The problem is mainly to identify the measures (via documentary evidence) and then to estimate their impact on the budget balance. The case is a bit complicated for pensions, as some measures affecting this category are very much forward looking (e.g., increases in retirement age after a certain transition period). Therefore, only measures on pensions with a relatively immediate impact (such as a deviation of indexation from the usual benchmark) have been included. As far as non-tax revenue is concerned, sometimes there maybe measures that are in the nature of a tax but are recorded as property income or transfers receivable. They are few and far between but they are included in our dataset (and in this paper are subsumed under the heading of tax measures).

For most government spending other than social benefits (intermediate consumption, subsidies, investment…etc), the concept of a "measure" is less useful. If the budget of a particular year points to new investment spending of "X billion", but outturn data shows that investment actually fell or increased by less than usual in that year (perhaps because local governments were cutting back their investment spending), what do we record? Is this an action-based spending increase or a spending cut? If the government "does nothing", what happens to government consumption and investment? If government consumption rises by 2 per cent, but inflation and/or (trend) economic growth is exceeding this rate: is this a spending increase or a spending cut? It all depends on the benchmark we have in mind, what we consider "neutral", which is somewhat subjective.

This is, perhaps, the main criticism that we would have of the approach followed by Devries *et al.* (2011), namely, that it takes at face value figures presented for spending cuts in various different documents without questioning the original approach to – or logic behind – these estimates.

For such categories of spending, rather than trying to identify individual measures, in our view it makes more sense to identify explicit benchmarks for what we might consider neutral spending growth and to measure "policy" as the outturn compared to this benchmark. In this sense, we estimate the impact on the budget of changes to taxes and benefits "bottom-up", but most other spending "top down".[6]

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[6] The European Commission has adopted a somewhat similar approach to measuring the "Discretionary Fiscal Effort" (DFE), mixing a "bottom-up" approach on the revenue side with a "top-down" approach on the expenditure side (see European Commission, 2013).

### *2.1.2 "Omitted spending" (fluctuations in spending which we do not want to attribute to "policy")*

Payment of debt interest (and rent) is not at the discretion of government, so fluctuations in property income payable are completely omitted from our measure of fiscal policy.

Net acquisitions of non-financial, non-produced assets do represent actions of the government, but ones which are unlikely to have an impact on total economy aggregates (as usually ownership is simply transferred across sectors). This item of the government accounts is omitted from our measure of fiscal policy.

Also within other components of the accounts, there will from time-to-time be one-off or permanent shifts reflecting transactions/flows which merely shift ownership or funds across sectors of the economy, but without significantly affecting the underlying fiscal position and being unlikely to affect economic growth. Obvious examples are large, one-off capital transfers related to injections of capital into banks or public enterprises, and changes to the delineation of general government caused by entities being reclassified in- or out-side of general government. In the case of spending being measured "top-down", these influences need to be identified and "omitted" from the dataset so that they are not attributed to fiscal policy.

### *2.1.3 Sources and methods for estimates of the impact of tax and benefit measures*

The estimates should be the ones that are deemed to be the most accurate. Typically, the principle sources will be budget documents and/or documents which accompanied the relevant legislation during its passage through parliament. However, these estimates should be cross-checked and alternative and/or additional estimates should be made when this is considered feasible and appropriate.

One obvious case is when outturn data makes it possible to pin down the actual impact of a measure *ex post* and this differs from the official estimate produced *ex ante*. This will typically be the case when a new tax is introduced such that the effect can be derived directly from detailed tax data.

Another reason to deviate from previously published estimates is to ensure a greater degree of consistency across countries and across time. An example of this would be the impact of changes to excise duty rates, in which case it may be possible to derive estimates that are more accurate and consistent over time on the basis of information on duty rates, tax receipts/liabilities, and price indices. A consistent and logical approach should be followed, over time, to things such as the adjustment of tax allowances and brackets and excise duty rates to inflation. Furthermore, in many countries, official estimates of the impact of fiscal measures will be based on "budgetary" (often "cash") accounting concepts which differ from national accounts (e.g., regarding the time of recording of tax receipts, or the recording of tax credits as expenditure or negative revenue. Adjustments may need to be made for this. In case we are aware that a quantitatively significant measure happened, but cannot find any estimate of the impact in official documents, then there is no alternative but to produce an estimate.

### *2.1.4 Spending benchmarks*

With respect to our implementation of the "top-down" approach to "other spending", three spending "benchmarks" are presently considered. These are:

- *Nominal trend GDP* (trend of real GDP x GDP deflator): This benchmark has the advantage of mimicking the neutral spending assumption underlying cyclical adjustment therefore enabling an intuitive comparison between our action-based dataset and the evolution of the

cyclically-adjusted primary balance (which is then explained by the fundamentally different approach to taxes and benefits). It has the disadvantage that trend GDP growth itself (and hence the measurement of fiscal policy using this benchmark) is affected by economic fluctuations.

- *GDP deflator:* The idea is to establish a benchmark so that what we capture as policy is growth in "real spending". In this regard, the GDP deflator has the advantage of being the principle deflator in national accounts. It has the disadvantage that government policy itself impacts the deflator and in some cases (e.g., a cut in government wages) is partly self-defeating as far as this measure is concerned. (NB: this is also true of the nominal trend GDP benchmark and cyclical adjustment generally!)
- *Consumer price index:* Using CPI (or an alternative headline price index) as the benchmark largely (although not fully) overcomes the problem of interaction between government spending and the benchmark. It may also make the analysis of spending more consistent with the analysis of taxes and benefits, to the extent that income tax brackets, duty rates and benefit entitlements are generally uplifted using the same price index as the benchmark.

### *2.1.5 Documentation*

It is intended that the dataset will be rich in terms of information. This means that, to the extent possible, for each measure, the following information is reported:

- *Description of the measure*: information on which tax/benefit is affected and the nature of the measure (e.g., introduction of a new tax or benefit, change to a tax rate, allowance or benefit entitlement…etc).
- *Impact:* Estimate of the impact on government revenue/spending in millions of euro (or national currency) and in percent of GDP
- *ESA Code*: of the revenue or spending aggregate affected
- Date of entry into force: day or month
- Date announced: day or month (if known)
- Source(s): In the case of estimates taken from official/external sources, this will be the document concerned. In the case of own estimates, this will be the data source(s) used to compile the estimate
- Comments: Any other information deemed useful. Examples would be things like how an "own estimate" was derived, if the measure was part of a package, if implementation of the measure was brought forward or delayed compared to what was initially announced, or if the measure resulted from the adaptation of a previously announced measure that was never implemented.

## *2.2 Data coverage and status*

At present, datasets have been compiled for the following countries covering the following time spans:[7]

- Denmark (1999-2012)
- Spain (1996-2012)
- France (1995-2012)
- Italy (1991-2012)

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[7] In many cases, datasets already cover 2013 but this year is not covered by the present analysis. Datasets are already largely compiled for the Czech Republic, Latvia and Slovakia but we not yet ready enough to be included in this paper.

- Austria (1996-2012)
- Poland (2000-2012)
- Portugal (1996-2012)
- United Kingdom (1988-89/2012-13)[8]

While the datasets have been compiled on the basis of the above-mentioned principles and methods agreed *ex ante*, at the time of writing they are still in the process of being subject to a process of *ex post* peer review. This process involves the identification of potential inconsistencies across countries in the way estimates may have been derived and documented as well as specific problems that may have been encountered so as to develop common approached to address them. In this "second stage" the datasets will be further harmonised and improved by identifying past practices.

The sources and methods used to compile the datasets for each country are explained in more detail in the Appendix. Table 1 provides a schematic overview.

## 3 An endogeneity issue?

Romer and Romer (2010) addressed a potentially relevant problem affecting the estimation of the impact of fiscal changes on the macro-economy: if a given fiscal action is motivated by a desire to respond to cyclical fluctuations, this raises reverse causality concerns.[9] In other words, there is an omitted variable bias in any regression of output on a measure of fiscal actions as part of the latter is often correlated with other developments in the economy. At the heart of the narrative approach pioneered by them is the idea that tax changes can be broadly characterized by their motivation. In this respect, the principal motivations for tax changes in the United States are identified as being (i) to offset a change in government spending; (ii) to offset some factor other than government spending liable to affect output in the near future; (iii) to deal with an inherited budget deficit, or (iv) to achieve some long run goal (e.g., higher growth, fairness, smaller government). Romer and Romer (2010) argue that tax changes motivated by factors related to the current and/or prospective future state of the economy are not legitimate observations to use to estimate the effects of tax changes on output. As a result, they exclude from their dataset all measures motivated by either (i) or (ii).

As already noted above, in our dataset we have neither undertaken a systematic categorization of measures in terms of motivation, nor have we sought to exclude particular measures for motivational reasons. It should preliminarily be noted that measures motivated under (i) would not be a problem in our case because we can control for spending measures in a regression.[10] As for measures motivated by (ii), the fact that we have not excluded them is partly for reasons of principle and partly for reasons of practicality.

First, in most EU Member States, political systems are less "presidential" than in the United States and they involve the interplay of multiple institutions and constituencies (Government, Parliament, political parties, unions, business associations, etc.) with a usually more prominent

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8 The United Kingdom is an outlier in the sense that no pre-existing information had been collected on the impact of fiscal measures on a Financial Year basis. But it was deemed possible to construct a dataset from scratch given a relative wealth of published information on policy costings, tax liabilities and benefit entitlements.

9 In Romer and Romer (2010) the argument is discussed in terms of tax changes only, but it clearly applies to spending changes too. Devries *et al.* (2011) applied the same reasoning also to expenditure.

10 Since spending changes affect the macroeconomy, a tax change implemented to compensate the latter would be endogenous and would bias the regression coefficient. However, if the "omitted" variable (the spending change) is included in the regression the problem would disappear.

role. It is therefore much more difficult to know with reasonable certainty the intentions behind a finance bill or to equate the intentions of the government with statements made in particular speeches or policy documents. Multiple objectives should, in any case, mean less predictability and less endogeneity.

Second, it is our view that, with the exception of the response to the great recession in 2008/09, fiscal policy in EU Member States over the period considered has not been strongly motivated by the need to respond to cyclical conditions. Rather, fiscal policy, at least since the mid-1990s, has been primarily motivated by the need to comply with the Maastricht convergence criteria, and later the Stability and Growth Pact. Golinelli and Momigliano (2009) surveyed studies on the degree of cyclicality of fiscal policy in the EU and found a wide range of results. Their analysis suggests that the use of *ex post* data from the AMECO dataset and of real time data lead researchers to find weakly counter-cyclical policies, while the use of all other *ex post* data sources broadly lead to finding a-cyclical policies. At the same time, the substantial fiscal consolidation undertaken in basically all countries in our sample from 2010-11/2012 was clearly pro-cyclical.

It may be that fiscal policy in the United States (at least that of the federal government) tends to be more activist because the operation of the automatic stabilisers is more limited, in part because limits on state borrowing cause sub-national fiscal policy to be pro-cyclical. However, even for the United States, Romer and Romer find hardly any case of tax changes driven by cyclical motives after the 1970s.[11] In the case of the United Kingdom, the one country in our sample where fiscal policy is traditionally viewed as being more active, according to Cloyne's dataset, counter-cyclical stabilisation was the main motive behind tax changes between 1945 and 1979; but thereafter, cyclically motivated tax changes are few and far between.[12] "Demand management" fell out of favour at the end of the 1970s.

Third, there is unlikely to ever be a clear dividing line between measures which respond to fluctuations in economic activity and measures which do not. Even if, for example, the principal motivation for a tax increase or a spending cut is to reduce the deficit, surely the size and timing of this intervention is conditioned by the government's view on what the consequences for the economy will be, and this will in turn depend on the perceived cyclical strength/weakness of the economy. In general, it should not be the case that important tax and spending decisions are taken without regard for the state of the economy and the state of the public finances, both of which are intertwined. If this is true, no fiscal measure should really be thought of as "truly exogenous" and dropping any measure may introduce a different bias in the regression.

Finally, we are building a dataset that is intended to serve broader purposes than estimating the impact of tax and spending shocks on output. Excluding some measures may be right for some analyses, but not for others. If our dataset is well documented, future users may be in a reasonable position to adapt our dataset to their purposes, including taking a view on the motivation behind specific measures and/or episodes of policy.

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[11] According to Romer and Romer, "Countercyclical actions were non-existent in the 1980s and 1990s. We find, however, that countercyclical motives were present for part of the 2001 Bush tax cut and all of the post-September 11th cuts contained in the Job Creation and Worker Assistance Act of 2002". The lack of cyclically-motivated tax changes in Romer and Romer's dataset after 1975 can clearly be seen in Panel B of Figure 2 of Romer and Romer (2010).

[12] This can be seen in Figure 2 of Cloyne (2013).

**Table 1**

**Description of Main Features of the Dataset**

| | Time Coverage | | Official/External Estimates | Own Estimates | Indexation | Omitted Spending |
|---|---|---|---|---|---|---|
| | **Start Date** | **Problems with Earlier Period** | **Main Sources** | **Main Sources** | | |
| **Spain** | 1996 | Lack of ESA95 data | Spanish Tax Administration | Economic and Financial Reports accompanying the Social Security Budget | None | Capital transfer to Renfe in 2004<br>Capital transfers to banks in 2011-12<br>Sale of Aguas del Ter in 2012 |
| **France** | 1995 | Lack of detailed expenditures data | Documentation of budget law, stability programmes | Report and analysis of the Court of Auditors | Consumption taxes, income tax and benefits: CPI of previous year | |
| **Italy** | 1991 | Lack of detailed expenditures data | RPP, Stability programmes and other Government planning documents<br>Estimates contained in background documents accompanying legislation<br>Bank of Italy official publications | Bank of Italy publications<br>ISTAT | None | Expenditure reclassification in 1996 and 1998 |
| **Austria** | 1996 | Lack of detailed expenditure data | Stability programmes<br>Estimates contained in background documents accompanying legislation | None | Pensions: Average CPI inflation of August (t–2) to July (t–1) | Effects of reclassification of corporations in 1997 and 2001<br>Subsidies and capital transfers to state owned enterprises |

Robust standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1

**Table 1** *(continued)*

**Description of Main Features of the Dataset**

| | Time Coverage | | Official/External Estimates | Own Estimates | Indexation | Omitted Spending |
|---|---|---|---|---|---|---|
| | **Start Date** | **Problems with Earlier Period** | **Main Sources** | **Main Sources** | | |
| **Portugal** | 1996 | Lack of information on the expected impact of measures | Budget reports<br>Legislation analysis<br>Annual reports published by Banco de Portugal<br>Data collected by Banco de Portugal in the context of the "disaggregated framework" | None | Pensions. HICP of previous year after 2008 | Capital transfers to financial institutions in 2010, 2011 and 2012<br>A different accounting of imputed social contributions before and after 2005<br>The reclassification of some hospitals outside of general government. |
| **Denmark** | 1999 | Lack of data and quality estimates | Danish Ministry of Finance, Danish Ministry of Taxation | None | None | Capital transfers related to Credit Package (Kreditpakken) in 2011<br>Voluntary Early Retirement Pension (VERP) scheme in 2012 |
| **Poland** | 2000 | Low quality of ESA data for years 1995-99, lack of official governmental estimates of new measures | Estimates contained in background documents accompanying legislation<br>Budget Reports<br>Convergence Programmes<br>Supreme Audit Office's (NIK) annual evaluations of state budget execution and monetary policy assumptions | Budget Reports (yearly/monthly)<br>Ministry of Finance data on tax settlements<br>Central Statistical Office<br>Ministry of Labour and Social Policy Bulletins | Excise duty, private income tax, pensions: CPI of current year; the impact of yearly indexation of income thresholds for family benefit – the assumption that the number of beneficiaries will only be determined by the number of children aged 0-24 | Sales of UMTS spectrum (scored as negative gross fixed capital formation)<br>The difference between military equipment deliveries and payments (intermediate consumption)<br>Expenditure financed with the EU funds |
| **United Kingdom** | 1988-89 | Lack of quarterly GFS and detailed tax data | Budget, Pre-Budget Reports and Autumn Statements (1998-2012)<br>OBR Tax Measures Database | HM Revenue and Customs<br>Institute for Fiscal Studies<br>Department for Work and Pensions<br>House of Commons Library<br>Department for Communities and Local Government<br>Office for National Statistics | Consumption taxes, income tax and benefits: Retail Price Index excluding mortgage interest payments (RPIX) until 2010-11, CPI thereafter (average during FY).<br>For Business Rates, CPI of previous September | Transfer of nuclear sites from British Nuclear Fuel (public non-financial corporation) to the Nuclear Decommissioning Authority (central government entity) in 2005-06<br>Capital transfers related to support to the financial system in 2008-09 and 2009-10 |

Robust standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1.

## 4 A preliminary look at the data

This section takes a "horizontal" (cross-country) view of the dataset constructed so far. The intention is twofold: first, to provide preliminarily evidence on fiscal policy in the countries included in the study; and second, to compare our measure of discretionary fiscal policy with other measures. Here we touch only upon broad and general aspects. More detail on a country-by-country basis is provided in the appendix.

Our discussion in this section focuses around a set of charts (one per country) in Figure 1. These charts show the following:

i) The average of our three measures of fiscal policy, *i.e.*, using the three different spending benchmarks. We have averaged the three measures here so as not to overload and confuse the charts in Figure 1, but all three measures are reported in Chart 1 of each country write-up in the Appendix.

ii) The change in the cyclically-adjusted primary deficit as estimated by the European Commission, adjusted in some cases for some well-known one-off transactions.

iii) The consolidation episodes identified by Devries *et al.*

It should be recalled that two of the spending benchmarks are inflation indices. As long as the economy is growing over time, it is normal – by these measures – for fiscal policy to be loosening on average over time. Otherwise, the size of government in relation to the economy would tend to shrink over time.[13] This should be taken into account when interpreting Figure 1.

More generally, it should also be understood that a fiscal policy that is "inactive" according to our measure is not necessarily neutral in the sense of being sustainable. A pertinent example here would be pension spending, in relation to which we measure as policy only the direct effects of changes to pension legislation (especially year-on-year legislated increases). In a context of an ageing population in many countries, policy action is required to make spending on pensions sustainable for the long-term.

### *4.1 The main episodes of fiscal policy*

For only two countries (Italy and the United Kingdom) have we so far been able to extend our dataset back to before the mid-1990s. In the case of Italy, fiscal policy was strongly tightening in the early 1990s as a consequence of the need to deal with the considerable imbalances built up during the 1970s and 1980s and in response to the ERM crisis. In the United Kingdom, fiscal policy had to respond to the large deficit which emerged as a consequence of the recession of the early 1990s. While in Financial Year 1992-93, fiscal policy was loosening, it was tightening during the remainder of the 1990s.

In 1996-97, fiscal policy was tightening in most countries driven by efforts to fulfil the Maastricht convergence criteria.

In the decade 1998-2007, fiscal policy is predominantly loosening in all countries considered. In many cases, this can be seen – at least partly – as a loosening of the purse strings following the fiscal effort undertaken in the run-up to Stage Three of EMU. This loosening of fiscal policy occurred during a period in which cyclical conditions were relatively favourable, especially

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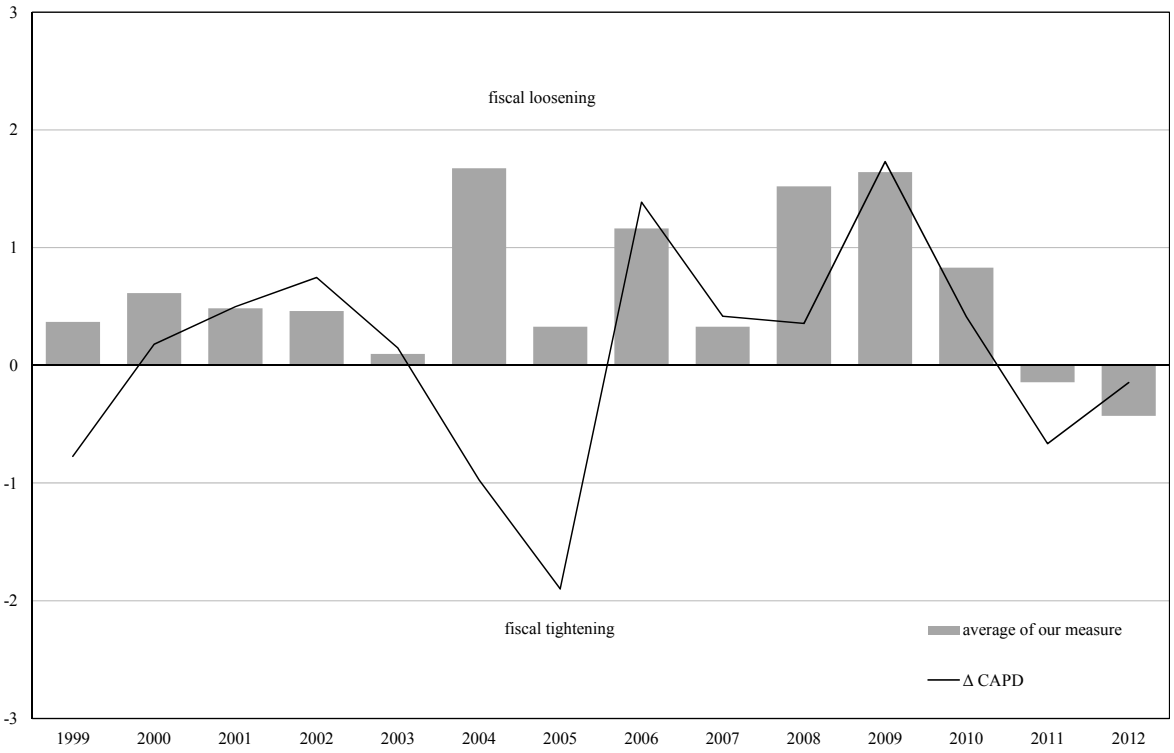
[13] Of course, it could be that the share of government purchases of goods and services (which would broadly correspond to our definition of "other spending") would fall as a share of GDP over time, but this would be offset by rising social spending (especially pensions) leaving the overall share of government spending in GDP more stable.

**Figure 1**

**Fiscal Stance and Average Size of Measures**
**Denmark**




**Spain**

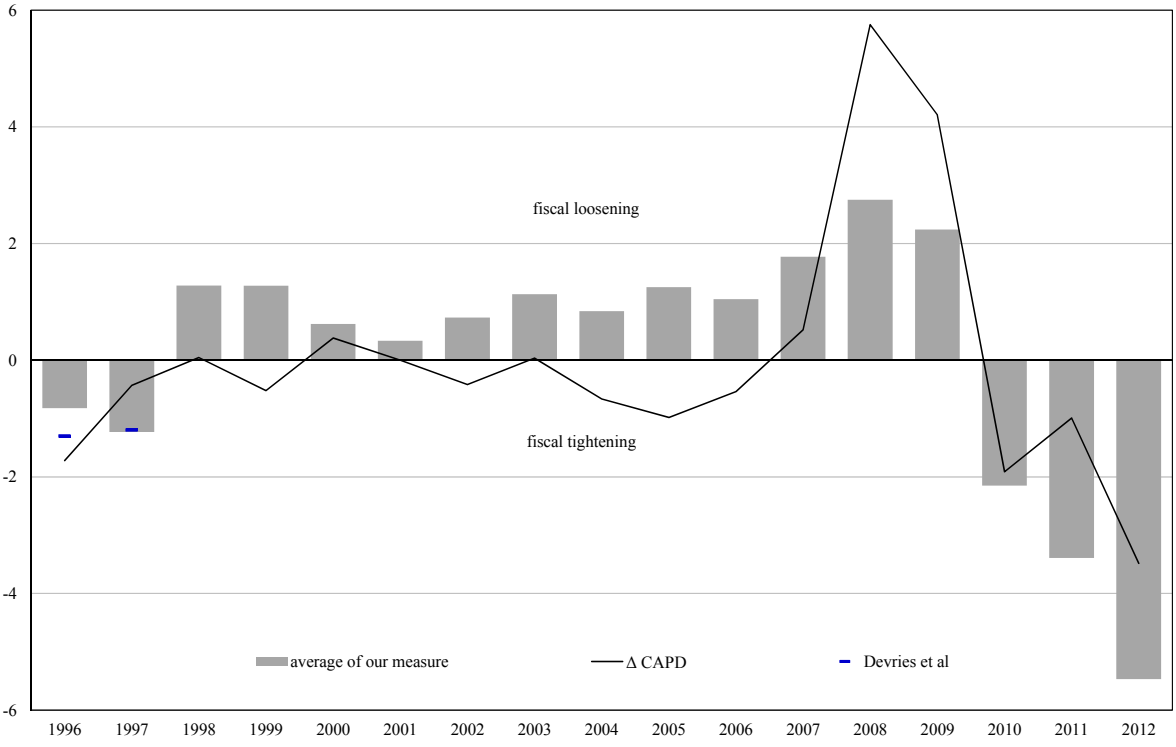
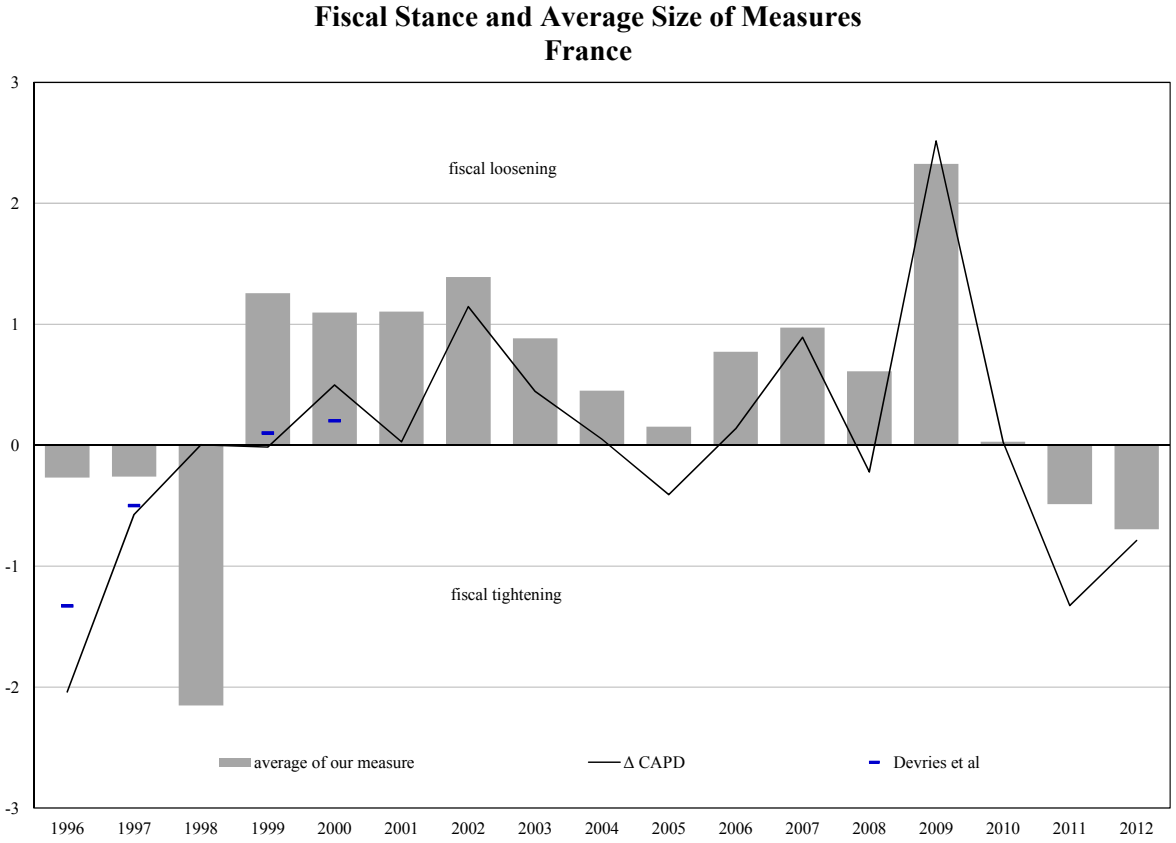


**Figure 1** *(continued)*



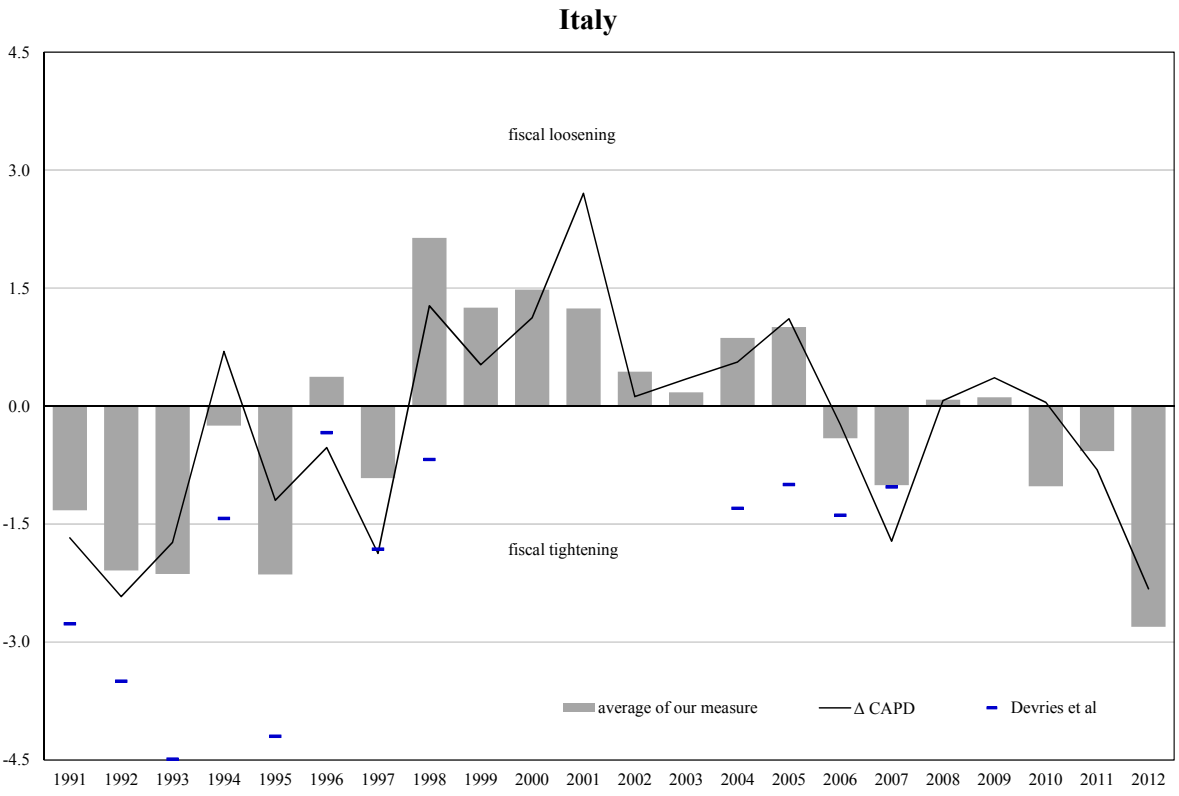
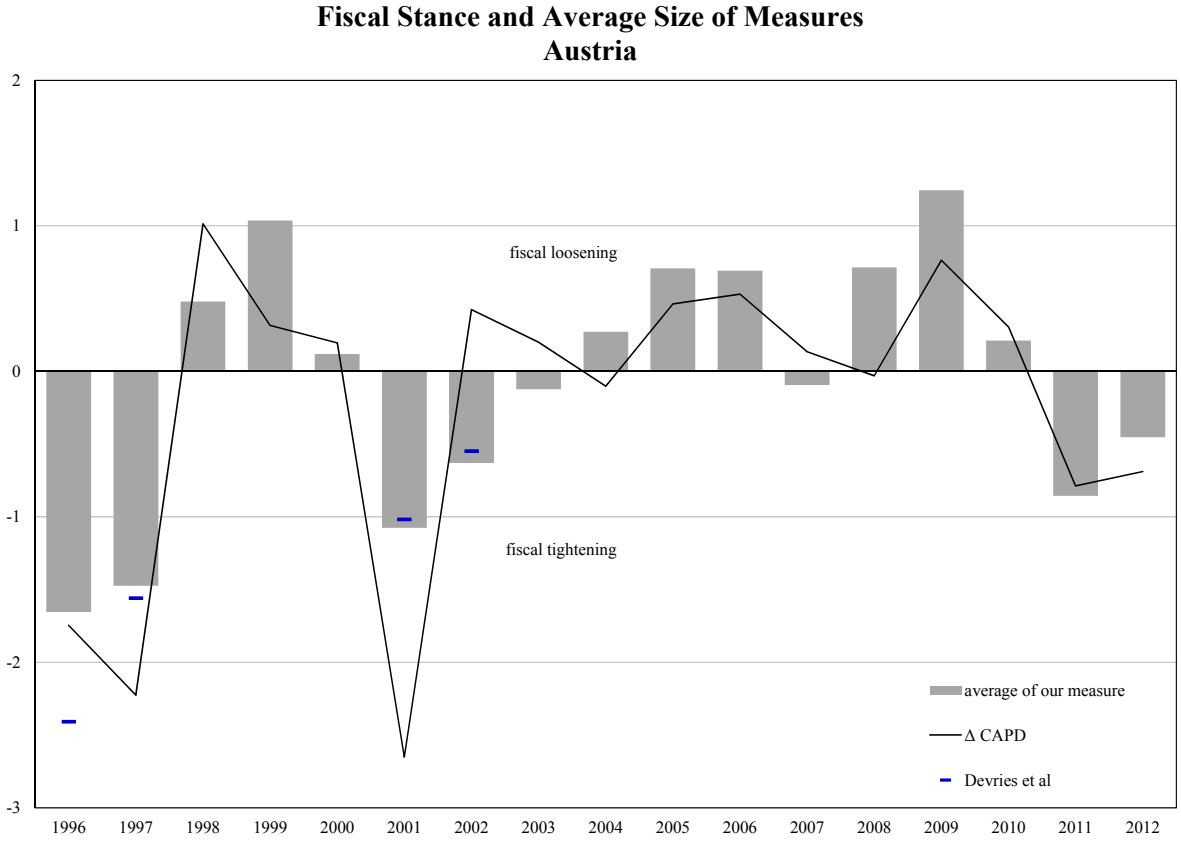



**Figure 1***(continued)*



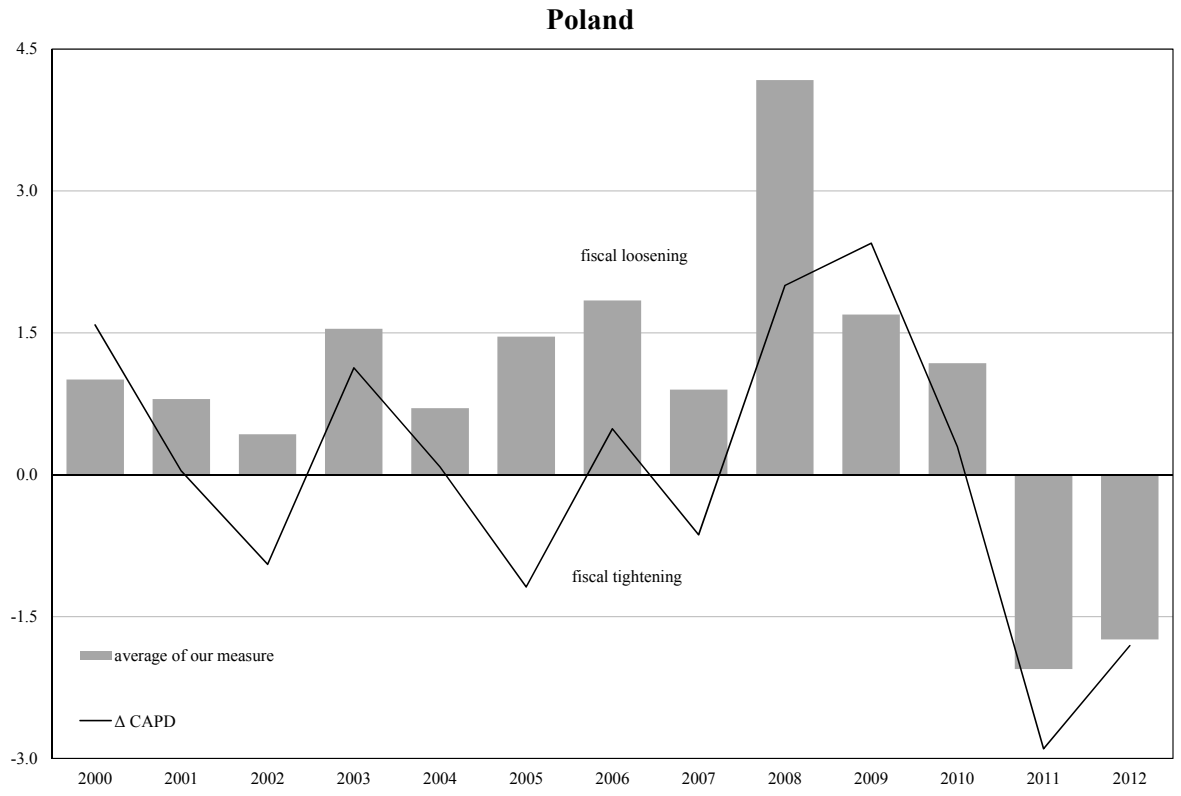
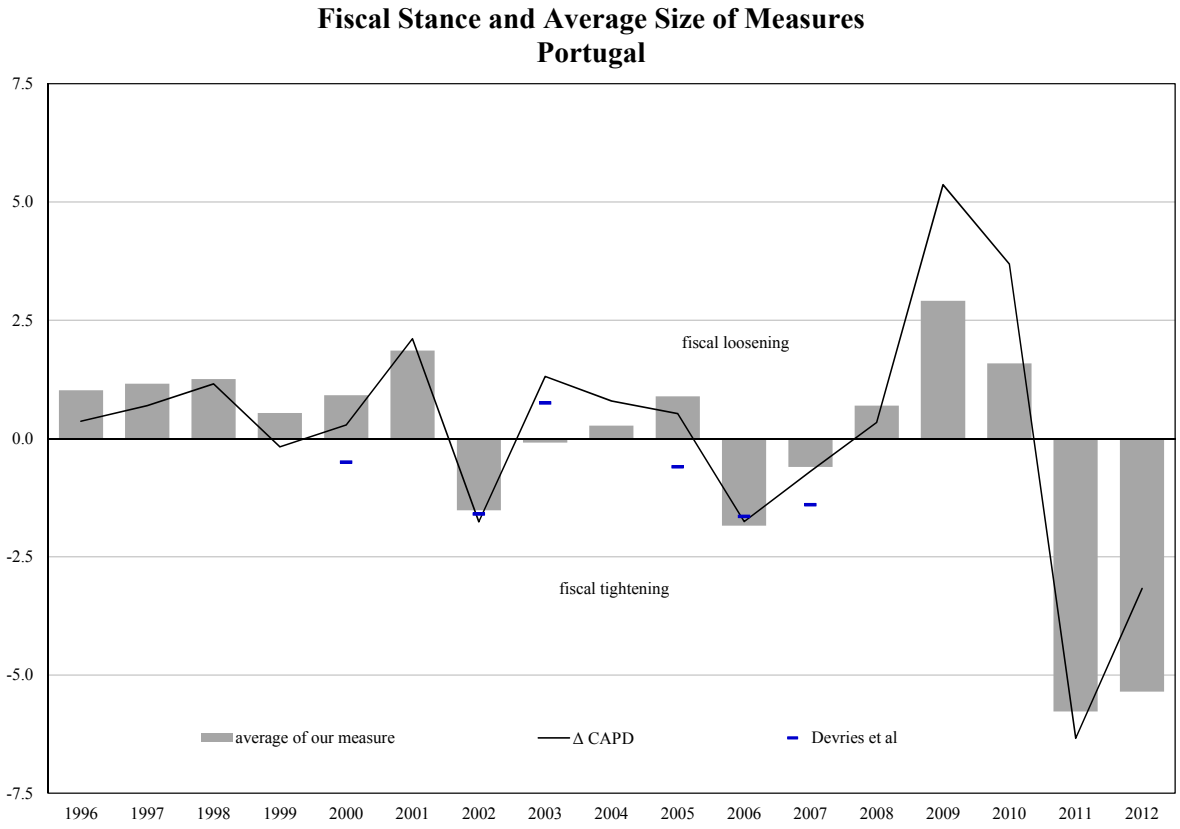
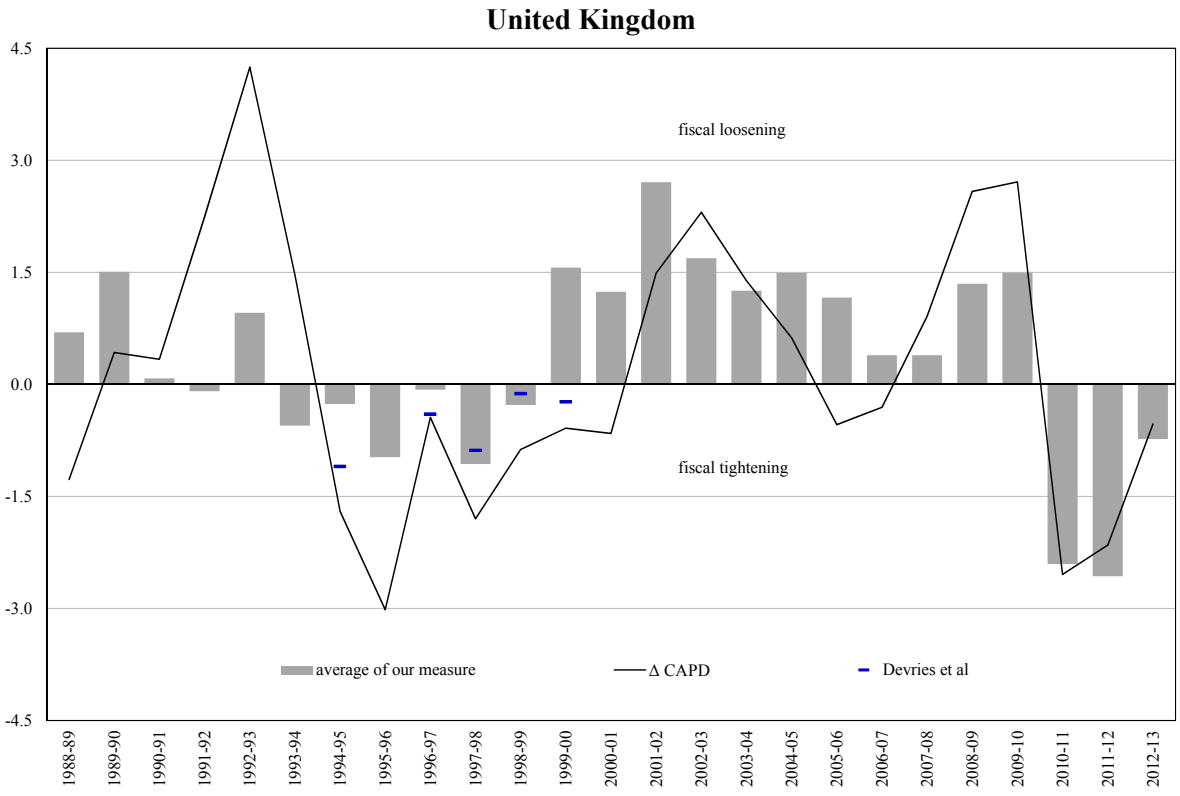



**Figure 1***(continued)*



in the first half of the 2000s. Notable episodes of consolidation are identified only in Austria (2001-02), Italy (2006-07) and Portugal (2002-03 and 2006-07).

The last five years of the dataset cover the period of financial crisis, recession and sovereign debt crisis (2008-2012). Initially, the response of fiscal policy (in 2008-09) was to try and support aggregate demand. This coincided with the call at the EU level, in November 2008, for a coordinated fiscal stimulus: the so called European Economic Recovery Plan. This is the only obvious episode in our dataset of fiscal policy responding in a counter-cyclical fashion to macroeconomic conditions. The major exception here is Italy, which presented a small stimulus package, but one which was fully financed, leaving the overall stance of policy unchanged. During 2010-12, fiscal policy was driven by the need to bring down (in some cases very) large deficits. For Spain, Portugal and the United Kingdom, the magnitude of the fiscal consolidation was unprecedented in modern times. For Italy, the fiscal consolidation was large, but not more so than in the early 1990s (according to our measures). Fiscal policy was also tightening in France, Austria and Poland, but by a lesser order of magnitude.

### *4.2 How does our measure compare to the change in the cyclically-adjusted primary deficit?*

There are not many alternatives against which to benchmark our measure(s) of discretionary fiscal policy. Here we compare the evolution of our measure(s) against: (i) the traditional measure of the fiscal stance, *i.e.*, the change in the cyclically-adjusted primary deficit and (ii) the episodes of fiscal consolidation identified by Devries *et al.* (2011).

For the change in the cyclically-adjusted primary deficit (ΔCAPD), we have taken the estimates produced by the European Commission (except in the case of the United Kingdom, for which, in order to have financial year estimates, we have taken figures from the Office for Budget Responsibility). These are the estimates most commonly used for the purpose of research into fiscal policy in EU Member States. Since the idea is to compare our measure with what researchers might normally use to analyse fiscal policy, we have also corrected ΔCAPD for some obvious, large one-off events (e.g., proceeds from sales of UMTS licences, capital transfers recorded in view of injections of capital into banks during the financial crisis). These are things that we would expect to be spotted and adjusted for by researchers.

A casual glance at Figure 1 is enough to confirm that, as long as we have done a reasonable job in developing our measure(s), ΔCAPD is not a good gauge of "active" fiscal policy. Even though in the majority of cases our measure(s) and ΔCAPD move in the same direction and there are some obvious common trends, major differences – both in terms of sign and size – are definitely not rare events. More details on the reasons for this for each country can be found in the appendix, but one obvious explanation is that the tax-to-GDP (excluding the impact of measures) is not stable.

### *4.3 How does our measure compare to Devries* et al. *(2011)?*

The dataset of Devries *et al.* (2011) only refers to episodes of fiscal consolidation. As such, the comparison with our data can only be for some specific years. For those years for which we can make a comparison, the two measures of discretionary policy nearly always go in the same direction and are often broadly similar in magnitude. However, in some years and for some countries differences are not negligible.

In the case of Italy, the measure of fiscal consolidation contained in Devries *et al.* (2011) tends to be systematically larger than in our data. This is not obviously the case for other countries

(although with generally fewer observations to go by). In some cases, years of consolidation identified in Devries *et al.* (2011) are not identified as such in our data. The obvious cases are Italy in 1998 and 2005, Portugal in 2000 and 2005 and the United Kingdom in FY 1999-2000.

The differences between Devries *et al.* and our measure(s) for Italy, Portugal and the United Kingdom are investigated further in Figure 2, which distinguishes between "tax" and "spending", and also shows our three measures for spending using the different benchmarks.

Often, it is possible to identify the main reasons for the differences. To give some examples:

- The different characterization in Italy in 1998 stems mainly from our estimate of the impact of the IRAP reform. This was officially presented as a revenue neutral intervention (and so would be treated as such by Devries *et al.*), but in our view it turned out to imply a loss of revenue. Also in 2004 and 2005 tax policy in Italy was clearly expansionary given the implementation of the tax reform started in 2003.
- In the case of Portugal, in 2000 we have net tax cuts because of changes to the tax on oil products to offset the effect on consumer prices of rising international oil prices; while in 2005 we have the lagged effect of the cut in the main corporate income tax rate from 30 to 25 per cent in 2004.
- In the case of the United Kingdom for FY 1999-2000, Devries *et al.* are measuring the effect of consolidation measures announced in the November 1996 and June 1997 budgets. By 1999-00, however, fiscal policy had turned more expansionary, with, for example, increases in child benefit and income support, the introduction of working tax credit (which we consider here as benefits spending), and winter fuel payments.

In general, we observe that Devries *et al.* (2011) identified consolidation for a particular year based on a package presented in a particular budget, but may have missed the effects in that year of offsetting measures announced earlier or later.

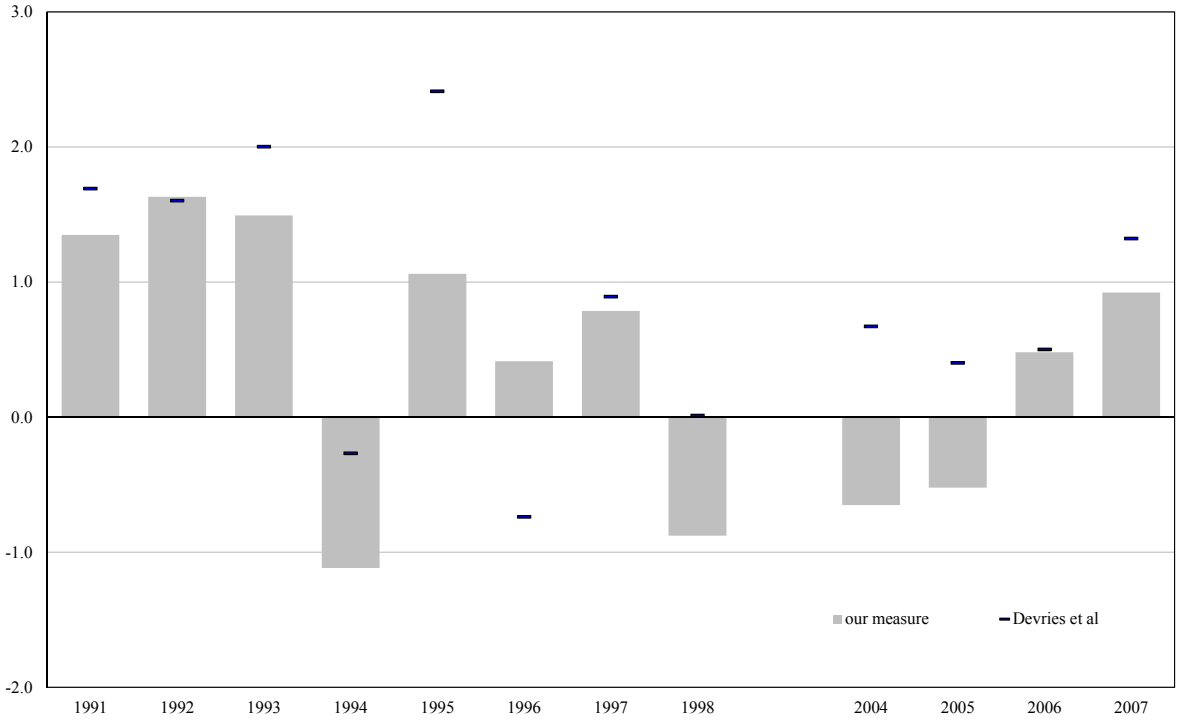
Another general observation is that differences are generally much larger for Italy and Portugal than they are for the United Kingdom, both on the tax side and on the spending side. We consider that this reflects the different nature of the information contained in budget documents in the countries considered.

The United Kingdom stands out as a country where, with very few exceptions, changes to tax and spending are announced on budget day. Moreover, budget documents in the United Kingdom present forecasts for the public sector finances as a whole (and for some years now also on a national accounts basis). The presentation of tax and spending measures is linked very closely to those forecasts, which, moreover, take as a starting point the latest forecast for the public finances in the current year. As a consequence, our measure is generally close to Devries *et al.* for the United Kingdom.

By contrast, in many countries, like Italy and Portugal, budget documents are not in their nature suited to obtaining an overall picture of the active stance of fiscal policy. Especially in the case of spending, budget documents present changes in "appropriations" or "accounts" available for spending by different line ministries, the evolution of which may bear little resemblance to the evolution of actual spending. In many countries, budget documents present spending budgets (appropriations) in relation to the initial budget appropriation of the previous year. There may, however, be either a significant underspend in relation to this budget or the appropriation may have been amplified during the year. So it is quite possible for a budget appropriation to be cut while actual spending increases or vice versa.

**Figure 2**

**Comparison with the IMF Narrative Measures**
**Italy**
**Tax**




**Spend**

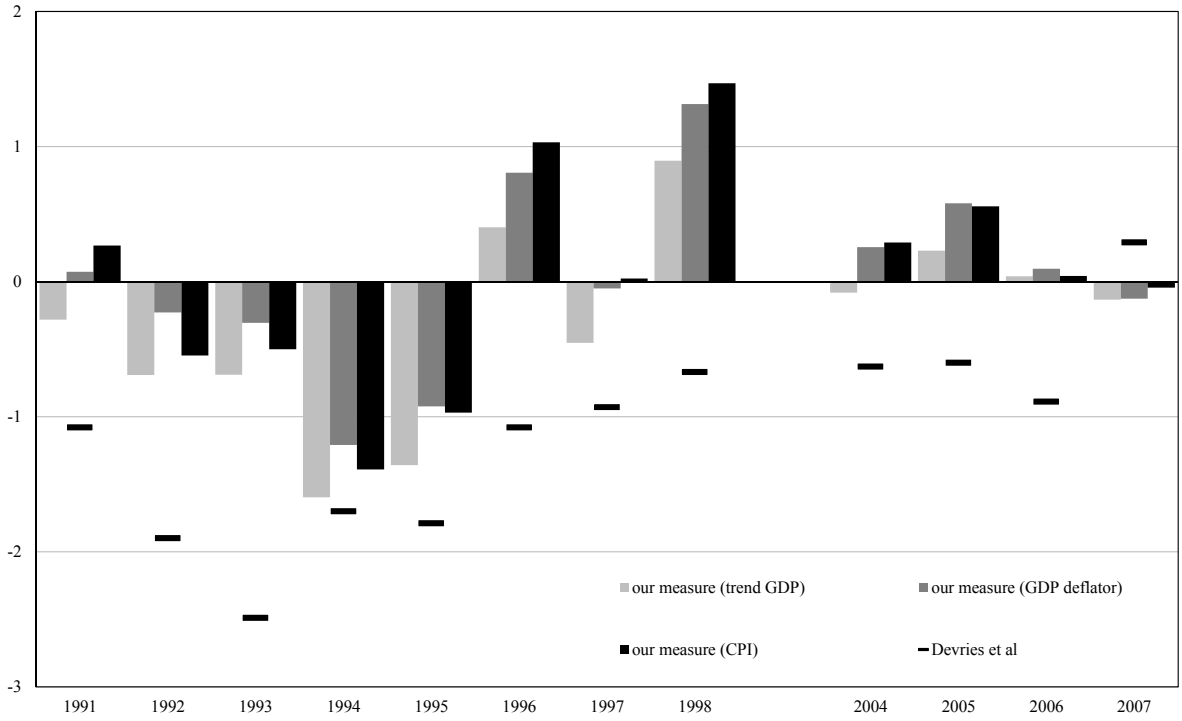
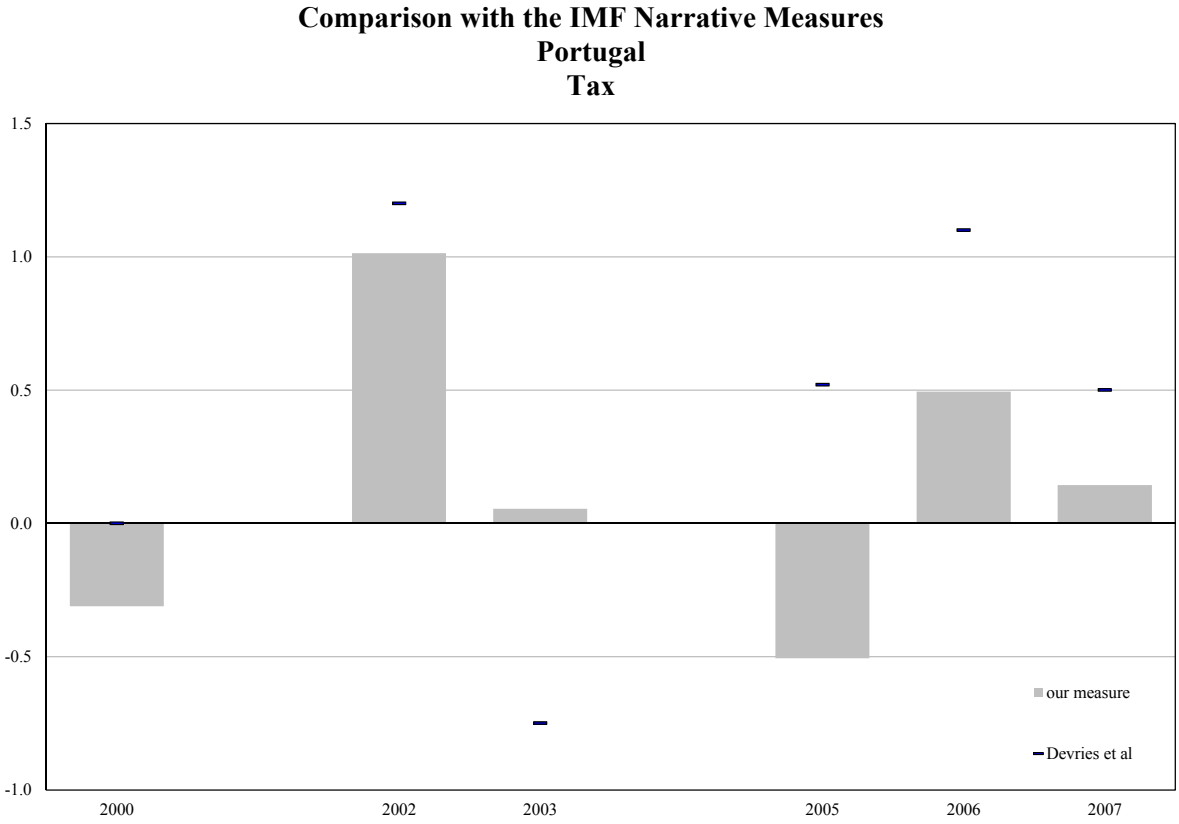


**Figure 2** *(continued)*



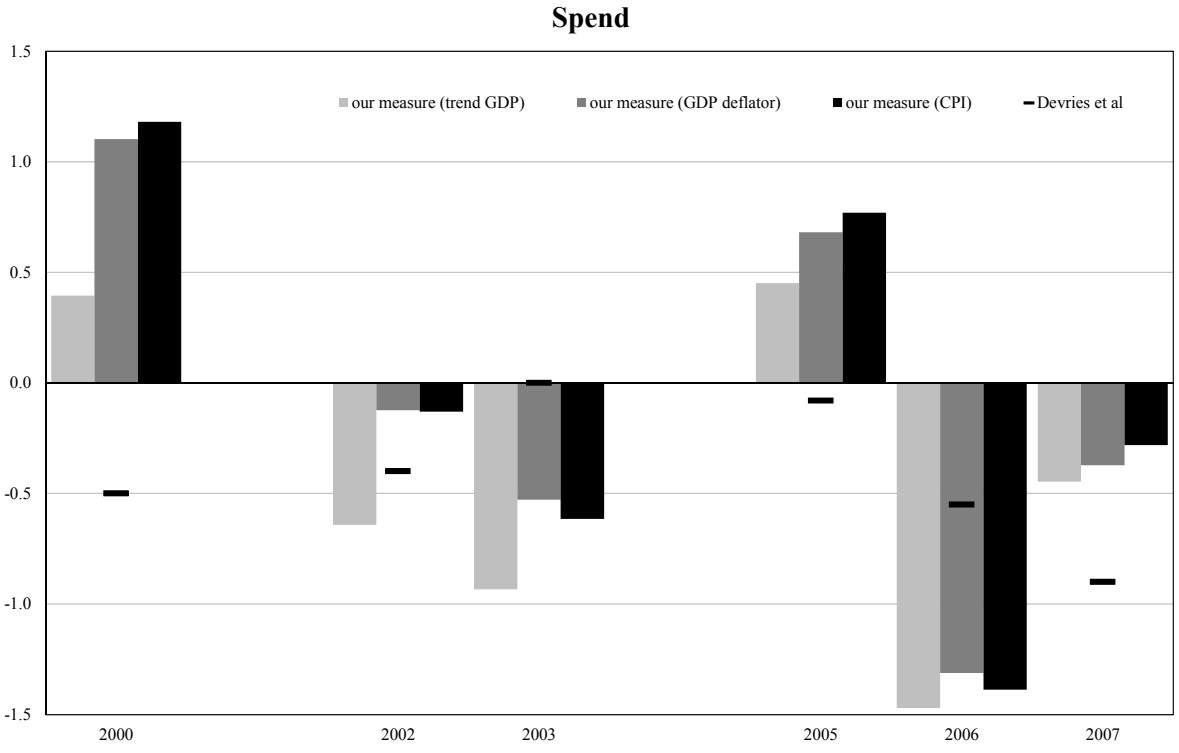
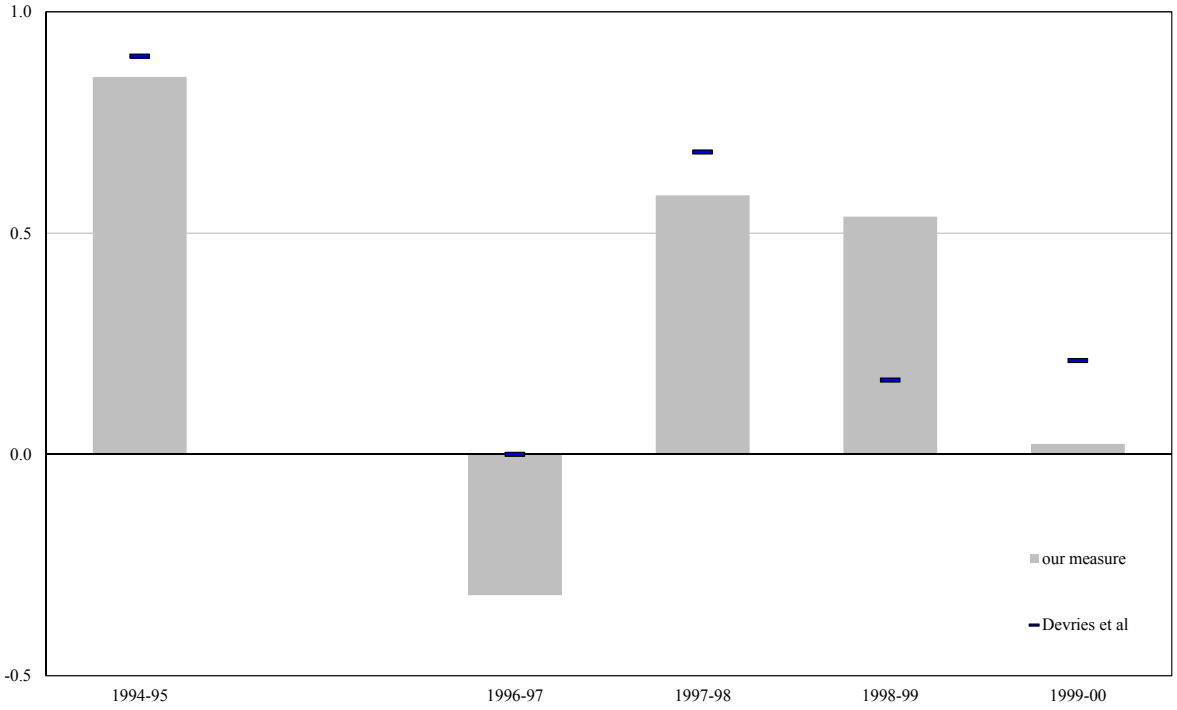
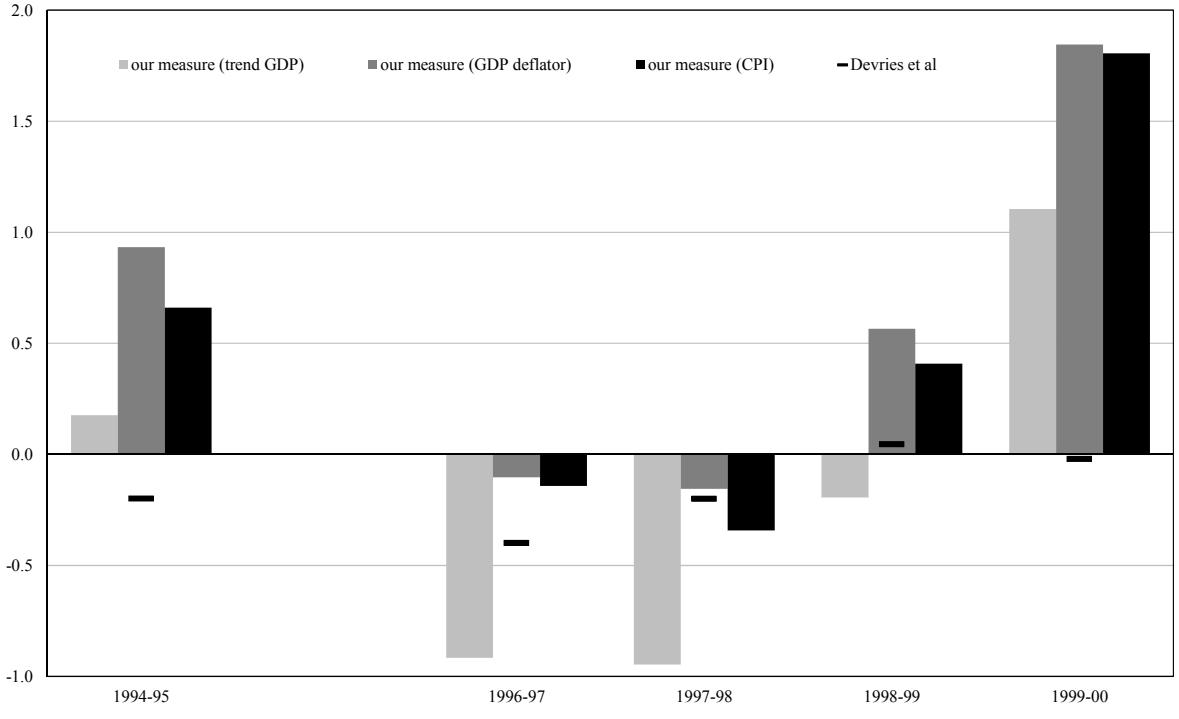



**Figure 2** *(continued)*

**Comparison with the IMF Narrative Measures**
**United Kingdom**
**Tax**




**Spend**



## 5 Some preliminary estimates of fiscal multipliers

Next, we use the data collected to make some estimates of the impact of discretionary fiscal policy on real economic activity. The estimation of so called *fiscal multipliers* is a quite straightforward application of the data. However, as mentioned in the introduction, we believe that our data could be used for a variety of different purposes, including an evaluation of the cyclicality of fiscal policy (as, for example, in Golinelli and Momigliano, 2009) or to assess the stance of fiscal policy.

The estimates we present here are very preliminary. At the moment the data cover a limited number of countries and are still under a process of revision. Besides fine-tuning the datasets we expect to add more countries (and hence more observations) at later stage. The estimates presented here may therefore change and, hopefully, become more robust. Also, at this stage, the econometric specification is kept simple and does not tackle all potentially relevant factors to be controlled for.

The focus of the exercise is on the effect of fiscal policy in the short term, which our data suggest to be restricted to the first two years, starting from the actual implementation of a measure. Robustness checks with more lags in the econometric specification return coefficients that are not significant.[14] For the baseline regression, we only consider the year of entry into force of the legislated change (year t) and the following one (t+1). At this stage, we do not include in our analysis the year in which the measure is legislated, which is usually (but not always) towards the end of the year before entry into force (year t–1), even though this is feasible given the information collected.

We present estimates for both the impact of discretionary fiscal policy overall (*i.e.*, the sum of tax less spending changes implemented in one year) as well as a breakdown of the effect of measures affecting net taxes (tax minus social benefits) and other spending measures. Our baseline regression specifications take the following forms:

$$\Delta Y_{i,t} = \rho \Delta Y_{i,t-1} + \sum_{s=0}^{1} \beta_s \, adj_{i,t-s} + \gamma_i + \mu_t + \varepsilon_{i,t} \quad (1)$$

and

$$\Delta Y_{i,t} = \rho \Delta Y_{i,t-1} + \sum_{s=0}^{1} \omega_s \, tax_{i,t-s} + \sum_{s=0}^{1} \delta_s \, exp_{i,t-s} + \gamma_i + \mu_t + \varepsilon_{i,t} \quad (2)$$

where subscript *i* indexes countries, subscript *t* indexes years, $Y_{i,t}$ is the logarithm of real GDP, the terms $adj_{i,t-s}$, $tax_{i,t-s}$ and $exp_{i,t-s}$ come from our series of discretionary fiscal measures, being respectively total fiscal policy, net tax measures and spending policy; ε is a mean-zero error term which is country and time specific. The specification includes a one year lag of the dependent variable capturing the normal dynamics of GDP and ρ is its autoregressive coefficient. Equation 1 is estimated by including country and year-fixed effects (the terms $\gamma_i$ and $\mu_t$ respectively) to net out from the multiplier estimates all country and year-specific factors.

Equation (2) recalls the setting of Romer and Romer (2010) adjusted to account for the cross-country dimensionality (by mean of country fixed effects) of our data: our coefficient $\omega$ would compare to their tax multiplier after including in their regression episodes of tax changes motivated by expenditure changes.[15]

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[14] This is broadly in line with the finding of Devries *et al.* (2011). Romer and Romer find that the impact of tax measures peaks after 2½ years. Also, we find no evidence of reversion of the impact from the third year onward: the regression coefficients turn marginally negative but not significant at all.

[15] One difference would still remain as Romer and Romer (2010) exclude also episodes of tax changes motivated by the desire to respond to cyclical fluctuations of the economy. However, for the time span covered in our study (1985-2013), they find that such tax interventions are basically not present. See Section 3.

The coefficients of interest are $\beta$, $\omega$ and $\delta$ which represent the direct effects (contemporaneous and lagged) of total fiscal policy, net tax changes and spending policy, respectively. We cumulate the estimated responses at each time lag to recover the cumulative response of real GDP (in logs) to a permanent 1 percent of GDP fiscal adjustment, as well as tax or spending changes. Estimation is by ordinary least squares; robust standard errors of the cumulative responses are calculated via the delta method.

Table 2 provides the results of our econometric specifications. Columns 1 and 2 summarize the results of specification 1, looking at the impact of fiscal adjustment overall. Specifically, column 1 reports the estimated effect of a fiscal tightening amounting to 1 per cent of GDP on real GDP relative to normality (in logs), for our measure of fiscal policy in which other spending is compared to the growth of trend GDP. According to the estimates, a fiscal consolidation amounting to 1 per cent of GDP reduces real GDP by 0.34 per cent in the first year and a cumulative 0.58 per cent after two years. The estimate is in line with what was found by Devries *et al.* (a cumulative impact of 0.62 per cent after two years). It is robust to the approach used to benchmark government spending growth: as shown in column 2, when using CPI as the benchmark, the coefficient is again 0.34 in the first year and just slightly lower (0.53) in cumulative terms in the second year.

Thus, according to these estimates, fiscal policy has a multiplier that is broadly consistent with the 0.5 usually assumed in institutional analyses (see on this Blanchard and Leigh, 2013), and these estimates would certainly reject any hypothesis of self-defeating consolidation.[16] Our regressions do not distinguish between fiscal stimulus and fiscal consolidation, although doing so may be possible at a later stage if more observations can be included in the dataset. Fiscal spillover effects across countries may also be quite relevant, as shown by Auerbach and Gorodnichenko (2013); but, other than controlling for country-specific fixed effects, at present we do not account for such potential cross-country interactions.

Columns 3 and 4 provide the results of specification 2, estimating the impact of changes to net taxes and to other spending (again, in the latter case, using both the trend GDP and CPI benchmarks). The net tax coefficient is always significant: the coefficient is 0.38 or 0.51 in the first year, rising to 0.54 or 0.70 in the second year (depending on the benchmark used to measure spending policy included in the regression). This would be within the range of many previous estimates (see, for example, Jérôme *et al.*, 2008). Turning to other spending, when using CPI as a benchmark, the first year coefficient is 0.31, rising to 0.51 in the second year, and both are significant. When using trend GDP as a benchmark, the coefficient in the first year is small and not significant, while in the second year it is 0.46 and significant. These estimates are relatively low compared to previous studies.

Numerous factors must be considered when analysing the estimates for other spending. First, differently from net taxes, the focus of the analysis on other spending should primarily be on the cumulative effect after two years. Changes to taxes and benefits are in most cases legislated towards the end of year t–1 and fully enter into force already at the beginning of year t. In the case of other expenditure, spending increases or cuts are more likely to take effect during the course of a given year. As such, they are likely to display direct, multiplicative effects in the following year (see footnote 17). Our identifying approach cannot capture this feature. If, for example, a purchase of goods is cancelled in November of year t, we would record it as a spending shock in year t even though this action is likely to produce its (multiplicative) effects only in year t+1.

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[16] Blanchard and Leigh (2013) find evidence of self-defeating consolidation. Apart from their approach being very different from ours, their sample include Greece and Ireland where fiscal consolidation in the last few years took place in a context off (and contributed to) very deep recessions.

**Table 2**

## Regression Results

| Variables | Standard Specification | | | | Excluding Wages | | Excluding Growth Lag | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| | **Fiscal Adjustment** | **Fiscal Adjustment** | **Tax and Expenditure Breakdown** | **Tax and Expenditure Breakdown** | **Tax and Expenditure Breakdown** | **Tax and Expenditure Breakdown** | **Fiscal Adjustment** | **Fiscal Adjustment** | **Tax and Expenditure Breakdown** | **Tax and Expenditure Breakdown** |
| | ***Based on Trend GDP*** | ***Based on CPI*** | ***Based on Trend GDP*** | ***Based on CPI*** | ***Based on Trend GDP*** | ***Based on CPI*** | ***Based on Trend GDP*** | ***Based on CPI*** | ***Based on Trend GDP*** | ***Based on CPI*** |
| Lagged dependent variable | 0.365*** | 0.288*** | 0.375*** | 0.293*** | 0.378*** | 0.300*** | | | | |
| | *(0.0880)* | *(0.0892)* | *(0.0866)* | *(0.0937)* | *(0.0831)* | *(0.0868)* | | | | |
| Fiscal adjustment (trend GDP) | 0.337*** | | | | | | 0.375*** | | | |
| | *(0.0931)* | | | | | | *(0.0980)* | | | |
| *2 years cumulative* | 0.576*** | | | | | | 0.761*** | | | |
| | *(0.110)* | | | | | | *(0.116)* | | | |
| Fiscal adjustment (CPI) | | 0.340*** | | | | | | 0.385*** | | |
| | | *(0.0800)* | | | | | | *(0.0826)* | | |
| *2 years cumulative* | | 0.526*** | | | | | | 0.692*** | | |
| | | *(0.0873)* | | | | | | *(0.0868)* | | |
| Net tax | | | –0.513*** | –0.377** | –0.556*** | –0.422*** | | | –0.510*** | –0.295 |
| | | | *(0.148)* | *(0.165)* | *(0.141)* | *(0.155)* | | | *(0.168)* | *(0.178)* |
| *2 years cumulative* | | | –0.703*** | –0.542** | –0.759*** | –0.588*** | | | –0.884*** | –0.548** |
| | | | *(0.213)* | *(0.244)* | *(0.198)* | *(0.222)* | | | *(0.225)* | *(0.263)* |
| Exp (trend GDP) | | | 0.177 | | 0.230 | | | | 0.255 | |
| | | | *(0.152)* | | *(0.178)* | | | | *(0.169)* | |
| *2 years cumulative* | | | 0.459** | | 0.670*** | | | | 0.653*** | |
| | | | *(0.201)* | | *(0.225)* | | | | *(0.198)* | |
| Exp (CPI) | | | | 0.311** | | 0.388** | | | | 0.437*** |
| | | | | *(0.142)* | | *(0.174)* | | | | *(0.150)* |
| *2 years cumulative* | | | | 0.514*** | | 0.754*** | | | | 0.779*** |
| | | | | *(0.174)* | | *(0.213)* | | | | *(0.157)* |
| Observations | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 |
| R-squared | 0.856 | 0.863 | 0.859 | 0.863 | 0.863 | 0.865 | 0.829 | 0.849 | 0.831 | 0.849 |
| Country FE | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES |
| Time FE | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES |

Robust standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1.

Second, our aggregate of other spending consists mainly of (i) direct government purchases of goods and services, (ii) government investment and (iii) compensation of government employees. The latter is conceptually different from the other two categories in the sense that increases in compensation of government employees can be due either to higher government employment (which should raise output) or increases in average wages (which should mainly affect prices). The response of government employees to an increase in their average wages may be more similar in nature to how they would react to higher transfers (*i.e.*, a part might be saved). In columns 5 and 6 we present estimates excluding compensation of government employees from our aggregate of other spending. When doing so, the coefficient on spending after two years rises to 0.67 or 0.75 (depending on the spending benchmark used). Last, even if not reported in Table 1, we find that when excluding the crisis years from the dataset (*i.e.*, years 2008-12) the coefficient on spending reaches the level of 0.85 (*i.e.*, still below unity).

To conclude this section, let us briefly return to the issue of endogeneity. As noted in Section 3, if our measure of fiscal policy is not truly exogenous (with respect to the economic cycle), our regressions would suffer from an omitted variable bias which, would reduce the size of our estimated coefficients (if endogenous fiscal policy is counter cyclical). In this regard, it is notable that when we use trend GDP as the benchmark to identify spending shocks (columns 3 and 5), the coefficient estimates for both net taxes and other spending become smaller and, especially in the case of spending, less significant. This suggests that the approach based on trend GDP is likely to introduce some bias and requires further investigation.

Following Devries *et al.* (2011), we also run the four regressions of our standard specification after excluding the lagged dependent variable from among the regressors. The results are reported in columns 7 to 10 of Table 1. This is not a robust and conclusive strategy to address the issue, but it is a relevant first step. If fiscal policy is correlated with the cyclical position of the economy, one would expect to see a correlation between lagged growth and fiscal policy and this would affect the coefficient estimates. By contrast, if controlling for lagged growth does not have an appreciable impact on the multiplier estimates, this would suggest that endogeneity is not impairing our estimates.

The results are somewhat mixed. In general, the coefficient estimates remain in a similar range and mostly remain significant. The coefficient estimates do, however, tend to increase in size, especially after two years. Overall, our conclusion would be that, based on this initial analysis, any endogeneity problem does not seem to be that large; but it is certainly an issue to return to when our dataset is refined and expanded to include more observations.

## 6 Conclusions

This paper has presented a new dataset for measuring discretionary – or action-based – fiscal policy in selected EU Member States. The data have been constructed by drawing on experience of compiling estimates of the impact of fiscal policy measures over several years within the European System of Central Banks. It represents a first attempt to document, check and if necessary re-estimate the impact of these measures, as well as to extend this information further backwards in time. The intention is to produce a dataset which is reliable, detailed, available to the public, and which may be regularly updated, improved, and extended to other countries in the future. This dataset may have several potential uses, including the estimation of fiscal multipliers and tax elasticities, the assessment of fiscal effort, and the analysis of the stance of fiscal policy and its composition more generally.

In this paper we have described our data and compared our new measure to other measures of fiscal policy widely used in the past literature, namely ΔCAPD and the dataset constructed by

Devries *et al.* (2011). Even though in the majority of cases our measure(s) move in the same direction as these other measures, and there are some obvious common trends, major differences - both in terms of sign and size - are not rare events. Our analysis supports the view that ΔCAPD is not a reliable indicator of the active stance of fiscal policy. Our measure differs from Devries *et al.* mainly because of completeness (capturing all tax and benefits measures rather than just very specific episodes), and because of the different approach we adopt to measuring fiscal policy in relation to most government spending (adjusted for shifts not related to policy and then compared against a benchmarks for the neutral growth rate).

We have then used our data to make some estimates of fiscal multipliers. The estimates we present are sill very preliminary, but the point to fiscal multipliers that are only marginally higher than the standard ones used in institutional analysis and are broadly in line with the ones estimated by Devries et al. (2011). We find no evidence in support of self-defeating consolidation. The issue of endogeneity warrants further investigation when our dataset has been refined and extended. But our initial assessment is that the issue is not likely to alter the bulk of our estimates and conclusions.

## APPENDIX

The following pages present country write-ups containing the following information:

- The reasons for the selected time period of the dataset (*i.e.*, in particular the obstacles preventing extension of the data further back in time.
- Details of the sources and methods used to compile the data. These include the main sources and methods used to obtain estimates of the impact of changes to the tax and benefits system, the identification of omitted spending, and any other information deemed useful to understand how the data was compiled.
- A brief analysis of the data (accompanied by a common set of charts). This includes highlighting the main episodes of fiscal policy, how our measure of fiscal policy differs from the fiscal stance, as measured by the change in the cyclically-adjusted primary deficit, the main tax measures introduced during the sample period and how the incidence of tax measures compares with the change in the tax-to-GDP ratio.

The countries included are:

- Denmark
- Spain
- France
- Italy
- Austria
- Poland
- Portugal
- United Kingdom

# DENMARK

## 1 Time period

The dataset for Denmark covers the period from 1999 to 2013. The starting point is chosen to ensure sufficient data coverage and an appropriate quality of the estimations of the impact of tax changes. The dataset is mainly based on publications from the Danish Ministry of Finance and legal documents combined with estimates produced by the Danish Ministry of Taxation.

## 2 Sources and methods

### *2.1 Impact of tax and benefit changes*

The estimates of the impact of changes to tax and benefits legislation are based on public information from the Ministry of Finance and the Ministry of Taxation. Measures amounting to around or above 0.1 per cent of GDP have been included. However, some measures smaller than 0.1 per cent of GDP have also been included if they were part of a package of measures, which have a total size above 0.1 per cent of GDP. Generally, on the revenue side, the direct effects have been reported and on the spending side the initial measures have been reported (*i.e.*, the 2nd round effects have not been included in the reported size of the measure). Due to the high standard and broad data coverage from the ministries it has not been necessary to make our own estimations.

#### *2.1.1 Other spending*

The spending data is that contained in the 2013q3 release of the quarterly national accounts published by Statistics Denmark.

#### *2.1.2 Omitted spending*

The Credit Package (in Danish: Kreditpakken) from 2009 offered interest-bearing government loans to banks and mortgage institutions. It resulted in capital injections of hybrid capital of 45 billion DKK carrying an interest rate of 10 per cent in average. In 2011 the capital injection/government loans were written down by 2.5 billion DKK due to losses on loans.

In 2012 people who chose to leave the Voluntary Early Retirement Pension (VERP) scheme where given refunds of their contributions, around 29 billion DKK. The contributions to the VERP scheme were tax deductible and should be taxed when paid out the person when receiving the VERP payments. In 2012, if a person chose to leave the scheme in the time window April to October, the refunds were tax free. The measure had a liquidity effect but no effect on household wealth.

## 3 Analysis

### *3.1 The main episodes of fiscal policy*

In 1999 fiscal policy tightened slightly as a consequence of the 1998 tax reform, which was implemented in order to ensure more expedient balances (both internal and external).

The loosening of fiscal policy in 1999-2010 is to be seen in a context of persistent overspending in the public sector in this period. Every year from 1999 to 2010 (except 2003) public

consumption in volume terms increased by more than planned by the government in its medium-term plans. This was in particular due to budget overruns in the municipalities. As a consequence, public consumption as a share of potential GDP increased by 3 percentage points from 1999 to 2009. Furthermore, the tax freeze, which had effect from 2002, also contributed to the loosening of fiscal policy up to 2010. Taxes on labour income were also lowered in this period.

In 2008-10 fiscal policy was loosened significantly to mitigate the impact of the financial crisis on economic activity. Public investment projects were initiated, public consumption was allowed to increase more than initial planned, and the 2009-tax reform, which had impact from 2010, was deficit increasing in the short run.

Fiscal policy tightened in 2011-13 as a result of the measures introduced to lower the public deficit after Denmark became the subject of an Excessive Deficit Procedure (in mid-2010). The measures included a freeze of the tax brackets, which otherwise should increase almost in line with wage inflation, and a tightening of the entitlement to unemployment insurance. Furthermore, it was planned to keep public consumption in volume terms at around its 2010 level until 2013. This was backed up by a much stricter sanction mechanism for budget overruns in the municipalities. Subsequently, the public consumption in volumes has been lower than planned and was, in 2013, a little lower than in 2010.

Comparing our measure(s) of fiscal policy with the change in the cyclically adjusted primary deficit estimated by the European Commission the following is noteworthy. In 2004 and 2005 we would characterise fiscal policy as clearly loosening, whereas the fiscal stance as measured by the change in the cyclically adjusted primary deficit was tightening. This can mainly be explained by extraordinarily high tax revenues from North Sea production, corporate tax receipts, in particular from the financial sector, and the tax on pension yields. The higher revenues were *per se* not driven by discretionary changes in the tax system, but rather by the evolution of the tax base.

### *3.2 Tax measures and changes in the tax-to-GDP ratio*

Changes in taxation during 1999-2002 were driven by the 1998 tax reform. Overall, the reform was revenue neutral, but the composition of tax revenues was changed gradually in the period implying that the reform was not revenue neutral in every single year.

During 2002 to 2009 the government imposed a so-called “tax freeze”. Under this freeze, no tax or duty could be raised. More specifically, if a tax or duty was collected as a percentage rate, e.g. VAT, the percentage rate would not be raised. Accordingly, if a tax or duty was collected by an amount in Danish kroners, e.g. gas duty, the amount in Danish kroners would not be raised. If a tax or duty had to be raised, the higher revenue should be used solely to decrease another tax or duty. Furthermore, as part of the tax freeze, a ceiling measured in Danish kroners was introduced for the property value tax.

The tax freeze has an impact on the reported tax measures if the tax revenue normally would have increased but did not due to the freeze. This was the case, for example, when the property value tax did not increase in spite of rising house prices up to 2007.

In 2004 taxes were lowered on labour income, and in 2008 and 2009 the working tax credit and the middle income tax bracket was increased.

In 2009 and 2012 there were two major tax reforms, having impact from 2010 and 2013, respectively. They were to be phased in over a ten year horizon and were both characterised as being deficit funded in the beginning of the phase-in. Thus they contributed to a lowering of the tax-to-GDP ratio from 2010-13.

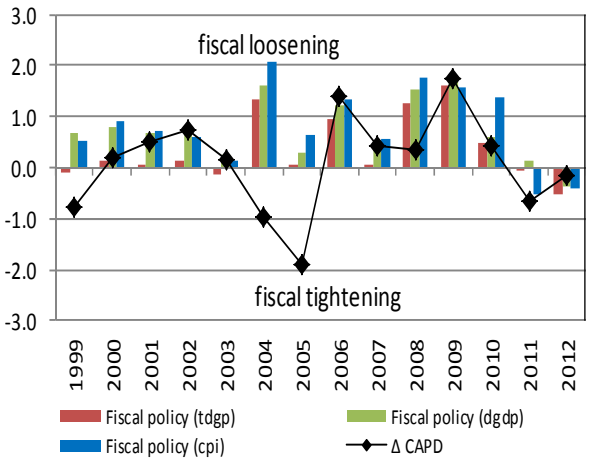
In 2011-13 personal income tax brackets were frozen as part of the measures introduced to comply with the EDP. In 2011 and 2012, however, these measures were counterbalanced by the 2009 and 2012 tax reforms.

Throughout the sample period, the relationship between tax measures and changes in the tax-to-GDP ratio is tenuous. This is mainly explained by fluctuations in tax revenue from the pension yields and from corporate tax, in particular the revenue from oil and gas production in the North Sea and the financial sector, which are quite volatile and not closely correlated with GDP.

## Denmark

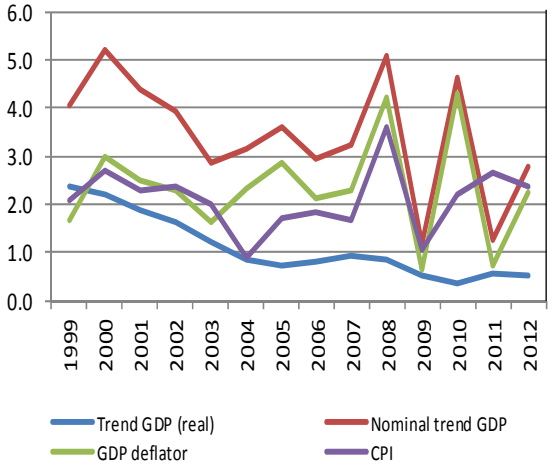
### 1. Measures of fiscal policy

% of GDP



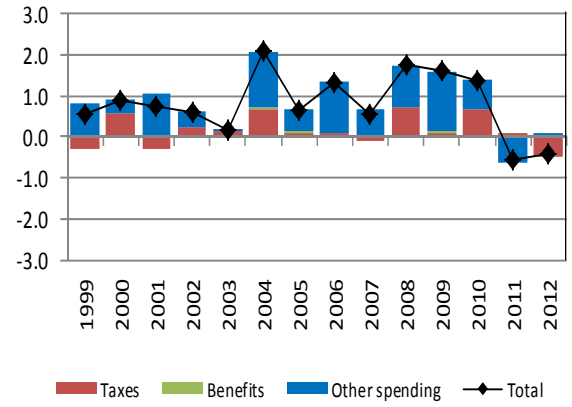

### 2. Spending benchamrks

annual percentage change



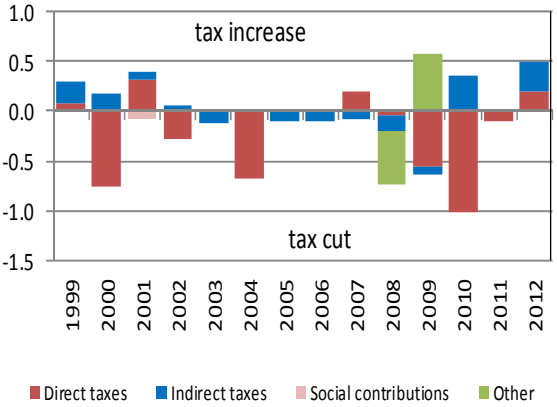

### 3. Composition of fiscal policy

% of GDP ("other spending" w.r.t. CPI)



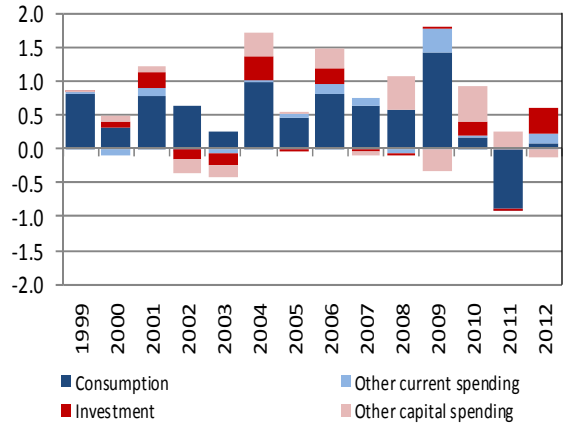

### 4. Composition of tax measures

% of GDP



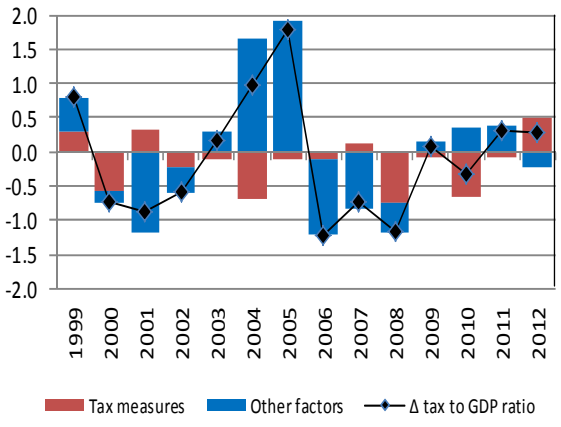

### 5. Composition of "other spending" w.r.t. inflation

% of GDP




### 6. Tax measures and changes in tax-to-GDP ratio

% of GDP, per cent




Notes:

Δ CAPD = change in the cyclically adjusted primary deficit estimated by the European Commission, excluding capital transfers to financial institutions in 2011 and the Voluntary Early Retirement Pension Scheme in 2012

## REFERENCES (DENMARK)

*The Danish Ministry of Finance*

- Annual budget draft (years 1999-2013)
- Annual budget bill (years 1999-2013)
- Budget Review, several editions from 1999-2013
- Economic Survey, several editions from 1999-2011
- Publications with the annual agreements between the government and the municipalities and the regions, several vintages from 1998-2013)
- Several publications published when bigger agreements have been made

*Skatteministeriet (The Danish Ministry of Taxation)*

- Answers to questions raised by members of the Parliament or the Tax Affairs Committee.
- Provenuoversigter (in English: Direct effects from legislation changes), each annual edition from 1998-99 up to 2012-13, accessed online: http://www.skm.dk/skattetal/statistik/provenuoversigter/

*Økonomi- og Indenrigsministeriet (The Danish Ministry of Economics and the Interior)*

- Economic Survey, several editions from 2011-13

*Statistics Denmark*

- Danish EDP notification, October 2013, Supplementary table for the financial crisis, online: http://www.dst.dk/da/Statistik/emner/offentlige-finanser/oemu-gaeld-og-oemu-saldo.aspx?tab=dok
- Økonomisk-politisk kalender 1997-2013 (In English: Economic-political calendar 1997-2013), online: http://www.dst.dk/da/statistik/emner/konjunkturindikatorer/okonomisk_politisk.aspx
- National Accounts, Q3 2013, dataset
- Quarterly National Accounts, Q3 2013, dataset

# SPAIN

## 1 Time period

The dataset for Spain presently covers the period from 1996 to 2012. The ESA95 data used to construct the spending side of the dataset extends only back to 1995. The dataset is in the process of being extended before this date, which requires building spending aggregates from other sources (e.g. ESA79 data, old vintages of the State Comptroller's dataset BADESPE and historical records from the social security and employment services). Also, for the period before 1995, estimates of tax measures are only partial and need to be made more complete.

## 2 Sources and methods

### *2.1 Impact of tax and benefit changes*

The estimates are taken partly from official sources and are partly own estimates based on official sources. As a rule, identified measures with an impact of more than 0.01 per cent of GDP have been included. Measures to tackle tax avoidance have not been included.

#### *2.1.1 Estimates taken from official/external sources*

Estimates of the impact on net borrowing of changes to tax legislation are based on official sources. The principle sources for recent years are the annual and monthly reports on tax receipts published by the Spanish Tax Administration (AEAT). These are *ex post* estimates, based on actual data for tax receipts and liabilities, and can therefore be considered as very reliable.

In the case of social benefits, official estimates of the impact on net borrowing of changes to legislation are not usually published, although in some cases estimates have been obtained from the documents which accompanied the relevant law through parliament.

#### *2.1.2 Own estimates*

In the case of benefits, the estimates are mainly own estimates based on detailed benefits data. Information is especially detailed for the period since 2000, published in the Economic and Financial Reports which accompany the Social Security Budget. Less information is available prior to this period.

In the case of pensions, legislated increases above (below) the rate of CPI inflation have been considered a discretionary spending increase (cut).

In the case of unemployment benefits and other benefits (except pensions), there have been changes to legislation during the period for which we do not yet have estimates. Pending further investigation, the impact of discretionary changes to these items has been provisionally estimated by calculating hypothetical benchmarks. For example, in the base of unemployment benefits, the benchmark was built from registered unemployment, wage growth in the economy and the evolution of the coverage ratio.

### *2.2 Other spending*

#### *2.2.1 Derivation of spending benchmarks*

- *Nominal trend GDP*: Real GDP from the Banco de España database. Trend component derived using HP filter (λ=30) and then reflated by the GDP deflator.
- *GDP deflator*: from Banco de España database.
- *Inflation*: Consumer Price Index (CPI).

### *2.3 Identification of omitted spending*

- Assumption by the central government of RENFE (national railway company) in 2004.
- Capital transfers related to support to the financial system in 2011 and 2012.
- The sale of Agua del Ter by the Government of Catalonia in 2012.

## 3 Analysis

### *3.1 The main episodes of fiscal policy*

- Fiscal policy was tightening in 1996-97. This was the tail end of the mid-1990s fiscal consolidation, which followed the recession of the early 1990s and was also driven by the need to comply with the Maastricht convergence criteria.
- During 1998-2006 fiscal policy was either broadly neutral or loosening mildly (if "other spending" growth is compared to the growth of trend GDP). Still, throughout this period, spending was growing quite strongly in real terms. There were tax reforms in 1999 and 2003 (mainly personal income tax cuts), otherwise tax policy was fairly quiet over this period.
- Fiscal policy became more expansionary in 2007-09 as the government sought to mitigate the impact of the turnaround in the Spanish housing market, the international financial crisis and recession. While spending growth broadly maintained its earlier course (there were some additional increases in investment spending), there were several, important tax cuts (partly of a temporary nature).
- Since 2010, there has been an unprecedented fiscal consolidation (which gained strength in 2011 and 2012). This has involved significant tax increases, more moderate cuts to benefits, but above all deep cuts in both current and capital spending.

Comparing our measure(s) of fiscal policy with the change in the cyclically adjusted primary deficit, the following is noteworthy. During the period 1998-2006, we would categorise fiscal policy as being mildly expansionary, even though the fiscal stance, as measured by the change in the cyclically-adjusted primary deficit, was either neutral or tightening in most years. This can be mainly explained by the fact that the tax-to-GDP ratio was being pushed higher by receipts from the booming housing market. This situation has unwound dramatically since 2008. As a result, we do not see fiscal policy in 2008-09 as loosening anything like as much as the change in the cyclically adjusted primary deficit would imply. Moreover, in 2011-12, we see a much stronger tightening of fiscal policy than implied by the change in the cyclically adjusted primary deficit.

### *3.2 Tax measures and changes in the tax-to-GDP ratio*

As far as tax policy is concerned, the period up until 2007 was one of relative quite in most years, interspersed with intermittent reforms. In 1997, the introduction of new corporation tax

legislation had a significant revenue raising impact. There were personal income tax reforms in 1999 and 2003 with a revenue-reducing impact.

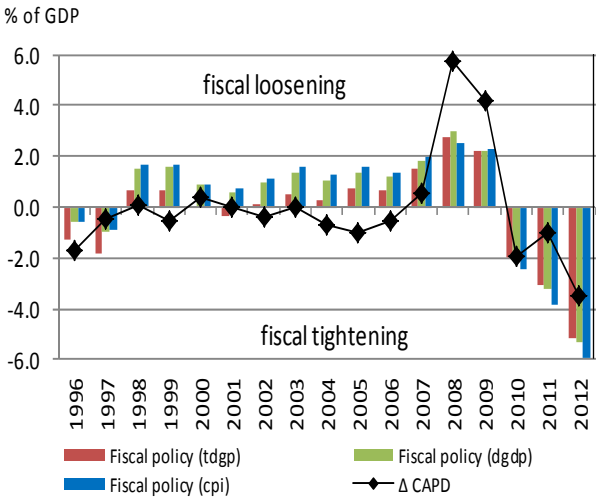
During 2007-09, tax policy was used to provide fiscal stimulus. There were numerous measures, the most important being in the area of personal income tax, including the introduction of a new tax credit for new born children, generous increases in allowances and a rebate on labour income. There were also measures which significantly reduced VAT receipts, although these were mostly of a temporary nature (in particular enabling more small firms to claim VAT on a monthly rather than an annual basis).

Since 2010, there have been significant increases in taxation. These have including two increases in the main and reduced rates of VAT in mid-2010 and in mid-2012. As consequence, the main rate has risen from 16 to 21 per cent and the reduced rate from 7 to 10 per cent. Many of the personal income tax cuts introduced in 2007-08 have been reversed. There have also been several measures aimed at raising personal and corporate income tax receipts, although some of these are, in principle, intended to be temporary.

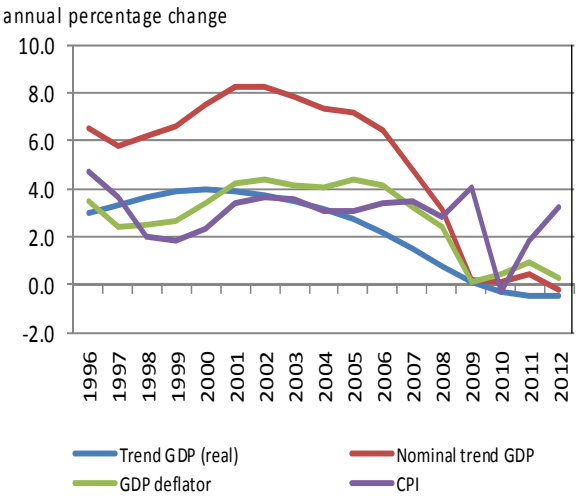
Throughout the sample period, the relationship between tax measures and changes in the tax-to-GDP ratio has been very tenuous. As already noted, from the late 1990s until 2007, the tax-to-GDP ratio was tending to rise in spite of a tax policy that was mostly neutral, with periodic tax cuts. This has its origins mainly in Spain's housing boom, which boosted receipts from VAT and stamp duty as well as personal and corporate income tax receipts on financial profits. This situation has since been reversed. The tax-to-GDP ratio fell dramatically in 2008-09 (by much more than can be explained by tax cuts) and has only risen modestly during 2010-12 in spite of the substantial tax increases.

## Spain

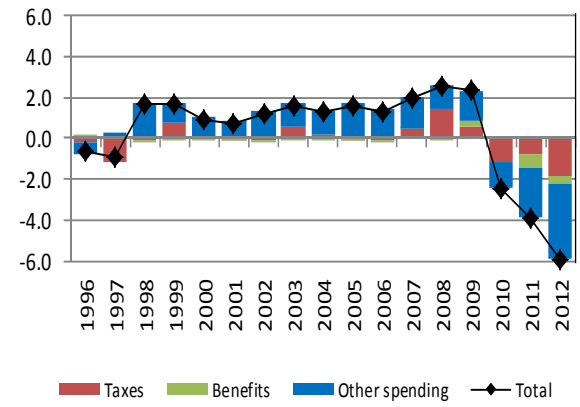
### 1. Measures of fiscal policy



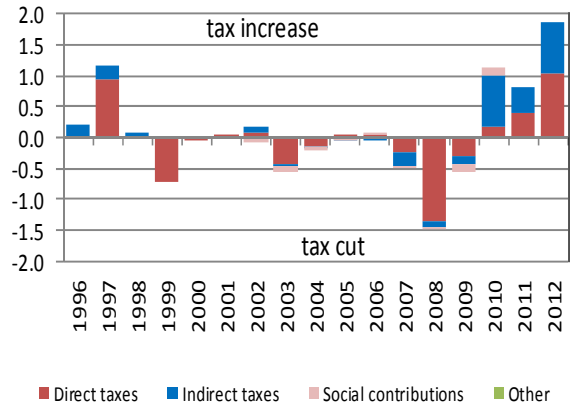

### 2. Spending benchamrks



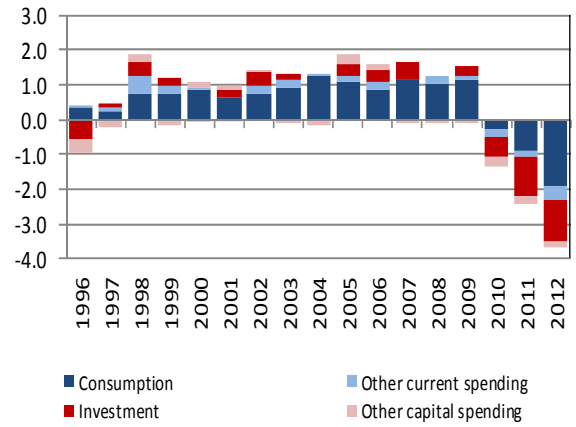

### 3. Composition of fiscal policy



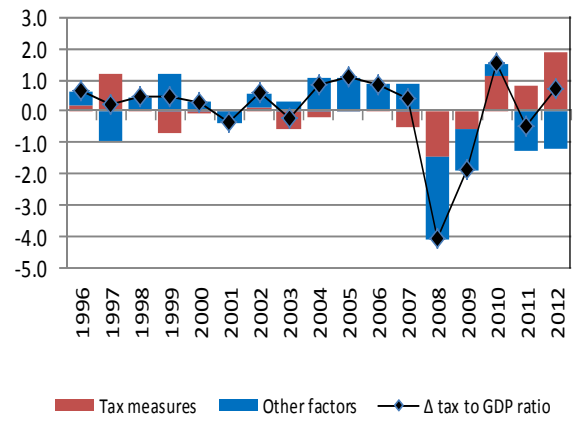

### 4. Composition of tax measures




### 5. Composition of "other spending" w.r.t. inflation




### 6. Tax measures and changes in tax-to-GDP ratio




Notes:

Δ CAPD = change in the cyclically adjusted primary deficit estimated by the European Commission, excluding a large capital transfer to RENFE in 2004, and capital transfers to banks in 2011-2012

# FRANCE

## 1 Time period

The dataset for France covers the period from 1995 to 2012. The starting point is related to the availability of COFOG expenditure data (Classification of the Functions of Government). This data are available only from 1995.

## 2 Sources and methods

### *2.1 Impact of tax and benefits changes*

The estimates of the impact on net borrowing of changes to taxes and benefits draw on both official sources and on own estimates. Identified measures with an impact of more than 0.05 per cent have been included. However, for recent years, identified measures with a lower impact have been included as they were sometimes numerous and could have a significant impact on the aggregate.

#### *2.1.1 Estimates taken from official/external sources*

The Draft Budget Law and the Draft Budget law for Social Security are the main official documents used in order to obtain detailed information on the measures included in Finance Law. These documents give, in general, a complete description of the measures as well as their estimated impact. Some information on these measures could also be found in specific reports prepared by the Parliament and other administrations, in particular the regular report on the tax burden (*Rapport sur les Prélévements Obligatoires*). Another important source of information on the public finances in general – and on changes to the tax and benefits system – is the reports prepared by the Court of Auditors (*Cour des Comptes*). In particular, the Court of Auditors could have a critical assessment regarding the impact of some measures. However, even when they express scepticism about official costings, the auditors do not provide quantitative, alternative estimates.

#### *2.1.2 Own estimates*

Own estimates have been made mainly when the impact of a measure was not available, properly specified, or when official estimates seem to have been wide of the mark (which has sometimes been the case for tax measures on tax). Own estimates have also been made regarding the impact of legislated pension increases above or below inflation.

### *2.2 Other spending*

- The expenditure data are taken from the French National Institute of Statistics (INSEE) accounts (2012 notified accounts released in May 2013).

#### *2.2.1 Derivation of spending benchmarks*

- *Nominal trend GDP*: Real GDP and GDP deflator are taken from the annual accounts until 2012. Data for the period 2013-15 are taken from BDF forecasts release within the Eurosystem.

Assumptions have been defined in order to extend the sample until 2019 in order to run the HP filter. Cycle and trend component are derived using a smoothing parameter equal to 30.

- *GDP deflator*: is taken from annual national account (INSEE).
- *Inflation*: Consumer Price Index is taken from INSEE.

#### *2.2.2 Identification of omitted spending*

- UMTS proceeds in 2000, 2001 and 2012, recording as negative capital transfers payable.

## 3 Analysis

### *3.1 The main episodes of fiscal policy*

- The first years of our sample (1995-1997) are characterised by a fiscal tightening driven by both tax increases (including an increase in the main VAT rate in August 1995) and spending cuts/restraint.
- During the period 1999-2008 fiscal policy was modesty loosening most of the time, with the exception of 2004-05 (after France was made subject to an excessive deficit procedure.
- Fiscal policy loosened significantly in 2009, as the government responded to the financial and economic crisis by trying to stimulate demand through tax cuts and increases in social benefits. The fiscal stimulus combined with recession led to a sharp deterioration in the public finances in that year.
- Fiscal policy turned neutral in 2010, following which a fiscal consolidation was put in place in 2011 and 2012.

Our measure of fiscal policy tends to broadly coincide with the fiscal stance as measured by the change in the cyclically adjusted primary balance. There are some differences, but they are generally small compared to other countries. This is particularly the case if one considers that, when using the GDP deflator or CPI as a benchmark, it is normal for fiscal policy to be loosening on average.

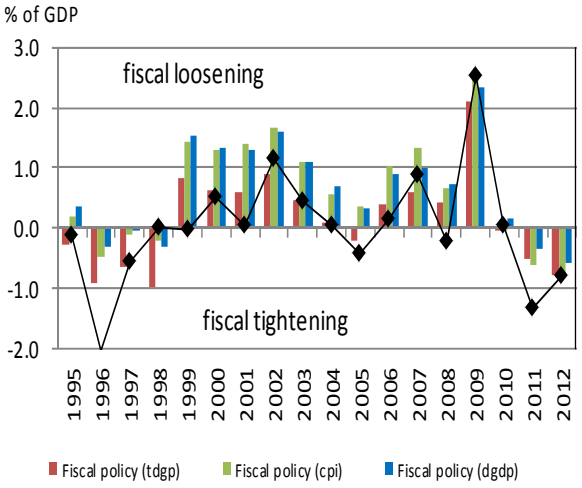
#### *3.1.1 Tax measures and changes in the tax-to-GDP ratio*

During the period considered, the share of fiscal burden (in per cent of GDP) related to Central Government has followed a downward trend. The shares of local government and of social security administrations has increased. In this context, the structure of financing of social security administration has been characterized by the creation and increase of some specific contributions (*Contribution Sociale Généralisée* and CRDS).

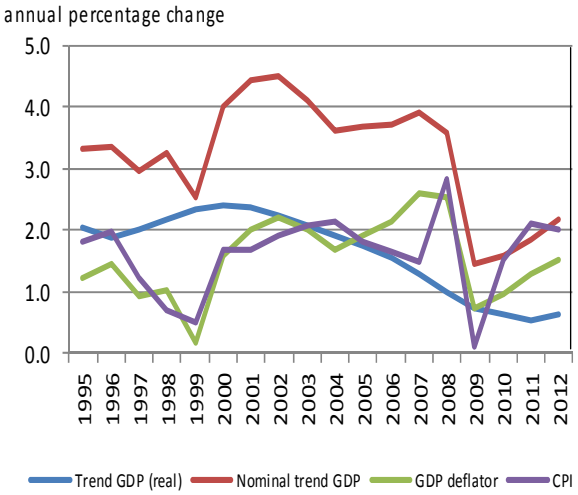
The 2006-09 period has been characterized by tax cuts, mainly cuts in direct taxes in 2009 (the measures were mainly focused on corporate tax during that year). During the 2010-12 period, direct taxes both on households and firms have been increased.

## France

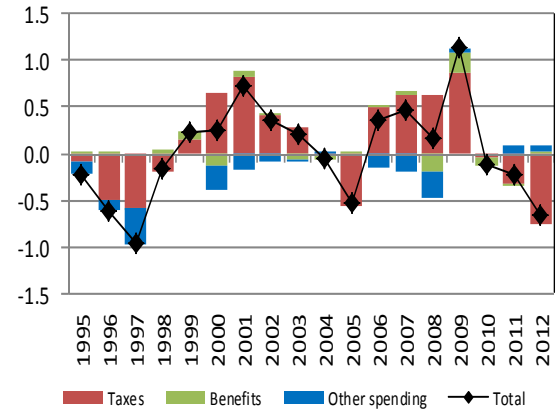
### 1. Measures of fiscal policy



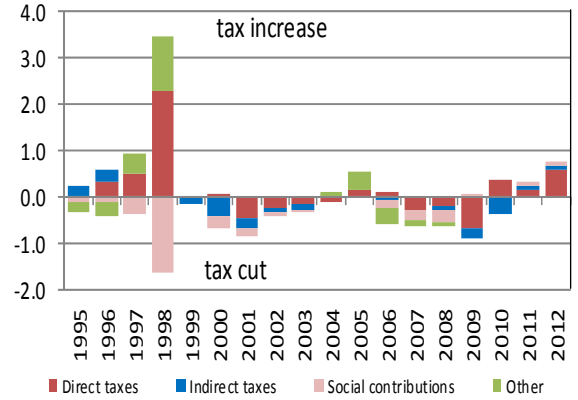

### 2. Spending benchamrks



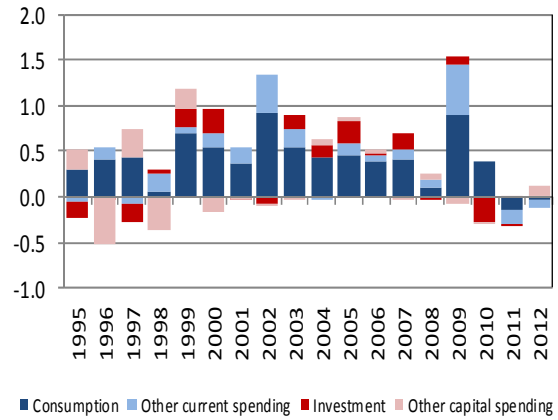

### 3. Composition of fiscal policy



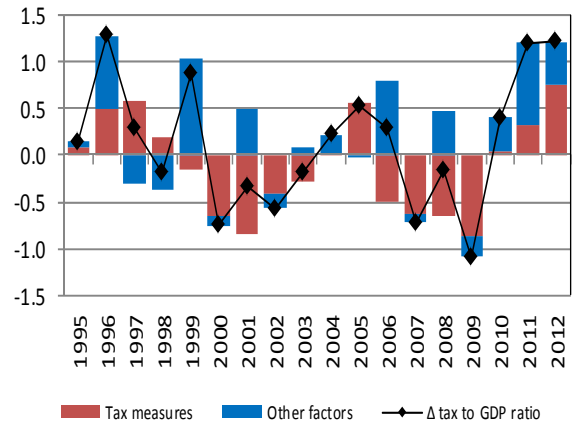

### 4. Composition of tax measures




### 5. Composition of "other spending" w.r.t. inflation




### 6. Tax measures and changes in tax-to-GDP ratio




Notes:

Δ CAPD = Change in the cyclically adjusted primary deficit as estimated by the European Commission

# ITALY

## 1 Time period

The dataset for Italy covers the period from 1991 to 2013. The starting point is imposed by the fact that detailed information on expenditure on an accrual basis is only available from 1990. On the revenue side, given the adopted bottom-up approach, it has been possible to collect data starting from 1987.

## 2 Sources and methods

### *2.1 Impact of tax and benefit changes*

The estimates of the impact on net borrowing of changes to taxes and benefits are based partly on official/external sources and partly on own estimates based on detailed tax and benefits data. As a rule, identified measures with an impact of more than 0.05 per cent of GDP have been included; if possible at low cost, smaller measures have been included too.

Measures to tackle tax avoidance have generally not been included. The treatment of taxes and benefits indexation is differentiated. On the tax side, given the lack of automatic indexation of tax brackets, tax refunds to compensate for the effect of fiscal drag have generally been excluded from the dataset.[17] The changes in the pension indexation schemes, instead, are considered as fiscal measures because any intervention implies a clearly defined regime change with respect to a standard development.

The data do not record measures to finance the programme in support of laid off workers (*Cassa integrazione guadagni in deroga*). This programme needs to be financed via a legislative measure making funds available to it. However, at the same time, funds are usually made available following a discussion with the unions and the firms' association. If applications for the funds by the restructuring firms were not to exhaust the resources apportioned, the latter would not be spent and re-allocated to other spending programmes. Therefore the mechanism tends to work like an automatic stabiliser.

#### *2.1.1 Estimates taken from official/external sources.*

The most important data sources for the estimated impact of measures are:

- *Relazione Previsionale e Programmatica* (RPP), a document published once a year with an official summary of both forecasts and measures approved in the current and previous year. The RPP has been recently replaced by other documents which have been used for later years. Based on the current budgetary cycle, the document of reference is *Documento di Economia e Finanza* (DEF) published in April (along with the Stability programme) and updated in September;
- Overview tables in budgets (the so-called "*Allegato 7*" and, more recently, "*Allegato 3*") and stability programmes;
- The chapters on public finances of the official publications of the Bank of Italy, namely the Annual Report, Economic Bulletin and Testimonies before the Parliament of board members.

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[17] In the past, even though there was no automatic indexation of tax brackets, the budgets have regularly provided resources to compensate for this. More recently, no compensation has been provided. In both cases it is correct to exclude from the dataset both the compensation measures and the lack of them; one would ideally account for the regime switch but it is impossible to identify it. All in all, the amounts involved would always be small.

Most of the time (always in case of a relevant fiscal intervention), each of the sources listed above present estimates of the measures approved. Typically such estimates are similar across documents; but differences may emerge due to different reporting conventions. In all cases, before including an estimate in the dataset, information has been cross-checked and differences explained to ensure consistency. Whenever one of the above documents was not available for a given fiscal intervention or did not describe it (a case occurring only for less relevant fiscal actions), the others available have been used.

### *2.1.2 Own estimates*

Own estimates have replaced the official ones reported in the documents listed above in all cases in which additional information became available and allowed to provide an *ex post* assessment of the impact of the measure. In general, it should be noted that such additional information has been available for tax measures only and were based either on *ad hoc* analyses of the Bank of Italy (documented in the official publications or the research papers) or on official data releases of the statistical office (ISTAT).

The most notable example of the first case is the analysis of the 1998 tax reform. According to the Bank of Italy Annual Report 1998 and Marino *et al.* (2008), this implied a revenue loss of around 0.5 per cent of GDP whereas official estimates described it as a revenue neutral change.[18] Concerning the official data releases of ISTAT, the typical example refers to capital taxes of temporary nature. In the past, the recourse to temporary tax measures has been quite frequent. ISTAT publishes annually the breakdown of capital taxes and this allows us to verify the actual impact of a new tax. Given that these taxes are generally independent of the economic cycle, the official data release of ISTAT can be considered as the best *ex-post* assessment of the measure.

## *2.2 Other spending*

The raw expenditure numbers which are used for Italy are all from the vintage of October 2013. Therefore, they still refer to ESA 1995 definitions.

### *2.2.1 Derivation of spending benchmarks*

- *Nominal trend GDP*: Real GDP and GDP deflator from the ISTAT annual data released in April 2013, extended by the autumn forecast of real GDP by the Bank of Italy through 2015 and by assumptions on 2016 to 2019. Cycle and trend components derived using HP filter ($\lambda$=30). Reflation using GDP deflator.
- *GDP deflator*: ISTAT annual data released in April 2013.
- *Inflation*: Consumer Price Index (CPI) on national basis.

### *2.2.2 Identification of omitted spending*

Spending time series have been preliminarily adjusted to account for reclassification of spending items, the most notable examples being the reforms of 1996 and 1998 which implied shifts between compensation of employees and other spending components.

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[18] The analysis of Marino et al. is based on a methodology which excludes the impact of the economic cycle and supports the view that the revenue shortfall recorded is attributable to the tax reform. The loss of revenue was compensated in the same year by the effect of other measures approved outside the reform itself.

## 3 Analysis

### *3.1 The main episodes of fiscal policy*

Fiscal policy in Italy has been predominantly tightening in the period 1991-2012. Following the substantial increase in government debt and net borrowing during the 1970s and 1980s, fiscal tightening was necessary to ensure the sustainability of the public finances given the large accumulated imbalances. In more detail:

- Fiscal policy tightened substantially between 1991 and 1993. While already in place, fiscal consolidation speeded up quite sharply in 1992 in response to the ERM crisis of the same year. The adjustment was mostly on the revenue side and also including long term interventions such as the major pension reform of 1992.
- A second phase of consolidation was implemented between 1995 and 1997 during the run-up to Stage Three of EMU. The fiscal adjustment had to be quite relevant given the distance between the fiscal indicators and the targets set by the Maastricht Treaty in terms of deficit and debt levels. Once again, it was implemented mostly through intervention on the revenue side (Chart 3).
- Fiscal policy loosened following admission to the EMU (1998-2001). Cyclical conditions were rather favourable in these years, so fiscal policy was pro-cyclical, driven by the intention (often announced in public) to mitigate the effects of the sacrifice required to join EMU. However, the fiscal expansion was not implemented exclusively by reducing the high tax burden achieved in the previous years. Rather, a large part of the fiscal expansion came in the form of higher growth rates of government consumption (and, in 1998, government investment) (Charts 3 and 5).
- In the period 2002-2005 fiscal action remained loose even though the size of action was overall quite modest compared to the previous four years. The impact of the large tax cuts approved and of the relatively high growth rates of expenditure were compensated by sizeable one-off measures on the revenue side.
- In 2006 and 2007 new consolidation measures were implemented, mostly on the tax side.
- The more recent years have been driven by the reaction to the financial and economic crisis. In 2009 a modest stimulus package, mostly on expenditure, was approved but it was fully financed with revenue increases. Since 2010, fiscal policy has tightened significantly in response to the sovereign debt crisis. The fiscal actions involved both tax increases and expenditure cuts.

The characterisation of fiscal loosening and tightening episodes is fairly similar to that as measured by the change in the cyclically adjusted primary deficit, the main differences concerning mainly the size. Yet, some years still display important differences. For example, 2007 and 2010 are characterized by a similar amount of fiscal tightening according to our action-based measure. However, in 2007 the ΔCAPD was bigger than our measure of fiscal action because of significant revenue windfalls, whereas in 2010 it was almost nil because of the very adverse macroeconomic conditions which drastically reduced the effect of the legislated consolidation. In 2001, the fiscal loosening measured by ΔCAPD turned much bigger than the size of legislated measures. Last, in 1994 and 1996 the two measures display an opposite sign (even though the sizes are quite modest in all cases).

### *3.2 Tax measures and changes in the tax-to-GDP ratio*

Our measure of tax policy performs quite well in explaining the dynamics of the tax-to-GDP ratio. Over the whole 1991-2012 period, the cumulated impact of tax measures amounts to almost

5 percentage points of GDP, while the ratio of taxes and social contributions to GDP increased by around 6 percentage points.

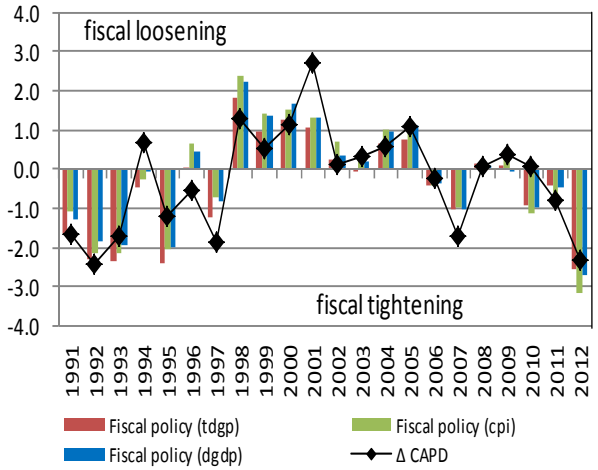
In terms of tax measures, there has been a tendency for indirect taxes to be increased, the biggest interventions being the increases of VAT rates (1991 and 2012), the 1998 tax reform with the introduction of IRAP (1998) and the introduction of the tax on real estate (IMU, 2012). The other important phenomenon recorded by our data is the widespread use of one-off capital taxes, in particular during the periods 1992-97 and 2002-04. Such one-off tax payments refer to both tax amnesties and taxes voluntarily paid for the revaluation of corporations' assets. Changes of direct taxes and social contributions also implied a tax increase over the whole period, even though of a much smaller amount.

In general, and looking at the broad tax aggregates, tax policy has tended to "lean in one direction" in any given year, rather than tax changes offsetting each other. The only notable exception is 1998 when a broad tax reform was passed which replaced direct taxes and social contributions with the introduction of a new indirect tax (IRAP) paid by firms. It should be noted that while ÍRAP is included among indirect taxes, it displays some typical features of a direct tax, namely the fact that a large portion of the tax base is made of compensation of employees. All in all, the IRAP reform induced a loss of revenue even though the announced intention was of a revenue neutral reform.

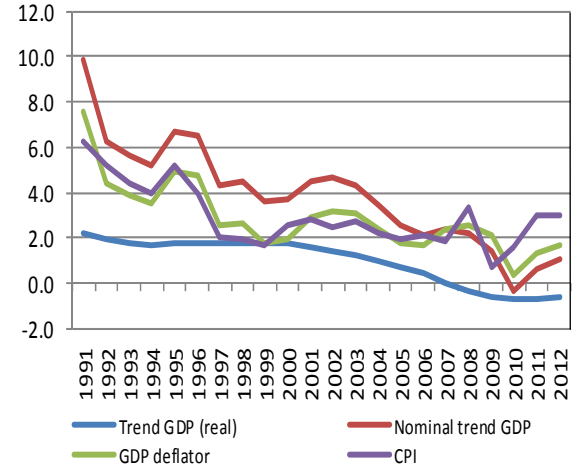
As far as the tax-to-GDP ratio is concerned, Chart 6 signals that our measure of tax changes performs quite well in explaining its evolution over time. Changes not explained by our measure are relevant only in selected years like 1994 when revenue shortfalls were probably linked to the adverse macroeconomic situation or the years 1997 and 2007 characterized by significant revenue windfalls.

## Italy

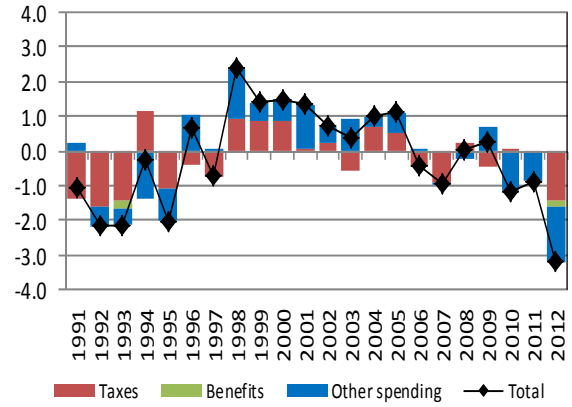
### 1. Measures of fiscal policy



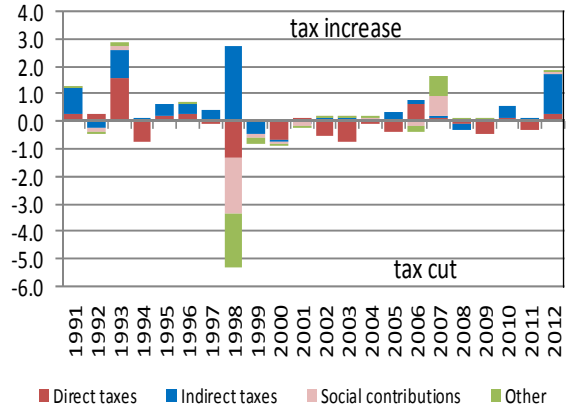

### 2. Spending benchamrks



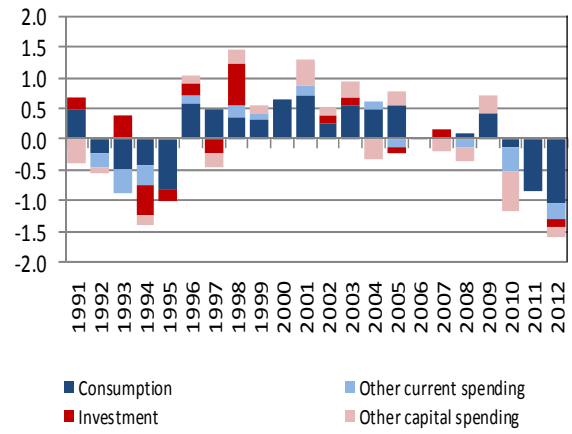

### 3. Composition of fiscal policy



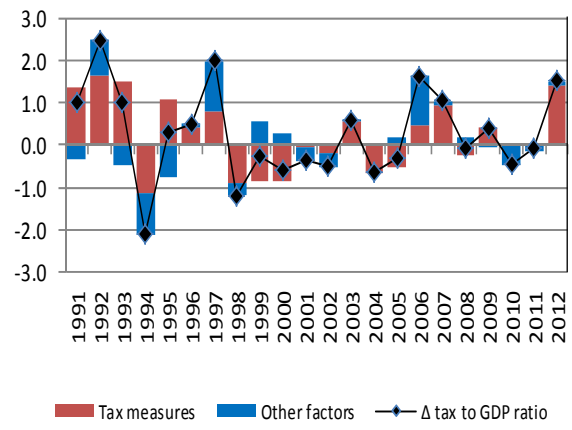

### 4. Composition of tax measures




### 5. Composition of "other spending" w.r.t. inflation




### 6. Tax measures and changes in tax-to-GDP ratio




Notes:

ΔCAPD = Change in the cyclically adjusted primary deficit as estimated by the European Commission

## REFERENCES (ITALY)

*Banca d'Italia*

- Relazione Annuale, various years
- Bollettino Economico, various issues

Istat (2007), "Conti ed aggregati economici delle Amministrazioni pubbliche – Serie SEC95 – anni 1980-2012"

Marino M.R., S. Momigliano and P. Rizza (2008), "A Structural Analysis of Italy's Fiscal Policies After Joining the European Monetary Union: Are We Learning From Our Past?", Public Finance and Management, special issue on Public Finance in Europe. Working paper version: Banca d'Italia, Questioni di economia e finanza, n. 15 (2008)

*Ministero dell'Economia e delle finanze*

- Relazione previsionale e programmatica; yearly releases
- Documento di Economia e finanza; yearly releases

*Parlamento*

- Testi di legge, Relazioni tecniche, Allegati 3 e 7 alle Leggi finanziarie

# AUSTRIA

## 1 Time period

The dataset for Austria covers the period from 1996 to 2012. The starting point of 1996 is imposed by the fact that detailed COFOG (Classification of the Functions of Government) data on government expenditure is only available from 1995 and this data is needed to compile the non-benefits spending part of the dataset.

## 2 Sources and methods

### *2.1 Impact of tax and benefit changes*

The estimates of the impact on net borrowing of changes to taxes and benefits are based partly on official/external sources and partly on own estimates based on detailed tax and benefits data.

As a rule, identified measures with an impact of more than 0.05 per cent of GDP have been included; if possible at low cost, smaller measures have been included too. Measures to tackle tax avoidance have generally not been included.

All policy changes are assessed in terms of ESA categories. This creates differences to official budgetary publications as some (so-called) tax credits are recorded as negative tax revenue in the budget (but treated as transfer spending in national accounts). Furthermore, certain measures on social contributions are labelled as expenditure measures in budget documents (partly by convention, partly due to the fact that higher pension contributions reduce federal transfers to the social security system). Additionally, some other current taxes (part of "direct taxes" in national accounts) are recorded as indirect taxes in national budgetary statistics.

#### *2.1.1 Estimates taken from official/external sources*

While Austria may be a federal country on paper, the central government is responsible for almost all major legislation on taxes, social contributions and monetary social transfers. Therefore the data for Austria relies solely on federal sources. The most important data sources for the estimated impact of measures are:

- explanatory notes on legislation,
- overview tables in budgets and stability programmes, and
- articles on certain measures in non-government documents (e.g. OECD country reports, articles from Austrian research institutes).

It has to be noted that – especially for smaller measures – the date of entry into force is only indicative. In principle, the reported numbers are mainly *ex ante* estimates. *Ex post* numbers are sometimes available for more recent measures (when they are reported also *ex post* in a stability programme).

#### *2.1.2 Own estimates*

Own estimates have been used mainly for three purposes: the abolishment of taxes (the latter sometimes due to court decisions), for assessing the impact of government non-action on tax

revenue and monetary social transfers, and for estimating the impact of deviations of pension indexation from inflation.

- Both the impact of abolished (inheritance tax, "Getränkesteuer" …) and newly introduced taxes have been estimated (in case no official numbers existed) based on cash / national accounts data of the last / first year where the tax has been collected.
- Currently, the legal benchmark for indexation of social security (and other public) pensions is the average CPI inflation from August (t–2) to July (t–1). For each year, the deviation of the adjustment of average pensions from this benchmark (multiplied by aggregate public pensions in t–1 according to ESSPROS) is defined as a measure.
- Among (other) monetary social transfers, long-term-care benefits ("Pflegegeld") and lump-sum family transfers ("Familienbeihilfe", "Kinderabsetzbetrag", "Kinderbetreuungsgeld") are nominally fixed and not automatically indexed to past inflation.
- Among other taxes on goods, most excise duties (except the tax on purchase of cars and around 40 per cent of the partly ad-valorem tobacco tax) are also nominally fixed and not automatically indexed to past inflation.
- Among other current taxes, the same is true for the (households' part of) the motor vehicle tax.
- The impact of non-adjustment of tax levels and transfers in t is assumed to be the expenditure/revenue[19] in t–1 multiplied by the average change of the CPI in t–1.
- Furthermore, income tax brackets are not indexed to past developments of inflation (or average wages). Therefore, bracket creep has been estimated by the revenue from wage income tax and general income tax in t–1 multiplied by the average change of the CPI in t–1 multiplied by 0.9; the latter being the current (as of 2013) estimated elasticity of the income tax on average wages minus 1.

The minimum and the maximum base for social contributions are indexed, so no adjustments have been made there. (Roughly) revenue-neutral shifts between subcategories of social contributions have not been listed as measures.

### *2.2 Other spending*

The raw expenditure numbers which are used for Austria are all from the vintage of October 2013. Therefore, they still refer to ESA 1995 definitions.

#### *2.2.1 Derivation of spending benchmarks*

- *Nominal trend GDP*: Real GDP and GDP deflator from the annual data released in late summer 2013, extended by the autumn forecast of real GDP by the OeNB through 2015 and by assumptions on 2016 to 2019. Cycle and trend components derived using HP filter ($\lambda$=30). Reflation using GDP deflator.
- *GDP deflator*: annual data released in late summer 2013.
- *Inflation*: Consumer Price Index (CPI); this index is used for indexation matters within Austria (e.g., for pensions).

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[19] The expenditure categories mentioned in this enumeration are all taken from the publicly available break-down of spending on social protection (ESSPROS), while the mentioned taxes are all taken from the publicly available overview of tax revenue items in ESA terms.

### *2.2.2 Identification of omitted spending*

The most important omitted spending pertains to the following:

- Interest spending (D.41), employers' social contributions (D.12), taxes paid (D.29, D.5), other capital transfers (D.99; thereby support measures to the financial sector are also excluded) and other (net) capital spending (P.52, P.53, K.2; thereby also excluding net sales of land, emission permits and UMTS frequencies) are all excluded.
- For intermediate consumption (P.2), wages and salaries (D.1), government investment (P.51) and social transfers in kind provided via market producers (D.631) the impact of reclassifications of public enterprises in 1997 and 2001 has been excluded. This has been done using the trend deviations of expenditure in the respective COFOG categories (04.5, 05.1, 05.2, 06.1, 06.3, 10.7 and most importantly 07.3).
- For intermediate consumption (P.2), purchases of interceptor planes have been excluded, too.
- Other current transfers (D.7) to the EU budget have been excluded.
- Within other current transfers (D.7) and investment grants (D.92) the impact of the consolidation adjustment has been excluded (based on COFOG data).
- Subsidies (D.3) and investment grants (D.92) in the (COFOG) areas health (07) and transport (04.5) have been excluded. Most of these transfers go to state-owned enterprises and fluctuations do not reflect the expenditure of these entities.

Note that some of the series will change significantly with ESA 2010 due to a broader definition of gross fixed capital formation (esp. R&D) and of the government sector (inclusion of – among others – state hospitals and the infrastructure unit of the federal railways).

## 3 Analysis

### *3.1 The main episodes of fiscal policy*

Chart 1 shows how different measures of fiscal policy evolve from 1996 to 2012. The main episodes of fiscal policy may be summarised as follows:

- Fiscal policy was very tightening in 1996 and 1997 prior to Stage Three of EMU.
- In the following 2-3 years it was rather loose (in spite of the economy growing rather well).
- In 2001 and 2002 there were again sizeable consolidation measures.
- This was followed by rather neutral policies, the only exception being a (corporate and personal) income tax cut in 2004-05.
- Starting in mid-2008, fiscal policy was loosening with increases in social benefits and (in 2009-10) with sizeable tax cuts amidst high inflation in 2007-08 and the Great Recession of 2008-09.
- The combination of stimulus measures and low growth lead to a sizeable deterioration in headline and structural balances. Therefore, the government implemented tax hikes and cuts in social benefits which came into effect in 2011 and 2012, while at the same time letting other spending grow at comparatively low rates.

The characterisation of fiscal loosening and tightening episodes is fairly similar to that based on the change in the cyclically adjusted primary deficit as estimated by the European Commission

(with adjustments for some very large one-off transactions[20]). One important exception is 2001-02 when the change in the primary balance is heavily distorted by changes in the timing of collection in profit-related taxes. There are also some – albeit much smaller – discrepancies in the first years affected by the Great Recession, where the change in the structural deficit underestimates the amount of fiscal stimulus due to non-policy-driven developments in the tax ratio (see below).

### *3.2 Tax measures and changes in the tax-to-GDP ratio*

Chart 6 reports the change in the tax-to-GDP ratio year-by-year broken down into the impact of tax measures and other factors. Except for the outlier in 2001, the graph shows that when adjusting for the impact of tax measures, the tax ratio moves rather countercyclically (especially so in 2008 to 2012). This is mainly driven by the relatively high taxation of labour income combined with the countercyclical pattern of the wage share.

The most important tax measures since 1996 have been taken in the area of direct taxes. The three major consolidation episodes (1996-97, 2001-02, 2011-12) all included base broadening measures in the area of both personal and corporate income taxes. Moreover, for personal income taxes, bracket creep is quite substantial, which created scope for three major cuts in tax rates or increases in tax brackets, in 2000, in 2004-05 and as part of the stimulus in 2009.

Measures affecting social contributions are relatively rare and typically very small; and the largest covered measure was neutral for the budget balance as the abolishment of the small sickness benefit fund in 2000 reduced social contributions and social benefits by similar magnitudes.

Changes in VAT legislation had relatively minor effects, too. Both the standard and the reduced rates have been fixed at 20 per cent and 10 per cent over the whole horizon, and the allocation of different goods and services to these rates has barely changed.

There have been more measures affecting other taxes on products as excise duty rates are not automatically indexed and as rate increases in mineral oil and tobacco tax (and the introduction of new excise duties like the energy tax in 1996) are typical ingredients of consolidation packages in Austria. Furthermore, one should note that the tax ratio has increased less than one would expect based on tax measures, which can be attributed mainly to the aforementioned decline in the wage share.

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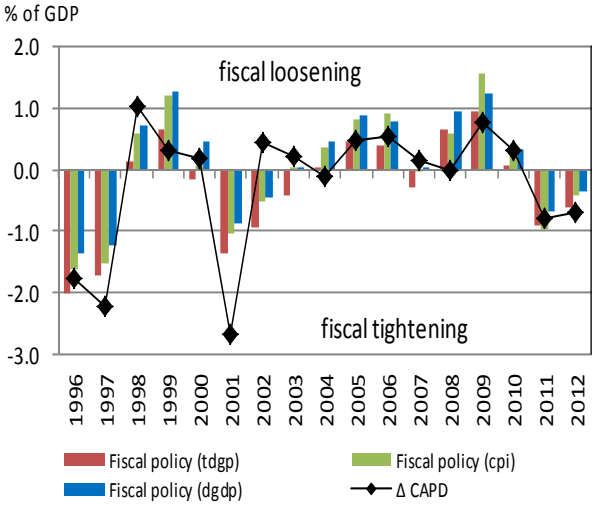
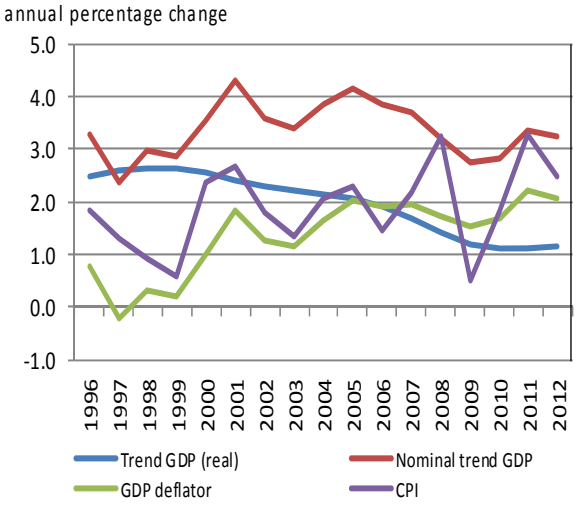
[20] These are transfers to financial institutions from 2009 to 2012, the effect of UMTS sales in 2000 and a large one-off capital transfer to the federal railways in 2004.

## Austria

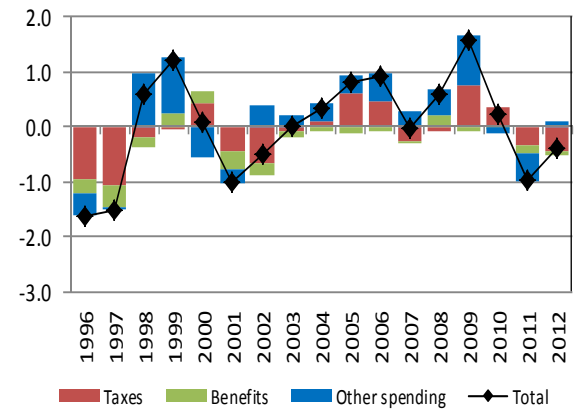
### 1. Measures of fiscal policy



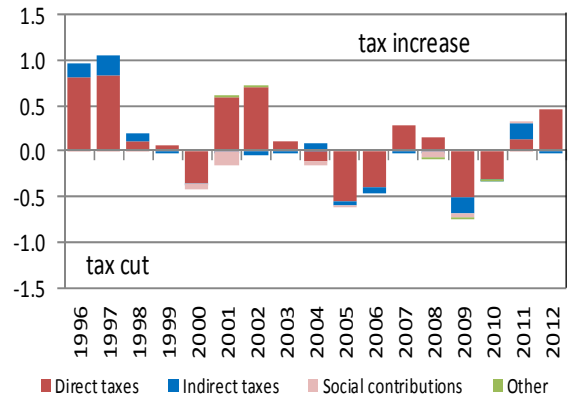

### 2. Spending benchamrks



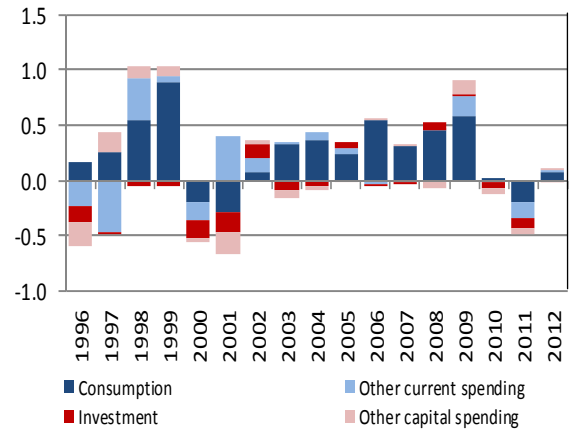

### 3. Composition of fiscal policy



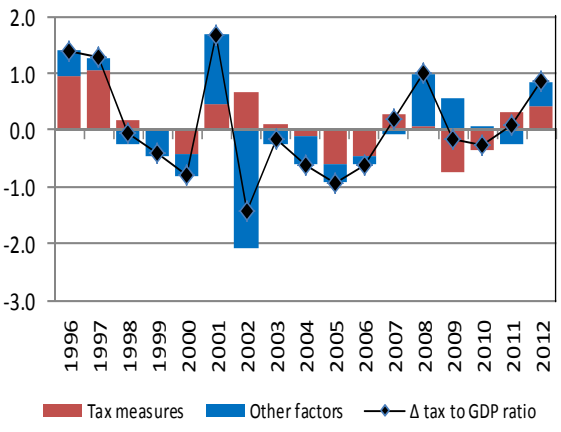

### 4. Composition of tax measures




### 5. Composition of "other spending" w.r.t. inflation




### 6. Tax measures and changes in tax-to-GDP ratio




Notes:

Δ CAPD = change in the cyclically adjusted primary deficit estimated by the European Commission, excluding capital transfers to financial institutions from 2009 to 2012, proceeds from UMTS sales in 2000 and a large one-off capital transfer to the federal railways in 2004

## REFERENCES (AUSTRIA)

*Statistik Austria (NSI)*

- "Steuern und Sozialbeiträge in Österreich, Einnahmen des Staates und der EU (S.13+S.212)" (detailed time series on revenue from all taxes and social contributions)
- Data on GDP, CPI
- Eurostat / Statistik Austria (NSI)
- General government expenditure by function (COFOG)

*BMASK (Ministry for Labour and Social Affairs)*

- "Sozialschutzausgaben in Österreich" (detailed time series on public expenditure related to social protection/ESSPROS)
- "Gutachten der Kommission zur langfristigen Pensionssicherung (§ 108e ASVG) für das Jahr 2012" (includes data on indexation of pensions in previous years)

*Österreichisches Parlament, Bundeskanzleramt*

- Laws including commentaries on changes in taxes, social contributions and social transfers
- Hauptverband der Sozialversicherungsträger
- "Beitragsrechtliche Werte", editions 2003 to 2012 (detailed data on social contribution rates)

# POLAND

## 1 Time period

The dataset for Poland covers the period from 2000 to 2012. The starting point of 2000 is imposed mainly by the low quality of ESA data for 1995-1999 and the lack of official government estimates of new fiscal measures in this period. Moreover, in the 1990s Poland was undertaking numerous, major reforms covering practically every aspect of fiscal policy. Often new regulations were introduced and later withdrawn or appeared to have results far from what had been expected. In view of these difficulties, building a descriptive fiscal policy data base for the period 1995-1999 remains a task for future work.

## 2 Sources and methods

### *2.1 Impact of tax and benefit changes*

The estimates of the impact on net borrowing of changes to taxes and benefits are primarily own estimates based on detailed tax and benefits data, but also draw partly on official/external sources. The relatively greater reliance on own estimates stems from the fact that official sources were often unavailable or unreliable, as regulations frequently changed during the legislative process or results deviated significantly from *ex ante* assessments. As a rule, identified measures with an impact of more than 0.01 per cent of GDP have been included. Measures to tackle tax avoidance have generally not been included.

#### *2.1.1 Estimates taken from official/external sources*

*Draft Budget Act, Annual Budget reports, Convergence Programmes* and background documents accompanying legislation (the *Regulation Impact Assessment*, *OSR* in Polish) published with the law proposal.

*Draft Budget Acts* in Poland are typically published in September of each year. The document usually explains the planned performance of each revenue category in the upcoming year. But it does not usually present direct estimates of the legislation changes determining the forecast outturn. The same applies to Annual *Budget Reports* which are presented in May, after the budget year has ended.

In years 2011-2012 *Convergence Programme updates* included a table with estimates of planned fiscal measures as a percentage of GDP.

*Regulation Impact Assessments* are the best source of estimates concerning the discretionary changes. They usually include detailed estimates of the future impact of the new regulation, conditional on macroeconomic or demographic assumptions. Even so, in many cases, these estimates do not appear valid as: (i) the regulation was changed during the legislative process and updated estimates were not published; (ii) the introduction of the tax/benefit changes was postponed; and/or (iii) the actual macroeconomic and/or demographic situation deviated significantly from the assumptions. In these cases, appropriate adjustments to the original estimates have been made, based on own estimates.

### 2.1.2 Own estimates

Own estimates have been produced whenever official estimates of the impact of tax and benefit changes were not available. The main sources of information have been: data on tax/contribution receipts, rates, allowances and reliefs published by Ministry of Finance and Social Insurance Institution in various statistical publications and budget reports, information on pensions published by the Central Statistical Office and Social Insurance Institution as well as detailed data on social benefit payments published by the Ministry of Labour and Social Policy. When possible, own estimates have also been used to cross-check *ex post* the official *ex ante* estimate.

Additional estimates were produced to ensure a consistent approach across time with respect to the adjustment of duty rates, tax brackets and benefit entitlements to inflation. The approach to compiling these estimates can be summarised as follows:

- *Excise duties:* It is difficult to find a standard practice for changes to excise duty rates in Poland. Rates of excise duty on fuel, tobacco products and alcohol often changed several times per year in the early 2000s and in more recent years have either been increased due to EU requirements, in line with inflation or remained unchanged. In this dataset, the impact of changes in excise duty rates has been estimated by calculating increases in duty rates in real terms (deflated by CPI in the current year) and applying this increase to the relevant receipts outturn. In case excise duty rates were changed more than once in a year, a weighted average of the duty rates in force has been calculated. To do this, data on the various duty rates, tax receipts of the various types of fuel, tobacco and alcohol has been taken from *Budget reports*, *Statistical Bulletins of the Customs Service* and *European Commission Excise Duty Tables*.
- *Income tax brackets:* It is similarly difficult to identify a standard practice in relation to income tax brackets. In some years allowances and thresholds have been frozen, in others they have increased in line with inflation or by more than inflation. The approach taken here has been to compare the increase in allowances and thresholds with inflation. Estimating the impact on receipts is, however, difficult and subject to uncertainty because of the large number of factors which interact to determine the relevant tax liabilities. In Poland, the Ministry of Finance does not publish detailed information on the income distribution of personal income and tax liabilities. Therefore, calculations have been based on the Ministry of Finance note on the fiscal impact of lack of indexation of thresholds in the years 2002-2006 and were crossed-checked with the available estimates from the background documents accompanying the law proposals for raising or freezing the thresholds.
- *Pensions:* The rules regulating the indexation of pensions have varied significantly through the examined period. There were changes concerning the first month of indexation, the indexation frequency (there was no indexation in 2005 and 2007), and, most importantly, the calculation of the indexation rate. Therefore, the approach taken here has been to take CPI in the current year as the 'neutral policy' benchmark for the indexation of pensions. The impact of deviations of the legislated pension increase from this benchmark has been calculated on the basis of monthly data on pensions from The Central Statistical Office *Monthly Statistical Bulletins*.
- *Family benefits:* After the introduction of the new family benefits scheme in 2004, the income thresholds, which in previous years (with exception of 2003) were indexed on a yearly basis, remained frozen till 2012. This has gradually, but significantly reduced the number of beneficiaries. The estimate of the impact of frozen income thresholds was based on the assumption that if the income criteria were changing in line with wage growth (neutral fiscal policy), the number of beneficiaries would be determined by the number of children aged 0-24 (family benefits in Poland are targeted at this age group).

### *2.2 Other spending*

- The spending data is that released by the Central Statistical Office in conjunction with the October 2013 EDP Notification.

#### *2.2.1 Derivation of spending benchmarks*

- *Trend GDP*: calculated using the HP filter
- *GDP deflator*: Central Statistical Office – October 2013
- *Inflation*: Consumer Price Index (CPI) – Central Statistical Office

#### *2.2.2 Identification of omitted spending*

The omitted spending pertains to the following:

- Sales of spectrum in 2000 (scored as negative gross capital formation).
- The impact of the difference between the delivery and payments of military equipment on intermediate consumption (according to ESA95 rules, the expenditures on the military equipment are recognized on the delivery date, even though payment date would appear to be more appropriate from the perspective of analysing fiscal policy).
- Expenditure financed with EU funds

## 3 Analysis

### *3.1 The main episodes of fiscal policy*

The main episodes of fiscal policy may be summarised as follows:

- The fiscal loosening in 2000 driven by a significant cut in the corporate income tax rate and pension scheme reform. The resulting loss in revenue and economic slowdown led to a large increase in central government net borrowing in 2001, which prompted the budget act amendment in 2001 and tightening of fiscal policy in 2002.
- In the following years fiscal policy remained slightly expansionary (mainly due to growing real spending). The largest fiscal expansion happened in 2008 as a result of significant tax cuts and increases in government consumption and investment.
- Finally, with net borrowing having risen to 7.9 per cent of GDP in 2009, the years 2011-2012 saw a considerable fiscal contraction, with large tax increases, and unprecedented, large real terms cuts in spending.

### *3.2 Tax measures and changes in the tax-to-GDP ratio*

Over the whole 2000-2012 period, the cumulated impact of tax measures amounted to around –1 per cent of GDP, while the ratio of taxes and social contributions to GDP declined by 2½ per cent. Factors steadily weighing on the tax-to-GDP ratio have been the tendency for consumption of products subject to excise duty to decline over time; and a declining wage share, as labour productivity in Poland has been growing faster than wages.[21]

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[21] Growiec, J. (2012), "Determinants of the Labour Share", *Eastern European Economics*, Vol. 50, No. 5, pp. 23-65.

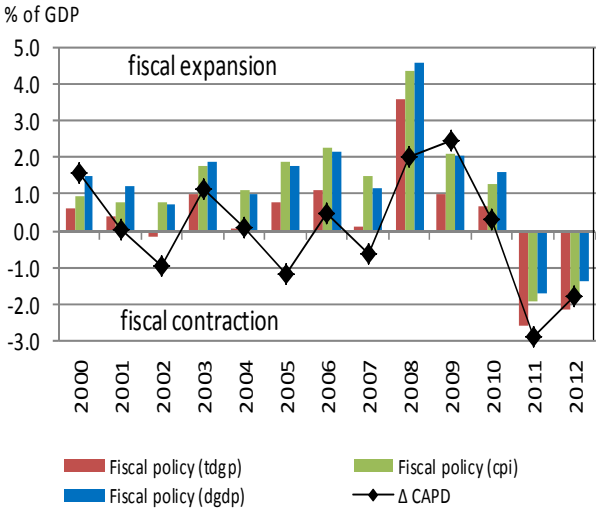
In terms of tax measures, the tendency has been to reduce personal and corporate income taxes and to raise VAT and other indirect taxes. The main corporate income tax rate was cut in stages from 34 per cent in 1999 to 19 per cent in 2004. In the case of personal income tax, predominantly revenue reducing measures have included the introduction, in 2004, of a single 19 per cent tax rate for the self-employed, the introduction of child tax allowance and, in 2009, a reform of the personal income tax scale (reducing the number of rates from 3 to 2). In 2011, the main and reduced rates of VAT were increased from 22 to 23 per cent and from 7 to 8 per cent respectively. Excise duty rates have increased in real terms, with the exception of duty on alcohol.

As far as social contributions are concerned, there have been measures working in both directions, although the net effective of these have been negative (about ½ per cent of GDP). The most important measures include: (i) the 1999 pension scheme reform (which significantly reduced revenue, by creating a funded pillar, classified outside the general government sector in ESA terms); (ii) the gradual increase of health care contribution rate in the years 2001-2007; (iii) the reduction of disability contribution rate in the years 2007-2008; (iv) reduction of the social contribution rate transferred to the Open Pension Funds in 2011; and (v) increase of disability contribution rate in 2012.

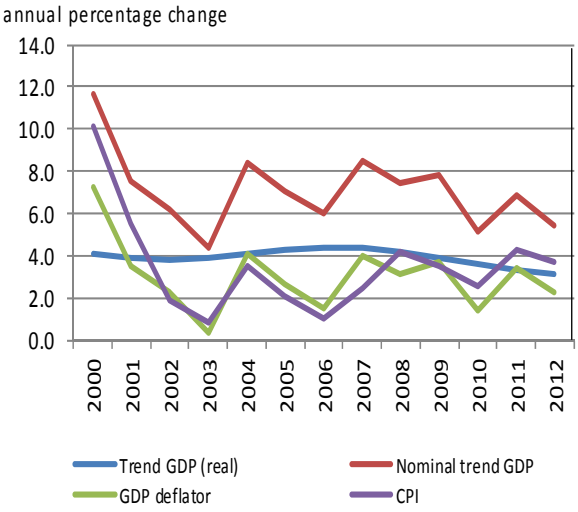
As far as changes in the tax-to-GDP ratio not explained by measures are concerned, these were significantly negative in 2000 and in 2009-12, but significantly positive 2005-08. Apart from the effects of a declining wage share and declining consumption of goods subject to excise duties, it is worth highlighting (i) the fact that the share of direct taxes payable by corporations in GDP has only edged down slightly in spite of the significant cuts in the main corporate income tax rate and (ii) significant shortfalls in VAT receipts during periods of economic slowdown (2000-01, 2008-09 and 2011-12).

## Poland

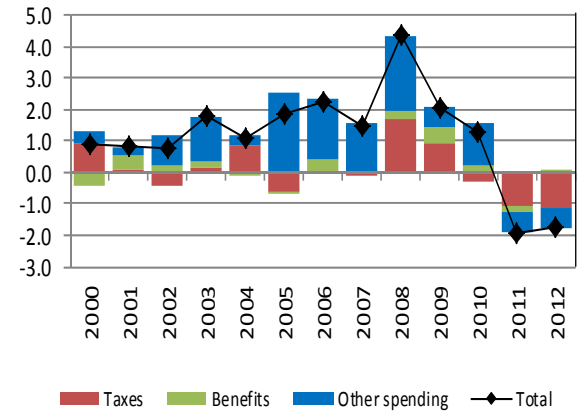
### 1. Measures of fiscal policy



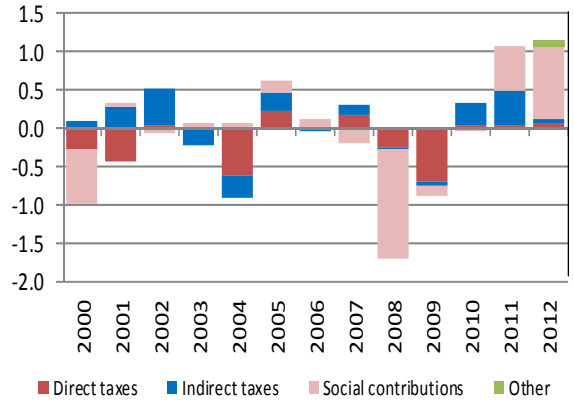

### 2. Spending benchmarks



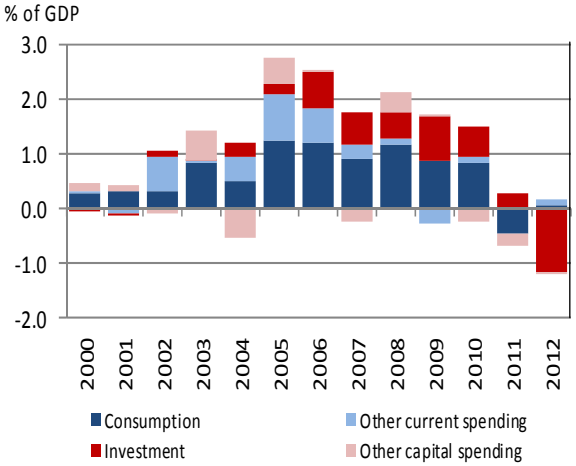

### 3. Composition of fiscal policy



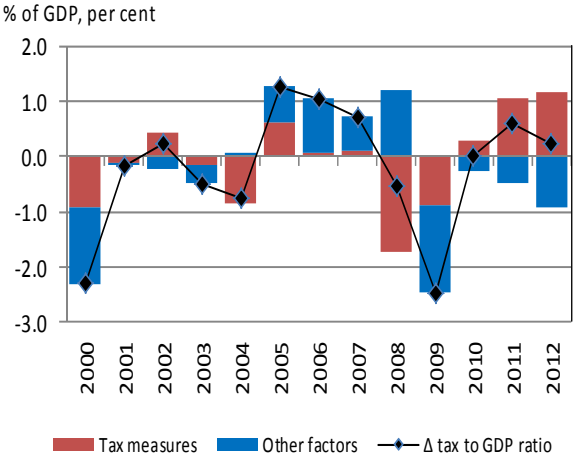

### 4. Composition of tax measures




### 5. Composition of "other spending" w.r.t. inflation




### 6. Tax measures and changes in tax-to-GDP ratio




Notes:

ΔCAPD = Change in the cyclically adjusted primary deficit as estimated by the European Commission , excluding proceeds from the sale of UMTS licences in 2000.

## REFERENCES (POLAND)

*Ministry of Finance*

- Annual Budget Reports for years 1999-2012
- Monthly Budget Reports
- Budget Drafts for years 1999-2012
- Convergence Programmes - 2011 and 2012 Updates
- Information on Corporate Income Tax Settlements for years 2003-2012
- Information on Private Income Tax Settlements for years 2003-2012

*Central Statistical Office*

- Statistical Yearbooks for years 1999-2012
- Monthly Statistical Bulletins 1999-2012
- Fiscal EDP Notifications and Questionnaires relating to EDP Notification Tables (2004-2013)
- Tables on annual Consumer Price Index for years 1999-2012

*The archive for the legislative work of the Lower House of the Polish Parliament*

http://www.sejm.gov.pl/Sejm7.nsf/page/archiwum

*Ministry of Labour and Social Policy*

- Statistical information on Family Benefits – Bulletins for years 2004-2012 (http://www.mpips.gov.pl/wsparcie-dla-rodzin-z-dziecmi/swiadczenia-rodzinne/informacje-statystyczne/)

*European Commission Excise Duty Tables*

http://ec.europa.eu/taxation_customs/taxation/excise_duties/index_en.htm

*Supreme Audit Office (NIK)*

- The evaluation of state budget execution and monetary policy assumptions in years 2000-12

*Bank Gospodarstwa Krajowego*

- Annual Reports – the data on National Road Fund's and Rail Fund's revenue

# PORTUGAL

## 1 Time period

The data for Portugal covers the period from 1996 to 2012. Detailed information on the impact of fiscal measures is very scarce before 1996. Even for the period since then, information has had to be gathered from several sources.

## 2 Sources and methods

### *2.1 Impact of tax and benefit changes*[22]

In Portugal, fiscal policy measures are most commonly included in the State budget, which is usually presented in October of each year and enters into force in January.[23] However, the provision of detailed estimates of the impact on the budget of changes to taxes and benefits has only recently (after the outbreak of the sovereign debt crisis) become an integral feature of budget documentation. Additional and alternative sources of information have therefore been the annual reports published by Banco de Portugal and the information collected – or estimates made at the time - as input to fiscal projections to the disaggregated framework for the analysis of fiscal policy within the European System of Central Banks (Kremer *et al*., 2006). For particularly sizeable measures, calibrating the impact and timing has benefited from discussion among public finance experts. In case of conflicting estimates as to the magnitude of a particular measure, the selection of the most reliable estimate was based on consistency with the legislation and evidence from available fiscal outturn data.

The dataset contains both permanent and temporary measures. A measure is classified as temporary if it gives rise to temporary fluctuations in revenue even if the measure is permanent itself. For instance, in 2002 there was an especially strong increase of the personal income tax withholding tables. Although the change to the withholding tables was permanent, the measure had no permanent impact on revenues; rather it increased tax receipts in the first year in which the new withholding tables applied, with a corresponding reduction in settlements the following year.

An important part of the construction of the dataset was the correct assignment across time of the estimated full-year impact of measures. This has been done on the basis of the tax collection calendar. A particularly difficult case in Portugal (like in many other countries) is that of the Corporate Income Tax, in which payments are mostly related to the previous year's tax legislation (and income)[24]. Taking this into account requires recording Corporate Income Tax rate changes decided in year t with a long-term impact of X as having one temporary effect in t equal to 20 per cent of X (related to the initial impact in prepayments); another temporary effect in t+1 amounting to 80 per cent of X (related to the one-off impact in the final tax liability in the following year); two permanent effects, one recorded in t+1 amounting to 80 per cent of X (related to the increase in prepayments) and another amounting to 20 per cent of that impact in t+2 (related to the increase in the final tax liability payments).

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[22] The tax changes considered September-October for Portugal are the same as the list of measures presented in Pereira and Wemans (2013). Further explanations of the data can be found in Section 2 of that paper.

[23] Exceptions to this rule include supplementary budgets and some wider reforms approved in separate legislation.

[24] The corporate income tax legislation in Portugal establishes that companies have to make prepayments of the tax equal to around 80 per cent of the previous year tax liability. The final tax liability is set in May of the following year and prepayments made are deducted from the tax liability.

In some cases, measures have been excluded on the grounds that, even though they may have impacted government revenue and spending, they should not have affected economic activity. This led, for instance, to the exclusion of the securitisation of tax revenues in 2003, as that was a strictly financial operation. The long term effects on social transfers from the transfer of pension funds to the public administration were excluded for a similar reason.

In the case of changes to social benefits, due to the limited information available, only major measures have been included, such as those related to the introduction of new social transfers or key changes in benefit schemes. In 2007 there was a very comprehensive reform of the pension system, mainly targeting sustainability. Given that, its effects on spending were expected to be gradual and no policy measure is recorded in the sample. However, this reform introduced a link between pensions and previous year's inflation and the non-compliance with this rule from 2010 onwards gave rise to a positive spending measure in that year followed by negative spending measures in 2011 and 2012.

More generally, the updating of benefits, income tax brackets and excise duty rates for (expected) inflation can hardly be considered as an implicit rule of fiscal policy during the period studied. As a result, no policy measures were considered in years where there were no (or only minor) updates.

### *2.2 Other spending*

#### *2.2.1 Derivation of spending benchmarks*

- Trend GDP: trend nominal GDP (HP filter lambda 30)
- GDP deflator: national accounts data published by Statistics Portugal (INE)
- Inflation: Harmonized Index of Consumer Prices (HICP)

#### *2.2.2 Identification of omitted spending*

Adjustments have been made to account for the following:

- Capital transfers to financial institutions in 2010, 2011 and 2012.
- A different accounting, before and after 2005, of transfers from the state to civil servants' social security, impacting social contributions.
- The reclassification of some hospitals outside of general government, which significantly affected the composition of government consumption (*intermediate consumption*, *sales* and *wages and salaries* versus *social transfers in kind via market producers*).

## 3 Analysis

### *3.1 The main episodes of fiscal policy*

For most of the sample period, fiscal policy was tending to loosen, with modest tax cuts and spending growing in real terms (and by more than trend GDP) (see Chart 1). There were, however, intermittent fiscal consolidation episodes (2002 and 2006-07) as Portugal sought to comply with the Stability and Growth Pact. Fiscal consolidation was often achieved by resorting to temporary measures implying little or no structural improvement of the public finances.[25] The fiscal tightening

[25] For a detailed analysis of the main trends in fiscal policy in Portugal, see Cunha and Braz (2009).

implemented in the context of Portugal's Economic and Financial Assistance Programme initiated in 2011 dwarfs anything occurring before it.

### *3.2 Tax measures and changes in the tax-to-GDP ratio*

Between 1996 and 2001 there were tax cuts, mainly related to the introduction of an intermediate VAT rate in 1996 and to changes to Corporate Income Tax. In 2000 there was also a Personal Income Tax reform which reduced tax rates. The special scheme for the payment of taxes in 2002 inverted this trend and clearly stands out as a very significant tax increase. After that, in 2004 the main Corporate Income Tax rate was reduced from 30 to 25 per cent, most of the impact being in 2005. This was followed by significant tax increases, including an increase in the main VAT rate from 19 to 21 per cent in 2006. The years 2008 and 2009 were marked by some tax relief while 2011 corresponds to the beginning of a very significant sequence of tax increases in the wake of the Economic and Financial Assistance Programme. Some of the most relevant tax increases in 2011 and 2012 were increases in indirect taxation and the introduction of a temporary personal income tax surcharge.

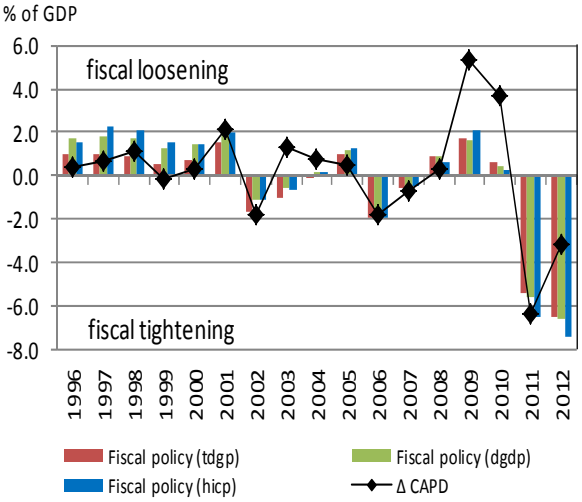
The estimated impact of tax measures differs considerably from changes in the tax to GDP ratio (see Chart 6). This can be mainly related to the following factors:

- Cyclical influences on the tax-to-GDP ratio: years in which "other factors" in Chart 6 are positive tend to be those in which the economy was growing relatively strongly (e.g. 1996-98) and vice-versa (e.g. 2009 and 2011)
- The existence of tax measures that affected tax revenues but are omitted from our data. The effect of the securitisation operation in 2003 can clearly be seen in the "other factors". In 2004 an opposite effect occurs as the tax-to-GDP ratio falls due to the base effect of this operation.
- Possible errors in the quantification of the impact of policy measures. In 2012 the disaggregated framework pointed to a potential overestimation of the impact of tax measures, as discussed in Banco de Portugal, Annual Report 2012.
- Changes in the efficiency of tax collection. In 2005, despite net discretionary tax cuts (as the estimated effect of cuts in direct taxes more than offset the estimate effect of increases in indirect taxes), there was a significant increase in tax collection as a whole that seems to have been at least partly related to an improvement in the efficiency of tax collection.[26]

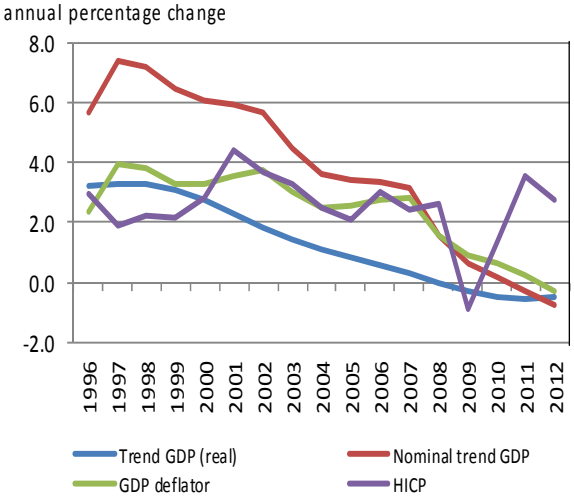
[26] See Banco de Portugal (2005), Annual Report.

## Portugal

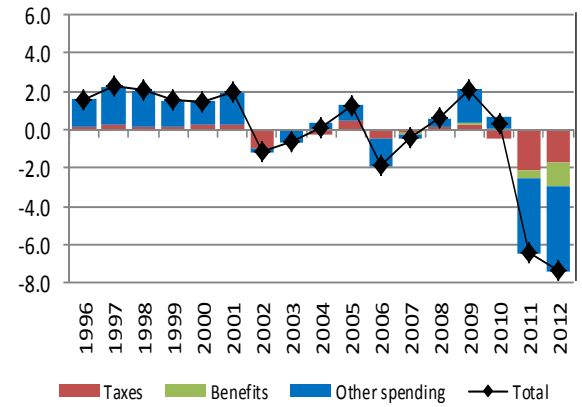
### 1. Measures of fiscal policy



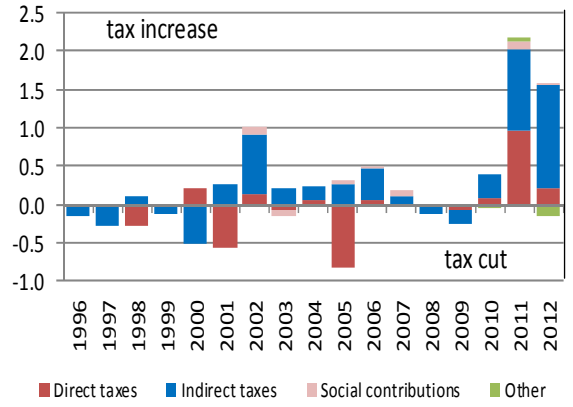

### 2. Spending benchmarks



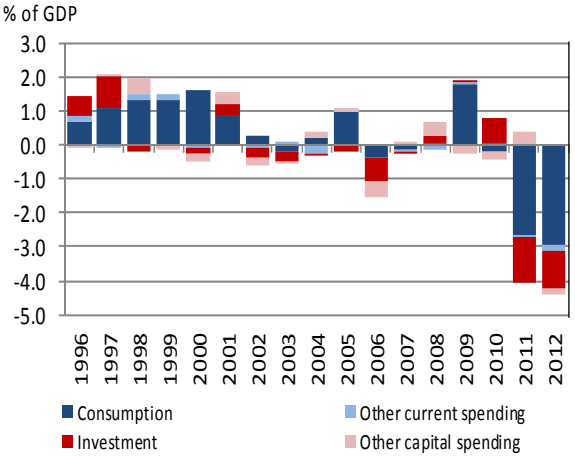

### 3. Composition of fiscal policy



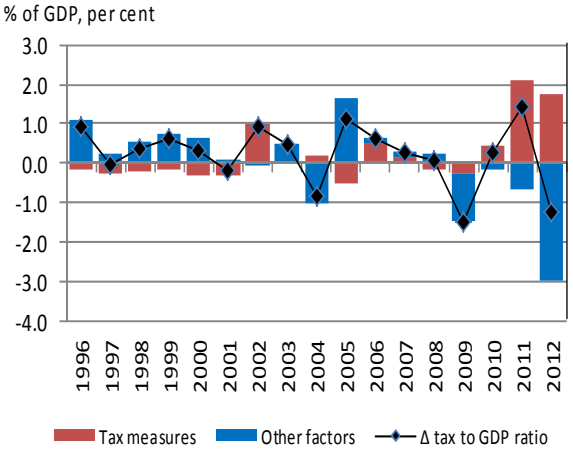

### 4. Composition of tax measures




### 5. Composition of "other spending" w.r.t. inflation




### 6. Tax measures and changes in tax-to-GDP ratio




Notes:

ΔCAPD = changes in the cyclically adjusted primary deficit as estimated by the European Commission, adjusted for pension funds tranfers, capital tranfers to the financial system, the securitisation of tax revenues and proceeds from UMTS and 4G.

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Ministério das Finanças (several years), Orçamento do Estado – Relatório.

Pereira, M. and L. Wemans (2013), *The Macroeconomic Effects of Legislated Tax Changes in Portugal*, Banco de Portugal, Economic Bulletin, No. 75-94, Autumn.

## UNITED KINGDOM

### 1 Time period

The dataset for the United Kingdom is on a financial year (FY) (April-March) basis and covers the period from 1988-89 to 2012-13. The starting point of 1988-89 is imposed by the fact that quarterly government finance statistics (needed to compile the non-benefits spending part of the dataset) are only available back to 1987q1. 1987 is also the first year for which the ONS Blue Book dataset[27] reports detailed data on national accounts tax receipts.

### 2 Sources and methods

#### *2.1 Impact of tax and benefit changes*

The estimates of the impact on net borrowing of changes to taxes and benefits are based partly on official/external sources and partly on own estimates based on detailed tax and benefits data. As a rule, identified measures with an impact of more than 0.01 per cent of GDP have been included. Measures to tackle tax avoidance have generally not been included. The impact of the introduction of – and changes to – tax credits are considered throughout as changes to benefits spending rather than taxation (consistent with the forthcoming treatment in ESA 2010).

##### *2.1.1 Estimates taken from official/external sources*

*Budgets, Pre-Budget Reports and Autumn Statements (1998-99/2012-13)***:** In the UK, the budget is typically presented in March of each year. During the Labour government (1997-2010) there were also Pre-Budget Reports (PBR) in the autumn. Under the present coalition government, these have since been replaced by Autumn Statements (AS). All of the relevant documentation is available on the internet and budget documents throughout this period contain detailed tables with estimates of the impact of budget measures.

A notable feature of UK fiscal policy is that changes to the tax and benefit system are often announced one or two years before they come into effect. Each budget/PBR/AS contains tables with costings, not only of the measures announced in the relevant budget/PBR/AS, but also measures announced earlier and still to come into effect. These documents have been the primary, initial source for compiling the dataset over the period from 1998-99 to 2012-13, especially for those changes to the tax and benefit system for which it is not feasible to construct reasonable, own estimates based on published information. The estimate included is generally the last one published before the measure enters into force. For example, in the case of a measure announced in Budget 2005 but only coming into effect in FY 2007-08, the estimate would, as a rule, be the one contained in the March 2007 Budget (on the eve of the start of the financial year in question). It is thus the "final *ex ante*" estimate available.

*Office for Budget Responsibility Budget Tax Measures database***:** In June 2012, the OBR published a database of budget tax measures going back to 1970. This database contains, in principle, the initial budget costings of all tax measures with an impact of GBP 50 million or more (which corresponds to around 0.01 per cent of GDP in 1988-89). It has been the main, initial source for compiling information on tax measures during the period 1988-89 to 1997-98 and for

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[27] The Blue Book is the main UK annual national accounts publication.

cross-checking the period from 1998-99 to 2012-13. The estimates taken from this dataset are the initial budget costings even if these may have been revised in subsequent budget documents.

Apart from adjusting the budget/PBR/AS estimates to agreed reporting conventions, adjustments have been made if necessary so that estimates refer to tax/benefit changes that actually happened and do not include estimates of the impact of postponing or abandoning previously announced tax changes that never took place.

### *2.1.2 Own estimates*

Own estimates have been produced in order to fill gaps left by the above-mentioned sources, to ensure a consistent approach across time with respect to the adjustment of duty rates, tax brackets and benefit entitlements to inflation and, more generally, whenever relevant micro public finance data is available which makes it possible to verify *ex post* the official *ex ante* estimate.

The main sources of information have been data on tax receipts, liabilities, rates, allowances and reliefs published by HM Revenue and Customs (HMRC) in various statistical publications; historical information on tax rates and allowances compiled by the Institute for Fiscal Studies (IFS), and detailed data on benefits payments and caseloads published by the Department for Work and Pensions (DWP). These sources have also served as a cross-check that measures announced/costed in budget documents actually took place.

The approach to compiling these estimates can be summarised as follows:

- *Excise duties:* In the UK, it is standard practice for excise duty rates to be adjusted each year for inflation. In this dataset, the impact of changes in excise duty rates has been estimated by calculating the real terms increase in duty rates (compared to RPIX until 2010-11, CPI thereafter) and applying this increase to the relevant receipts outturn of the FY in question. In case excise duty rates were changed during the FY, a weighted average of the duty rates in force during the FY has been calculated. To do this, data on the various duty rates, consumption of the various types of fuel, tobacco and alcohol and the related tax liabilities and receipts has been taken from HMRC's Hydrocarbon Oil, Tobacco and Alcohol Bulletins. In the case of duty on cigarettes, the calculation of the effective duty rate (both specific and ad valorem) is based on historical data calculated by the IFS.
- *Income tax and social contribution brackets:* In the UK, it is standard practice for income tax and social contribution brackets to be raised each year in line with inflation. As in the case of excise duties, the intention has been to follow a consistent approach across time, by comparing the increase in allowances/bands/limits with the evolution of inflation (RPIX up to FY 2010-11, CPI thereafter). Estimating the impact on receipts is, however, subject to much uncertainty because of the great number of factors which interact to determine the relevant tax liabilities. At this stage, provisional/rudimentary estimates have been made as follows.
  - First, in the case of income tax, the real terms increase in the personal allowance and basic rate limit in each year has been calculated. In the case of social contributions, the increase in the lower earnings limit (later the primary threshold (employees) and secondary threshold (employers)) and upper earnings limit in each year has been calculated.
  - Second, data from the ONS household expenditure/income survey (with average incomes, taxes and benefits for a sample of households broken down into decile groups) has been used to make an estimate of the proportion of income liable to be affected by the aforementioned bracket changes. The relevant tax rates have then been applied to these proportions of income.
  - Third, the estimates derived in this way have been cross checked for the years 2006-07 to 2012-13 against the "direct effects of illustrative tax changes" (or "ready reckoners")

published by HMRC corresponding to the FY in question. For earlier years, they have been cross-checked against any actual estimates of above or below inflation adjustments of brackets contained in budget documents.

- Vehicle Excise Duty: Historical rates were obtained from the "standard note" in the House of Commons Library. Real terms increases/decreases were then applied to FY receipts and split between households (other current taxes, D59) and firms (other taxes on production, D29) based on ONS Blue Book detailed tax data.
- *Business rates*: this is a tax which accrues to local government and which is levied on firms on the basis of property values. Property values are re-evaluated usually every five years and each year a "multiplier" is applied to these values to determine the tax liability. The multiplier is increased, as a rule, in line with the Retail Price Index (RPI) of the previous September. Historical data on rates as published by the Department for Communities and Local Government confirm that the multiplier was always increased in line with inflation. The relatively modest impact of the introduction of – or changes to – various reliefs is still being reviewed.
- *Other targeted taxes.* Over the past two decades, a number of new (mostly indirect) taxes have been introduced, which are targeted at specific economic activities. Examples are Air Passenger Duty, Insurance Premium Tax, Landfill Tax, Aggregates Levy, and Climate Change Levy. In general, estimates of the impact of the introduction of these taxes and subsequent changes to tax rates have been derived on the basis of detailed (usually monthly) data on receipts and liabilities published in the respective HMRC statistical bulletins.
- *One-off taxes*: Examples include the Windfall Tax imposed on privatised utilities in FY 1997-98 and the Bank Payroll Tax imposed in FY 2010-11. The impact of these measures is simply the respective (one-off) receipts outturn.
- *State pensions and child benefit:* The IFS has published historical data on state retirement pension rates and rates of child benefit. Estimates of the impact of changes have been made by applying the real terms increase to the outturn for state pension spending and child benefit spending respectively for the FY in question.
- *(Other) Social benefits*: the DWP publishes detailed data on FY spending on all benefits for which it (and its predecessor departments) are (were) responsible, as well as data on caseloads (*i.e.*, numbers of recipients for each benefit). This data has been analysed, in particular by computing real terms growth in spending for each benefit, adjusted for caseload. This analysis does not point to major effects from changes to the benefits system having been overlooked. Notably, the only significant fluctuations in real terms spending on benefits appear to be those for income-related benefits during and after recessions and around the time of the introduction of tax credits (for which the estimates included in budget/PBR documents have been incorporated).
- Finally, in the case of tax receipts, an analysis of year-on-year changes in the tax-to-GDP ratio has been undertaken (tax-by-tax) with a view to identifying possible, major errors and omissions. Specifically, the causes of significant fluctuations in the ratio of any tax to GDP should have a plausible explanation. In general this is the case. But occasionally, this has led to the identification of a potentially large impact of a tax measure. For example, in 1989-90, the ratio of social contributions to GDP fell sharply in spite of no measure being referred to in the OBR database. According to IFS records, in this year, the rate paid by employees below the lower earnings limits was reduced from 5 to 2 per cent, while between the lower and upper earnings limit, the lower 5 and 7 per cent rates were replaced by the (then) standard 9 per cent rate. Probably these changes were intended to be fiscally neutral. However, in the quarter in which these changes came into effect, there is a clear drop in employees' social contributions relative to employers' social contributions (which were not affected by these or any other

changes). On this basis, a negative impact of these changes in social contribution rates was imputed.

### *2.2 Other spending*

- The spending data is that contained in the 2013q3 release of quarterly government finance statistics published by the ONS.

#### *2.2.1 Derivation of spending benchmarks*

- *Trend GDP*: Real GDP from the 2013q3 release of UK Economic Accounts (UKEA) from 1955-56 to 2012-13, extended by the real GDP growth forecasts of the OBR through 2018-19 (December 2013 Economic and Financial Outlook).
- *GDP deflator*: from UKEA 2013q3 release.
- *Inflation*: Retail Price Index excluding mortgage interest payments (RPIX) from 1988-89 to 2010-11, Consumer Price Index (CPI) for 2011-12 and 2012-13. The shift in index is motivated by the government's decision to change the annual uprating of the state pension from RPI to CPI as of 2011-12.

#### *2.2.2 Identification of omitted spending*

For current transfers, the UK's GNI-based contributions to the EU Budget. For other spending items, identification of outliers based on quarterly general government finance statistics and UKEA. The most important omitted spending pertains to the following:

- Transfer of nuclear sites from British Nuclear Fuel (public non-financial corporation) to the Nuclear Decommissioning Authority (central government entity) in 2005-06
- Capital transfers related to support to the financial system in 2008-09 and 2009-10

The sales of 3G and 4G mobile licenses in 2000-01 and 2012-13 are automatically excluded from the analysis along with all net acquisitions of non-financial, non-produced assets.

## 3 Analysis

### *3.1 The main episodes of fiscal policy*

The main episodes of fiscal policy may be summarised as follows:

- Fiscal policy was expansionary at the end of the 1980s (the "Lawson boom") and in 1992-93 (in response to the recession of 1991-92).
- With net borrowing rising to almost 8 per cent of GDP in 1993-94, there follows a period of fiscal consolidation (1993-94 to 1998-99). During this period, broadly speaking, there were net tax increases, no major change to benefits, and other spending was kept broadly constant in real terms (with cuts in capital spending tending to offset modest increases in current spending).
- With a balanced budget achieved by 1998-99, fiscal policy was generally loosening during 1999-2000 to 2005-06. While tax policy was broadly neutral, there were increases in benefits (related in particular to above inflation increases in pensions, winter fuel payments and the introduction/expansion of tax credits) and, most importantly, other spending grew strongly in real terms. This was a period during which the government committed to significant real terms

increases in spending on health and education, as well raising the share of government investment in GDP.

- Real spending growth moderated in 2006-7 and 2007-08 (in part because inflation picked up) and fiscal policy was more neutral in these years.
- There was a fiscal expansion in 2008-09 and 2009-10 in response to the "great recession". This consisted of temporary tax cuts (e.g. cut in main VAT rate from 17.5 to 15 per cent), partly temporary spending increases (e.g., bringing some investment projects forward) and of sticking to significant nominal spending increases agreed in the autumn 2007 spending review.
- Finally, with net borrowing having risen to more than 11 per cent of GDP in 2009-10, during 2010-11 to 2012-13, there is a considerable fiscal contraction. This fiscal contraction dwarfs the one of the mid- to late-1990s, with larger tax increases, and unprecedented, large real terms cuts in spending.

Our measure of fiscal policy differs quite substantially from the change in the cyclically adjusted primary deficit, especially during and after the recession of the early 1990s, as well as in the run-up to and during the financial crisis and recession of 2008-09. Much of this owes to fluctuations in the tax-to-GDP ratio not related to tax changes, described in more detail below.

### *3.2 Tax measures and changes in the tax-to-GDP ratio*

Over the whole 1988-98/2012-13 period, the cumulated impact of tax measures amounts to 3.5 per cent of GDP, while the ratio of taxes and social contributions to GDP actual declined slightly. The main reason for this is the fact that taxes on products other than VAT have held fairly steady over GDP in spite of significant increases in excise duty rates. The effect of higher duty rates on receipts has been offset by the tendency of consumption of fuel and tobacco to decline relative to GDP (and overall consumption). It should be recalled that in our dataset we only record the initial impact of a tax measure. If, in subsequent years, the tax base tends to shrink (expand) in relation to GDP, then the effect of this tax measure in relation to GDP correspondingly declines (increases), but this is not something that is captured in the database.

In terms of tax measures, there has been a tendency for indirect taxes to be increased. Apart from excise duties on fuel, tobacco and alcohol, there have been significant increases in the main rate of VAT (from 15 to 17.5 per cent) in April 1991 and then again in April 2011 (from 17.5 to 20 per cent) following a temporary cut (to 15 per cent) between 1 December 2008 and 31 December 2009. Rates of stamp duty were increased significantly (albeit from very low levels) in the late 1990s and early 2000s. Moreover, during the 1990s and early 2000s – as already mentioned above – a number of new indirect taxes were introduced. Corporation tax measures have been fairly neutral over the period as a whole, while in the case of personal income tax there has been a tendency to reduce rates and to increase tax brackets by more than inflation (although, at least until recently, by less than average wages). Changes to social contributions have been relatively limited, although both employee and employer rates were raised in 2003-04.

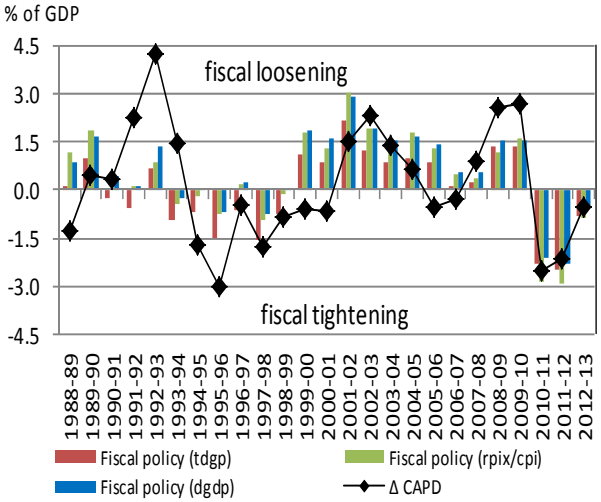
In general, and looking at the broad tax aggregates, tax policy has tended to "lean in one direction" in any given year, rather than tax changes offsetting each other. The most notable exception is 1991-92 when the main rate of VAT was increased to finance a reduction in the Community Charge ("Poll Tax").

As far as changes in the tax-to-GDP ratio not explained by measures are concerned, there are periods when the tax-to-GDP ratio net of tax measures has tended to rise strongly: 1988-98/1989-90, 1997-98/2001-01 and 2004-05/2007-08. These are periods which generally coincide with the latter end of a cyclical expansion. By contrast, during 1990-91/1993-94,

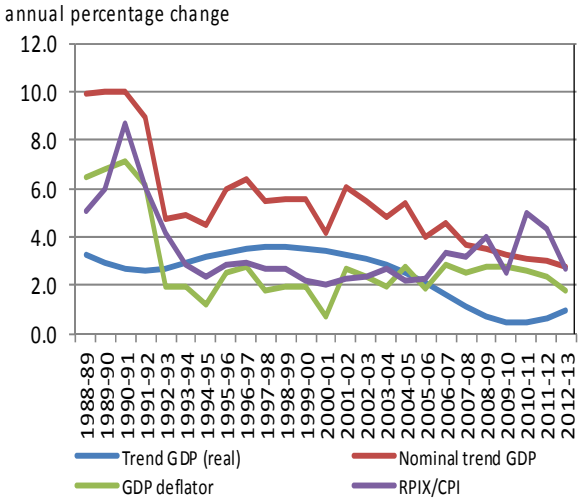
2001-02/2002-03 and 2007-08/2012-13, the tax-to-GDP ratio net of measures fell sharply. These are generally periods coinciding with or immediately following recessions and/or sharp falls in asset prices/transaction volumes. This is a clear pattern driven mainly by the evolution of income tax and corporation tax receipts.

## United Kingdom

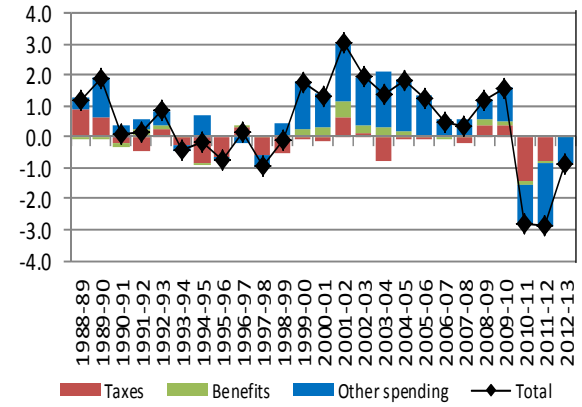
### 1. Measures of fiscal policy



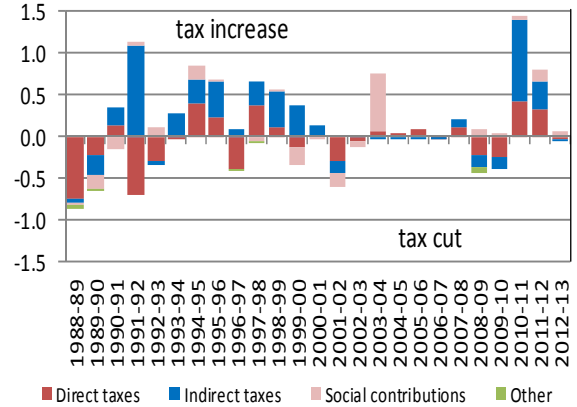

### 2. Spending benchamrks



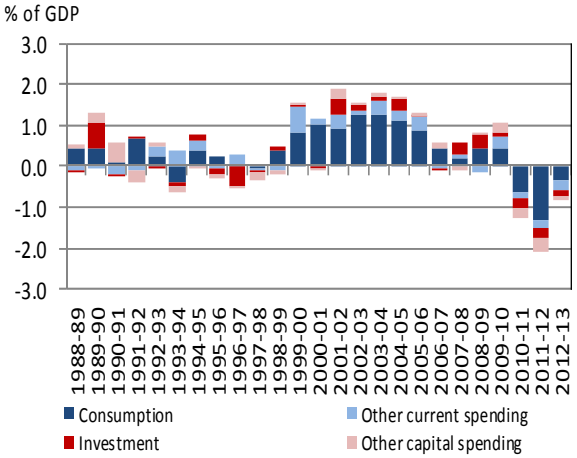

### 3. Composition of fiscal policy



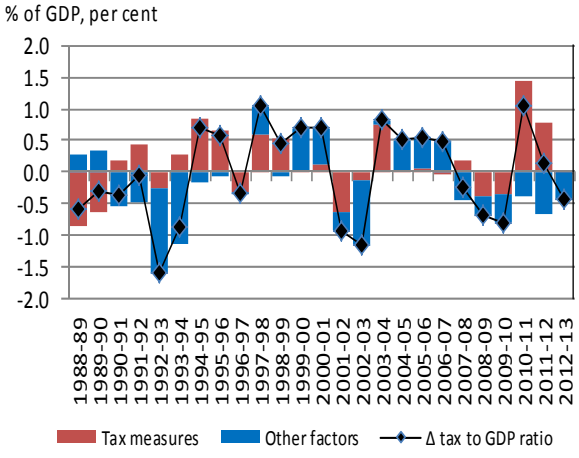

### 4. Composition of tax measures




### 5. Composition of "other spending" w.r.t. inflation




### 6. Tax measures and changes in tax-to-GDP ratio




Notes:

ΔCAPD = Change in the cyclically adjusted primary deficit as estimated by the Office for Budget Responsibility, excluding proceeds from sales of UMTS licences in 2000 and 2012 and the Royal Mail Pension Transfers in 2012.

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