

How to measure a fiscal stimulus*

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Abstract

This paper discusses alternative ways of measuring fiscal stimuli along with their respective advantages and shortcomings. The specific definition and measurement of a fiscal impulse depends largely on what it is meant to analyse. Basically, two possibilities emerge: from an “input side” perspective fiscal stimuli could be measured by changes in government finances, whereas if the focus is on the output side a fiscal stimulus is assessed in terms of its effect on macroeconomic developments. Moreover, the definition of fiscal stimuli is conditioned to the reference point chosen for the analysis.

Resumen

Este artículo discute las diferentes alternativas para medir el impulso fiscal junto con las respectivas ventajas e inconvenientes de cada enfoque. La definición específica y su correspondiente forma de medir el impulso fiscal dependen en gran medida de lo que finalmente se pretende analizar. Existen fundamentalmente dos enfoques: desde una perspectiva de los inputs, los impulsos fiscales pueden medirse por los cambios que suponen en las finanzas públicas, mientras que desde la perspectiva de los resultados los impulsos fiscales se pueden valorar en función de los efectos macroeconómicos que implican. Asimismo, la definición de impulso fiscal viene condicionada por el punto de referencia escogido para el análisis en cuestión.

Palabras clave: Fiscal stimulus, Fiscal impulse.

Clasificación JEL: H60, E62.

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1. Summary and conclusions

The term “fiscal stimulus” or “fiscal impulse” (used here as synonyms) generally refers to the additional financial impact of government finances on the economy relative to a reference situation, be it the previous year or a baseline scenario. Its measurement depends largely on what it is intended to measure and the question to be answered.

The stimulus provided by government and its effect on the economy

A fiscal impulse arises from financial flows between the general government and the private sector, which are in general reflected by budgetary developments. Therefore, it is straightforward to measure the impulse on the basis of changes in the government budget. This **input-side definition/measurement** appears relatively easy to adopt in practice and may yield relatively comparable results across countries. Since an important concern when analysing a fiscal impulse is its effect on macroeconomic developments, an **output-side definition** of fiscal stimulus puts the emphasis on the ultimate results (or effect) of government actions on economic performance. According to this approach, the appraisal of a fiscal stimulus should ideally be based on model-based output responses or econometrically estimated **multipliers/PUEs** (projection update elasticities). While it would assess directly to what extent governments comply with their stabilising roles, this approach has a number of drawbacks. Specifically, the lack of a manageable model-based framework or of PUEs based on a common methodology available to assess the macroeconomic effects of initial fiscal impulses in different countries in a transparent and comparable way and the estimation uncertainty surrounding fiscal multipliers raise serious doubts about its practical implementation in a multi-country context.

Partial approaches risk giving an incomplete picture

A customary approach in the discussion on fiscal stimuli is to focus on the financial impact of a **given set of measures** on the general government balance. However, this option is very selective, may give only a partial view of the relevant fiscal developments and is prone to varying classifications, or even manipulation, in international comparisons. For example, the consideration of the fiscal stimulus stemming from the measures under the European economic recovery plan without taking account of other stimulus sources is highly selective and might lead to very arbitrary outcomes when the “effort” of different countries is assessed.

Alternatively, if interest lies in the effects of discretionary fiscal policies overall, the **changes in cyclically adjusted (primary) balances (CA(P)Bs)** might be considered as a relevant proxy. These are obtained by netting out the effect of automatic stabilisers. This measurement could be interpreted as a genuine one-sided impulse from government finances to the rest of the economic sectors. However, the effects of the cycle on fiscal balances are difficult to assess, and the existing methods tend to assign to the structural part changes in

some fiscal variables (revenue windfalls/shortfalls) whose nature is, at least in part, cyclical. More generally, besides discretionary fiscal policy measures, the CAPB is affected by structural or temporary developments outside the government's control and is, therefore, a very imperfect measure of active fiscal policy. Furthermore, insofar as changes in CAPBs neglect the effect of automatic stabilisers, this indicator may lead to misjudgement of the stabilising role of government finances, especially in the case of countries with sizeable automatic stabilisers and in cross-country comparisons.

The change in the primary balance-to-GDP ratio as a comprehensive indicator for the fiscal impulse

Accordingly, given the pros and cons of the different alternatives, the **changes in the headline balance or in the primary balance**, as a percentage of GDP, would be the most comprehensive and, at the same time, manageable indicators for the impulse provided by public finances. They offer two main advantages. Firstly, they include the reaction of automatic stabilisers to the economic situation, whose functioning, in general, involves non-negligible economic effects on the private sector without the risk of incurring pro-cyclical policies. This also implies that contemporary feedbacks between macroeconomic and fiscal developments, transmitted via fiscal multipliers and automatic stabilisers, are accounted for. Thus, the indicators might be interpreted as a "net fiscal stimulus". Secondly, as the government deficit is made public and is subject to wide scrutiny, this indicator is easier to monitor and appears less open to manipulation than others. Moreover, in view of the interest in the role of fiscal policy and the economic effects of the impulse, it can be accompanied by useful information on the different budgetary sources behind it and the transmission channels thereof.

2. Introduction

The severe economic downturn in European economies following the turmoil on international financial markets has led governments to announce and adopt a number of measures, including fiscal packages, aimed at stimulating economic activity, reviving credit markets and alleviating the adverse effects on employment.

In this context, a natural question arises: how should a fiscal stimulus be defined and measured? This is not a trivial question for analysts since, in principle, certain possibilities emerge depending on what it is intended to measure and the question to be answered. Some key issues arise in this regard: firstly, whether the concept of "fiscal impulse" should encompass only the initial impact or should also include second-round effects; secondly, whether it should be confined to changes in discretionary fiscal policies or also accommodate the impact of automatic stabilisers and other factors. Furthermore, even if the concept is clarified, measurement may be difficult in some cases due to estimation uncertainty.

This note seeks to clarify some of these questions and provide some alternatives and suggestions for measuring a fiscal stimulus depending on what it is meant to capture. To this end, the rest of the note is organised as follows: section 3 provides different possible definitions for a fiscal stimulus depending on its focus and discusses related measurement issues, with their corresponding pros and cons; section 4 then makes a specific proposal for measuring and assessing a fiscal stimulus and applies the approach to Spain, Germany and the Euro Area in the years 2008 and 2009.

3. Definition and measurement of “fiscal stimulus”

Generally, the terms “fiscal stimulus” or “fiscal impulse” (used here as synonyms to avoid confusion and the unnecessary proliferation of expressions with minor differences in shades of meaning) refer to the additional financial impact of government finances on economic activity relative to a reference situation, be it the previous year or a baseline scenario. The specific definition and measurement of a fiscal impulse depends largely on what it is meant to analyse. Therefore, several possibilities arise. Firstly, the focus could be either on the input side (the changes in government finances) or the output side (its effect on macroeconomic developments). Secondly, its definition has to be made in terms of a given reference point. Finally, it would seem necessary to specify the range of measures and/or variables eligible for consideration. Furthermore, practical considerations such as the availability of reliable and harmonised measurement methods play a role.

3.1. *Input-side versus output-side definition*

The definition of a fiscal stimulus can be either confined to the implications for government finances or extended to the overall economic results of fiscal developments.

In the first case (*input-side*), the fiscal impulse would be assessed by its financial impact on the general government budget balance. It should be noted that this measure generally depends on the statistical concept employed (national accounts or budgetary statistics) and that the estimation of the impact of individual policy measures on the budget balance may be subject to high uncertainty. Input-side measurement also implies that fiscal measures affecting the economic performance, but without any (initial or long-term) noteworthy financial impact on the government budget, would not be factored in. Specifically, government guarantees, loans or equity investment may help to stabilise the economy with no great (short-term) impact on the budget balance in the national accounts.

When focusing on the *output side*, the emphasis is on the ultimate results of government actions, including second-round effects¹. The main attractiveness of this approach would be that it would allow the assessment of fiscal policies in terms of their effectiveness in performing their stabilising role. In this regard, the stabilisation effect stemming from government finances should be measured by relying on model-based output responses, which relate to econometrically estimated multipliers. With this definition, the

different multipliers of the various budgetary categories could be taken into account and a distinction could be drawn between short-run and long-run effects. Yet even with a model-based output measure, the assessment of some government actions, especially those concerning the permanence of specific measures and the sustainability of government finances, would only be possible from a qualitative point of view owing to the difficulty of modelling expectations.

From a practical perspective, output measurement is generally subject to significantly greater estimation uncertainty than input measurement. In addition, it requires the use of more sophisticated tools such as macroeconomic models or PUEs. The estimation uncertainty surrounding fiscal multipliers, and the lack of a manageable model-based approach or harmonised PUEs, would make this measure very controversial, thereby hampering its practical usefulness. This holds especially in a multi-country setting in which transparency and comparability are key. Accordingly, an input-side definition would be easier to implement and would yield more comparable results across countries, as well as being less subject to controversy.

3.2. Reference point for a fiscal stimulus

Some basic options can be considered regarding the reference point when defining a fiscal stimulus. The fiscal stimulus can be measured in relation to the *previous year*, in which case it applies to the impact government finances have on year-on-year macroeconomic developments.

Another possibility would consist of setting a *baseline scenario* or a *previous forecast* as the reference point. Both alternatives could be used to assess the fiscal stimulus of newly implemented measures. Insofar as comparison with a baseline scenario relies on model simulations, it suffers from broadly the same shortcomings as the output-side definition, i.e. it might prove controversial and difficult to implement in practice owing to the lack of generally accepted and comparable models. In turn, the fiscal stimulus assessed in comparison with previous forecast vintages would also be related to changes regarding macroeconomic developments or initial forecast errors. This should be taken into account when interpreting the results.

3.3. The scope of a fiscal stimulus

As stated above, the definition of a fiscal stimulus depends largely on what it is meant to measure. There are several alternatives here: firstly, there might be an interest in measuring the impact of a given package of policy measures; secondly, the focus could be on discretionary policy actions overall affecting economic performance; finally, the overall effect of government finances on economic activity might be considered.

One fundamental problem of the first approach is that the choice of the *specific measures* embedded in a package might, in many cases, be too selective, thereby providing only

a partial view of the relevant fiscal developments. Furthermore, it might be prone to varying classifications, or even manipulation, in international comparisons. In this regard, the selection of measures may depend on the cut-off date or other criteria for their choice. These objections hold in particular for the separate consideration of the measures under the umbrella of the European economic recovery plan. Therefore, given the numerous limitations of this approach, the following alternatives are preferred.

The second alternative would imply assessing the fiscal stimulus **in terms of overall discretionary policy actions**. Since it is difficult to delineate the effects of discretionary policy in a bottom-up approach², this is typically done by skipping the feedback effects between government finances and the rest of the economic system, i.e. by using the changes in **cyclically adjusted (primary) balances**³ (**CABs or CAPBs**) as a proxy for discretionary policy. By disregarding the effect of automatic stabilisers, this definition would aim to better fit the idea of a genuine one-sided impulse from government finances to the rest of the economic sectors. However, a drawback of this top-down approach to estimating discretionary fiscal policy hinges, first, on the difficulty of accurately assessing to what extent changes of fiscal variables are due to non-cyclical factors, in that these are not directly observable. One of the problems relates directly to the measurement of the economic cycle itself in real time. With the existing estimation techniques it is difficult to capture accurately turning points or structural breaks, for which real-time estimates tend to be biased. In addition, the second element of the estimation of the cyclical budget component, the effect of the economic cycle on fiscal balances, is difficult to disentangle. In the last decade, significant revenue windfalls/shortfalls displaying a cyclical pattern were recorded. Revenue windfalls/shortfalls are, by construction, assigned to the structural component of fiscal balances, which has to be taken into account in the interpretation of the CAPB⁴. Besides the problem of assessing the cyclical component of the budget balance accurately, it has also to be noted that the CAPB is influenced by temporary or structural factors that are more linked to “policy inactivity” than to direct government action (such as demographic developments). All in all, the CAPB is a measure to capture budgetary developments not directly related to the cycle, albeit an imperfect measure of discretionary fiscal policy.

A more general downside of focussing on changes in CAPBs is that by neglecting the effect of automatic stabilisers, this indicator fails to account for important macroeconomic effects of government finances. Countries with extensive social protection coverage and with large automatic stabilisers contribute a sizeable counter-cyclical economic impulse without the need for recourse to additional discretionary measures. In this regard, based solely on the adoption of discretionary measures, the conclusion might be drawn that “the government does little” to overcome the economic downturn, when, in fact, if the financial flows stemming from the operation of automatic stabilisers were also accounted for, the conclusion could be quite the opposite. Moreover, the operation of automatic stabilisers may, in many respects, represent more timely policy actions than discretionary ones, thereby avoiding the risk of incurring pro-cyclicality.

Accordingly, a *broad definition* of fiscal stimulus including the operation of automatic stabilisers enjoys some advantages with respect to the other alternatives. Spe-

cifically, it is easier to implement in practice, it is less restrictive as regards the concepts entering the definition, it facilitates comparability between countries with different social protection schemes and tax systems, and it incorporates important elements from a policymaker's standpoint. Even if the focus is on a given set of measures, a thorough assessment would have to be embedded in the appraisal of the overall impulse by government finances.

This overall impulse may be measured by *changes either in the headline balance or in the primary balance* as a percentage of GDP. As the government deficit is made public and is subject to wide scrutiny, this indicator appears less open to manipulation than others. Yet it does not only reflect genuine impulses on the rest of the economy; rather, its measurement is also affected by contemporaneous second-round effects of macroeconomic variables in response to fiscal shocks. More generally, it implicitly incorporates the output response to exogenous fiscal shocks, which depends on fiscal multipliers, and the resulting feedback (via automatic stabilisers) from the rest of the economic sectors on the government budget. Accordingly, year-on-year changes in the deficit ratio could be interpreted as "the net fiscal stimulus" on the economic system.

4. A suggested approach to analysing a fiscal stimulus

In view of the pros and cons of the various alternatives, the *year-on-year changes in the headline balance or in the primary balance-to-GDP ratios* are the suggested indicators to measure the fiscal stimulus. As far as the reference point is concerned, another possibility is to compute the fiscal stimulus as **the deviations of these changes from previous forecasts**. In this regard, it has to be borne in mind that these different reference points (previous year's outturn *versus* previous forecast) *entail different interpretations*.

For the assessment of the fiscal impulse it may be helpful, first, to complement the indicator with a more or less detailed breakdown of the *different budgetary sources* behind it, notably developments linked to more active fiscal policy as opposed to more automatic responses of the budget to influences not directly linked to government activity. Here, a distinction can be made between the fiscal impulse due to the operation of automatic stabilisers and that due to the contribution of other factors⁵. The latter, i.e. the change in the cyclically-adjusted primary budget balance, results from structural developments and temporary measures/effects. As for its interpretation, it should be noted that the cyclically-adjusted budget/GDP ratio is affected by fiscal policy, but also by factors unrelated to direct government action, e.g. demographic changes or revenue windfalls/shortfalls. Cyclically-adjusted variables are presented as ratios to nominal trend GDP as usual.

In particular, in the current setting, special reference to the recent fiscal stimulus packages related to the recent crisis together with an estimation of the impulse by fiscal policy overall, might help to put the packages into perspective. Another issue with special relevance in the current situation relates to the fact that structural primary expenditure ratios for most countries has increased compared to earlier forecasts owing to lower-than-ex-

pected growth of trend GDP. As far as real developments are affected, such an increase is not the result of active discretionary actions; rather, it is the result of “inactive policy” in the sense of incomplete adjustment of the spending path to the unexpected downward revision of trend GDP. Therefore, based on previously foreseen real trend GDP estimates ⁶ (for instance of the Spring 2008, i.e. shortly before the crisis), the changes in the cyclically-adjusted primary expenditure ratio due to the downward revisions of real trend GDP could be calculated.

Second, it might be useful to quantify the fiscal stimulus exerted through the *different transmission channels* related to the different institutional sectors. Hence, the fiscal impulse can be divided into fiscal changes affecting direct government demand (by distinguishing between intermediate consumption, compensation of government employees and government investment), private households’ disposable income and purchasing power, firms’ profits and other impacts. Such a distinction would provide useful inputs for simulation purposes with macroeconomic models ⁷. The ratios presented in this part of the table are calculated as percentages of nominal GDP in order to capture the impulse in relation to observed GDP growth ⁸. Table 1 illustrates the proposal for Spain, Germany and the Euro Area as a whole. For this the cyclical budgetary components (or used here as synonyms: automatic stabilisers) are calculated with the ESCB method (cf. Bouthevillain, 2001).

4.1. Analysis of the fiscal impulse in Spain: 2008 and 2009

Spain experienced a strong fiscal impulse in the last two years, of 6 percentage points in 2008 and some 7 points in 2009. Despite the sharp decline in GDP growth, the impulse due to automatic stabilisers was limited, below ½ pp each year. Thus, most of the impulse was due to the effects of changes in cyclically adjusted balances.

The impulse from changes in the CAB was mainly due to the revenue side: After a prolonged period of significant revenue windfalls, shortfalls in the main tax categories and the impact of discretionary stimulus packages, including tax cuts like the 400€ tax rebate for income tax payers, led to an impulse of around 4½ percentage points each year.

On the other hand, public expenditure continued on the upward trend observed in previous years, posting an impulse higher than 1 point, part of which is attributable to the downward revision of trend GDP.

The impulse is mainly transmitted by household’s income and firms’ profits, amounting to 6.8 and 2.8 accumulated points, respectively. Two factors help explain these numbers: the impact of discretionary measures of around 1.7% and 1.1% of GDP in 2008 and 2009, respectively and the sizeable shortfalls observed in some tax categories, especially VAT and property transfer and stamp duty taxes linked to the end of the housing boom. In turn, direct government demand contributed an accumulated stimulus of around 2½ pp over this period, mainly as a result of robust growth of compensation of government employees and investment programmes aimed at containing employment destruction, especially in the construction sector.

Table 1
Spain: Fiscal impulse compared to the previous year
(year-on-year change in budget ratios ¹ as percentage points)

	2008	2009	08-09
Deficit (+: <i>expansionary</i> /positive impulse on macroeconomic development)	6.0	7.1	13.1
Interest payments	0.0	0.2	0.2
Primary deficit (+: <i>expansionary</i> /positive impulse on macroeconomic development)	6.0	6.9	12.9
Information on sources and transmission channels			
1. Budgetary sources of the impulse: ²			
Automatic stabilisers (<i>cyclical component according to ESCB method</i>)	0.3	0.3	0.6
Cyclically adjusted primary deficit, CAPD ³	5.6	5.8	11.4
of which:			
Cyclically adjusted revenue ratio (+: <i>expansionary</i>)	4.5	4.6	9.1
of which: discretionary measures (permanent and temporary)	1.4	0.9	2.3
of which: other (e.g. windfalls/shortfalls)	3.1	3.7	6.8
Cyclically adjusted primary expenditure ratio (+: <i>expansionary</i>)	1.1	1.2	2.3
of which: effect of revision of trend real GDP ⁴	0.1	0.2	0.3
of which: explicit stimulus measures in the context of the EERP ⁵	0.4	1.8	2.2
2. Transmission channels of the impulse:			
Change in direct government demand ⁶	0.6	1.9	2.5
compensation of government employees	0.6	1.0	1.6
intermediate consumption	0.2	0.3	0.5
government investment	-0.2	0.6	0.3
Impact on private households' income and purchasing power ⁷	2.8	4.0	6.8
social payments, capital transfers	1.0	2.5	3.5
direct taxes, social contributions	0.1	0.2	0.3
indirect taxes	1.8	1.3	3.1
Impact on firms' profits ⁸	1.9	0.8	2.8
subsidies less indirect taxes, capital transfers	0.0	0.1	0.1
direct taxes, social contributions	1.9	0.8	2.7
Impact on rest of the world ⁹	0.1	0.0	0.1
Other	0.5	0.2	0.7

Sources: INE, AEAT and own calculations.

1. As ratios to nominal GDP unless otherwise stated.
2. As ratios to nominal trend GDP (as customary in public finances analysis).
3. The change in the CAPD results from structural developments and temporary measures/effects. It is affected by fiscal policy, but also by factors unrelated to direct government action, as e.g. demographic changes or revenue windfalls/shortfalls.
4. Difference between of change in the cyclically adjusted primary expenditure ratio with the current estimation for real trend GDP and the estimation of real trend GDP of the Spring 2009 BMPE.
5. EERP: European Economic Recovery Plan.
6. Compensation of employees + intermediate consumption + government investment.
7. Social payments + capital transfers to private households – direct taxes by households – (social contributions – by employers) – (indirect taxes incl. to EU – other taxes on production (ESA code D.29)). Indirect tax payments by the government to itself and government payments to the rest of the world excluded.
8. Subsidies + capital transfers to firms – direct taxes by corporations + social contributions by employers + other taxes on production (ESA code D.29).
9. Social payments to rest of the world + indirect taxes to EU – (direct taxes, social contributions, capital transfers received from rest of the world).

4.2. Analysis of the fiscal impulse in Germany: 2008 and 2009

In Germany, a largely neutral government finance development in 2008 was followed by a strong expansionary impulse in 2009. Despite the unfolding of the crisis during 2008, the automatic stabilisers were on average contractionary (i.e. decreased the deficit) owing to the buoyant cyclical momentum in the first quarter and the economy's growth profile, which was relatively favourable for public finances. In 2009 the automatic stabilisers accounted for about one third of the overall impulse, even though their impact was still significantly mitigated by the (in relative terms even more) favourable macroeconomic profile. The significant revenue windfalls and shortfalls in 2008 and 2009 show the same pattern as the automatic stabilisers over the reporting period. In Germany, they are mainly attributable to strong fluctuations in profit-related taxes that seem to be linked to the economic cycle but aren't captured by standard cyclical adjustment procedures⁹. Discretionary measures on the revenue side as well as changes in the cyclically adjusted primary expenditure ratio displayed positive impulses in both years. About half of the expansion on the expenditure side reflects the lower than expected trend GDP growth.

Over the whole reporting period the impulse is relatively evenly distributed over the three transmission channels direct government demand, private households' income and firms' profits. In 2009 about half of the positive impulse is transmitted via households' income. Crucial is the strong increase in the ratio of social payments to GDP. It reflects active policy measures in response to the crisis as well as planned expenditure acceleration unrelated to the crisis (e.g. for health care). Furthermore, the strong hikes in the unadjusted expenditure categories to GDP in 2009 (+ 3.9 percentage points for the expenditure ratio overall) also relate to the sharp decline in GDP (i.e. the share of relatively stable government expenditure in GDP increases during the downturn, thus, stabilising overall GDP). The increase in private households' tax and social contribution payments in relation to GDP reflects the above mentioned "favourable growth profile" - i.e. private consumption and wages were relatively stable compared to GDP.

Table 2
Germany: Fiscal impulse compared to the previous year
(year-on-year change in budget ratios ¹ as percentage points)

	2008	2009	08-09
Deficit (+: expansionary/positive impulse on macroeconomic development)	0.2	3.3	3.5
Interest payments	-0.1	0.0	-0.1
Primary deficit (+: expansionary/positive impulse on macroeconomic development)	0.2	3.4	3.6
Information on the sources and transmission channels			
1. Budgetary source of the impulse ²:			
Automatic stabilisers (cyclical component according to ESCB method)	-0.5	1.3	0.9
Cyclically-adjusted primary deficit, CAPD ³	0.7	2.1	2.8
of which:			
Cyclically adjusted revenue ratio (+: expansionary)	0.1	0.9	1.0
of which: discretionary measures (temporary and permanent)	0.5	0.4	0.9
of which: other (e.g. windfalls/shortfalls)	-0.4	0.7	0.2
Cyclically adjusted expenditure ratio (+: expansionary)	0.6	1.2	1.8
of which: effect of revision of trend real GDP ⁴	0.5	0.5	1.0
of which: explicit stimulus measures in context of recent crisis ⁵		1.3	1.3
2. Transmission channels of the impulse:			
Change in direct government demand ⁶	0.2	1.1	1.2
compensation of government employees	0.0	0.5	0.4
intermediate consumption	0.1	0.5	0.6
government investment	0.1	0.2	0.2
Impact on private households' income and purchasing power ⁷	-0.5	1.7	1.3
social payments, capital transfers	-0.3	2.5	2.2
direct taxes, social contributions	-0.3	-0.5	-0.8
indirect taxes	0.1	-0.3	-0.2
Impact on firms' profits ⁸	0.5	1.0	1.5
subsidies less indirect taxes, capital transfers	0.2	0.9	1.1
direct taxes, social contributions	0.3	0.2	0.4
Impact on rest of the world ⁹	0.0	0.0	0.1
Other	0.1	-0.5	-0.4

Sources: Federal Ministry of Finance, Federal Statistical Office and own calculations.

1. As ratios to nominal GDP unless otherwise stated.
2. As ratios to nominal trend GDP (as customary in public finances analysis).
3. The change in the CAPD results from structural developments and temporary measures/effects. It is affected by fiscal policy, but also by factors unrelated to direct government action, as e.g. demographic changes or revenue windfalls/shortfalls.
4. Difference between of change in the cyclically adjusted primary expenditure ratio with the current estimation for real trend GDP and the estimation of real trend GDP of the Spring 2009 BMPE.
5. Included are the two German stimulus packages, the increase in child benefits as of 2009 and the reduction of the contribution rate to the unemployment agency for 2009/2010 and additional tax relief measures for enterprises from summer 2009.
6. Compensation of employees + intermediate consumption + government investment.
7. Social payments + capital transfers to private households – direct taxes by households – (social contributions – by employers) – (indirect taxes incl. to EU – other taxes on production (ESA code D.29)). Indirect tax payments by the government to itself and government payments to the rest of the world excluded.
8. Subsidies + capital transfers to firms – direct taxes by corporations + social contributions by employers + other taxes on production (ESA code D.29).

4.3 Analysis of the fiscal impulse in the Euro Area: 2008 and 2009

For the euro area as a whole, government finance developments were expansionary in 2008 and to a higher extent in 2009. While the fiscal impulse from automatic stabilisers was on average broadly neutral in 2008, this impulse was positive in 2009, and contributed to about a third of the total fiscal impulse in that year. The significant revenue windfalls and shortfalls in 2008 and 2009 reflect the effect from profit-related taxes and revenue short-falls related to the decline in house prices in various euro area countries. Discretionary measures on the revenue side as well as changes in the cyclically adjusted primary expenditure ratio contributed positively to the fiscal impulse in 2008 and 2009. Half of the impulse from the expenditure side reflects the lower than expected trend GDP growth.

Over the whole reporting period the impulse stems from the transmission channels direct government demand and private households' income, and to a lesser extent from the firms' profits channel. The largest contribution within the direct government demand channel stems from compensation of government employees, reflecting downward-rigidities. More or less the full contribution within the private households' income channel stems from capital transfers and social payments, particularly the latter is directly affected by the consequences of the crisis. Net subsidies and capital transfers have hardly played any role within the firms' profit channel, while direct taxes and social contributions played a more significant role there.

Table 3
Euro Area: Fiscal impulse compared to the previous year
(year-on-year change in budget ratios ¹ as percentage points)

	2008	2009	08-09
Deficit (+: expansionary / positive impulse on macroeconomic development)	1.4	4.3	5.7
Interest payments	0.0	0.0	0.0
Primary deficit (+: expansionary / positive impulse on macroeconomic development)	1.4	4.3	5.7
Information on sources and transmission channels			
1. Budgetary sources of the impulse ²:			
Automatic stabilisers (cyclical component according to ESCB method)	-0.1	1.2	1.1
Cyclically adjusted primary deficit, CAPD ³	1.5	3.1	4.6
of which:			
Cyclically adjusted revenue ratio (+: expansionary)	0.7	1.8	2.5
of which: discretionary measures (permanent and temporary)	0.5	0.5	1.0
of which: other (e.g. windfalls/shortfalls)	0.6	1.3	1.8
Cyclically adjusted primary expenditure ratio (+: expansionary)	0.8	1.2	2.0
of which: effect of revision of trend real GDP ⁴	0.4	0.6	1.0
of which: explicit stimulus measures in the context of the EERP ⁵		1.1	1.1
2. Transmission channels of the impulse:			
Change in direct government demand ⁶	0.3	1.3	1.6
compensation of government employees	0.1	0.7	0.8
intermediate consumption	0.1	0.4	0.6
government investment	0.0	0.2	0.2
Impact on private households' income and purchasing power ⁷	0.1	2.1	2.2
social payments, capital transfers	0.4	2.1	2.4
direct taxes, social contributions	0.3	0.3	0.6
indirect taxes	-0.6	-0.3	-0.8
Impact on firms' profits ⁸	0.1	0.8	1.0
subsidies less indirect taxes, capital transfers	0.0	0.1	0.1
direct taxes, social contributions	0.1	0.7	0.9
Impact on rest of the world ⁹	0.0	0.0	0.0
Other	0.9	0.1	1.0

Sources: ECB and own calculations.

1. As ratios to nominal GDP unless otherwise stated.
2. As ratios to nominal trend GDP (as customary in public finances analysis).
3. The change in the CAPD results from structural developments and temporary measures/effects. It is affected by fiscal policy, but also by factors unrelated to direct government action, as e.g. demographic changes or revenue windfalls/shortfalls.
4. Difference between of change in the cyclically adjusted primary expenditure ratio with the current estimation for real trend GDP and the estimation of real trend GDP of the Spring 2009 BMPE.
5. Estimates according to European Commission, Public Finances in EMU 2009, May 2009.
6. Compensation of employees + intermediate consumption + government investment.
7. Social payments + capital transfers to private households – direct taxes by households – (social contributions – by employers) – (indirect taxes incl. to EU – other taxes on production (ESA code D.29)). Indirect tax payments by the government to itself and government payments to the rest of the world excluded.
8. Subsidies + capital transfers to firms – direct taxes by corporations + social contributions by employers + other taxes on production (ESA code D.29).
9. Social payments to rest of the world + indirect taxes to EU – (direct taxes, social contributions, capital transfers received from rest of the world).

Notes

1. The European Commission adopts this definition. In the glossary of its Report on Government Finances in EMU 2008, the fiscal impulse is defined as “the estimated effect of fiscal policy on GDP. It is not a model-free measure and it is usually calculated by simulating an econometric model” (see European Commission, 2008).
2. The difficulties mainly relate to the lack of a valid benchmark on the expenditure side.
3. Changes due to interest payments are often disregarded because the impulse from an alteration of interest payments is likely to be weak.
4. See Morris *et al.* (2009).
5. The information can be obtained directly from the harmonised disaggregated framework for the analysis of fiscal developments. See J. Kremer *et al.* (2006).
6. The revision effect is assessed here insofar as it relates to a revision in real trend GDP. A downward revision in the GDP deflator might be irrelevant for the expenditure ratio in real terms if deflators for government expenditure are equally revised.
7. However, the specific breakdown has to be interpreted with care. For example, changes in the ratio of compensation of government employees to GDP might reflect quicker growth in government’s real production as compared to real GDP growth, but they might also reflect pure income effects (in which case they would have to be reported under the “private household income” channel).
8. Cf. the German country section of Morris *et al.* (2009).
9. The revision effect is assessed here insofar as it relates to a revision in real trend GDP. A downward revision in the GDP deflator might be irrelevant for the expenditure ratio in real terms if deflators for government expenditure are equally revised.

References

- Bouthevillain, C.; Cour-Thimann, P.; Van den Dool, G.; Hernández de Cos, P.; Langenus, G.; Mohr, M.; Momigliano, S. and Tujula, M. (2001): “*Cyclically adjusted budget balances: an alternative approach*”, ECB Working Paper Series, No. 77, September.
- European Commission (2008): *Public Finances in EMU*, European Economy, X /2008.
- Kremer, J.; Rodrigues Braz, C.; Bosens, T.; Langenus, G.; Momigliano, S. and Spolander, M. (2006): “*A disaggregated framework for the analysis of structural developments in public finance*”, ECB Working Paper Series No. 579, January.
- Morris, R.; De Castro, F.; Jonk, S.; Kremer, J.; Linehan, S.; Marino, M. R.; Rodrigues Braz, C.; Schalck, C. and Tkacevs, O. (2009): “*Explaining government revenue windfalls and shortfalls: an analysis of the revenue data for selected EU countries*”, ECB Working Paper Series No. 1114, November.