

Federal states' cyclical adjustment in the context of the debt brake

A debt brake was enshrined in Germany's Basic Law (Grundgesetz) in 2009 in order to ensure sound government finances and compliance with European fiscal rules in Germany. The requirements are altogether ambitious and have helped bring about the positive budgetary developments of recent years. For the Federal Government, the rules have applied in full since last year. The federal states are still in a sort of transitional phase and will, in principle, be banned from financing their budgets through new borrowing from 2020 onwards. During periods of cyclical weakness, however, net borrowing will still be allowed, provided surpluses are generated when times are better. This is intended to ensure that the automatic stabilisers can continue to operate.

The procedures to take cyclical factors into account (known as cyclical adjustment methods) specified by the federal states as part of their debt rule vary, in some cases considerably. Some state governments – like the Federal Government – have based their cyclical adjustment methods on the procedure used by the European Commission. They identify the economic situation throughout Germany and use this to estimate whether cyclical factors will cause tax revenue in these federal states in particular to exceed or fall short of expectations (macro-based methods). Other federal states regard deviations from a tax revenue trend or an average tax level as cyclical in nature (tax-smoothing methods). The various procedures are complex, and all have their own specific difficulties establishing cyclical factors. In some cases, they are also problematic in terms of continuous budget planning in the face of unexpected developments or the intended restriction on the build-up of debt. However, these problems can be mitigated if suitable arrangements are put in place.

Overall, safety margins in relation to the budget ceilings are recommendable in order to be able to manage unexpected strains during downturns without having to resort to procyclical adjustments. In addition, measures must be taken to ensure that the main objective of curbing debt is not undermined by extensive debt that is, officially, justified as being cyclically induced. One way to prevent this from happening is to use cyclical control accounts, where accumulated debt is recorded and automatic corrective action is triggered if it becomes too big. The adjustment methods and results should be documented in transparent and comprehensible fashion. In order to make it more difficult to find ways to expand debt in the short term, it would be useful for the rules to be enshrined in law with parliamentary prerogative.

The German debt brake is ultimately intended to ensure compliance with European fiscal rules. Different cyclical adjustment methods could mean that national rules are not always sufficient to ensure this throughout the country. It is up to the Stability Council to create transparency and, where necessary, initiate corrective action. In this context, it will also be important to monitor and limit potential discrepancies between the requirements under EU rules and national rules relating to other issues – eg on how to include off-budget entities and the use of reserves.

Implementation of the debt brake at Federal and state government level

Debt brake allows the budget to adapt flexibly to cyclical ups and downs

Germany enshrined a debt brake in its Basic Law (Article 109 (3)) in 2009 designed to end the rapid increase in the government debt ratio witnessed for several decades. Another aim is to ensure compliance with European fiscal rules, the provisions of which include a structurally close-to-balance budget. First, net new borrowing by the Federal Government has, since 2016, been generally capped at 0.35% of gross domestic product (GDP) (currently around €10½ billion). Second, the federal states must, from 2020 onwards, generally balance their books without net new borrowing. The aim is to allow the budgets to adapt flexibly to cyclical ups and downs. In other words, automatic deficits (resulting, for instance, from lower tax revenues) during economic downturns are permitted¹ if corresponding surpluses are generated when the economy is stronger. This symmetry is mandated to ensure that making allowances for cyclical ups and downs does not result in a lasting increase in debt.

Cyclical adjustment methods have been specified only in some federal states

Cyclical fluctuations in the budget are not immediately visible; they must be estimated using cyclical adjustment methods. For the Federal Government budget, the basic approach used is that employed by the European Commission in the context of the European Stability and Growth Pact and the Fiscal Compact. Currently, twelve federal states have put in place their own arrangements for a ban on new borrowing to start in 2020 at the latest.² However, only eight states have, to date, adopted concrete rules for cyclical adjustment. They differ considerably.³

Overview of the cyclical adjustment methods chosen

The existing federal state methods determine cyclical effects primarily for tax revenue (see pages 51 to 56 for more detailed information

on the individual approaches).⁴ They can be divided into two groups. In the first group, the cyclical component is, as in the procedures applied at Federal Government and EU level, derived from an aggregate output gap. The output gap represents the deviation of GDP in any given year from potential output. A positive value (overutilisation) denotes a good economy, while a negative value (underutilisation)

Some methods are not directly linked to overall economic developments

¹ This framework does not allow discretionary ad hoc measures to support the economy to be classified as cyclically induced and therefore to be exempted from the debt brake. Any debt that arises for this purpose is permitted only under the exemption clause for special crises. This would involve establishing a repayment schedule.

² The general ban on new borrowing has so far been enshrined in the constitution in Bavaria, Bremen, Hamburg, Hesse, Mecklenburg-West Pomerania, Rhineland-Palatinate, Saxony and Schleswig-Holstein and written into State Budgetary Rules (Landeshaushaltsordnung) in Baden-Württemberg, Lower Saxony, Saxony-Anhalt and Thuringia. Of these states, only Lower Saxony has, as yet, in place no cyclical adjustment at all. North Rhine-Westphalia is currently debating whether or not to include the debt brake in the State Budgetary Rules. In the context of consolidation assistance for five highly indebted states under Art 143 (d) of the Basic Law, Berlin and the Saarland are also already subject to limits on their structural deficits until end-2019.

³ For more details on the debt brake, see Deutsche Bundesbank, The debt brake in Germany – key aspects and implementation, Monthly Report, October 2011, pp 15-39. For general information on cyclical adjustment and its application in the Federal Government procedure, see Deutsche Bundesbank, Requirements regarding the cyclical adjustment procedure under the new debt rule, Monthly Report, January 2011, pp 55-60; Deutsche Bundesbank, Some evidence on biased cyclical adjustment within fiscal rules, Monthly Report, August 2012, pp 68-70.

⁴ On the revenue side, income from taxes can, in general, be considered as being susceptible to cyclical changes, as can net transfers under the state government revenue-sharing scheme and the general supplementary federal grants to compensate for below-average financial capacity. For the most part, spending by the federal states is not taken into account, unlike in the case of central government and social security funds, where unemployment-related expenses have an impact. Here, grants to local authorities under the municipal revenue-sharing scheme may be relevant (in some cases, with a certain time lag): where the latter are tied to the state's current tax revenue, this dampens the remaining cyclical impact on the state budget. In this case, it would appear sensible to put in place suitable deductions (as in the methods used in Baden-Württemberg, Hesse and Schleswig-Holstein). Personnel expenditure, too, is subject to certain influences. Ultimately, collective wage agreements and civil servants' pay adjustments depend on developments in negotiated wages in the private sector, which hinge on the state of the economy. Such effects, which imply an easing of pressure on state government budgets when the economy is in poor shape, are not, however, taken into account in the procedures employed to date. Focusing solely on cyclical effects in terms of taxes thus leads, all other things being equal, to a certain overestimation of the cyclical influences on the budget.

suggests a poor economy and a value of zero (normal utilisation) neutral economic conditions. Such procedures are called “macro-based” below. The second group, by contrast, directly adjusts tax revenue for fluctuations, without explicitly referring to overall economic developments. Deviations from the adjusted values are then classified as being cyclically induced. Such methods will be referred to as “tax-smoothing”.

Hesse and Schleswig-Holstein follow macro-based method used by the Federal Government ...

To date, Hesse and Schleswig-Holstein have opted for a macro-based procedure. Like the Federal Government, they apply the EU procedure for drawing up the budget, which usually takes place in the spring of the preceding year.⁵ In a first step, the cyclical impact on the budgets of state government as a whole is determined from the aggregate output gap according to the Federal Government’s current estimate.⁶ In a second step, the result is broken down to individual state level based on the state’s share in the tax revenue of all states (quota key) in the previous year.⁷

... and regard deviations in tax revenue from the draft budget as being cyclically induced

At a later stage (when the budget is finally approved and the extent to which the requirements have been met at budget outturn are reviewed), the cyclically adjusted tax revenue calculated when the draft was drawn up is merely adjusted for the financial impact of any changes to tax law that have occurred in the meantime.⁸ All other unexpected changes to tax revenue are attributed to cyclical factors. This means that the cyclical component comprises not only cyclical factors but also other deviations in tax revenue from the forecast in the draft budget (because, for instance, profit-related taxes differ noticeably from expectations). On the one hand, this avoids the need for short-term adjustments when budget planning is at an advanced stage or the budget is being implemented should tax revenue differ from assumptions. On the other hand, it also means that new assessments about underlying development trends are initially temporarily classified as being cyclical in nature. However, any adjustments must then be made when the

budget for the next year is drawn up and the estimate of cyclically adjusted tax revenue is revised.⁹

On the other hand, the federal states of Baden-Württemberg, Hamburg, Mecklenburg-West Pomerania, Rhineland-Palatinate, Saxony and Thuringia have opted for tax-smoothing procedures.¹⁰ The individual procedures differ in their definition of the revenue categories included as cyclical, particularly with regard to the municipal revenue-sharing scheme, as well as in how changes to tax legislation are dealt with. There are also differences in the precise calculation of the (smoothed) “normal level” of tax revenue. Baden-Württemberg and Rhineland-Palatinate defined a one-off starting value for this in the past, which is carried forward on an

Tax-smoothing procedures with different reference variables and smoothing methods

⁵ See G Moure, C Astarita and S Princen (2014), Adjusting the budget balance for the business cycle: the EU methodology, *Economic Papers* 536.

⁶ To this end, the output gap is multiplied by what is known as budgetary semi-elasticity for state government as a whole. General government budgetary semi-elasticity is currently estimated to be 0.55, ie a change in the output gap by 1 percentage point changes the ratio of the general government budget balance to GDP by 0.55 percentage point (see Price et al (2014), New tax and expenditure elasticity estimates for EU budget surveillance, OECD Economics Department Working Paper No 1174). The cyclical adjustment methods used by the Federal Government and for the federal states receiving consolidation assistance are based on semi-elasticities of 0.20 for the Federal Government and 0.13 for state government as a whole. Local government accounts for 0.06 and social security funds for 0.15 (Bundesbank estimates).

⁷ For information on how the procedure is implemented, see also H Gebhardt, R Kambeck and F Matz (2012), Konjunktur- und Strukturkomponenten der Länderhaushalte, *Wirtschaftsdienst* 92 (4), pp 256-260.

⁸ By contrast, for the Federal Government, the cyclical component for the adoption of the budget plan by the Bundestag is recalculated on the basis of the most recent estimate of the output gap (usually based on the autumn forecast). At budget outturn, it is corrected for the arithmetical effects caused by a divergence of the nominal GDP path from that envisaged for the plan. See, for example, Deutsche Bundesbank, Key central government budget data in connection with the debt brake, *Monthly Report*, February 2017, p 63.

⁹ This procedure is currently also applied in connection with the consolidation assistance for the federal states of Berlin, Bremen, Saarland, Saxony-Anhalt and Schleswig-Holstein up to and including 2019. Details on the cyclical adjustment method can be found in the annexes to the relevant administrative agreements.

¹⁰ The remaining federal states either have not (yet) legally enshrined a cyclically adjusted ban on new borrowing or have not yet made more detailed provisions on cyclical adjustment.

ongoing basis at a trend growth rate (“tax trend procedure”). This trend growth is calculated mainly from the average rates of change of the revenue included in the past. In Hamburg, the trend level is determined econometrically under the assumption of a constant growth rate. By contrast, in Mecklenburg-West Pomerania, Saxony and Thuringia, the normal level is determined using the average level of tax revenue in several previous years (“tax level procedure”). Aside from a premium for inflation in the procedure applied by Mecklenburg-West Pomerania, structural increases in the course of economic growth are disregarded in this approach.

Selected aspects of the procedures

Major differences between procedures

The specifically chosen cyclical adjustment procedures differ – substantially, in some cases – in their design and results. Amongst other things, this relates to how the procedures deal with unexpected revenue developments which are not derived from cyclical fluctuations in GDP, the impact of an expected change in the underlying revenue trend, and the preservation of the symmetry of cyclical burdens and relief. Moreover, the transparency and vulnerability to manipulation of the procedures, as well as their relationship to the European rules, all play a key role. Selected aspects are discussed below.

Identifying relevant cyclical factors

Macro-based procedures: disregarding federal state-specific cyclical factors is acceptable

Macro-based procedures are based on projected economic growth for Germany as a whole. They therefore might not take into account any cyclical factors that are specific to a federal state. However, pronounced one-off cyclical developments specific to certain federal states also seem to be atypical, if anything.¹¹ Moreover, in most cases they are likely to be of only limited relevance to budgetary developments in the individual federal states anyway, because the federal revenue-sharing system

largely absorbs one-off developments in per capita tax revenue that are specific to certain federal states – especially for the financially weak federal states claiming general supplementary central government grants.¹²

At the same time, macro-based procedures can entail the problem that the evolution of macroeconomic reference variables (gross wages and salaries, private consumption, entrepreneurial and property income) which are of particular relevance to tax revenue over the economic cycle is not always in sync with GDP. For example, an increase in GDP that is driven by exports and investment yields less tax revenue than an upturn based on increases in wages and private consumption. The chosen macro-based adjustment procedures do not take such compositional effects into account.¹³ Further to this, the correlations between individual tax revenues and macroeconomic developments sometimes prove to be unstable (tax elasticity – how revenue for a specific tax responds to a change in the macroeconomic reference variable – fluctuates or shifts over time). This is particularly true of profit-related taxes and is not

GDP growth does not entirely explain tax fluctuations

¹¹ For the city states, however, there are evidently restrictions here (see B Schirwitz, C Seiler and K Wohlrabe (2009), Regionale Konjunkturzyklen in Deutschland – Teil III: Konvergenz, ifo Schnelldienst 62, p 25 ff). Differences in GDP growth between the federal states are likely to have structural rather than cyclical causes in most cases.

¹² For an empirical study of the impact of cyclical fluctuations on state government budgets, see Rheinisch-Westfälisches Institut für Wirtschaftsforschung (2010), Ermittlung der Konjunkturkomponenten für die Länderhaushalte zur Umsetzung der in der Föderalismuskommission II vereinbarten Verschuldungsbegrenzung, Research project commissioned by the Federal Ministry of Finance, pp 13 ff. In the macro-based procedures, a trend change in a federal state’s tax potential in relation to the national average is reflected via the altered share in federal tax revenue, shifted by one year.

¹³ The Bundesbank therefore uses a disaggregated approach to cyclical adjustment, which derives the cyclical components of individual budget categories from the trend deviations of the key macroeconomic reference variables; see Deutsche Bundesbank, A disaggregated framework for analysing public finances: Germany’s fiscal track record between 2000 and 2005, Monthly Report, March 2006, pp 61-76; and for the significance of varying compositions of cyclical GDP fluctuations, see, for example, the section entitled “The effects of the crisis on German public finances” in Deutsche Bundesbank, Fiscal policy, Monthly Report, October 2010, pp 72 ff.

Cyclical effects in macro-based procedures

The macro-based procedures of the federal states involve estimating the cyclical component at the time the draft budget is drawn up (usually in spring of the respective previous budget year), which is known as the *ex ante* cyclical component.¹ As the budgetary process progresses (final adoption of the budget plan, budget outturn), all other tax revenue changes are factored into the cyclical component in the form of a tax deviation component, provided that they are not attributable to interim legislative amendments. The tax deviation component ultimately represents the tax estimation error. The chart below shows notionally for the period 1999 to 2016 which cyclical components would have been shown at budget outturn if all the federal states had used macro-based procedures.

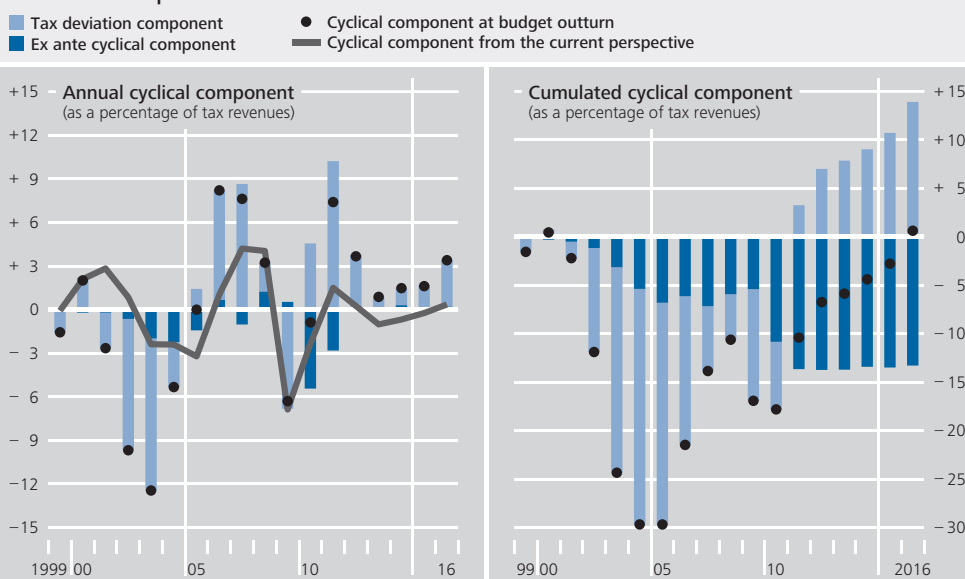
On balance, negative values would have prevailed among the *ex ante* cyclical components during this period.² On account of this com-

ponent, predominantly negative economic conditions would therefore have been ex-

¹ To simplify matters, the underlying output gap for the *ex ante* cyclical component is not determined using Federal Government's method of determining potential output, but with a Hodrick-Prescott (HP) filter instead. The HP filter separates the trend of a time series from the cyclical component (see R Hodrick and C Prescott (1997), Postwar US business cycles: an empirical investigation, Journal of Money, Credit and Banking 29, pp 1-16). The HP filter is criticised for its endpoint problem as well as dubious trend estimations where structural breaks occur. However, the endpoint problem can at least be mitigated by taking forecasts into account. Here, for instance, the government's real-time assumptions for medium-term growth were used.

² The HP filter is fundamentally symmetrical in design. However, there can be a preponderance of negative or positive trend deviations in a "real-time observation" (of the values determined at the respective point in time) if the underlying data or projections are revised or reassessed (or if incomplete cycles are being studied). When the trend deviations of 1999 to 2016 are uniformly determined using current data and projections, the positive and negative cyclical factors more or less offset each other in the period shown here.

Composition of the cyclical component at budget outturn in the (simplified) macro-based procedure for all the federal states*



* The *ex ante* cyclical component for the budget year t is determined on the basis of central government's annual forecast from the spring of the respective previous budget year ($t-1$). Here, the macroeconomic production gap is derived with an HP filter ($\lambda = 100$), then multiplied by the semi-elasticity of the budget for all the federal states (0.13). Central government's current GDP estimate (as at 25 January 2017) is used to calculate the "cyclical component from current perspective". The tax deviation component is the difference between the actual tax revenues (for 2016, the Working Party on Tax Revenue Estimates' tax forecast from November 2015 was used as the most up-to-date value) and the Working Party on Tax Revenue Estimates' tax revenues estimate from the spring of the respective previous budget year. The financial effects of legislative changes adopted in the interim have been adjusted. The cyclical component at budget outturn consists of the *ex ante* cyclical component plus the tax deviation component.

pected for the coming budget year, and matching cyclically induced deficits would have been permitted in the draft budget. The potential cyclically induced debt (cumulative cyclically induced deficits and surpluses) from 1999 to 2016 would therefore have totalled as much as roughly 13% of the actual tax revenues of 2016, with a slightly declining tendency since 2011.

In addition, the chart on page 37 illustrates the considerable importance of the determined tax deviation component.³ In general, this estimation error would in fact have been a much stronger factor than the *ex ante* cyclical component, amounting to up to 10% of actual tax revenues in some years. Between the turn of the millennium and roughly the middle of the last decade, it was therefore regularly the case that considerable unexpected tax shortfalls occurred once the budget was drawn up, whereas in the following years – with the exception of 2009 – growth in tax revenue was underestimated.⁴

On balance, positive surprises would have predominated during the period shown here, meaning that a certain counterweight to the *ex ante* cyclical components would have been recorded. During cyclical upturns (measured by a positive change in the cyclical factor from a current perspective), positive surprises in tax revenue would tend to occur, while more negative surprises would be seen during downturns.

³ The estimation errors may be due to an unexpected macroeconomic development. They may have other causes, however, such as incorrectly estimated effects of changes in tax legislation, changes in the transfer pattern of profit-related taxes etc.

⁴ On the biasing of tax estimation errors, see inter alia T Büttner and B Kauder (2015), Political biases despite external expert participation? An empirical analysis of tax revenue forecasts in Germany, *Public Choice* Vol 164, Nos 3 and 4, pp 287-307.

factored into the macro-based procedures.¹⁴ These classify all tax revenue developments that are not found to be cyclical on the basis of GDP developments and the selected elasticities as structural when the draft budget is being prepared. In the course of budget implementation, however, the specific procedures chosen classify all tax deviations from the draft budget that are not explained by changes in tax legislation as cyclical (see page 37).

In contrast to this, the tax-smoothing procedures interpret all deviations from the identified trend or from the average level of tax revenue as cyclical, without factoring in macroeconomic developments. The trend procedures, at least, can – if appropriately designed – (implicitly) filter out the impact of compositional effects and any other cyclical fluctuations with regard to profit-related taxes.¹⁵ However, they essentially deviate from the debt brake's objective to identify the cyclical factors in the budget (automatic stabilisers of aggregate growth), since, in the

absence of any further provision, all – even non-cyclical – fluctuations are classified as cyclical. As a result, a major tax refund owing to court rulings, for instance, or – if including the municipal revenue-sharing scheme – final settlements for preceding years are treated as cyclical phenomena. This constitutes a very broad interpretation.

The idea behind taking into account the economic cycle is to symmetrically exclude the impact of cyclical factors on the budgets from the limit imposed by the fiscal rules. In a downturn, tax revenue is weaker, and cyclically induced deficits resulting from this – according to the adjustment procedure – are permitted. During periods of cyclical overutilisation, surpluses have

The budget's cyclical factors and macroeconomic stabilising effect

Tax-smoothing procedures also adjust for non-cyclical effects

¹⁴ See, for example, Deutsche Bundesbank (2010), op cit.
¹⁵ The tax-smoothing procedures differ considerably, however, in terms of the sufficiently lengthy estimation periods that are particularly important for this (length of the time series from which the normal level is calculated and, if applicable, carried forward).

Results of various cyclical adjustment approaches for the past years

The various cyclical adjustment procedures identify a number of cyclical deficits and surpluses. The chart on page 40 shows what (simulated) normal levels of tax revenue and cyclical components would have been produced for the state governments as a whole in the period from 1999 to 2016 if the cyclical adjustment approaches selected as examples had been used. The calculations are undertaken based on the cash inflow from tax revenues for a tax trend method (following the rules applied by Rhineland-Palatinate), a tax level method (following the rules applied by Mecklenburg-West Pomerania) and a macro-based procedure (which uses an HP filter to simplify the procedure of calculating the cyclical component).¹ All things considered, it is evident that, in some years, the differing approaches would have shown sharply diverging cyclical components and correspondingly diverging normal levels of tax revenue. Even in the case of the sign and turning points of the cyclical components, clear differences are apparent.

Overall, the macro-based procedure produces, in cumulative terms, a slight preponderance of cyclically induced deficits, whereas surpluses would have been calculated using the other methods. Especially at the current end, the macro-based procedure shows higher normal levels of tax revenue and is, to that extent, less restrictive with regard to its implied underlying fiscal stance than the tax-smoothing procedures. Despite that, cyclical surpluses would nevertheless have been calculated over the past few years even applying the macro-based procedure.² In the period under observation, the macro-based procedure shows the highest volatility of the determined normal levels. A marked preponderance of cyclical

surpluses is produced – as is to be expected – by the tax level method (cumulative positive cyclical component of roughly 65% of the tax revenues over the entire period). In most cases, the cyclical components determined using the tax trend procedure display the largest fluctuations in absolute terms. Conversely, the growth rates of the normal levels show the lowest volatility – and their adjustments are quite largely driven by changes in tax legislation.

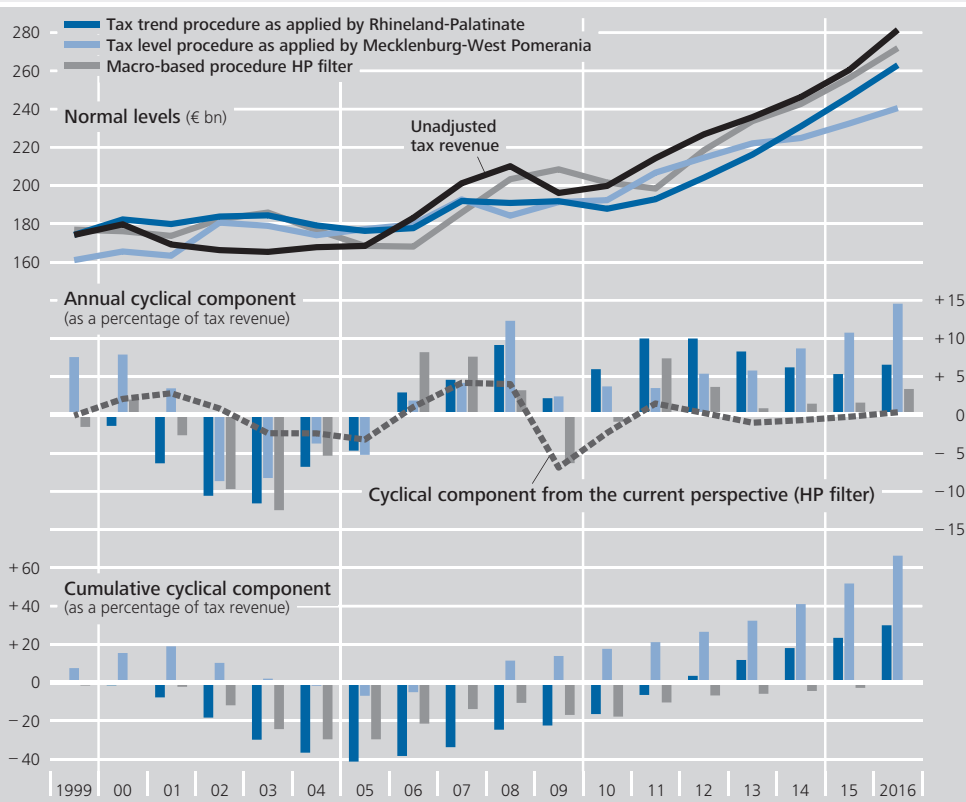
In retrospect, it is possible to make only a very limited assessment of what fiscal policy stance the individual procedures would have brought about in concrete terms over the economic cycle, as the rules generally represent only ceilings and, in particular, safety margins below the ceilings might also play a part in the fiscal policy. Precisely in the case of the tax level methods, there is – prior to the granting of borrowing options – evidently also provision for a potentially extensive use of reserves, which means that a procyclical policy could also result if discretionary use were to be made of the relevant reserve volume and withdrawals were to be geared less to the economic cycle.³ In the context of the simulation, it is

¹ In all cases, it is assumed that all federal states would have used the standardised procedure. Specifically, the aggregate revenues of all the state governments (excluding local government taxes of the city states) is composed of state taxes, the share of the federal states in joint taxes, the regionalisation funds for public transport, the compensation payments for motor vehicle tax and the motorway toll, as well as the general supplementary central government grants (pegged to a given federal state's financial capacity).

² However, these are significantly lower when using the output gap estimates of the Federal Government based on the production function approach of the EU. In arithmetical terms, this leads from 2011, for example, to a cyclical component that, in cumulative terms, is some €8 billion lower compared with the HP filter (roughly 3% of tax revenues in 2016).

³ That being said, in real time there is a risk of perception bias with regard to the economic situation.

Normal levels and cyclical components in the budget outturn for the state governments as a whole*



* To determine tax revenue, the cash inflow of state government as a whole (excluding the local government taxes of the city states) from tax after general supplementary central government grants was taken into account (for more details, see footnote 1). For the calculation of the normal level in accordance with the requirements of Rhineland-Palatinate (starting value set to actual tax revenue of 1999) and Mecklenburg-West Pomerania, see the comments on pp 53-56. The revenue effects of changes in tax legislation were determined on the basis of the state governments' tax type-specific shares in the revenue effects of changes in tax legislation at general government level. In the macro-based procedure, the normal level is given by the unadjusted tax revenue less a cyclical component. For the derivation of the cyclical component in the budget outturn in the macro-based procedure using the HP filter, see the methodology on p 37. The Federal Government's current GDP estimate is used to calculate the cyclical component from the current perspective (HP filter) (as at 25 January 2017).

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apparent for the period from 1999 to 2016 that both macro-based and tax-smoothing procedures would have acted countercyclically insofar as the modifications of the determined cyclical components in year-on-year terms tended to be in line with the change in the economic situation as seen from the current perspective.⁴ This would have been most pronounced in the macro-based procedure, not least owing to the estimation error component (see the box on pages 37 and 38).

⁴ "Countercyclical" is regarded in this context as a fall in the utilisation rate (cyclical downturn) accompanied by a decline in the cyclical component.

to be generated which are sufficient to equal stronger tax revenue – not least to contain debt. This allows for a more consistent fiscal policy, as any automatic cyclical fluctuations that are identified do not have to be offset using discretionary measures (such as a spending cut). Public finances can thus have a stabilising effect on the cyclical trend within the framework of the rules.

Stabilising effects present in all procedures, but further precautions advisable

There is no clear-cut answer to the question of which adjustment procedure produces a stronger countercyclical effect on macroeconomic developments. Besides the specific design of the individual procedures, this also hinges on the respective causes of tax fluctuations, the structure of macroeconomic growth and, not least, on any unexpected developments. Simulating the retroactive application of various procedures for the period from 1999 to 2016 reveals that macro-based as well as tax trend and tax level procedures examined by way of example would have tended to have countercyclical effects in this period. From the present perspective, the cyclically induced deficits which were identified (in real time) under the procedures would mostly have changed in the opposite direction to the economic situation (see the box on pages 39 and 40). This correlation was most pronounced in this period (not least in cyclical downturns) in the macro-based procedure, which was attributable, in particular, to the fact that unexpected tax developments are factored in when implementing the budget. Precisely to ensure the low-friction processing of major unexpected developments that are repeatedly observed, safety margins below the upper limits on new borrowing additionally offer valuable scope for adjustments. However, the discretionary use of such scope, or of other options such as reserves, could also result in a procyclical discretionary policy in all procedures, if such use is not geared towards cyclical conditions.

Safeguarding symmetry

A key objective of the debt brake is to prevent any further, sustained accumulation of debt. If this is to be achieved, any cyclical influences on the budget stemming from cyclical adjustment procedures need to balance out, ie be symmetrical, over time. In other words, the aim is to identify the absence of any (or not be able to identify the presence of any) significant preponderance of weak revenue attributable to cyclical factors in the long term. Otherwise, the door would be left open to the possibility of a systematic rise in debt due to cyclical burdens being overstated.

Symmetry intended to prevent sustained rise in debt

In the case of the macro-based procedures, asymmetrical cyclical components can arise if the output gap estimate used for the draft budget or the cyclically driven revisions of the tax revenue forecast for the budget plan and the budget outturn tend to be biased in the same direction.¹⁶ In this scenario, it would be necessary to take precautions to counteract any debt build-up. It is therefore to be welcomed that Schleswig-Holstein and Hesse

Symmetry risk evident in both macro-based and ...

¹⁶ Forecast errors for tax revenue hinge primarily on macro estimates. No systematic bias has been found in the official tax estimates from previous years; see, inter alia, T Büttner and B Kauder (2015), Political biases despite external expert participation? An empirical analysis of tax revenue forecasts in Germany, *Public Choice* Vol 164, Nos 3 and 4, pp 287-307. By contrast, the symmetry of output gaps under the EU method cannot necessarily be guaranteed due to a lack of restrictions in the estimation model in some cases. Empirical studies also show that real-time estimates of output gaps using the EU method tend to have a negative bias, ie they largely imply cyclical strains on the budget (see G Kempkes (2014), Cyclical adjustment in fiscal rules: some evidence on real-time bias for EU-15 countries, *FinanzArchiv/Public Finance Analysis* 70, No 2, pp 278-315). A Hodrick-Prescott (HP) filter is a straightforward way to estimate output gaps and provides symmetrical deviations for each underlying time series. Real-time distortions essentially only arise here as a result of correspondingly distorted revisions of data and projections, as well as in the case of distorted extrapolations designed to mitigate what is known as the end-point problem (see M Mohr (2001), Ein disaggregierter Ansatz zur Berechnung konjunkturebereinigter Budgetsalden für Deutschland: Methoden und Ergebnisse, Deutsche Bundesbank Discussion Paper, No 13/01, pp 18 ff).

– unlike the Federal Government¹⁷ – document those cyclically induced deficits and surpluses determined at budget outturn in a cyclical settlement account. This enhances transparency with respect to preserving symmetry as prescribed under their state constitutions. However, these same constitutions contain no concrete instructions to impose a limit on cumulated cyclical components or enforce an obligation to reduce excessive debt classified as cyclical.

... tax trend procedures

In the case of tax trend procedures, an inadvertent build-up of debt may occur, in particular, if calculated normal levels are only slowly brought into line with a declining revenue trend. Trend growth is likely to broadly lose momentum in the face of imminent demographic change, which, if developments in tax revenue are carried forward using only tax revenue figures from previous years, entails an overestimation risk.¹⁸ Conversely, a pick-up in the growth trend gives rise to predominantly positive cyclical components (which constrain borrowing options). It would be possible to adjust more quickly to trend changes if the reference period for calculating the normal level also covered forecasts. The downside to this, however, is that the calculated normal level following forecast revisions would likely be subject to greater fluctuations, which, in turn, would result in a more volatile fiscal policy. Overall, in the case of tax trend procedures, it is crucial if debt is to be effectively curbed that adjusting to a flatter trend does not take an undue amount of time. In the case of procedures that incorporate revenue developments dating back a long time and make no provisions for broadly declining trend growth rates (such as in Baden-Württemberg), ensuring this appears less of a certainty. As a general rule, care should be taken to ensure that the starting values in tax trend procedures are not set too high, so as to prevent the structural revenue level from being overestimated over a prolonged period (see also pages 43 to 45).

Similar to macro-based procedures, it is thus also necessary in the case of tax trend procedures to keep tabs on – and, if need be, take corrective measures against – persistent debt arising from negatively distorted cyclical components. In Rhineland-Palatinate, symmetry risk is being addressed by imposing surcharges or discounts on the regular carryforward rates for the normal level of tax revenue, which is dependent on both hitherto cumulated and recently estimated cyclical components.¹⁹ There is no such safeguard in place in Baden-Württemberg or Hamburg.

Ensuring symmetry likewise imperative in tax trend procedures

In those already established procedures that are not based on trends but rather on averages of past revenue levels (Mecklenburg-West Pomerania, Saxony and Thuringia), a supplementary formal safeguard against the systematic build-up of cyclically induced debt currently appears to be less of a pressing matter. Assuming sustained economic growth and an appropriate approach to changes in tax legislation, predominantly positive cyclical components (and thus only rare borrowing opportunities) are expected under these procedures – and that is despite the weak population growth in these federal states compared with the rest of Germany.

Predominance of positive cyclical components anticipated in tax level procedures

Steady fiscal policy with reliable curbing of debt

A steady fiscal policy with strict new borrowing limits is presented with a major challenge if, once the ceiling for borrowing has been reached, revenue unexpectedly falls due to something other than cyclical reasons. In the case of macro-based procedures, unexpected

Greater fluctuations in cyclically adjusted revenue in macro-based procedures, ...

¹⁷ Only deviations from the ceiling for new structural borrowing in the course of implementing the budget are recorded in the Federal Government's control account. The credited cyclical components are not recorded.

¹⁸ The additional revenue generated by bracket creep in income taxation should not simply be carried forward either. In order to safeguard a steady fiscal policy, it would appear prudent to set aside provisions for subsequent tax rate corrections.

¹⁹ For a detailed description of the procedure, see p 55.

The impact of declining revenue trends and determining starting values in tax trend methods

In the following, selected features of tax trend methods – that is to say, methods which extrapolate the calculated normal level of tax revenue in the previous year using a trend growth rate – are illustrated using stylised model calculations. To this end, stable annual trend growth in tax revenue of 3% is initially assumed in a baseline scenario.¹ A symmetrical business cycle over a total of ten periods (five upturns and five downturns) with cyclical upturns and downturns of up to 5% of tax revenue is then modelled by way of an example around this “true normal level”, starting with a downturn period. It is assumed that tax revenue moves in line with overall economic developments.

The impact of a changing revenue trend

The chart below shows that tax trend methods exclude the “true” normal level of tax revenue from the modelled economy if, given constant trend growth, the period on which the calculation of the normal level is based is equal to the length of the economic cycle.² If, however, the calculation

period does not cover a full economic cycle, the normal level is more volatile, especially if the calculation periods are shorter.³ The calculated cyclical deficits or surpluses and their changes may decouple from the “true” economic cycle and thus, the implied underlying fiscal stance may also be more procyclical or countercyclical.

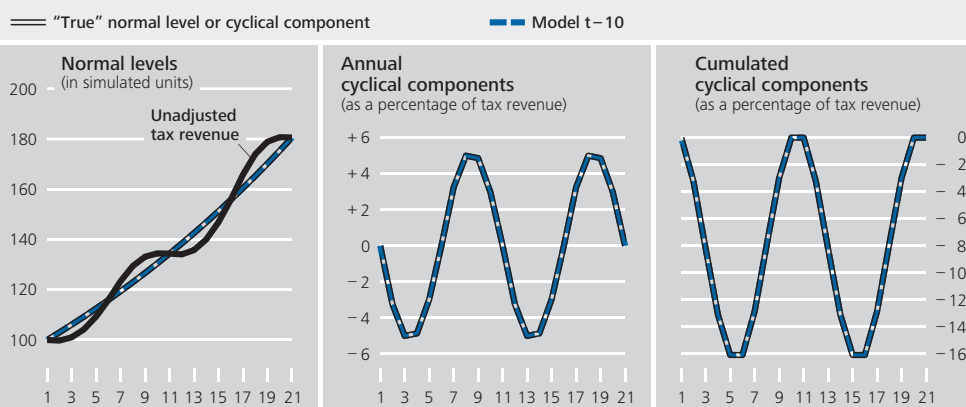
If the trend growth slows down or accelerates over an extended period of time, this could lead to more persistent over or underestimations of the normal level of tax revenue. If lower trend growth rates in tax revenue are reflected only slowly in an ad-

1 This (nominal) growth rate is broadly in line with the assumptions in the Federal Government’s sustainability report for the period from 2020 to 2030. In this report, an average annual real GDP growth rate of around 1% and a rate of price increase of just under 2% is assumed in a baseline scenario. See Federal Ministry of Finance (2015), *Vierter Bericht zur Tragfähigkeit der öffentlichen Finanzen*, pp 7ff.

2 However, this applies only if the cyclical component – as assumed in the simulations – develops in a constant relationship to tax revenue.

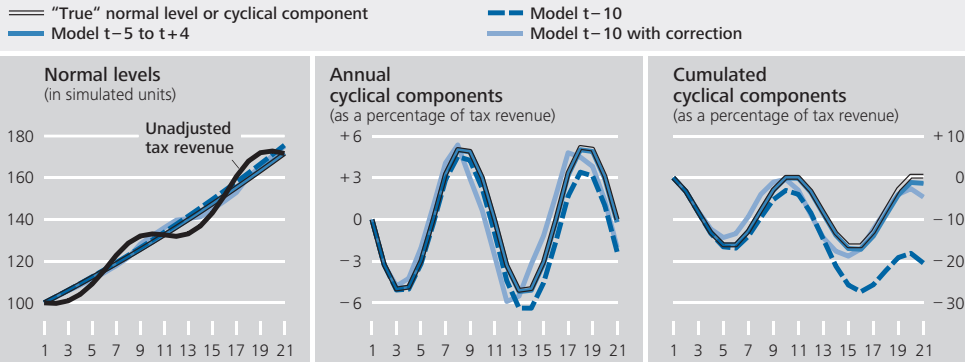
3 As regards to whether the “true” normal level tends to be over or underestimated, this depends on the initially selected starting value in the cycle (see the next section for further details).

Tax trend method given constant trend growth in tax revenue*



* Development in tax revenue according to the baseline scenario. In order to calculate the normal level in the “model t-10”, the initial starting value is set at the level of tax revenue in period 1. For the following years, the previous year’s figure is extrapolated in each case using the geometric mean of growth in tax revenue over the past ten years.

Tax trend method given declining trend growth in tax revenue*



* Compared with the baseline scenario, the trend growth rate in tax revenue of 3.0% initially (period 1) successively declines to 2.5% (period 21). See previous chart for details on how the normal level is determined in the "model t-10". In the "model t-5 to t+4", forecast figures (t+4) are included alongside values from the past (t-5) when determining the normal level, with the assumption that these will indeed occur. When calculating the normal level in the "model t-10 with correction", a correction mechanism was modelled to ensure the symmetry of the cyclical components in line with the regulations in place in Rhineland-Palatinate.

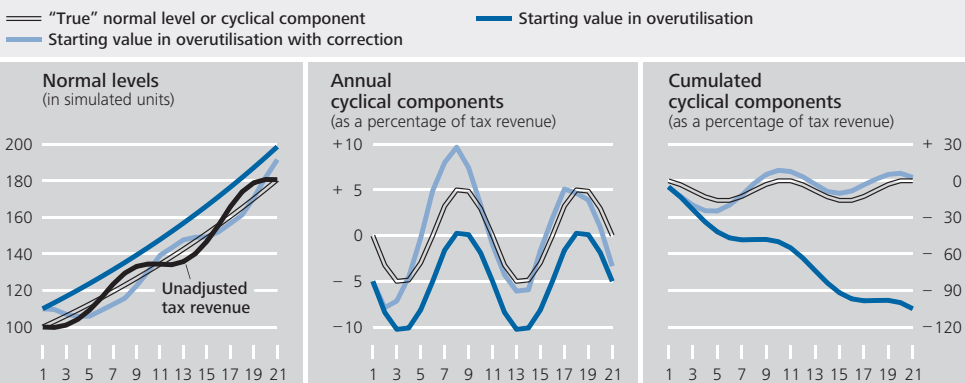
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justment of the calculated normal level, smaller rates of tax growth are interpreted as cyclical during the transition. Cyclical deficits derived in this way can lead to a marked increase in debt. The above chart illustrates how a gradual decline in the trend growth rate in revenue can lead to an increase in the cumulative negative cyclical components and thus in debt.⁴ The calculated normal level adapts more quickly if the calculation period also includes forecast figures, and thus a foreseeably lower growth trend is taken into account at an earlier stage. This may, however, potentially

result in the calculated normal levels being more volatile as forecast figures, which are (potentially erroneous and) more prone to revision, are included in the calculation. Extensive cyclical components that are distorted in one direction (brought about, for instance, by a trend deceleration in growth)

⁴ A gradually declining trend growth from 3.0% initially to 2.5% is assumed over the period shown here. This decline is broadly in line with the assumptions in the Federal Government's sustainability report, in which lower average real GDP growth of approximately 0.5 percentage point is expected between 2030 and 2060 on account of demographic changes.

Significance of the starting value in tax trend methods*



* Development in tax revenue according to the baseline scenario. When calculating the normal levels, the selected starting value is extrapolated in each case using the geometric mean of tax revenue over the past ten years. When determining the normal level for the "starting value in overutilisation with correction", a correction mechanism was modelled to ensure the symmetry of the cyclical components in line with the regulations in place in Rhineland-Palatinate.

Deutsche Bundesbank

can be prevented from building by means of a correction mechanism, which results in deductions from the normal levels if debt accumulates. This, however, is currently only stipulated in the federal state of Rhineland-Palatinate.

Distortions in determining the starting value

If a tax trend method is based on a starting value, this can lead to distortions when estimating the normal level. In order to illustrate this point, the starting value in the chart at the bottom of page 44 was placed in an – unrecognised – period of cyclical overutilisation (before the period shown).⁵ It can be seen that, over time, cyclical debt is allowed to increase steadily. The starting value problem can be mitigated in terms of cumulating major cyclical components if an appropriate correction mechanism is put in

place (currently only the case in the federal state of Rhineland-Palatinate).

⁵ A starting value in normal utilisation can also tend to lead to the normal level being overestimated if the economy is experiencing a period of upswing when the starting value is fixed and the period on which the calculation of the extrapolation rate is based does not cover the entire economic cycle.

fluctuations in tax revenue when drawing up the next draft budget are likely often only due in part to cyclical factors. For example, a downward revision of expected GDP growth would probably be interpreted as structural in some instances, while other factors – not ascribed to cyclical trends in the procedures – can also lead to unexpected tax developments. It would then be necessary for fiscal policy to take countermeasures at relatively short notice and, where appropriate, of a procyclical nature.²⁰ In those already established macro-based procedures, deviations from the tax revenue estimates included in the draft (which are not attributable to changes in legislation) during further budget discussions and in the course of implementing the budget are indeed classified as cyclical and therefore do not create a need for adjustments at short notice. However, this will no longer be the case when the next budget is drawn up. It has become apparent, for example, that relatively substantial negative tax estimation errors between 2001 and 2004 were not “excused”

by unfavourable economic conditions in subsequent years (for more information, see pages 37 and 38). With that in mind, given the lack of safety margins, considerable consolidation measures compared with the medium-term financial plans in place at the time would have been required in the first half of the last decade in the event of an economic downturn.²¹

In the case of macro-based procedures, it would therefore seem prudent to factor in a relatively substantial safety margin below the new borrowing limit in order to avoid correc-

*... making
safety margins
prudent*

²⁰ Since the autonomy of individual federal states is very limited with respect to tax legislation, this would have to be primarily expenditure-based. See Deutsche Bundesbank, The introduction of state-level tax surcharges and discounts, Monthly Report, September 2014, pp 44-46. Consequently, actual adjustment options available at short notice appear to remain relatively limited overall.

²¹ There was also an unexpected series of considerable revenue shortfalls in 2009, but this was promptly followed by an economic upswing. It would probably have been possible to make use of the exemption clause enshrined in the debt brake rules for the countercyclical measures that were adopted.

tions needing to be made abruptly in the event of unexpected adverse developments.²² Such safety margins also make it possible, even if cyclical effects are underestimated, for government budgets to absorb fluctuations in profit-related taxes.²³ In addition, safety margins would provide a counterweight if real-time estimates of the output gap were to remain distorted, as they have in the past.

Tax trend procedures ensure "smoother" developments, but precautions necessary if excessive debt is to be avoided

Compared with macro-based procedures, tax-smoothing procedures – which determine a revenue trend using a longer reference period from the past and taking into account generally expected trend growth (tax trend procedures: Rhineland-Palatinate, Baden-Württemberg, Hamburg) – generally ensure smoother developments in eligible structural revenue. To this extent, the safety margins needed in the budget plans in order to stabilise fiscal policy may be smaller. However, a trend adjustment mechanism is required to ensure symmetry in these procedures, which could have a tendency to counteract this.

Tax level procedures prevent unintentional debt but could encourage erratic fiscal policy

In the case of tax-smoothing procedures, which are based on the average revenue levels of previous years (tax level procedures: Mecklenburg-West Pomerania, Saxony, Thuringia), predominantly positive cyclical factors are, as seen from the present perspective, likely to be identified in future. While these procedures ultimately permit a cyclical rise in debt only in exceptional cases, they do generally provide scope for expenditure as long as it does not result in cyclically induced new borrowing. It is therefore to be assumed that, in the medium term, tax revenue will broadly rise in parallel with nominal GDP, which also looks set to increase in future,²⁴ and thus be up on the average of previous years. Underestimations of structural revenue developments are limited due to the relatively short reference periods of three to five years for the normal level that applies here. However, in the upshot, the selected tax level procedures arguably only allow for borrowing in a highly unfavourable economic situation. Given rigid adherence to the determined nor-

mal level, the budget would systematically "breathe" with a significant surplus.²⁵ In practice, however, reserves that are formed from cyclical surpluses are probably intended to be used primarily to absorb revenue fluctuations. All in all, such reserves do indeed ensure greater flexibility when planning and managing the budget. That said, it means that cyclical factors no longer automatically affect the permissible fiscal balance. A procyclical fiscal policy stance would instead be triggered if the reserves held were not sufficient to offset cyclically induced fluctuations and net borrowing were not possible because the procedure failed to report any corresponding negative cyclical factors. This risk is especially pronounced if the reserves intended to absorb revenue shortfalls are insufficient, or if they have been used to cover other areas of spending.²⁶

Relationship to EU rules

The individual federal states have chosen widely differing approaches to implementing the debt brake. This gives rise to particular challenges for budget consolidation and fiscal surveillance under both national and European fiscal rules. The European rules, for example, are directed at structural general government deficits, which are identified on the basis of the EU's cyclical adjustment method. Seen in that light, the uniform application of this approach (as in the

Variety of methods poses special challenge for general government fiscal surveillance

²² See J Kremer and D Stegarescu (2009), Neue Schuldenregel: Sicherheitsabstand für eine stetige Finanzpolitik, Wirtschaftsdienst 89(9), pp 630-636.

²³ As a general rule, underestimation due to modelling errors is to be distinguished from underestimation due to forecast errors, although the two are somewhat related (see R Morris et al (2009), Explaining government revenue windfalls and shortfalls: an analysis for selected EU countries, ECB Working Paper No 1114, pp 23-24).

²⁴ The increases are also not likely to be offset by any population decline.

²⁵ Occasionally, borrowing restrictions even go as far as to only permit borrowing if the low normal level is undershot by a further 3%, such as in Mecklenburg-West Pomerania or Saxony. Fiscal leeway is curbed even further when the fiscal policy stance is oriented towards this threshold.

²⁶ For example, in the procedure applied by Mecklenburg-West Pomerania, only part of the reserves in the new special fund are solely intended to cover cyclical revenue shortfalls. For details on the procedure, see p 55.

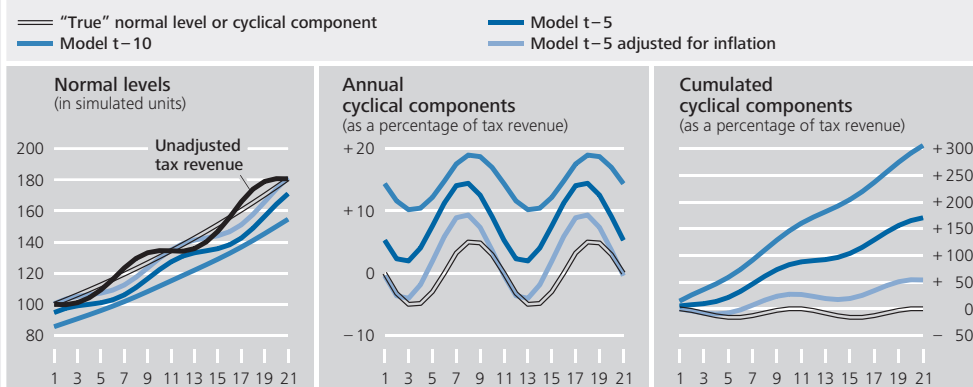
Tax level procedures tend to report positive cyclical factors

The chart below presents the smoothing behaviour of tax level procedures in simple terms (procedures which calculate the normal level as the average tax revenue from previous years). It is evident that, in the case of a positive growth trend, the normal level of tax revenue determined using these procedures is almost consistently below the modelled “true” normal level (see the box on pages 43 to 45 for more details on the development of simulated tax revenue). Thus, the determined cyclical factors do not offset each other on average; instead, predominantly positive cyclical components are reported. The more data points from the past are taken into account when determining the normal value, the greater the extent to which the “true” normal level (in the case of a positive growth trend) tends to be undershot. Shorter reference periods for the calculation can, on the other hand, lead to more volatile normal levels being determined when there are pronounced cyclical fluctuations. The underestimation of the normal level is mitigated if, as in the procedure applied by Mecklenburg-West Pomerania, inflation effects are taken into con-

sideration, leaving real trend growth as the only remaining reason for underestimation.

As long as matching surpluses are not aimed for in the case of tax level procedures, reserves are needed to safeguard a steady fiscal policy in the event of weaker growth in tax revenue. If the reserves are not sufficient, a cyclical breathing of the budgets is no longer possible.

Smoothing behaviour of tax level procedures*



* Development in tax revenue according to the baseline scenario (see p 43). The normal level of tax revenue in “model t-5” and “model t-10” is the average revenue for previous periods (from t-1 to t-5 and t-1 to t-10). In order to calculate the normal value in “model t-5 adjusted for inflation”, the revenue level for each of the previous five years was increased by an inflation component of 2% prior to calculating the mean value.

case of the Federal Government) would have the advantage of making it easier to identify looming conflicts with the European rules in all federal states. The state government-specific requirements may be much less strict than the EU rules, especially if large shortfalls in revenue unconnected with cyclical fluctuations in GDP are judged to be cyclical.²⁷

Transparency and resiliency

Transparency, comprehensibility and resiliency ...

Both the macro-based and tax-smoothing methods are complex in detail. However, they run the risk of being treated flexibly to the detriment of curbing debt if the estimations depend to a considerable extent on components that have been selected on a discretionary basis and are therefore easy to modify. This can impair the transparency, comprehensibility and stability of the adjustment methods and of the relevant estimations.²⁸ All things considered, with methods lacking control mechanisms there is an inherent danger of regular recourse to discretionary leeway in order to classify deficits as cyclically induced, thus creating short-term scope for obtaining finance. The latter applies less to the macro-based methods in Hesse and Schleswig-Holstein, the results of which essentially depend on estimations by Federal Government using the EU method.

... ensured by stable, legally firmly anchored procedures

Robust estimation procedures that deliver consistent results without *ad hoc* adjustments, say, to the method or to the parameters, are therefore beneficial. Furthermore, correction mechanisms – in particular, for safeguarding symmetry – should be framed in a rule-bound manner. A strong legal anchoring through a parliamentary prerogative is also desirable so that deliberate modifications of the procedure for the purpose of creating fiscal space are, at least, made more transparent and thus more difficult.²⁹

Budget approaches based on the official tax estimate

In all the methods, care should be taken that there is a clear definition of the aggregate revenue that is relevant to the cyclical adjustment and, in the case of tax-smoothing procedures,

that the treatment of the financial impact of changes in tax law is disclosed.³⁰ In the case of methods which classify deviations from the tax estimate as cyclical in the context of adopting and implementing the budget, this is to be based on the official regionalised tax estimate – as is current practice in the monitoring of federal states in receipt of consolidation assistance.³¹ Otherwise, there would be a risk of excessively favourable budget estimates producing systematically negative estimation components, thus potentially opening the door to the accumulation of cyclically induced deficits. Generally speaking, explanatory notes on the procedures, modifications in their methodology and on data input as well as the results of the

27 A conflict may also arise if extensive reserves that have been formed in previous years can be used to adhere to the national budget ceiling, as the EU rules are framed with the deficit in mind, which is unaffected by them. For a similar situation in connection with the Federal Government's refugee reserve set up at the end of 2015, see Deutsche Bundesbank, Public finances, Monthly Report, February 2016, pp 65-67.

28 The EU method is unsatisfactory in this regard; for more details, see Deutsche Bundesbank, Requirements regarding the cyclical adjustment procedure under the new debt rule, Monthly Report, January 2011, pp 55-60. The EU's production function approach has often been modified in the past (most recently in autumn 2016) and, particularly at the current end, displays some results that are not very plausible in terms of the derived economic situation. In this connection, see the debate on the treatment of refugees in the EU's estimate of potential output: CESifo Group Munich, Joint Economic Forecast Spring 2016: Upturn remains moderate – economic policy lacks growth orientation, pp 49-60. The HP filter is a more transparent and easily understandable method.

29 In this connection, enshrining the procedure in the federal state constitution or in the federal State Budgetary Rules, as in Baden-Württemberg, Saxony and Thuringia, would be preferable to a legal regulation or an internal administrative rule. For a fundamental change in procedure – such as in Schleswig-Holstein recently – parliament has to be involved. The technical details concerning the practical implementation of the cyclical adjustment should also be subject to the consent of the federal state parliaments.

30 Revenue effects of legal changes should be clearly separated from cyclical factors and have a direct impact on the fiscal scope.

31 Federal state-specific adjustments should be restricted to significant factors for which specific documentation is to be provided. Population growth deviating from the average for the federal states would probably be the likeliest instance of this.

respective estimations should be made public along with the budget documentation.³²

■ Conclusions

Stabilising fiscal policy

In terms of the debt brake's objective, the outlined methods have various strengths and weaknesses. One fundamental problem of budgetary planning consists in the fact that, in the event of adverse developments, there may be mutually conflicting goals with regard to a steady fiscal policy, an automatic stabilisation of economic activity, and a sustained curbing of debt. Given the variety of methods, this may be marked to differing degrees and also depends in each case on the concrete macroeconomic and fiscal trends and the related forecast errors. Any potential problems can, however, be mitigated by suitable framing and budgetary planning in the case of both macro-based and tax-smoothing approaches.

Safety margins and two control accounts recommendable in macro-based procedures

Especially in the case of macro-based procedures with a need for short-term adjustment to unexpected non-cyclical developments, safety margins with regard to the borrowing limits are advisable. As a matter of principle, allowance should be made for these in planning the budget – as a rule, they should also actually be complied with – and, when the buffers are used, the subsequent path of consolidation in order to build them up again should be safeguarded in the medium-term planning. Additionally, specific arrangements should be made that prevent an unintended persistent accumulation of debt. Besides controlling for actual deviations from the structural budget ceiling (eg control account with Federal Government), monitoring the symmetry of cyclical components (eg via cyclical compensation accounts in Hesse and Schleswig-Holstein) are relevant in this context. If the cyclical compensation accounts exceed a given threshold value, a systematic medium-term reduction rule, which can also take into account the given economic situation, could come into play. However, as long as safety margins between the borrowing

limit and the cyclically adjusted actual outturn are maintained in the period under observation, netting with the accumulated credit balance on the control account seems to be the obvious thing to do.³³ As long as the procedures employed are not extremely biased and safety margins are reported regularly, the reduction rule is ultimately hardly likely to be triggered.

The tax-smoothing procedures do not follow directly from macroeconomic developments. Admittedly, in practice it is generally difficult to draw a distinction between cyclical and other fluctuations in revenue, and a direct smoothing of tax revenue can indeed represent a workable alternative. Nevertheless, the reference value that is to be smoothed should be adjusted at least for the (officially estimated) revenue effect of tax law changes. Furthermore, the smoothing mechanisms do not by themselves ensure that the deviations of actual revenue from their projected level offset each other sufficiently quickly over time, thus preventing a systematic growth in debt. For that reason, the actual deviations should be recorded (as in Hamburg and Rhineland-Palatinate) and a persistent build-up of debt should be prevented by appropriate correction mechanisms (as in Rhineland-Palatinate). If the actual revenue were to substantially exceed the projected normal revenue over an extended period of time, this would suggest a correction in order to expand the available budgetary leeway.

In the case of tax-smoothing procedures, adjustment for legal changes advisable and ...

... effective adjustment mechanisms required to safeguard symmetry

³² In this respect, Rhineland-Palatinate does indeed set an example in terms of a clear and transparent presentation of the relevant information; see Finanzplan des Landes Rheinland-Pfalz for 2016 to 2021. Owing to its complexity, the results of the European Commission's method of estimating potential are not immediately self-evident – even though it is comparatively well documented in papers (op cit) and online (<https://circabc.europa.eu>). For the Federal Government's estimation, which is fundamentally based on the same procedure, it would be desirable to have a transparent and comprehensible account of differences (both in methodology and in terms of data input) between the EU's and the government's estimates.

³³ If cyclical burdens are overestimated, the resulting structural balance would be all the more favourable. To this extent, netting with the control account appears to be in conformity with the system.

Protection from spending of cyclical relief in the case of level-based procedures

Because the normal level is determined very conservatively, the level-based procedures offer protection against a persistent build-up of debt classified as cyclical. Typically, current tax revenues significantly exceed this normal level. If matching surpluses are not consistently aimed for, reserves have to be formed to be able to offset any tax fluctuations. If these reserves are not sufficient, a cyclical “breathing” of the budgets over the cycle is scarcely possible anymore, since new borrowing will now, in reality, be possible only in exceptional cases. Given these rules, it is therefore especially important either to be able to “breathe” in the position of a surplus or to protect the extensive reserves needed for a lengthy slowdown from being used in the political process for another purpose – which experience has shown to be difficult.

If necessary, taking account of forecasts to reduce biasing tendencies

The decline in trend GDP growth observed in retrospect over a fairly long period has ultimately also put a brake on growth in tax revenue. The expected reduction in the working population suggests anticipating limited and, if anything, falling growth rates in the case of tax revenue. Methods that are based on past rates of growth (Baden-Württemberg, Hamburg, Rhineland-Palatinate) might therefore tend to overestimate the normal level. Generally speaking, this bias could be mitigated by including the projected growth in revenue for the coming years, which takes account *inter alia* of demographic developments. At the same time, however, this would heighten the normal level’s susceptibility to revision, as inaccurate forecasts cannot be ruled out. By contrast, taking average revenue levels in the past as a starting point (Mecklenburg-West Pomerania, Saxony, Thuringia), even with low GDP growth, would probably still tend to lead to the normal level of tax revenues being underestimated.

Cyclical adjustment should be transparent and understandable

In order for the procedures – irrespective of their specific design – to deliver results that are consistent over the long term and offer as little scope as possible for modification, they should be robust and firmly anchored in law. This

means, in particular, that the methods or parameters should not be adjusted (as this option could be misused, say, for creating short-term budgetary leeway). Insofar as adjustments are part of ensuring symmetry, they should be made in a rule-bound manner, as in Rhineland-Palatinate, for example. Reasons would have to be given for more fundamental methodological adjustments – preferably in a parliamentary procedure. What is also important is that methods, data resources and results are transparent and fundamentally understandable to the general public.

Harmonised reporting seems advisable, not least in order to make it easier to keep track of the numerous specific procedures. This should encompass a statement of the cyclical net burdens that have accumulated so far as well as the accumulated balances of the control accounts for deviations from the borrowing limit when the budget is being implemented. Reporting could take place in connection with the Stability Council’s monitoring of Federal and state government compliance with the debt brake rules.³⁴ The results could be compared with those that would have been produced given a uniform cyclical adjustment using the EU method. Additionally, the results could be verified using a method based on the HP filter, since this has advantages for fiscal surveillance in terms of comprehensibility and reproducibility compared with the less transparent EU method. A high degree of transparency and comprehensibility can counteract potential political pressure to use the cyclical adjustment method to expand the available fiscal leeway to the detriment of the intended capping of debt.

The national debt brake should, not least, safeguard compliance with the rules of the European Stability and Growth Pact and of the Fiscal Compact. A cyclical adjustment method based on the European requirements has been

Standardised reporting in the context of monitoring by the Stability Council

Stability Council shall ensure compliance with general government deficit limits

³⁴ Even leaving aside cyclical adjustment, reporting on budgetary developments and planning could be improved in the process; see Deutsche Bundesbank, Public finances, Monthly Report, November 2016, p 70.

implemented only in two federal states so far. It therefore cannot be ruled out that, say, an overall more favourable assessment of the cyclical factor (lower cyclical burden or higher cyclical relief) in some years would mean that the European rules set stricter requirements than the aggregated debt brakes of the individual central, state and local governments. In this respect, the onus is on the Stability Council to identify any discrepancies as soon as possible and to coordinate any adjustments of fiscal policy between Federal Government and state governments. Irrespective of differences resulting from the methods of cyclical adjustment, however, it seems important in this connection to make transparent and, if necessary, limit any other discrepancies between the EU requirements and the national rules. Account should

be taken of existing methodological discrepancies, say, in the treatment of premium and discount amounts in interest expenditure, debt relief or potential extensive recourse to reserves and provisions. Moreover, given that the debt brake is designed to enshrine the EU rules constitutionally in the Basic Law, it would seem prudent to apply the debt brake not only to the federal states' core budgets but also to include the off-budget entities that count as part of the government sector. Lastly, it should be taken into consideration that large deficits of social security funds and local governments are also a factor in the context of the EU rules. The Stability Council would have to ensure that this leads, where necessary, to stricter requirements for the Federal Government and the federal state governments.

■ Annex

Overview of current cyclical adjustment methods at state government level

Those federal states that have already adopted cyclical adjustment rules have, in some cases, opted for quite different methods. The following tables summarise the key features of these various approaches. For the most part, the information stems from laws (usually the State Budgetary Rules (*Landeshaushaltsordnung*) and/or Regulations (*Verordnungen*)). However, as these could not provide all the details required, supplementary information from the relevant state ministries has also been taken into consideration. The tables cover the following aspects.

Method to calculate the cyclical component

In macro-based methods, the cyclical component for the draft budget is first determined for state government as a whole based on the current estimate for the output gap. The share for each state is then calculated using a "quota key". Updates to the budgetary components in question when the budget discussions are concluded (budget plan), supplementary budgets adopted and the outturn determined are generally deemed to be cyclically induced.

In tax-smoothing methods, the cyclical component is measured as the deviation of a tax revenue aggregate, which is defined as being cyclically sensitive, from its "normal level". The normal level is derived either by explicit reference to trend growth in tax revenue (tax trend method) or by benchmarking average tax revenue over several prior years (tax level method).

Cyclically sensitive tax revenue aggregate

A common requirement of the methods outlined above is to define which budget categories are to be included as cyclically sensitive factors. In most cases, these are defined as tax revenue after transfers to/receipts from the state government tax revenue-sharing scheme, and general supplementary grants from central government, which vary depending on a federal state's financial capacity. Divergent definitions are listed in the overview.

Adjustment for the financial impact of changes in tax legislation

Under macro-based methods, there is no need to separately gauge the financial impact of legislative changes at the draft budget stage as the cyclical component is derived directly from the output gap

and the impact of legislative changes is thus automatically classified as being structural. However, if changes in tax legislation occur during the course of further budget discussions and implementation, it must be ensured that these changes are correspondingly assigned to the structural component.

Under most tax-smoothing methods the estimated financial impact is filtered out of the tax aggregate prior to smoothing (so as not to classify it as cyclical) and then refactored into the smoothed tax revenue level.

Control mechanisms to ensure symmetry

Germany's Basic Law (*Grundgesetz*) permits the symmetrical factoring-out of cyclical effects so as to prevent a sustained rise in debt from being falsely attributed to cyclical factors. However, as it is extremely difficult for estimation methods to do this in practice, the cumulated cyclical components are partially recorded in a separate cyclical control account. One state (Rhineland-Palatinate) also uses a formalised correction process to limit inaccurate valuations.