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Abstract. By imposing a tough mechanism with deposits and fines on those members of the European Monetary Union who violate the threshold value for public sector deficits, the Pact on Stability and Growth creates a new incentive scheme for national fiscal policy. Unbalanced budgets may then induce direct costs from sanction payments and indirect costs by reducing the flexibility to respond appropriately to asymmetric shocks. This paper presents a rough assessment of affected countries and a method of extracting cyclical variations in public deficits by estimating Structural Time Series models. An application to Austria with Monte Carlo simulated confidence bands for the cyclical deficit component allows the computation of a target value for the structural deficit, which minimizes the probability of facing direct and indirect costs from the Pact.

key words: Cyclical Public Deficit Ratio, Structural Time Series Models.
JEL-code: E62, E32, C22.

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## 1. INTRODUCTION

At their Dublin meeting in December 1996 the members of the European Union specified the excessive deficit procedure already outlined in the Maastricht Treaty. Although no strict rule based approach was set up, the so called Pact on Stability and Growth (PSG) will restrict dramatically the leeway for fiscal policy for all future members of the European Monetary Union (EMU). This is a peculiar policy mix since fixing exchange rates in the monetary union will deprive member states of a quick and powerful adjustment instrument to cushion asymmetric shocks and this loss should be compensated by more flexible fiscal policy. The more so, since by now fiscal policy is one of the few economic policy instruments which remains under national control. Especially countries with highly responsive automatic stabilizers or a high probability of asymmetric shocks may find themselves in a position of violating PSG limits while still fulfilling dynamic solvency criteria.

For this reason it seems necessary to get more information on the potential costs of rule based restrictions on fiscal policy within the EMU. These costs may arise directly through payments of deposits and fines. But additional indirect costs may result from a loss in the cyclical sensitivity of national budgets due to discretionary action in the light of violating the deficit threshold. Another important source of indirect costs concerns timid fiscal response to a negative asymmetric shock, because the deficit may overshoot the threshold value. Yet another potential for indirect costs goes along the line of Barro (1979) who emphasizes the role of deficit spending for reasons of tax smoothing. If a government minimizes the dead weight loss from taxation the first order conditions for such a problem requires constant tax-income ratios. Thus deficit spending during a recession is requested for reasons of optimal taxation. The extent to which fiscal inflexibility matters in Europe will be shown by computing hypothetical deposits and fines for the period 1960-1995. These calculations provide a first grouping into countries which are likely to be hurt by implementing the PSG.

Hypothetical sanction payments represent certainly a blend of discretionary action with automatic stabilization. Furthermore, during the sample period occasional devaluation and flexible exchange rates relieved some pressure on fiscal policy and on the other hand Lucas Critique would apply for fundamental changes in the incentive scheme. Therefore it is interesting to factor out purely cyclical effects on the public sector deficit. We propose a new estimate for the cyclical deficit component based on a Structural Time Series model. Results from estimates for various revenue and expenditure items of Austria are presented as an example. Furthermore, a Monte Carlo simulation allows us to compute confidence bands for the cyclical deficit ratio of the Austrian public sector. As a byproduct we get an estimate of the maximum structural deficit which is compatible with a low probability of faceing direct and indirect costs from complying with the Pact.

The rest of the paper is structured as follows. Section 2 includes some motivation for the PSG and is followed by a short description of the sanctions' design and an estimate of ex post deposits and fines in per capita terms for all EU members in Section 3. The next section describes the method applied to estimate the structural budget deficit for the public sector in Austria and Section 5 presents results, comparisons to OECD- and EU-estimates, and a Monte Carlo simulation. A summary and conclusions close the paper.

## 2. A Motivation of the Pact for Stability and Growth

The intentions to establish strict and stable rules for deficit limits of individual EMU members are mainly based on the externalities of excessive deficit policies on the other members of the Union. The most obvious externality results from the additional demand on European capital markets by countries running high deficits. Buiter et al. (1993) decompose this effect into a purely pecuniary externality which raises interest rates for all debtors in the Union and thus distributes the burden of financing cost across the Union. In second best worlds technological efficiency effects will additionally occur, because distortionary taxes would have to be increased in order to meet the marginal burden from higher interest payments. In the case of pecuniary and technological externalities the fine for excessive deficit spending may be interpreted as a Pigou tax which internalizes those externalities. This interpretation is supported by the redistribution mechanism of interest earnings and fines, which will be paid out to those countries not violating the threshold.

The externality argument for rule based sanctions on excessive deficits will work optimally only if financial markets cannot perfectly discriminate among debtors. Otherwise, financial markets would simply charge higher risk premia for eventual default on those countries moving along unsustainable deficit paths and the sanction payments according to the PSG would punish those countries for a second time. The combination of risk premia with sanction payments may severely distort the fiscal position of EMU members. Bayoumi et al. (1995) provide evidence from US states that for moderate deficits default premia in interest rates only gradually discipline sovereign borrowers but default premia eventually rise in a steep nonlinear way in response to high indebtedness. This nonlinear reaction occurs despite the fact that most of the states enacted legally binding deficit rules.

Another externality stems from doubts about the credibility of the no bail out rule articulated in Art. 104b of the Maastricht Treaty and Art. 21 of the Protocol on the European System of Central Banks. If a member country defaults on its accumulated debt, other participants in the EMU may feel obliged to bail out this insolvent government, because the associated financial crisis may spread throughout the Union and thus increase the relative costs of no bail out. In this circumstance a time inconsistency problem similar to the conventional Kydland and Prescott (1977) argument for macroeconomic stabilization policy may arise. Eichengreen and Hagen (1996) stress this point as a rational for imposing restrictions on public sector deficits although they suggest other remedies which may have preferable consequences. Additionally, the PSG impairs the credibility of articles 104b and 21. Strict advocates of tough rules and sanction based mechanisms are Holzmann et al. (1996), who argue that incentives for unsustainable fiscal policy paths will increase within the EMU yet capital markets will not charge risk premia on countries moving along unsustainable deficit paths.

In terms of external effects the pros and cons of the PSG hinge on the assessment of whether financial markets work efficiently or not and whether the no bail out rule is credible. A third line of arguments in favor of supranational rules is based on the principal agent problem between the electorate and domestic politicians (cf. Tirole (1992), Laffont and Tirole (1993) pp. 475ff.). Fiscal policy as the last resort of discretionary national action for local politicians shall be restricted, because national governments are tempted to engage in excessive deficits. Since purely national rules to restrict discretionary powers may not be feasible for political reasons, a supranational agent can be enacted to balance the budget. Under this reasoning the PSG is designed to reduce discretionary power of domestic politicians in fiscal policy, which may arise from public choice motivations in the line of Buchanan (1986). Because the stability

pact is not the result of electorate action against domestic government but a voluntary restraint at the governments' level, it should rather be interpreted as the outcome of doubts that all EMU members will be able to impose tight fiscal rules on themselves. Especially because competition between member countries for industry locations through favorable tax codes will become more intense and therefore the flexibility to consolidate public households on the revenue side will be reduced. Moreover, evidence from US states shows that the enforcement of balanced budget rules is more effective if conducted by outsiders rather than insiders. For example, US states with a constitutional budget constraint which is enforced by an independent popularly elected state supreme court do have a significantly larger budget surplus (cf. Bohn and Inman (1996)).

## 2. The Institutional set up of the Excessive Deficit Procedure

The PSG includes a set of rules on monitoring public sector deficits. The most critical part of that agreement specifies the excessive deficit procedure by describing the way in which countries with unsustainable deficits will be identified and subsequently sanctions will be imposed. In accordance with the entry criteria to the EMU, a threshold value of 3% of GDP for the public sector deficit was chosen. Deficit ratios in excess of this threshold will trigger a report by the Commission under Article 104c(3) of the Maastricht Treaty. At this stage the Commission will decide whether the public deficit exceeds public investment spending or whether other pertinent factors prevail. These would include the medium and long-term economic and budgetary conditions of a member state.

Besides general considerations the Commission will conceive a deficit automatically as exceptional, if it results from extraordinary events outside the government's control or if the economy shrinks by more than 2%. Economic downturns within a range of 0.75% to 2% will require further consultations with the Economic and Financial Committee and the European Council before a final decision on a recommendation under Art. 109d is made. Deficits during an economic downturn of less than 0.75% will be automatically regarded as excessive. In case of an identified excessive deficit the European Council will develop a fiscal adjustment program according to Art. 104c(7-9) and if the member country fails to act in compliance with the adjustment program a non-interest bearing deposit will be imposed as a first step. Thus, even if a public deficit is considered to be excessive there is much leeway to escape the monetary sanction by implementing a program appropriately. In this case the deficit procedure will be suspended until further monitoring reveals either a correction of the excessive deficit or inappropriate action by the member country's government. In the latter case the procedure will be resumed immediately and sanction payments are supposed to follow within three months.

The scale of sanctions starts with a fixed amount of 0.2% of gross domestic product (GDP) plus a variable component of 10% of the public deficit in excess of the 3% threshold as a non-interest bearing deposit with the Commission. The amount will be based on outcomes of the year in which the excessive deficit occurred and the deposit will be converted into a fine after two years if no corrective action takes place. The upper limit for the annual amount of the deposit is 0.5% of GDP.

Deposits or fines of this magnitude certainly represent a huge burden on member countries, especially those already within a deficit position. In addition to impeding the consolidation process, fixed rules reduce the flexibility of fiscal policy, especially if a member country is

already in a position of relatively high structural deficit. A first assessment of the magnitude of direct costs can be gained by comparing recession years with years of excessive deficits.

Figures 1 through 3 present the development of real output growth over the period 1960 through 1995, with projections from the OECD up to 1998. A grouping into core members of the EMU, possible members, and declared outsiders has been made to facilitate interpretation. Within the core group output fluctuations are synchronized to a surprisingly high degree. Communalities within the remaining two groups are less obvious. Figure 4 shows that public sector financial balances of the core group are around the threshold level of -3% from 1975 onwards with the exception of Belgium, where the government pursued a policy of high deficit ratios with a peak in 1981, when a stabilization program was implemented. Figure 5 includes financial balances of the second group and reveals highly dispersed fiscal strategies across countries. Of the third group presented in Figure 6, Denmark and Sweden show deficit ratios with a strong cyclical component, whereas in Greece the cyclical pattern is dominated by the structural deficit which peaked in 1990. A general movement in public sector financial balances can be identified at the end of the sample, when all countries converge to the critical Maastricht deficit criteria.

The PSG compares public sector financial balances with business cycle fluctuations and renounces sanctions in the case of severe recessions. Figure 7 summarizes the number of years between 1960 and 1995 with severe recessions (output reductions of more than 2%). Across all members of the EU there are only eight occasions of severe recessions with Finland experiencing the maximum number of two severe recession years. Among the remaining EU members only six countries had one severe recession year. As long as the variance of business cycle fluctuations remains constant, we can conclude that the automatic lifting of sanctions due to business cycle conditions is not very likely in the future. Even if mild recessions are added to this figure (recessions between 2% and 0.75%) there are only 30 occasions and the maximum number of recession years for a single country increases to four. Compared to the 30 recessions there are 186 occasions of excessive deficits with an average per country of 12. In this respect Austria's experience of no recession in combination with eight years of excessive deficits is remarkable. One can conclude that the automatic trigger for deposit payments will almost always work and that the PSG will impose stinging limits on fiscal policy for several countries.

To scrutinize this conclusion the actual size of the deficit must be analyzed more carefully: deposit payments should be distinguished from fines and a distinction between a tough and a mild interpretation of the business cycle criterion has to be made. For this purpose hypothetical deposits and fines are calculated for each country under automatic triggers according to the 2% and the 0.75% recession criterion and regardless of any special circumstances concerning the level of public investment or the medium to long-term fiscal position. The payments are accumulated over time without discounting and expressed in per capita terms to show the average burden for each country and facilitate comparisons across countries. For our calculation deposit payments are converted into fines if there was still an excessive deficit two years after a deposit was paid. Tables 1 and 2 summarize the results for both procedures. On average the difference in deposit payments between tough and generous interpretations is 13%. Countries like Germany, Finland, France, and Sweden would benefit most from a mild interpretation. On the other hand, as regards fines, the difference between both scenarios is on average 36%, with countries like Denmark, Portugal, France, Belgium, and Spain benefiting most. Because Austria and Ireland experienced neither strong nor mild recessions, there is no difference between both procedures. All in all the results reflect the fact

that there were quite few heavy recessions over the last 35 years within Europe. While the threat of deposit payments is not very much affected by generous interpretations, the threat of actual fines is slightly more reduced by mild interpretations of business cycle conditions.

The difference between hypothetical deposits and fines provides another useful piece of information. Countries with quick adjustments of deficits, for example due to high cyclical budget components or quick discretionary consolidation should have low hypothetical fines in comparison to their deposits. Thus this ratio reflects the speed at which countries correct excessive deficits. On average 74% of deposits will be transformed into fines after two years, indicating a low average speed of budgetary adjustment across Europe. But there are several countries with ratios well below the average, notably Germany, Denmark, Finland, Sweden, and Austria. High ratios, however, do not necessarily indicate permanent deficits. Although France seems to be sluggish in adjusting its excessive deficit, there were only five years of excessive deficits. On the other hand, for countries like Italy, Belgium, Portugal, Greece, and Spain frequent excessive deficits coincide with sluggish adjustment, indicating permanent deficits.

The size of hypothetical payments is another indicator of whether countries will be affected strongly by PSG standards. Figure 8 shows the number of years in which deposits were capped by the maximum threshold of 0.5% of GDP under both interpretations of the business cycle criterion. Especially Italy, Belgium, Greece, Ireland and Portugal would have benefited from the upper limit to payments.

The analysis of hypothetical deposits and fines is certainly subject to several criticisms, particularly if it would be used to forecast future sanction payments to the EU. First of all there is much leeway built into the Maastricht Treaty and the PSG allows the Council to judge on the appropriateness of actions against deficit spending in the respective member countries. Furthermore, any special circumstances with regard to the level of public investment or the medium to long-term fiscal position, which might alter the assessment of a deficit as excessive have not been considered. Moreover, the Lucas-Critique applies fully to such a fundamental change in the incentive design. The threat of huge and permanent fines would certainly have altered the behavior of members and thus hypothetical numbers can only serve as an indication of countries that have problems resolving structural deficits. All of these arguments suggest an overestimation of hypothetical sanction payments. On the other hand, exchange rate fluctuations were prevalent throughout the sample period so that the pressure on fiscal policy to accommodate for negative asymmetric shocks was smaller. This argument would imply an underestimation of sanction payments especially for those countries with low symmetry to the DM-area. For a grouping of countries according to asymmetries of shocks consult Helmenstein and Url (1995) and Url (1996). Besides problems with behavioral change, the base for our computations are revised values of national accounts. Countries with big revisions of preliminary data will see a different size of payments. In the case of Austria the difference was negligible and will not be reported here.

The following conclusions, however, can be drawn from our results: recessions are unlikely to provide an argument for lifting sanctions, even if mild interpretations are applied. Thus governments will be forced to present appropriate consolidation packages to avoid sanction payments. Indirect costs from the PSG are very likely as long as the structural deficit component is near the threshold value, because governments will be forced to apply short-run policy measures which may pronounce the cyclical pattern. Especially during the fiscal

retrenchment period towards balanced budgets countries will face costs from transition, depending on the starting level of their structural deficit.

Finally, the analysis of hypothetical payments will always blur discretionary measures with automatic stabilization. This drawback can be solved by extracting a cyclical deficit component which is independent of discretionary measures. This type of analysis is also suggested by the reference to the medium-term economic position of a country under Art. 104c. Estimates of the cyclical deficit component are already available from the OECD (Giorno et al., 1995) and the European Commission (European Commission, 1995). Yet the computation of cyclical budget deficits by both institutions is based on a rough distinction of revenue and expenditure categories, uniform guesses on budget elasticities for small countries and partly questionable estimates of the output gap (for example annual Hodrick-Prescott-filtered in the case of the EU). In the following section an alternative estimate of the cyclical budget component will be presented and applied to the Austrian case.

## 3. AN ALTERNATIVE ESTIMATE OF THE STRUCTURAL AND CYCLICAL DEFICIT

The most prominent figures for structural and cyclical deficits are published by the OECD, which calculates the structural budget component, $SD_{it}$, for each member country by estimating the cyclical component in the $i$th category of revenues or spending of year $t$ in the following way (cf. Giorno et al., 1995):

$$\ln(SD_{it}) = \ln(D_{it})\left[1 - \varepsilon_i \ln\left(\frac{Y_t}{Y_t^p}\right)\right] \qquad (1)$$

where $D_{it}$ is the actual nominal amount of revenues or expenditures in category $i$. The elasticity, $\varepsilon_i$, of each category $i$ with respect to the real output gap, $\ln\left(Y_t/Y_t^p\right)$, is fixed over time and represents the automatic response to cyclical variations. The estimation of elasticities is partly based on model simulations and partly on studies of tax revenue elasticities (cf. Giorno, 1995, pp. 203). The most serious criticism of this approach is certainly that the elasticity with respect to cyclical fluctuations may be a policy parameter and therefore subject to political scrutiny and sway. Thus the elasticity might jump around with every change in the tax code and expenditure programs, whereas constant parameters will always be based on constant long-run averages. Especially in the case of tax reforms this may end up in biased estimates of the cyclical component. An alternative approach recognizes this deficiency and employs an unobserved components model for the budget deficit (e.g. Jaeger (1990), Beirat (1991)). This model class assumes a one-sided causal structure running from output to each budget item. Time varying elasticities can be estimated by Maximum Likelihood in regressions of individual revenue and expenditure categories on nominal potential output in levels, $YN_t^p$, and the output gap measured as percentage deviation from potential:

$$\begin{aligned} \ln(D_{it}) &= \ln(SD_{it}) + \ln(CD_{it}) + u_{it} \\ \ln(SD_{it}) &= \alpha_{it} + \delta_{it} \ln(YN_t^p) \quad , \\ \ln(CD_{it}) &= \varepsilon_{it} \ln\left(\frac{Y_t}{Y_t^p}\right) \end{aligned} \qquad (2)$$

Each budget item is decomposed into two unobserved components, the structural component $SD_{it}$ and the cyclical component $CD_{it}$. The measurement error $u_{it}$ is White Noise and $\alpha_{it}, \delta_{it}$, and $\varepsilon_{it}$ are time varying elasticities following independent random walks. As Pagan (1980) noted, the conditions for identification of this model and thus for well defined asymptotic properties of the Maximum Likelihood estimator depend on several characteristics. A model must be observable and controllable and if the transition matrix includes unknown parameters, its roots should be less than one in absolute value (Harvey (1989), p. 129). If the measurement equation is allowed to be time-varying as in Jaeger's approach, conditions must be placed on the vector of the exogenous variables $YN_t^p$ and $Y_t/Y_t^p$. These conditions are that the elements of this vector must be bounded from above and non-stochastic. Since nominal potential output cannot be regarded as bounded from above, regardless of its stochastic characteristics, Jaeger's approach should be modified in one of the following directions to allow for a Maximum Likelihood estimation of elasticities.

The first alternative would be to difference all equations in the system, but this would amount to a loss of all long-run information in each budget category. This is particularly bad if problems concerning a cointegration relation between nominal potential output and budget categories arise. A value added tax with constant tax rates, for example, is by definition perfectly cointegrated with nominal GDP. Wagner's law, on the other hand, would suggest a policy of ever rising public shares in output, but the experience with recent tax reforms and fiscal retrenchment packages provides some evidence that political limits for redistribution exist within democratic market economies.

The second alternative is to specify a structural time series model for each budget category, $D_{it}$, with a stochastic trend and to include the same exogenous variables as before into the measurement equation but with constant parameters. This amounts to the assumption that changes in the tax code or expenditure programs do not alter the short and long-run output elasticities of each budget category, rather, that such actions have long lived consequences and therefore will be integrated into the stochastic trend component. Such a model is a nested version of (2) with the variance of $\delta_{it}$ and $\varepsilon_{it}$ set equal to zero, while $\alpha_{it}$ is still allowed to vary over time. A test of this restriction is not available since the asymptotics of model (2) are ill defined. This alternative preserves most of the advantages of the time varying parameter model and reduces the requirements for Maximum Likelihood estimation towards weak exogeneity of the exogenous variables, detectability and stabilizability (cf. Harvey (1989), p. 365ff.). Moreover, since few policy shifts affect the cyclical response but most tend to affect levels permanently it seems more appropriate to allow for a variation in the trend component rather than time varying short and long-run elasticities. The measurement equation of this model is given by:

$$\ln(D_{it}) = \mu_{it} + \delta_i \ln(YN_t^p) + \varepsilon_i \ln\left(\frac{Y_t}{Y_t^p}\right) + u_{it}, \qquad (3)$$

where each individual revenue and spending category, $D_{it}$, is decomposed into a stochastic trend component, $\mu_{it}$, a part depending on exogenous variables, and a White Noise measurement error, $u_{it}$, which is assumed to be uncorrelated with any other stochastic component and has variance $\sigma_{ui}^2$. The inclusion of nominal potential output links the trending behavior in each budget category to the income development and the associated elasticity can

be interpreted as a long-run budget elasticity with respect to nominal potential income. The long-run development of budget items cannot be completely explained by the trend in output, rather it is subject to political will. If each budget item could be explained completely by output, the stochastic trend component would collapse into a constant. Otherwise it incorporates discretionary political action with permanent character. It is crucial that output is weakly exogenous to individual budget items, since this requirement implies that conditioning does not generate losses in information relevant to the estimation of the unknown parameters.

The trend component is decomposed into level and slope components which are modeled in the following transition equations of the system:

$$\begin{aligned} \mu_{it} &= \mu_{it-1} + \beta_{it-1} + \eta_{it} \\ \beta_{it} &= \beta_{it-1} + \zeta_{it} \end{aligned}, \qquad (4)$$

where $\beta_{it}$ corresponds to the slope of the trend component and $\eta_{it}$ and $\zeta_{it}$ are mutually uncorrelated White Noise disturbances. Various forms of stochastic trends are possible in this set up, depending on whether the variance of the level component, $\sigma^2_{\eta i}$, or that of the slope component, $\sigma^2_{\zeta i}$, is zero. If both variances are equal to zero the model collapses into a standard regression model. (cf. Harvey 1989, p. 37ff.).

## 4. The Data and Estimation Results

The Austrian Institute of Economic Research computes estimates of the cyclical output component for the Austrian economy based on a multivariate Structural Time Series model for output and unemployment (cf. Hahn and Rünstler (1996a, b). A short outline of their model structure is given in the appendix. Their estimate for the real output gap in percent of GDP is aggregated to annual data and used as an explanatory variable in equation (3). The log-level of nominal potential output is calculated by simply multiplying real potential output by the HP-filtered GDP deflator. The cyclical component in the Austrian GDP-deflator is very small.

Annual data for public sector revenues and expenditures are taken from the data base of the Austrian Institute for Economic Research and are completely integrated into the system of national accounts (SNA68). Table A1 in the appendix provides an overview of all budget components and represents an aggregate of the federal government, states, municipalities, and social security bodies. This definition insures compatibility with the numbers which will be used under the surveillance activities prescribed under Art 104c of the Maastricht Treaty and in the PSG. Besides these legal points the close conceptual relation to savings and investment streams of the private economy avoids measurement errors resulting from dubious book keeping practices (cf. Jaeger, 1990).

Several estimates of the Austrian output gap in percent of GDP are compared in Figure 9. The WIFO estimate is quite distinguished from those provided by the EU and the OECD. If the estimation horizon is extended to include the years 1954 through 1963, the WIFO model produces estimates (WIFO_E) quite similar those from the Commission and the OECD. This effect comes from the low cyclical variation between 1954-63. Whereas the WIFO estimate for 1964-95 implies a cycle of 28 quarters frequency, the cycle collapses into an AR(1) process with infinite frequency for the sample 1954-95. In the following the WIFO_E output

gap will be used to estimate budget elasticities. This allows an extension of the sample period to 1955-1995. To facilitate the comparison with previous results from Jaeger (1990) we estimate the same model with potential output series resulting from the HP-filter. The computations are based on Maximum Likelihood estimation and carried out in STAMP. For a number of budget items discretionary measures within one year were so large, that even a stochastic trend could not cope with the implied jump in revenues or expenditures. In these cases the introduction of additional dummy variables is necessary to correct for outliers and sudden deterministic level shifts. Only by including dummies into the regressions is it possible to achieve uncorrelated residuals and equations which pass CUSUM based and other residual tests. The statistical characteristics for each equation are summarized in Table 3 for the WIFO_E based models and in Table 4 for models based on HP-filtered output. A comparison reveals that the characteristics of both equations are roughly equivalent.

Parameter estimates for variances and elasticities are given in Tables 5 and 6. The trend specification for most of the budget items follows a local linear trend model. For two equations with HP-filtered potential output the variance of the level component is estimated to be zero. The variance of the measurement error, $\sigma^2_{\omega i}$, is zero in several equations. Estimates for long-run elasticities are significant for some of the equations based on WIFO_E and are bigger than one. This indicates long-run instability of some models due to rising tax or expenditures shares of the public sector throughout the sample period. Those models must be interpreted as local approximations to the transition path towards an economy with higher government activity levels. This interpretation may also explain differences to estimates based on the HP-filtered potential output.

If impulse and/or step dummy variables are included in the measurement equation, some of the long-run elasticities and all of the short-run elasticities are highly significant. The estimates for short-run elasticities show the right sign and have similar magnitudes, regardless of the potential output definition. Public revenues react procyclically and expenditures countercyclically to business cycle variations. The parameter's values indicate that some of the budget items are highly responsive to cyclical variations in output.

Table 7 provides a comparison of our estimates with those of Jaeger (1990), the EU, and the OECD. The disaggregation level of the public sector is the same as in Jaeger (1990) but for social security contributions, income from property, subsidies, and public investment no significant and meaningful short-run elasticity can be found. The differences between Jaeger's estimates and ours stem from differing sample lengths, national accounts revisions since 1989, the integration of dummy variables, different potential output concepts, and the model structure. As a comparison of Tables 5 and 6 shows, the use of different output gaps has negligible effects on short-run elasticities but the combination of all other effects shows up in a downward bias of Jaeger's estimates. On the other hand our results are close to OECD estimates; the difference in profit taxes probably results from slightly different definitions, since the OECD value corresponds to the average of profit taxes and other direct taxes in column 1 of Table 7. The European Commission uses a weighted average of OECD parameters but aggregates revenues and expenditures into two variables. The comparison on the expenditure side is complicated by the fact that the OECD and the EU combine expenditures on unemployment with an inverse Okun's law coefficient as an intermediary switch between cyclical spending and the output gap. Contrary to Jaeger we cannot find a cyclical response of subsidies and public investment. In the case of investment spending this might be due to recognition, decision, and implementation lags of public investment. Accounting practices and the increasing share of leasing create other sources of deviations of

book records from actual investment activity. Another interpretation would emphasize that public investment may also be used for correcting excessive deficits, since investment projects are at higher discretion compared to other budget items.

The cyclical budget deficit in Figure 10 is based on a combination of coefficients from Table 5 with WIFO and WIFO_E output gaps, respectively. Additionally, published values for cyclical deficits from the EU and the OECD are provided. The maximum difference of 1.94 percentage points occurred in 1987 between both WIFO estimates. In general the cyclical deficit ratios move in line but have different size. Only the WIFO estimate deviates strongly between 1983 and 1991, where turning points are completely different. The highest variance shows up in WIFO_E, where large business cycle variations are met by high short-run elasticities. Obviously the deficit ratio strongly depends on the measurement of the business cycle since this is the only difference between WIFO and WIFO_E.

To assess the sensitivity of our results with respect to different estimates of the output gap a Monte Carlo simulation has been conducted. This experiment allows us to compute confidence intervals for the cyclical deficit ratio and is based on the model developed by Hahn and Rünstler (1996b). Their model is presented in the appendix and estimated parameters for the frequency, the dampening parameter, and the variance of the error terms for the cyclical component are taken from Hahn and Rünstler (1996b) and adjusted to annual data. The Monte Carlo experiment includes 10,000 replications for the business cycle with the first 100 observations dropped due to possible phase-in problems. Based on the simulated output gap, elasticities from Table 5 are used to calculate the cyclical component of the deficit by taking the antilog of equation (3) for each budget component *i*:

$$D_i = e^{\mu_{it}} \left(YN_t^*\right)^{\beta_i} \left(\frac{Y_t}{Y_t^*}\right)^{\delta_i} e^{Dum_{it}} e^{u_{it}}, \qquad (5)$$

where $Dum_{it}$ represents evaluated Dummy variables in the regression equation *i*. Solving for the structural budget in percent of the total budget:

$$\frac{e^{\mu_{it}} \left(YN_t^*\right)^{\beta_i} e^{Dum_{it}} e^{u_{it}}}{D_i} = \left(\frac{Y_t}{Y_t^*}\right)^{-\delta_i}, \qquad (6)$$

and reformulating provides the following expression which allows the calculation of the cyclical deficits in percent of nominal GDP:

$$\frac{D_i - e^{\mu_{it}} \left(YN_t^*\right)^{\beta_i} e^{Dum_{it}} e^{u_{it}}}{Y} = \left[1 - \left(\frac{Y_t}{Y_t^*}\right)^{-\delta_i}\right] \frac{D_i}{Y}, \qquad (7)$$

by summing up all cyclically varying budget components *i*. The changing ratios of revenues and expenditures to GDP generate small fluctuations in boundaries for the Monte Carlo simulated confidence intervals. As can be seen in Figure 10 the WIFO_E and the OECD series hit the two standard deviations confidence bands, the remaining estimates are nicely within boundaries which thus provide conservative estimates. Since the simulated standard deviation of the cyclical deficit component at the end of the sample period fluctuates around 0.86% of GDP, one can conclude that in 95% percent of all cases the maximum cyclical deficit ratio in

Austria will be around 1.75% of GDP. Or vice versa, in 95% of all occasions a structural budget deficit around 1.25% will not result in deposit payments under the PSG.

As a consequence of moderate business cycle fluctuations, the actual deficit ratio is largely driven by the structural budget component. Figure 11 shows the drop in the structural component in the aftermath of the first oil crisis in 1975. The subsequent decline in productivity growth was not matched by corresponding reductions in expenditures and the deficit ratio continued to fluctuate around 3% of GDP. After a short period of successful budget consolidation between 1989 and 1992, the consequences of the tax reform, enlarged social security entitlements, changes in subsidizing residential construction and, since 1995, membership fees to the EU increased the structural deficit towards 6% of GDP in 1995.

## 5. Conclusions

The Pact of Stability and Growth, if hypothetically applied in the past history, would have resulted in severe deposit payments and fines for many EU members. Because the threshold level for business cycle downturns is set at a minus two percent decline of output, only very few countries would have been able to claim extraordinary business cycle conditions. At the same time several EU members followed excessive fiscal policy paths above the three percent threshold level defined in the Pact. Thus the Pact establishes an incentive scheme which will firmly restrict the leeway for sustained excessive deficit spending.

Especially countries with a high elasticity of public budget items on the regional output gap will be affected by strict rules on deficit spending. The countries most likely affected will be Germany, Denmark, Sweden, and Austria. For these countries hypothetical deposit payments are large relative to fines, implying that excessive deficit positions would be corrected rather quickly. It is important to note that whereas there might be a rationale to punishing excessive structural deficits due to possible negative external effects, a punishment of cyclical deficits arising from the reaction of automatic stabilizers or accommodative fiscal policy after negative asymmetric shocks is clearly inconsistent with minimizing output fluctuations.

The calculation of hypothetical sanction payments is subject to several criticisms, as there are the leeway of interpretation during the excessive deficit procedure, the different sets of feasible policy instruments, Lucas Critique arguments, and especially the mixture of discretionary action with automatic response. This calls for a more robust separation of the cyclical component in the public budget. Well-known examples are the estimates by the OECD and recently published values of the European Commission. Those values suffer from high aggregation, invariance with respect to tax policy, and partly questionable estimates of the output gap. The estimation of short-run elasticities with respect to the output gap by Structural Time Series models solves these drawbacks and is applied to the Austrian case. Compared to previous national and international estimates we find higher elasticities confirming the low amount of hypothetical fines relative to deposit payments.

A Monte Carlo simulation of cyclical deficit ratios shows that in 95 percent of all years the maximum cyclical deficit ratio in Austria will be below 1.75% of GDP. Given the variance of business cycles in Austria and the estimated cyclical elasticities a structural budget deficit of up to 1.25% of GDP is compatible with a minimal risk of paying a deposit. Under these circumstances the direct costs from paying fines and the indirect costs from reduced cyclical response can be practically ruled out. The fiscal retrenchment needed to bring down the structural deficit after joining the European Monetary Union will likely result in transition

costs on the way to a balanced budget, especially so, since there is an EU-wide need to reduce structural deficit positions simultaneously.

Finally, the recent jump in the deficit ratio towards 5.25% of GDP is mainly due to structural effects. Except in the year 1993, the cyclical budget component contributed only a small fraction to the total deficit ratio during the first half of the 90s. This result is in line with other interpretations of the public sector deficit which stress consequences of the tax reform, changes in subsidizing residential construction, EU membership fees since 1995, and additional social security entitlements as the main driving forces of recent deficits. Although recent consolidation packages attempt to bring the deficit ratio in the range below 3% of GDP, by 1997 and 1998 further structural consolidation will be necessary to avoid sanction payments afterwards. The more so, since the years until 2010 will be favorable in terms of small demographic pressures on the Austrian public pension system. National and OECD projections predict a significant increase in deficits of social security institutions afterwards and estimate the unfunded present value of deficits within the Austrian social insurance system at 93% of the 1994 GDP.

## APPENDIX: THE DETERMINATION OF POTENTIAL OUTPUT

The Maastricht Treaty and the Pact for Stability and Growth refer to national accounts compatible data for financial balances which will be compared to output in surveillance procedures. By using SNA68 based national accounts data it is possible to stretch the sample period back into the 1950s and 1960s. The exact structure of public financial balances data is given in table A1, where a distinction is drawn between series which are decomposed into structural and cyclical components and series that fulfill accounting identities (zero entry in the column for the cyclical component). The variables correspond to Table 18a and p. 220 from ÖSTAT (1995) but are from the database of the Austrian Institute for Economic Research. For several tax categories a more detailed disaggregation has been used, whereas some other categories have been aggregated. As an example, Table A1 provides an overview of all items for 1993, a year where due to the recession the output gap deviated from zero and thus cyclical components in most revenue and spending components were large.

The estimates for potential output and the output gap are taken from Hahn and Rünstler (1996a) which are based on the same data set but use quarterly observations. Here only a short description of their modeling strategy will be provided. Potential output estimation is based on a multivariate structural time series model that incorporates equations for output $y_t$, unemployment $ur_t$, and wage inflation $\Delta w_t$:

$$\begin{aligned} y_t &= \mu_t^y + \varphi_t^y + v_t^y \\ ur_t &= \mu_t^{ur} + \varphi_t^{ur} + v_t^{ur} \\ \Delta w_t &= b_1(L)\Delta w_{t-1} + b_2(L)\Delta p_{t-1} + b_3(L)\Delta q_{t-1} + b_4 s_{t-k} + \gamma_2 \varphi_{t-1}^{ur} + \varepsilon_t^w \end{aligned} \tag{A1}$$

where output and unemployment series are composed of stochastic trend components $\mu_t^y$ and $\mu_t^{ur}$, and stochastic cycles $\varphi_t^y$ and $\varphi_t^{ur}$. Wage inflation depends on an autoregressive part in both variables, labor productivity $q_t$, the labor share in income as an error correction term, $s_{t-k}$, and on the lagged unemployment cycle. Mutually and serially uncorrelated White Noise errors $v_t^y$, $v_t^{ur}$, and $\varepsilon_t^w$ complete the model. The stochastic trend components may follow either independent local linear trends or simple random walks with drift. This implies that they may drift apart. On the other hand, the cyclical components are bound together through a generalized common cycle assumption of the following type:

$$\begin{bmatrix} \varphi_t^y \\ \varphi_t^{y*} \end{bmatrix} = \rho \begin{bmatrix} \cos\lambda & \sin\lambda \\ -\sin\lambda & \cos\lambda \end{bmatrix} \begin{bmatrix} \varphi_{t-1}^y \\ \varphi_{t-1}^{y*} \end{bmatrix} + \begin{bmatrix} \kappa_t^y \\ \kappa_t^{y*} \end{bmatrix} \tag{A2}$$

$$\varphi_t^{ur} = \begin{bmatrix} \theta & \theta^* \end{bmatrix} \begin{bmatrix} \varphi_t^y \\ \varphi_t^{y*} \end{bmatrix} \tag{A3}$$

The cyclical output component is driven by White Noise disturbances $\kappa_t^y$ and $\kappa_t^{y*}$ which are mutually uncorrelated with identical variance $\sigma_\kappa^2$. The dampening factor $\rho$ insures stability of the system. The cycle is generated by the dampened combination of stochastic sine and cosine waves, with $\lambda$ as the frequency of the cycle. The element $\varphi_t^{y*}$ is just needed for purposes of

recursion but the cyclical unemployment component is a direct linear combination of the output cycle.

This structure imposes a common cycle in both variables but allows for a phase shift in the unemployment cycle. Basically, output and unemployment series are filtered such that a generalized common cycle can be identified. The system belongs to the class of Structural Time Series models and provides a consistent framework for the estimation of cyclical budget components.

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*Figure 1 - Change in real GDP of EMU core group*

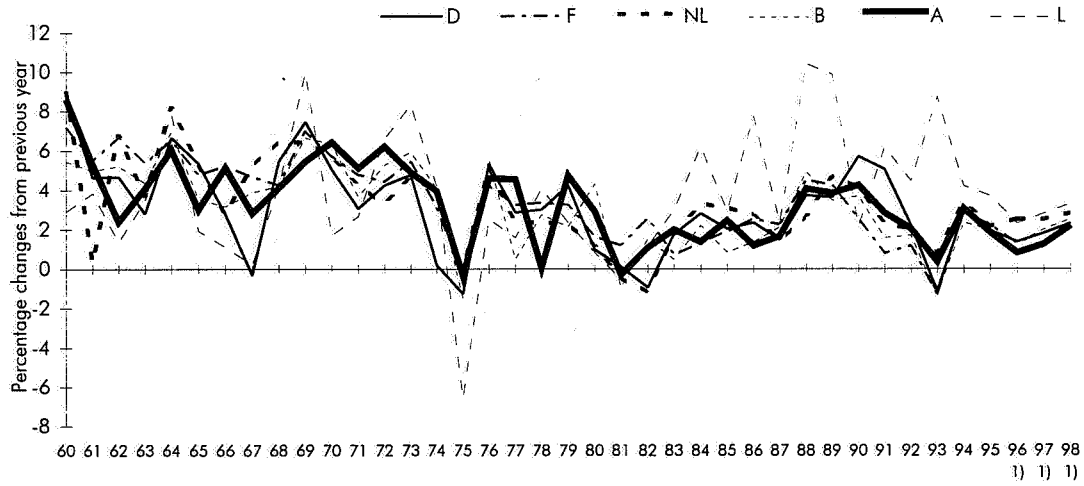



*Figure 2 - Change in real GDP of possible EMU members*

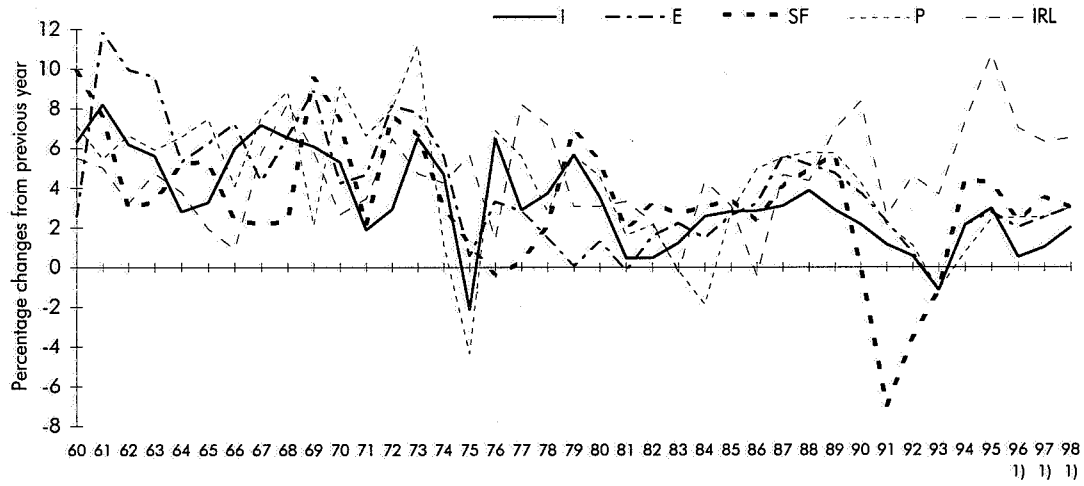
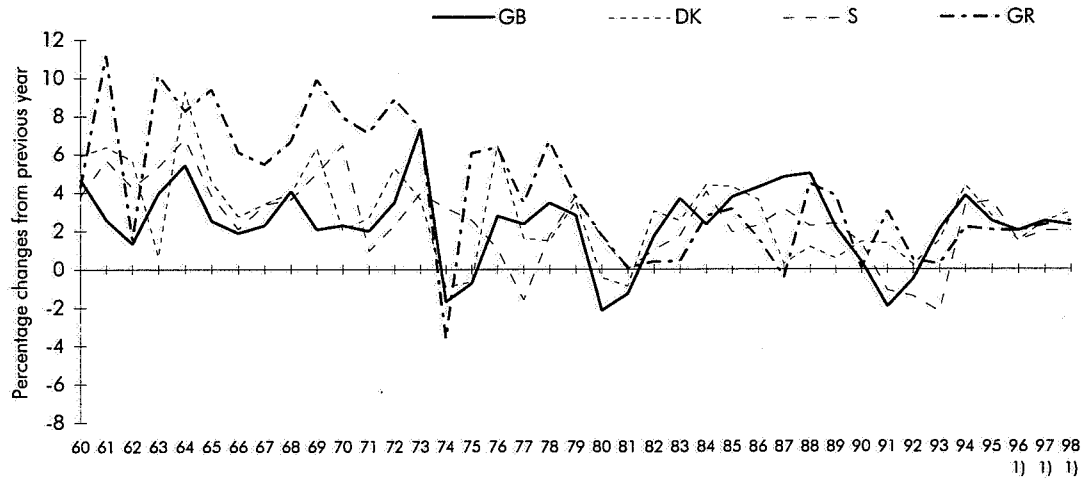



*Figure 3 - Change in real GDP of declared EMU outsiders*




S: OECD, ÖSTAT, WIFO. - 1) Forecast.

*Figure 4 - Public sector financial balance of EMU core group*

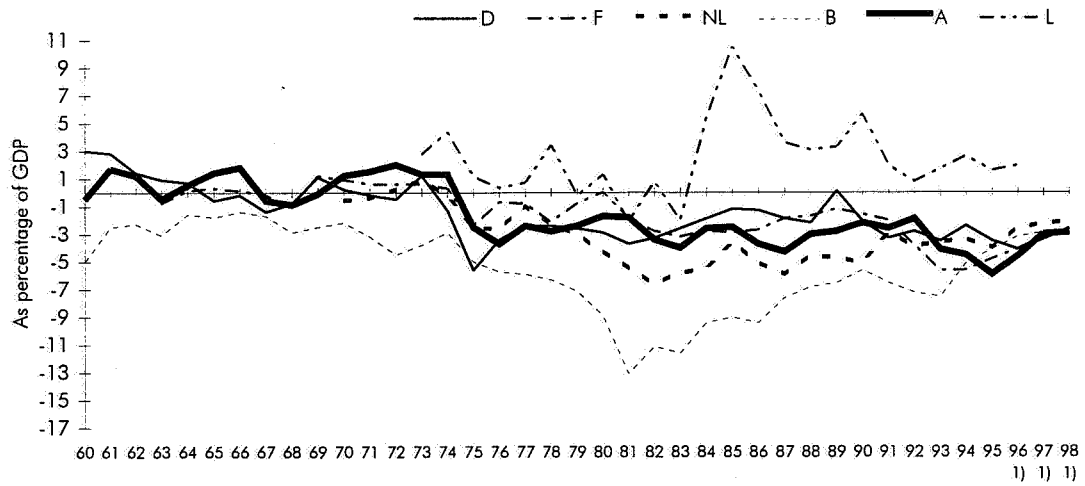



*Figure 5 - Public sector financial balance of possible EMU members*

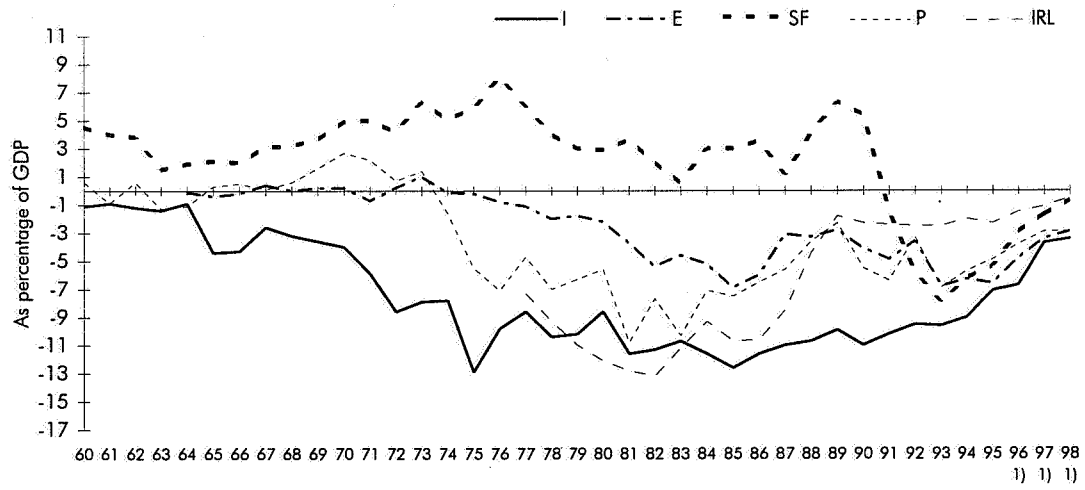
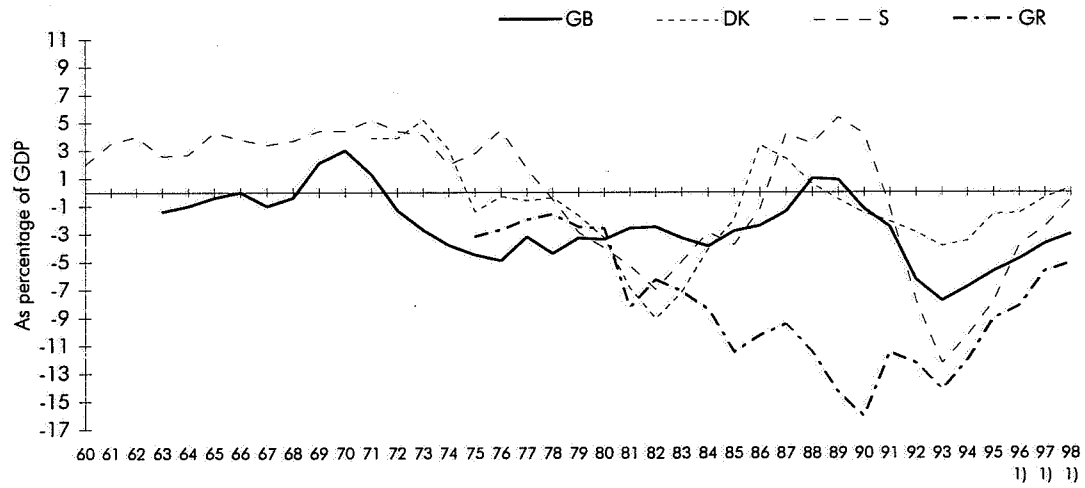



*Figure 6 - Public sector financial balance of declared EMU outsiders*




S: OECD, ÖSTAT, WIFO. - 1) Forecast.

*Figure 7 - EU comparison for the number of years with exceptional recessions and deficit ratios 1960 - 1995*

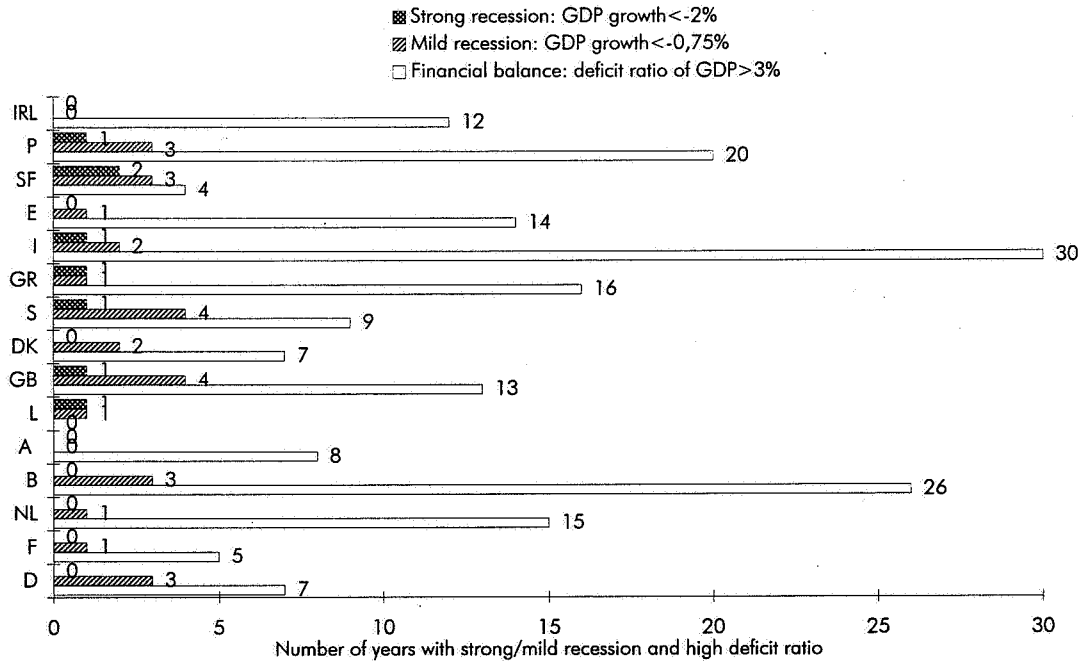


*Figure 8 - Number of years when maximum payment (0.5% of GDP) was surpassed, 1960 - 1995*

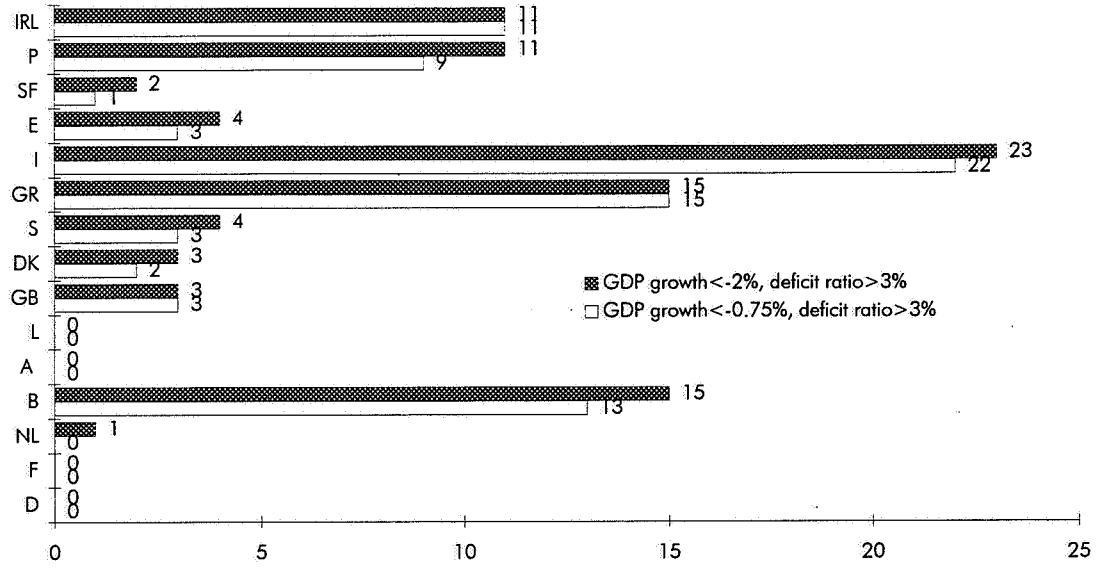
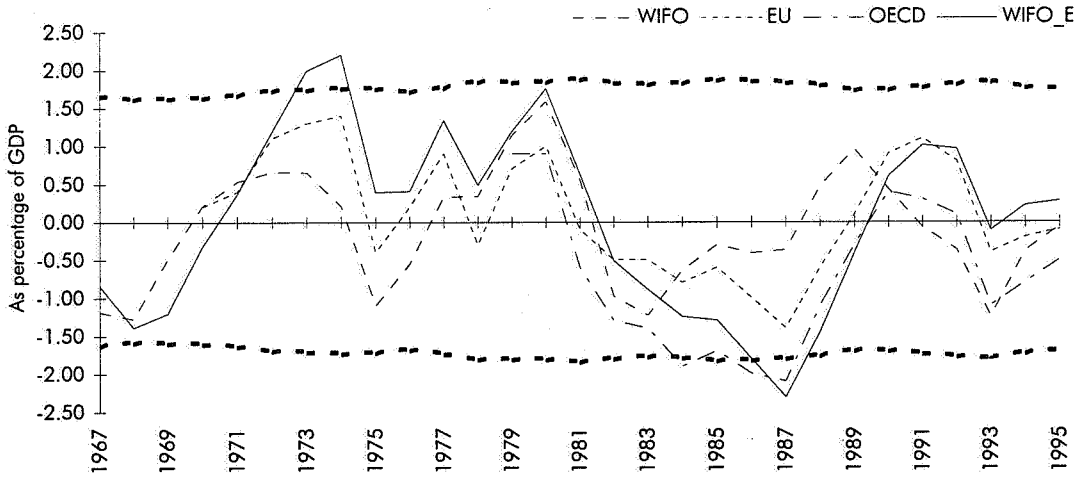


*Figure 9 - Various estimates of the output gap in Austrian GDP*

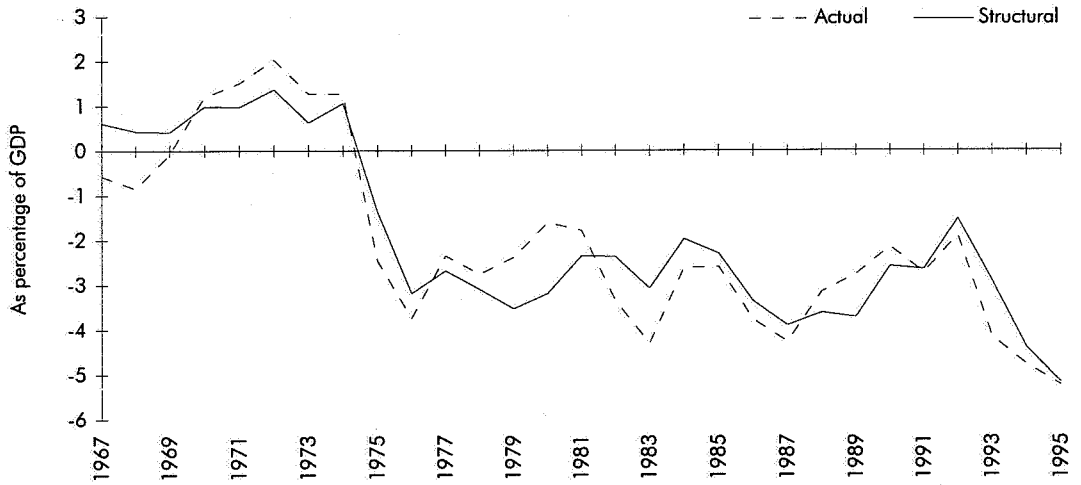

S: *European Commission* (1995), *Giorno et al.* (1995), *Hahn-Rünstler* (1996a).

*Figure 10 - Various estimates of the cyclical deficit component*




S: *Giorno et al*. (1995), *European Commission* (1995), own calculations. - Dotted lines represent 2 standard error confidence bands for the cyclical deficit component from a Monte Carlo simulation of different cycles with 10,000 draws.

*Figure 11 - Actual and structural deficit based on WIFO potential output*




S: Own calculations.

*Table 1 - Hypothetical per capita payments of EU members 1960 - 1995 under a strict interpretation of*
*GDP growth >=-2% and deficit ratios > 3%*

| | Accumulated deposits In $ | Accumulated fines [1] In % of deposits | |
|---|---|---|---|
| Luxembourg [2] | 0 | 0 | 0 |
| Germany | 273 | 74 | 27 |
| Finland | 287 | 83 | 29 |
| Ireland | 344 | 266 | 77 |
| Denmark | 374 | 140 | 38 |
| Portugal | 376 | 305 | 81 |
| France | 392 | 370 | 95 |
| Austria | 445 | 157 | 35 |
| Great Britain | 474 | 397 | 84 |
| Spain | 479 | 443 | 92 |
| Greece | 511 | 505 | 99 |
| Sweden | 630 | 218 | 35 |
| Netherlands | 799 | 535 | 67 |
| Italy | 1,245 | 1,204 | 97 |
| Belgium | 1,374 | 1,258 | 92 |
| EU 15 [3] | 534 | 397 | 74 |

1) Based on 1996, 1997 and 1998 financial balance forecasts. - 2) Data available from 1973. - 3) Arithmetic mean. - Ranking according to accumulated deposits.

*Table 2 - Hypothetical per capita payments of EU members 1960 - 1995 under a mild interpretation of*
*GDP growth >=-0.75% and deficit ratios > 3%*

| | Accumulated deposits In $ | Accumulated fines [1] In % of deposits | |
|---|---|---|---|
| Luxembourg [2] | 0 | 0 | 0 |
| Germany | 165 | 74 | 45 |
| Finland | 204 | 0 | 0 |
| France | 292 | 206 | 71 |
| Denmark | 318 | 54 | 17 |
| Portugal | 324 | 167 | 52 |
| Ireland | 344 | 266 | 77 |
| Spain | 418 | 290 | 69 |
| Austria | 445 | 157 | 35 |
| Great Britain | 465 | 387 | 83 |
| Sweden | 487 | 218 | 45 |
| Greece | 511 | 505 | 99 |
| Netherlands | 751 | 402 | 54 |
| Italy | 1,159 | 909 | 78 |
| Belgium | 1,195 | 754 | 63 |
| EU 15 [3] | 472 | 293 | 62 |

1) Based on 1996, 1997 and 1998 financial balance forecasts. - 2) Data available from 1973. - 3) Arithmetic mean. - Ranking according to accumulated deposits.

*Table 3 - Statistical characteristics of structural time series models for budget items based on extended WIFO potential output*

| | Estimation sample | T | n | Log-Likelihood | Prediction error variance | Normality[1] | DW[2] | Q( 8, 6)[3] |
|---|---|---|---|---|---|---|---|---|
| wagetax | 1956-95 | 40 | 38 | 88.18 | 0.0040 | 0.45 | 1.87 | 0.51 |
| proftax | 1956-95 | 40 | 38 | 106.15 | 0.0026 | 0.58 | 2.11 | 0.51 |
| odirtax | 1956-95 | 40 | 38 | 112.57 | 0.0015 | 0.65 | 1.55 | 0.53 |
| valadd | 1955-95 | 41 | 39 | 121.29 | 0.0006 | 0.76 | 1.81 | 0.35 |
| oindtax | 1955-93 | 39 | 37 | 125.27 | 0.0006 | 0.66 | 1.77 | 0.50 |
| pens | 1960-95 | 36 | 34 | 136.06 | 0.0002 | 0.65 | 1.95 | 0.43 |
| pubcons | 1955-95 | 41 | 39 | 142.23 | 0.0003 | 0.92 | 1.84 | 0.51 |
| transfers | 1960-95 | 36 | 34 | 133.90 | 0.0003 | 0.66 | 1.94 | 0.96 |

*Table 4 - Statistical characteristics of structural time series models for budget items based on HP-filtered potential output*

| | Estimation sample | T | n | Log-Likelihood | Prediction error variance | Normality[1] | DW[2] | Q( 8, 6)[3] |
|---|---|---|---|---|---|---|---|---|
| wagetax | 1956-95 | 40 | 38 | 88.50 | 0.0039 | 0.49 | 1.86 | 0.34 |
| proftax | 1956-95 | 40 | 38 | 102.21 | 0.0033 | 0.42 | 2.05 | 0.51 |
| odirtax | 1955-95 | 41 | 39 | 114.44 | 0.0016 | 0.85 | 1.78 | 0.55 |
| valadd | 1955-95 | 41 | 39 | 114.42 | 0.0009 | 0.65 | 1.89 | 0.21 |
| oindtax | 1955-93 | 39 | 37 | 125.34 | 0.0005 | 0.85 | 1.53 | 0.17 |
| pens | 1960-95 | 36 | 34 | 131.66 | 0.0002 | 0.73 | 1.95 | 0.68 |
| pubcons | 1955-95 | 41 | 39 | 137.09 | 0.0004 | 0.47 | 1.93 | 0.80 |
| transfers | 1960-95 | 36 | 34 | 131.15 | 0.0004 | 0.51 | 1.99 | 0.90 |

1) Significance level for Bowman-Shenton test on normality of residuals. - 2) Durbin-Watson statistic for first order serial correlation of residuals. - 3) Significance level for Box-Ljung portmenteau statistic for serial correlation of residuals. - T is number of observations, n is number of usable observations.

*Table 5 - Parameter estimates for structural time series models for budget items based on extended potential output*

| | Estimated standard deviations of disturbances | | | | | Dummies | | | |
|---|---|---|---|---|---|---|---|---|---|
| | $\sigma_{\eta i}$ | $\sigma_{\zeta i}$ | $\sigma_{ui}$ | $\delta_i$ | $\varepsilon_i$ | | | | |
| wagetax | 0.0564 | 0.0171 | 0.0147 | - | 1.98 * | D57 ** | D68 ** | D78 ** | D89 ** |
| proftax [1] | 0.0327 | 0.0063 | 0.0288 | - | 3.78 ** | D59 ** | | | |
| odirtax [1] | 0.0037 | 0.0066 | 0.0292 | - | 1.27 ** | D59 * | LSD94 ** | | |
| valadd | 0.0244 | 0.0061 | - | 2.25 ** | 0.90 ** | D68 ** | D76 ** | D84 ** | D94 ** |
| oindtax | 0.0230 | 0.0072 | - | - | 1.62 ** | LSD74 * | D76 ** | | |
| pens | 0.0046 | 0.0074 | 0.0059 | 1.33 ** | -0.47 ** | D67 ** | | | |
| pubcons | 0.0129 | 0.0109 | | 2.21 ** | -0.63 ** | D57 ** | D59 * | | |
| transfers | 0.0095 | 0.0113 | 0.0113 | 1.33 ** | -0.73 ** | | | | |

*Table 6 - Parameter estimates for structural time series models for budget items based on HP-filtered potential output*

| | Estimated standard deviations of disturbances | | | | | Dummies | | | |
|---|---|---|---|---|---|---|---|---|---|
| | $\sigma_{\eta i}$ | $\sigma_{\zeta i}$ | $\sigma_{ui}$ | $\delta_i$ | $\varepsilon_i$ | | | | |
| wagetax | 0.0539 | 0.0164 | 0.0184 | - | 2.12 * | D57 ** | D68 ** | D78 ** | D89 ** |
| proftax [1] | 0.0431 | 0.0065 | 0.0273 | - | 3.39 ** | D59 ** | | | |
| odirtax [1] | 0.0191 | 0.0067 | 0.0259 | - | 1.11 * | D59 * | LSD94 ** | | |
| valadd | 0.0225 | 0.0196 | - | 1.53 | 0.74 * | D68 ** | D76 * | D84 ** | D94 ** |
| oindtax | 0.0239 | 0.0030 | - | 1.30 ** | 1.53 ** | LSD74 * | D76 ** | | |
| pens | - | 0.0121 | 0.0057 | 0.34 | -0.40 * | D67 ** | | | |
| pubcons | 0.0062 | 0.0208 | - | 0.27 | -0.39 | D57 ** | D59 * | | |
| transfers | 0.0100 | 0.0152 | - | -0.18 | -0.56 ** | D75 * | | | |

1) Lagged output gap as explanatory variable. - * Significant at the 5% level. - ** Significant at the 1% level. - For a definition of variables see Table A1 in the appendix. Dxx denotes an impulse dummy with value 1 in year xx and zeros elsewhere. LSDxx denotes a step dummy with zeros until (xx - 1) and ones afterwards.

*Table 7 - Comparison of budget elasticities for Austria from different sources*

| | WIFO | Jaeger | OECD | EU |
|---|---|---|---|---|
| wagetax | 1.98 | 1.98 | 1.20 [1] | - |
| proftax | 3.78 [2] | 2.22 [2] | 2.50 [3] | - |
| odirtax | 1.27 [2] | 0.51 | - | - |
| valadd | 0.90 | 0.51 | 1.00 [4] | 0.93 [5] |
| oindtax | 1.62 | 0.20 | - | - |
| socsec | - | 0.46 | 0.50 | - |
| propinc | - | 1.58 | - | - |
| pens | -0.47 | -0.55 | - | - |
| pubcons | -0.63 | -0.55 | -0.10 [6] | -0.07 [6] |
| subsidy | - | -0.70 | - | - |
| transfers | -0.73 | -0.62 | - | - |
| invest | - | -0.40 | - | - |

S: *European Commission* (1995), *Jaeger* (1993), *Giorno et al.* (1995), own calculations. - 1) Household tax. - 2) Lagged output gap as explanatory variable. - 3) Corporate tax. - 4) Elasticity of unemployment benefits with respect to output is applied to primary government expenditures. - 5) Weighted averages for revenue elasticities drawn from OECD publications. - 6) Estimates for Okun's coefficient with marginal expenditures on unemployment.

*Table A1 - The structure of public financial accounts in 1993*

| | actual | cyclical | structural | cyclical in % of GDP |
|---|---|---|---|---|
| Other indirect taxes (oindtax) | 164,004.00 | -5,208.75 | 169,212.75 | -0.25 |
| Value added tax (valadd) | 176,001.00 | -3,111.65 | 179,112.65 | -0.15 |
| Other direct taxes (odirtax) | 54,069.00 | -408.30 | 54,477.30 | -0.02 |
| Wage tax (wagetax) | 148,138.00 | -5,793.09 | 153,931.09 | -0.27 |
| Other income and profit taxes [1] (proftax) | 54,538.00 | -1,236.85 | 55,774.85 | -0.06 |
| Tax on interest [2] | 19,883.00 | 0.00 | 19,883.00 | 0.00 |
| Unemployment insurance contributions | 36,030.00 | 0.00 | 36,030.00 | 0.00 |
| Social security contributions | 265,283.00 | 0.00 | 265,283.00 | 0.00 |
| Public pension contributions [3] (pens) | 70,999.00 | 640.37 | 70,358.63 | 0.03 |
| Other revenues | 52,256.00 | 0.00 | 52,256.00 | 0.00 |
| **Current revenues** | **1,041,201.00** | **-15,118.27** | **1,056,319.27** | **-0.71** |
| Public consumption (pubcons) | 404,966.00 | 4,918.83 | 400,047.17 | 0.23 |
| Subsidies (subsidy) | 68,796.00 | 0.00 | 68,796.00 | 0.00 |
| Interest on public debt | 91,950.00 | 0.00 | 91,950.00 | 0.00 |
| Transfers [4] (transfers) | 464,042.00 | 6,485.81 | 457,556.19 | 0.31 |
| Other expenditures | 8,972.00 | 0.00 | 8,972.00 | 0.00 |
| **Current spending** | **1,038,726.00** | **11,404.64** | **1,027,321.36** | **0.54** |
| **Public saving** | **2,475.00** | **-26,522.91** | **28,997.91** | **-1.25** |
| Depreciation | 14,468.00 | 0.00 | 14,468.00 | 0.00 |
| Capital transfers, domestic, net | -34,579.00 | 0.00 | -34,579.00 | 0.00 |
| Capital transfers, foreign, net | -390.00 | 0.00 | -390.00 | 0.00 |
| Correction | -1,901.00 | 0.00 | -1,901.00 | 0.00 |
| **Financing** | **-19,927.00** | **-26,522.91** | **6,595.91** | **-1.25** |
| Gross public investment (invest) | 67,493.00 | 0.00 | 67,493.00 | 0.00 |
| Net purchase of real estate | 1,215.00 | 0.00 | 1,215.00 | 0.00 |
| **Net financial balance** | **-88,635.00** | **-26,522.91** | **-62,112.09** | **-1.25** |
| As percentage of GDP | -4.17 | -1.25 | -2.92 | |

S: WIFO database, own calculations. - 1) Assessed income tax, corporate tax. - 2) Includes various taxes on interest. - 3) Pension contributions from public administration and firms, imputed pensions. - 4) Social transfers, pensions, other current domestic and foreign transfers.

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