SUSTAINABILITY OF AUSTRIAN PUBLIC DEBT: A POLITICAL ECONOMY PERSPECTIVE

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Abstract

Sustainablity of Austrian public debt is investigated in the context of political objectives such as stabilizing the business cycle, increasing chances for being re-elected and implementing the ideologies of political parties. Several tests indicate that Austrian fiscal policies were sustainable in the period 1960–1974, while from 1975 on, public debt grew much more rapidly. The development of public debt in Austria seems to be driven not primarily by ideology, but by structural causes and a shift in the budgetary policy paradigm. We find some empirical evidence that governments in Austria dominated by one party run higher deficits than coalition governments. There are no indications of a political business cycle.

JEL Code: H6, E6.

Keywords: fiscal policy, sustainability, time series, political economy.

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1. Introduction

During the last twenty years, rising public debt has become a key issue in economic policy debates in many European countries, including Austria. The Stability and Growth Pact (SGP) and the Maastricht fiscal criteria for entry into the European Economic and Monetary Union (EMU) aimed at securing sustainable fiscal policies. More recently, however, it has turned out that the rules of the SGP could not be enforced, and that fiscal deficits have surpassed the 3 percent of GDP limit in several EMU countries. Amendments to the SGP rules are being widely discussed, and many observers question policy makers' determination to stick to sustainable fiscal policies.

Apart from the political debate about the SGP, the questions as to which fiscal policy is sustainable in the long run and whether policy makers are ready to succumb to sustainable fiscal policies are of interest. There is wide-spread agreement among economists about sustainability of public finances meaning that budgetary policy observes the long-term government budget constraint. According to this prescription, the sum of discounted future government budgetary surpluses must not be smaller than discounted future government debt including the initial stock of debt. The actual behavior of fiscal policy makers, on the other hand, is much less clear. In particular, to judge whether fiscal policies in a particular country were sustainable over a certain period of time, much information about past, present and future government budgetary policies is required, and assumptions about several parameters are necessary for most tests of this question.

Fortunately, Bohn (1998) has developed a comparatively easy test for sustainability of fiscal policy. His model starts from the reactions of fiscal policy makers to high or rising public debt. A sufficient condition for sustainable fiscal policy demands that policy makers increase the primary surplus as a reaction to increased public debt in the previous period, and that this reaction is sufficiently strong. Here we combine such an analysis for Austria with an

investigation of political influences on fiscal policies and an attempt at a preliminary evaluation of Austria's public debt development.

This paper is structured as follows: Section II briefly applies Bohn's sustainability test to Austrian data. In Section III, some political determinants of Austrian budgetary policies are investigated as we test for the influence of unemployment, the ideologies of political parties, and political cycles. Finally, Section IV summarizes the results of the paper and discusses future prospects for fiscal policy in Austria. For more details on sustainability tests for Austria, see Neck and Haber (2006), for an earlier analysis along similar lines, Neck and Getzner (2001).

2. Bohn's Sustainability Model

For the context of the US, Bohn (1998, 2006) developed a model to test whether fiscal policy is sustainable. This model can also be used as a starting point for a positive explanation of actual budgetary policy making. In his model, the following equation is estimated:

$$ps_t = \rho\, d_{t-1} + \alpha_0 + A\, Z_t + \varepsilon_t, \qquad (1)$$

where ps_t denotes the primary surplus of period t, d_t is the stock of central government debt in period t, and Z_t is a vector of additional influential variables like deviations of GDP or public expenditures from their trend. The latter emerge as explanatory variables for the budgetary stance from the tax-smoothing theory of Barro (1979), but they did not become significant for Austrian data. All variables in (1) are measured as their respective ratios to GDP. Fiscal policy can be shown to be sustainable if in equation (1) ρ is positive and sufficiently large, meaning that fiscal policy makers react to a high stock of debt at the beginning of period t by increasing the primary surplus (or reducing the primary deficit) in period t.

Table 1: Bohn's Sustainability Model for Austria (dependent variable: primary surplus of the federal government budget, ratio to GDP)

	Est. (1)
	Coefficient (t-statistic)
Constant	–4.3674
	(–8.2148**)
d_{t-1}	0.3408
	(6.7717**)
$d_{t-1} \cdot D75$	–0.2531
	(–6.0876 **)
AR(1)	0.8784
	(6.0885**)
AR(2)	–0.3915
	(–2.6571*)
$\overline{R}^2$	0.8438
F-statistic	56.3683
Durbin-Watson	1.8190
No. of observations	42
Period	1962–2003

OLS estimation; ** p<0.01, * p<0.05, (*) p<0.1

Testing for a unit root of the primary surplus-to-GDP ratio by the augmented Dickey-Fuller and the Phillips-Perron test results in rejecting the hypothesis of a unit root at the 5% (ADF test) and 10% (PP test) significance levels, hence we assume stationarity of the dependent variable. Table 1 shows an estimation of equation (1). Inspection of Austrian data and several tests clearly show that there is a structural break in 1974/1975, when the effects of the first oil price shock hit the Austrian economy. Hence we introduce a dummy variable *D75* (*D75* = 1 for the period 1975–2003). Multiplying this dummy variable for the period after 1974 by the coefficient for the debt-to-GDP ratio d_t instead of the constant adds explanatory power to the model. To remove serial correlation of the residuals, two autoregressive terms have to be included. In the resulting estimted equation (Est. (1)), the sign and size of the coefficients indicate that the process of the development of primary surplus has a clear mean-reverting

tendency in the first period (1960–1974); that tendency still exists but is much weaker in the second period (1975–2003).

3. Austrian Fiscal Sustainability from a Public Choice Point of View

Obviously, Austrian federal public debt has grown considerably since World War II, especially since 1975. To answer the question as to the reasons for this development, one may start with the fiscal policy concept of "Austrokeynesianism", which has prevailed in Austria for some time. From the 1970s on, "full employment" (keeping down and reducing unemployment) was the central target of Austrian policy makers. The main instrument intended to reach this goal was expansionary fiscal policy – although the concept of "Austrokeynesianism" always included other elements, such as the "hard-currency" monetary policy, pegging the Austrian currency strictly to the Deutschmark, and the "economic and social partnership", an agreed-upon policy of moderate wage and price increases negotiated by the employers' and employees' associations. Unemployment rose during most of the period after 1974, so this policy may have contributed to increasing budget deficits and, consequently, public debt.

The ideologies of the political parties forming the central (federal) government can serve as another explanation for the growth of public debt. Left-wing parties are said to be more ready to accept budget deficits because they tend to engage in Keynesian stabilization policies with the aim of smoothing the business cycle and lowering unemployment. Price stability or balanced budgets are not that important for these parties. Right-wing parties follow the opposite path. They are more concerned about financial goals like small deficits or price stability than about unemployment or stabilizing the business cycle.

Another public-choice explanation of public debt growth is based on the different forms of government. If a coalition government of two or more parties rules a country, some public-choice theories hypothesize that these parties engage in a "war of attrition". Each party tries to fulfill obligations to its own voters (cf. Roubini and Sachs, 1989). As all parties are in the same situation, they expand government expenditures to please their voters and to avoid mutual conflicts with their partners in government. The result is increasing public debt.

In contrast to the distributional conflicts sketched above, we can also think of the opposite effect. Coalition governments might find it easier to stabilize their budget because they have a larger majority in parliament. In a situation where only one party is in charge, a strong opposition might make voters think that the ruling party is solely responsible for the painful policies of budget consolidation. Ruling parties might, therefore, be reluctant to consolidate the budget. Coalition governments without such a strong opposition might have more courage and power to introduce the unpopular measures required to consolidate public finances.

Fiscal illusion is another explanation for governments running budget deficits. It is hypothesized that voters systematically overestimate the benefits of present deficit-financed government expenditures (e.g. transfers) while underestimating the corresponding future tax burden. This means that they do not understand the intertemporal budget constraint of the government. Politicians react to such fiscal illusions in an opportunistic way. Particularly before elections, they increase government expenditures in order to be re-elected by "fiscally illuded" voters. This theory has dramatic consequences for Keynesian stabilization policies: Politicians are willing to increase deficits during recessions, but are not willing to increase the primary surplus sufficiently when the recession is over.

The theory of fiscal illusion is related to the literature on political business cycles in the sense that there is an incentive for politicians to promise or actually realize an increase in transfers

or a decrease in taxes before elections. An additional consideration entering fiscal policy making might be the time left until the next elections, because voters can be assumed to be myopic. Painful budget consolidation policies may be more likely immediately after elections than in the period shortly before the next elections. A major problem with fiscal illusion and political business cycle theories is that they may explain short-term fluctuations in output and government debt but are not able to explain different development patterns between countries and the long-term growth of government debt in several European countries (Alesina and Perotti, 1995).

3.1 Unemployment and Fiscal Policies

Table 2 presents an estimation of Bohn's sustainability model of fiscal policy with the rate of unemployment *UR* included as an explanatory variable (as the only element of the vector Z_t). The estimator for the influence of the unemployment rate *UR* is significantly negative, corresponding to our expectations (Est. (2)). The results of this estimation again suggest a significant reaction of the primary surplus to the debt-to-GDP ratio of the previous year and, in addition, to the rate of unemployment. An increase in the unemployment rate by one percentage point would ceteris paribus lead to a reduction in the primary surplus-to-GDP ratio of more than 0.7 percentage points. Such a reaction can be explained by automatic stabilizers and by discretionary counter-cyclical policies ("deficit spending"). The reaction of fiscal policy makers to increasing unemployment further weakens the sustainability orientation beyond the already lower reactions of policy makers to increased public debt in the second period (1975–2003).

Table 2: Influence of the Unemployment Rate on Budgetary Policies in Austria (dependent variable: primary surplus of the federal government budget, ratio to GDP)

	Est. (2)	Est. (3)	Est. (4)
	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)
Constant	–4.0096	–3.9997	-4.2874
	(–10.2096**)	(–14.4106**)	(-10.0228**)
d_{t-1}	0.4472	0.3178	0.335800
	(10.0417**)	(11.5918**)	(8.0280**)
d_{t-1}·*D75*	–0.2825	–0.1147	-0.249569
	(–8.9082**)	(–3.4194**)	(-7.2122**)
UR	–0.7190		
	(–3.9841**)		
UR·D75		–1.0481	
		(–5.9731**)	
UR–UR(HP)			-0.977696
			(–3.4360**)
AR(1)	0.7153	0.5794	0.748542
	(4.7327**)	(4.2237**)	(4.7624**)
AR(2)	–0.3903	–0.5213	-0.341223
	(–2.4802*)	(–3.7610**)	(–2.0985**)
$\bar{R}^2$	0.8831	0.8949	0.8767
F-statistic	62.9354	70.8459	59.3039
Durbin-Watson	1.9130	1.9214	1.8115
No. of observations	42	42	42

OLS estimation; ** p<0.01, * p<0.05, (*) p<0.1

Further tests show that the reactions of fiscal policy makers to rising unemployment are different in the two sub-periods. Estimating the model separately for the periods before and after 1974/1975 leads to an insignificant coefficient for the unemployment rate in the first period (1960–1974) while the coefficient is significantly negative for the second period. Est. (3) presents such evidence on the reactions of fiscal policy to the rate of unemployment after 1974. Austrian decision makers apparently react strongly to rising unemployment rates by driving down the primary surplus to an extent that more than compensates for increases in the primary surplus as a reaction to higher debt-to-GDP ratios. If the unemployment rate

increased by one percentage point during the years 1975 to 2003, the primary surplus-to-GDP ratio was reduced by more than one percentage point.

Another hypothesis sometimes proposed in the public-choice literature states that governments tend to smoothen the rate of unemployment and react only to deviations of the actual rate from a natural or trend rate of unemployment. The latter can be made operational by applying an HP filter. Trying several alternative specifications with the HP filter did not yield significantly better results than the pervious specifications. For the influence of the deviation of the actual from the trend rate of unemployment, see Est. (4).

As a conclusion, the estimations still show a mean-reverting process for the whole period, which is significantly reduced in the period 1975–2003. This means that the primary surplus (measured as a ratio to GDP) reacted to changes in the central government's debt-to-GDP ratio. However, after the first oil price shock, this reaction was significantly lower than before. Instead, the rate of unemployment played a more important role in the sense of a counter-cyclical (Keynesian) orientation of Austrian fiscal policy.

3.2 Influence of the GDP Growth Rate

Instead of the rate of unemployment, cyclical influences may also be reflected in the rate of growth of real GDP. In this case, a low (high) growth rate of real GDP will result in a lower (higher) primary fiscal surplus or a higher (lower) primary fiscal deficit to counteract the growth performance of the economy under consideration. Moreover, high GDP growth might facilitate consolidating public finances, which acts in the same direction as the countercyclical policy hypothesis. Therefore we augment the previous specifications by including the GDP growth rate. Est. (5) in Table 3 gives the best result among the specifications including GDP growth. The respective coefficient is clearly insignificant. We

conclude that higher GDP growth in Austria does not necessarily lead to lower or higher primary deficits.

Table 3: Effect of the growth rate of real GDP on budgetary policies in Austria (dependent variable: primary surplus of the federal government budget, ratio to GDP)

	Est. (5)
	Coefficient (t-statistic)
Constant	-3.9450
	(–9.9459**)
d_{t-1}	0.4698
	(9.5092**)
$d_{t-1} \cdot D75$	–0.2980
	(–8.4875**)
UR	–0.7734
	(–4.1454**)
GDP growth	–4.0434
	(–0.9055)
AR(1)	0.6885
	(4.4471**)
AR(2)	–0.3736
	(–2.3060*)
$\overline{R}^2$	0.8824
F-statistic	52.2964
Durbin-Watson	1.9780
No. of observations	42
Period	1962–2003

OLS estimation; ** p<0.01, * p<0.05, (*) p<0.1

3.3 Influence of an Interest Rate Shock

Interest payments influence public debt directly, and the rate of interest influences public finances through several channels, hence it is straightforward to test for an influence of interest rates on the primary surplus. Several alternative specifications are possible, including the level of the rate of interest, differences in the interest rate, or deviations of the interest rate from some long-run average (an interest rate shock).

In no specifications tested did the interest rate variable become significant for Austria for the period 1962 to 2003 or a sub-period. Interest rates tried were the secondary market yield of central government bonds and money market rates (EONIA and EURIBOR interest rates and their respective "predecessors" before the EMU).

3.4 Influence of Political Ideology

Next, we tested whether ideology played an important role in explaining fiscal policy. We hypothesize that left-wing parties, when playing a crucial role in government, place more emphasis on reducing unemployment and on stabilization policies in general. Such policies could lead to lower rates of unemployment but at the same time increase the budget deficit and lower the primary surplus. Furthermore, left-wing parties may try to influence income distribution and may care less about allocative efficiency. In contrast, right-wing parties may be said to accept higher unemployment rates but to care more about the stability of the federal budget. In the Austrian political system, the Social Democrats (SPÖ) broadly fall under the category of "left-wing" parties while the conservative (Christian Democratic) Austrian People's Party (ÖVP) may be characterized as "right wing" in the above sense.

Given this characterization, it could be argued that the structural break in the time series might be attributable to the change of government from an ÖVP dominated one to an SPÖ dominated government in 1970. However, a series of breakpoint tests clearly indicates that the crucial breaking point occurred in 1975 and not before.

Next, we included a dummy variable *SP* for the periods from 1960 to 1966 and from 1971 to 1999. *SP* denotes the participation of the Social Democrats in government. From 1960 to 1966 and from 1983 to 1999, the Social Democrats governed in coalitions with other parties, while during the years 1971 to 1982, they had sole governmental responsibility in Austria.

We hypothesized that the Social Democrats were more likely to reduce the primary surplus and used the specification that adds the rate of unemployment *UR* as an explanatory variable. Est. (6) in Table 4 shows no significant influence of social-democratic participation in government on the primary surplus. In accordance with our expectations, the coefficient has a negative sign, but it is completely insignificant.

Table 4: Influence of the Ideology of Political Parties on Budgetary Policies in Austria (dependent variable: primary surplus of the federal government budget, ratio to GDP)

	Est (6)	Est. (7)	Est. (8)	Est. (9)
	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)
Constant	–3.7743	–3.1042	–3.2503	–2.9972
	(–7.4179**)	(–7.6649**)	(–4.8806**)	(–4.5189**)
d_{t-1}	0.4383	0.4107	0.4110	0.4038
	(9.1910**)	(10.2593**)	(8.3988 **)	(8.3617 **)
d_{t-1}·*D75*	–0.2772	–0.2421	–0.2488	–0.2400
	(–8.5334**)	(–8.3983**)	(–6.5327 **)	(–6.3527 **)
UR	–0.6982	–0.8017	–0.8191	–0.8653
	(–3.7831**)	(–5.6670**)	(–4.0439**)	(–4.5140**)
SP (=1 for period	–0.2221			
1960–1966, 1971–1999)	(-0.7464)			
SPFC (=1 for		–0.7845		
period 1971–1999)		(–3.3662**)		
SPA (=1 for			–0.4986	
period 1971–1983)			(–1.3662)	
SPDOM (=1 for				–0.6270
period 1971–1986)				(–1.8487(*))
AR(1)	0.6930	0.5773	0.7907	0.7644
	(4.5727**)	(4.0636**)	(5.1638**)	(5.1782**)
AR(2)	–0.4091	–0.5161	–0.4314	–0.4759
	(–2.6248*)	(–3.6095**)	(–2.7314*)	(–3.0927**)
$\overline{R}^2$	0.8815	0.9182	0.8854	0.8897
F-statistic	51.8532	65.4750	53.8058	56.1258
Durbin-Watson	1.9241	2.0418	1.8872	1.8776
No. of observations	42	42	42	42

OLS estimation; ** p<0.01, * p<0.05, (*) p<0.1

The dummy variable *SPFC* denotes the period from 1971 to 1999 when the Austrian prime minister (federal chancellor) and the federal minister of finance were Social Democrats. Est. (7) shows that the sign of the coefficient is negative and significant at the 1 percent level. This indicates some deficit-increasing influence of the Social Democrats being in power on the conduct of fiscal policies.

If we look at the years in which the Social Democrats formed one-party governments (the period from 1971 to 1983, encoded by the dummy variable *SPA*), the sign of the coefficient is again negative but not significant at a reasonable level of significance (Est. (8)).

If we consider the period from 1971 to 1986, when the Social Democrats dominated the government – in the period of 1971 to 1983 plus the "Small Coalition" of Social Democrats and the (then predominantly liberal) Freedom Party from 1984 to 1986 – the coefficient of the corresponding dummy variable *SPDOM* becomes significant at the 10% level (Est. (9)). Thus there is some (weak) evidence that governments dominated by Social Democrats have led to higher federal government debt growth in the past. As this period is also the one in which the People's Party was not in power, the result can also be interpreted in the opposite way, namely that there is some empirical evidence for a higher primary surplus (smaller budget deficit) in periods with the Conservative party in government.

Summing up, there is some empirical indication that the participation of the Social Democrats in government tends to increase the primary deficit. However, the influence of such participation is much smaller than the change of the paradigm of budgetary policy regarding significant reactions to the unemployment rate. If we include a specification with a coefficient of *UR* only for the second period (1975–2003), all dummy variables for the participation of specific political parties in government become completely insignificant. This result indicates that – contrary to frequent presumptions in the Austrian political debate – the development of

the federal government debt in Austria is not primarily influenced by the participation of the Social Democrats in government (i.e. that fiscal policy is driven by ideology), but that structural causes and the paradigm shift in budgetary policy are the main driving forces. This seems plausible particularly because, from 1987 to 1999, the People's Party was in a coalition government with the Social Democrats so that either party could have blocked a purely ideology-driven fiscal policy. Moreover, since 2000, a right-wing coalition has been in power. Yet there is still no strong empirical evidence that this has led to a paradigm change in fiscal policy.

3.5 Influence of Coalitions and the Form of Government

Having identified a weak influence of political ideology, we next turn to the form of government. According to some public-choice theories, one would expect that a coalition government might increase public debt and reduce the primary surplus. The estimation results for Austria show the opposite to be true. During the periods 1960 to 1966 and 1984 to 2003, governments formed by coalitions of two parties were responsible for fiscal policies. Except for the period of 1984 to 1986 and since 2000, the Social Democrats and the Austrian People's Party formed the Austrian government. First, we test the influence of this so-called "Grand Coalition" by introducing a dummy variable *GC*. Est. (10) in Table 5 shows the results. The "Grand Coalition" did not lead to significantly higher budget deficits in this period. Instead, forming a coalition generally seems to affect the primary surplus in Austria in a positive direction, as is shown by introducing a coalition dummy *COAL* (Est. (11)). The effect is not only significant at the 5% level of significance, but also of remarkable size.

Table 5: Influence of the Form of Government on Budgetary Policies in Austria (dependent variable: primary surplus of the federal government budget, ratio to GDP)

	Est. (10)	Est. (11)	Est. (12)
	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)
Constant	–3.8827	–3.4983	
	(–8.7437**)	(–7.2320**)	
d_{t-1}	0.4379	0.3824	0.3712
	(9.4751**)	(7.7785**)	(8.1285**)
d_{t-1}·*D75*	–0.2712	–0.2329	–0.2300
	(–7.6873**)	(–6.2208**)	(–6.8106**)
UR	–0.7776	–0.8006	–0.8018
	(–3.5624**)	(–4.1712 **)	(–4.0011**)
GC (=1 for period	0.2058		–2.4321
1960–1966, 1987–1999)	(0.6740)		(–3.5939**)
COAL (=1 for period		0.8106	
1960–1966, 1984–1999)		(2.2781*)	
SC (=1 for period			–3.0846
1984–1986)			(–5.1154**)
SPA (=1 for period			–3.3322
1971–1983)			(–9.0727**)
VPA (=1 for period			–3.1018
1967–1970)			(–4.9253**)
VKK (=1 for period			–1.4059
2000–2003)			(–1.7941(*))
AR(1)	0.7615	0.8876	0.6764
	(4.7818**)	(5.5714**)	(4.3606**)
AR(2)	–0.4005	–0.4214	–0.5344
	(–2.4528*)	(–2.5983*)	(–3.5131**)
$\overline{R}^2$	0.8813	0.8935	0.9085
F-statistic	51.7147	58.3092	–
Durbin-Watson	1.8886	1.8665	1.9696
No. of observations	42	42	42

OLS estimation; ** p<0.01, * p<0.05, (*) p<0.1

For the last model, we split the constant of the regression equation into the periods when the Social Democrats or the Austrian People's Party had sole responsibility (*SPA* and *VPA*, respectively) and when Austria was governed by the "Small Coalition" (SP – FP), the "Grand

Coalition" (SP – VP or VP – SP), and the "Reform Coalition" (2000 to 2003, a coalition of the Austrian People's Party and the Austrian Freedom Party). Est. (12) shows the results. In periods when the Social Democrats had sole responsibility, the coefficient (the primary surplus-to-GDP ratio, apart from the structural break, the mean reversion and the unemployment influences) is smaller than the respective coefficient for other periods. The largest coefficient occurs in the period of the "Reform Coalition", followed by the "Grand Coalition". Wald coefficient tests (Table 6) show that the coefficients of *SPA, SC* ("Small Coalition") and *VPA* are not significantly different from each other. On the other hand, the coefficients for *VKK* ("Reform Coalition") and *GC* ("Grand Coalition") are significantly different from all other coefficients. These results corroborate the findings discussed above.

Table 6: Significance of the Differences in Budgetary Policies for Alternative Forms of Government (Wald tests)

	GC	*SC*	*SPA*	*VPA*
SC	(*)			
SPA	*	–		
VPA	(*)	–	–	
VKK	*	**	**	**

Wald test (H_0: coefficients are equal); ** p<0.01, * p<0.05, (*) p<0.1

In conclusion, this section presents some empirical evidence that governments in Austria dominated solely by one party run deficits that are higher than those formed by coalitions of the two large parties or the two conservative parties in Austria. Coalition governments apparently find it easier to consolidate the budget and to deal with the resulting losses in popoularity. Alternatively, two parties in government control each other while parliamentary control by opposition parties in the case of only one party in office is not as effective at

stabilizing the federal budget. However, these results have to be interpreted with caution, as the estimations are not robust regarding changes of specifications. If, for example, the rate of unemployment is included only for the second period, the dummy variables denoting coalitions (*GC*, *COAL*) become insignificant and there is no significant difference between different forms of governments.

3.6 Political Cycles in Austria

Finally, we test some hypotheses on the political business cycle. According to this theory, we would expect smaller primary surpluses in election years (dummy variable *ELECT*). Moreover, primary surpluses might be increasingly higher the more time there is until the next election (variable *DIST*; in years).

Table 7 shows the results of these estimations. We first test the hypothesis of lower primary surpluses in election years. Est. (13) presents the coefficients; those of the variables included previously are approximately of the same order of magnitude as in the models estimated before. The coefficient for the election year (*ELECT*) has the expected negative sign but is not significantly different from zero. This result is robust with respect to changes in the specification, e.g. taking into account reactions to the rate of unemployment only in the second sub-period. If the model is estimated only for the first or the second sub-period, the coefficient of *ELECT* is insignificant too.

We next test the influence of the distance to the next election (Est. (14), variable *DIST*). Again, the estimation does not yield a significant coefficient, neither for the whole period nor for the sub-periods.

Table 7: Political Business Cycles in Austrian Budgetary Policies (dependent variable: primary surplus of the federal government budget, ratio to GDP)

	Est. (13) Coefficient (t-statistic)	Est. (14) Coefficient (t-statistic)
Constant	–3.9873	–4.0162
	(–9.7793**)	(–9.9193**)
d_{t-1}	0.4438	0.4462
	(9.6057**)	(9.7776**)
$d_{t-1} \cdot D75$	–0.2805	-0.2819
	(–8.5575**)	(-8.7068**)
UR	–0.7094	–0.7160
	(–3.8156**)	(–3.8974**)
ELECT (=1 in	–0.0325	
election years)	(–0.2481)	
DIST (distance to next		0.0071
election, in years)		(0.1204)
AR(1)	0.7196	0.7157
	(4.6803**)	(4.6673**)
AR(2)	–0.3865	–0.3886
	(–2.4097*)	(–2.4312*)
$\overline{R}^2$	0.8799	0.8798
F-statistic	51.0863	51.0127
Durbin-Watson	1.9223	1.9161
No. of observations	42	42
Period	1962–2003	1962–2003

OLS estimation; ** p<0.01, * p<0.05, (*) p<0.1

Therefore we conclude that there are no indications of a political business cycle in Austria in the period 1960 to 2003.

3.7 Effects of the Maastricht Treaty

Next, we investigate whether the fiscal convergence criteria of the Maastricht treaty had any effect on the Austrian primary surplus. A dummy is introduced which takes the value of 1 for the years from 1997 on. It seems plausible that the framework of the Third Stage of the

European Economic and Monetary Union might have put some pressure on national governments to reduce public debt and consequently also to increase the primary surplus.

Table 8: Effects of the Maastricht Treaty (dependent variable: primary surplus of the federal government budget, ratio to GDP)

	Est. (15)	Est. (16)
	Coefficient (t-statistic)	Coefficient (t-statistic)
Constant	–3.7346	
	(–10.9610**)	
d_{t-1}	0.4112	0.3497
	(9.2660 **)	(7.5448**)
d_{t-1}·*D75*	–0.2707	–0.2192
	(–9.8554**)	(–6.5017**)
UR	–0.6216	–0.7791
	(–3.6077**)	(–3.9343**)
MAASTRICHT	0.9495	0.7000
	(2.5880*)	(1.8422(*))
GC (=1 for period		-2.2079
1960–1966, 1987–1999)		(-3.2466**)
SC (=1 for period		-2.8164
1984–1986)		(-4.6105**)
SPA (=1 for period		-3.1432
1971–1983)		(-8.4041**)
VPA (=1 for period		-2.8933
1967–1970)		(-4.5343**)
VKK (=1 for period		-1.5779
2000–2003)		(-2.0868*)
AR(1)	0.5714	0.6169
	(3.6653**)	(3.7961**)
AR(2)	–0.3910	-0.5059
	(–2.4531*)	(-3.1142**)
$\overline{R}^2$	0.8980	0.9152
F-statistic	61.1656	-
Durbin-Watson	2.0026	2.0089
No. of observations	42	42

OLS estimation; ** p<0.01, * p<0.05, (*) p<0.1

The results of the esimations are presented in Table 8. Est. (15) adds the Maastricht dummy to the basic estimation used in the previous sections. The Maastricht dummy is significant (although only at the 95 percent level) and shows that the primary surplus was 0.95 perentage points higher in the period under consideration. If the dummy is added to the equation used to estimate the influence of political parties (Est. (12)), it still remains significant (at the 90 percent level) with a slightly lower magnitude of 0.7 percent.

We conclude that the Maastricht treaty had some positive effect on the primary surplus in Austria.

4. Summary and Conclusions

The following conclusions can be drawn from the econometric estimations:

1. The Bohn model of sustainability of public debt in Austria is clearly supported by the data: The Austrian primary fiscal surplus of the central government reacts to high public debt to counteract the debt increase. However, this tendency was clearly weaker after the first oil price shock in the 1970s than before. A structural break can thus be identified between the years 1974 and 1975.

2. There is some empirical indication that the participation of the Social Democrats in government increases the primary deficit. Yet the influence of this participation is much smaller than the change in the paradigm of budgetary policy regarding significant reactions to the rate of unemployment. The development of public debt in Austria seems to be driven not primarily by partisan ideology; instead structural causes and the change in the budgetary policy paradigm (partly due to the ideas of "Austrokeynesianism") are the main driving forces.

3. We find some empirical evidence that governments in Austria dominated by one party run deficits that are higher than those produced by governments formed by coalitions of the two large parties or the two right-wing parties. However, these results have to be interpreted with caution as the estimations are not robust with respect to different specifications.

4. There are no indications of a political business cycle in Austria in the period 1960 to 2003, which is in line with most previous empirical work for Austria.

5. The Maastricht process has contributed to the reduction of public debt growth in Austria.

It remains to be seen whether the deceleration of public debt growth, which came about with Austria's entry into the EU and the corresponding requirement of consolidating the public budget, will retain momentum and bring public debt down below the 60 percent of GDP level regarded as critical by the Maastricht treaty and the SGP. In any case, it is highly unlikely that levels of 10 to 15 percent, which prevailed before the first oil price shock, can be obtained in the foreseeable future. In that sense, the 1970s in fact brought about a fundamental change in the political and economic framework of many industrial countries, including Austria.

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