

# **On the Effectiveness of Debt Brakes: The Swiss Experience**

by

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## **Abstract**

How a sustainable fiscal policy can be performed in a federal system is not only a Swiss problem but is also discussed in other federal countries like Germany and Austria, and in the European Union. Contrary to most other countries, the Swiss fiscal system is characterised by an extensive fiscal federalism with high fiscal autonomy at all governmental levels, by direct popular rights which include fiscal referenda at the cantonal and local levels, and by particular constitutional and/or statutory fiscal restraints in order to prevent excessive public debt. In this paper, the effects of these constitutional clauses on public deficit and debt are investigated. Using a panel of the 26 Swiss cantons from 1980 to 1998, we provide evidence that fiscal constraints significantly reduce budget deficits, while direct democracy leads to significantly lower public debt. It is also shown how the problem of a possible bail out of member states or local communities can be solved in a federal state by choosing appropriate institutions.

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## 1 Introduction

Current policy debates on public finances across OECD countries focus on the question how a sustainable fiscal policy can be obtained. The most pertinent discussion takes place in the European Union (EU) where the Stability and Growth Pact (SGP) as a follow-up to the fiscal convergence criteria of the Maastricht Treaty requires EU member states to keep budget deficits below 3 percent of GDP and public debt below 60 percent of GDP. Deviations from this general rule are only allowed for specific circumstances like severe economic downturns or extraordinary events like natural disasters.<sup>1)</sup> The governments of member states are held responsible for sticking to the SGP which poses additional problems in those countries which are organised as federal states. In Austria, Germany, and Spain, regional authorities have a certain fiscal autonomy such that deficits at that sub-federal level may be at the expense of the federal level. In Germany, this situation has led to a national stability pact.

The discussion in the EU is not unique. In the United States, the GRAMM-RUDMAN-HOLLINGS (GRH) act was enacted in 1985 in order to reduce federal public debt.<sup>2)</sup> Several U.S. states have formal fiscal restraints with characteristics that strongly vary across the states.<sup>3)</sup> In Switzerland a discussion about a ‘debt brake’ for the federal budget was caused by the strong increase of the federal debt during the nineties. The corresponding amendment to the Swiss constitution was accepted on December 2, 2001, with an overwhelming majority (and a turnout of 37 percent). Besides this, there exist similar rules in several cantons, partly since several decades, which are really effective. They are, moreover, stricter than the new procedure at the federal level, the effectiveness of which has to be proven in the future.

Contrary to nearly all other OECD countries, the Swiss and the U.S. fiscal system have two special features: fiscal federalism, which is organised in a competitive way and gives the lower level jurisdictions (cantons/states and local communities) the power to tax, and direct popular rights in political decision-making which include fiscal referenda at the sub-federal levels. However, large differences with respect to the institutional design between the Swiss cantons persist that even exceed those between U.S. states, thus making Switzerland a unique laboratory where the effects of fiscal institutions can be studied.

In federal states like Switzerland, Germany, and Austria, there is the additional problem that there is no single actor who even rudimentary has the possibility to restrict the total public deficit. This problem became obvious in Germany in the spring 2002: Despite the fact that the federal government had – at least in comparison with its predecessors – reduced the raising of new debt, the Federal Republic of Germany nearly got a ‘blue letter’ from the European Union because the expected deficit of 2002 was 2.7 percent compared to GDP and, therefore, was far away from its former stabilisation objective, and came quite close to the Maastricht limit of 3 percent of GDP, which it has actually crossed in the meantime. The reason for this was a considerable increase in the deficits of the Bundesländer and the local communities.

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1. For the current discussion of this pact see, e.g., M. BUTI, S. EIJJINGER and D. FRANCO (2003).

2. See, e.g., E.M. GRAMLICH (1990).

3. See, e.g., CH.A. SCHALTEGGER (2002) for a survey.

Thus, in a federal country with (at least partial) fiscal autonomy of the member states, regulations are necessary which cover all three levels. It is not surprising that a discussion took place in the Federal Republic of Germany on how a stability pact between the federal level, the Bundesländer and the local communities can be contracted and enforced. In 2002, the Swiss STATE SECRETARIAT FOR ECONOMIC AFFAIRS has presented similar considerations.<sup>4)</sup>

Since the 1990's, several empirical studies have considered the effectiveness of different institutional designs of fiscal systems in the U.S. and Switzerland. H. BOHN and R.P. INMAN (1996), for example, extensively study the impact of balanced budget requirements on public finances of U.S. states by investigating which specific design is most successful in restraining governments.<sup>5)</sup> A. O'SULLIVAN, T.A. SEXTON and S.M. SHEFFRIN (1995, 1999) analyse how Proposition 13 has affected fiscal policies of U.S. states and local jurisdictions.<sup>6)</sup> The effectiveness of fiscal restraints has also been investigated in the Swiss case. Using a panel of the 26 Swiss cantons and the years 1986 to 1997, L.P. FELD and G. KIRCHGÄSSNER (2001) show that cantons with such restrictions have significantly lower debts and deficits. Similar results are obtained by CH. SCHALTEGGER (2002) for a different time period. The cross-country and the U.S. results on the impact of fiscal federalism on public finance are more ambiguous.<sup>7)</sup> According to the theoretical arguments by G. BRENNAN and J.M. BUCHANAN (1980), fiscal decentralisation reduces the ability of governments to exploit tax bases because the latter have increased exit possibilities in a federal system. While several authors find evidence for this proposed effect of fiscal decentralisation on the size of government, others don't. In a recent paper, L.P. FELD, G. KIRCHGÄSSNER and CH. SCHALTEGGER (2003) present evidence for the Swiss cantons from 1980 to 1998 that fiscal decentralisation decreases government revenue mainly because of an intense tax competition. Finally, there is a large body of evidence on the impact of referenda and initiatives on public finance. J.G. MATSUSAKA (2004) provides a comprehensive discussion about the impact of legislative initiatives on spending and revenue of U.S. states and local jurisdictions, while D.R. KIEWIET and K. SZAKALY (1996) present evidence on the influence of referenda on guaranteed debt of U.S. states. These U.S. studies show that direct democracy is associated with sounder public finances. The studies on Swiss cantons and local jurisdictions corroborate this conclusion.<sup>8)</sup>

Besides discussing the development at the Swiss federal level, the main purpose of this paper is to discuss the effects of the three types of constitutional or statutory clauses, fiscal decentralisation, direct popular rights as well as formal fiscal restraints, on public deficit and debt of the 26 Swiss cantons. In order to see whether the cantons are shifting deficit problems to the local communities (and not really solve them), we not only consider the deficit of the

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4. See for this also Y. AMMANN (2002). – Actually, the main emphasis of this consideration was not up to the debt problem but was on a harmonisation of the cantonal expenditures in order to prevent that an anti-cyclical fiscal policy of the federal level will be undermined by pro-cyclical behaviour of the cantons.
  5. J.M. POTERBA (1997), G. KIRCHGÄSSNER (2002) and CH. SCHALTEGGER (2002) provide surveys about the effects of constitutional and/or statutory rules which are intended to reduce expenditure and/or deficits.
  6. G. KIRCHGÄSSNER (2002) summarises the subsequent U.S. studies about the impact of Proposition 13 on the quality of public goods and services, in particular the quality of public education.
  7. See G. KIRCHGÄSSNER (2002) as well as L.P. FELD and G. KIRCHGÄSSNER (2004).
  8. See L.P. FELD and KIRCHGÄSSNER (1999, 2001, 2001a) as well as L.P. FELD and J.G. MATSUSAKA (2003).

cantonal budget but also the combined deficit of the cantonal budget and the budgets of the local communities within a canton. We consider the period from 1980 to 1998. In doing so, this analysis deviates in several respects from the existing studies. They either investigate a shorter time period, for example 1986 to 1998, as, e.g., L.P. FELD and G. KIRCHGÄSSNER (2001, 2001a) did, or they focus on expenditure and revenue but not on the deficit and debt problems,<sup>9)</sup> or they do not consider all three types of constitutional or statutory clauses.<sup>10)</sup> Our main results are that direct democracy leads to significantly lower debt, but does not have a significant effect on the budget deficit. The fiscal constraint, on the other hand, significantly reduces budget deficits. Moreover, cantonal debt is the lower the higher the share of local expenditure is. Taking all results together, one can conclude that at least those cantons with ‘strong’ fiscal instruments have the institutional pre-requisites to perform a sustainable fiscal policy. They can serve as examples for developing corresponding fiscal rules for other federal countries.

The paper is organised as follows: In *Section 2*, we describe cantonal institutions (today called ‘debt brakes’) which are intended to prevent public debt to go beyond control, and we especially discuss the St. Gallen model which is the oldest one. To allow for a more systematic analysis of their effects, in *Section 3* we present an econometric model. In *Section 4*, we discuss the empirical results. Then we discuss the new debt brake which has been introduced at the federal level (*Section 5*). There, it still has to be seen in the future whether this institution will be successful or not. In the 6<sup>th</sup> *Section* we discuss the problem of over-indebtedness of lower governmental levels which might arise in any federal country. It is shown that with well designed institutions federal states might even better be able to follow a sustainable fiscal policy than unitary ones. For this, besides fiscal restrictions, the fiscal referendum plays an important role.

## 2 The Cantonal Institutions

In 1981, the conference of the cantonal Ministers of Finance edited a *Handbook of Public Budgeting* (Vol. 1) which contains a role model law for the cantonal budgets. According to Art. 2, the principle of a balanced budget has to be observed. This is stated more concretely in Art. 4, according to which the current budget has to be balanced in the medium term, and in Art. 18 which demands that cantonal accumulated debt has to be cut back in the medium term, whereby ‘medium term’ means within about 10 years.<sup>11)</sup> Today, such rules can be found in nearly all cantonal constitutions and in the corresponding budget laws. The cantons are obliged to balance their budgets over the business cycle, and also to cut down accumulated debt. This could, however, not preclude that cantonal debt increased considerably in the last decade, partly because of an unfavourable economic development. Thus, the range of average

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9. See, e.g., Ch. SCHALTEGGER (2001), L.P. FELD, G. KIRCHGÄSSNER and Ch. SCHALTEGGER (2003), or L.P. FELD and J.G. MATSUSAKA (2003).

10. L.P. FELD and G. KIRCHGÄSSNER (2001) as well as Ch. SCHALTEGGER and L.P. FELD (2004) leave out fiscal decentralisation; A. VATTER and M. FREITAG (2002) as well as M. FREITAG, A. VATTER and CH. MÜLLER (2003) leave out fiscal restraints; Ch. SCHALTEGGER (2002) leaves out fiscal federalism; and L.P. FELD and J.G. MATSUSAKA (2003) leave out fiscal decentralisation and fiscal restraints.

11. See for this more extensively TH. STAUFFER (2001, pp. 83ff.).

debt per capita which varied in 1990 between 1'866 CHF in Aargau and 12'213 CHF in Geneva increased to 2'545 CHF in Appenzell Innerrhoden and 41'791 in Geneva in 2002. This was an average real increase of about 92 percent.<sup>12)</sup>

A speciality of the cantonal constitutions in contrast to the new Swiss federal constitutions as well as the Austrian and German constitutions of all three governmental levels is the existence of a fiscal referendum: If the outlays for some project exceed a certain limit, the citizens have to be asked whether they agree on the spending project. This limit can be different for non-recurring than for recurring expenditure. With the exception of Vaud all cantons have such a referendum.<sup>13)</sup> As the citizens know that they sooner or later have to pay for the projects which are carried out by the canton or local community, this is a restraint on too ambitious projects.

However, even the existence of the fiscal referendum was (in addition to regulations for a balanced budget) insufficient to prevent public debt from increasing as described above. Therefore, partly with a longer history, eight cantons introduced new instruments to limit the deficits within the past ten years: St. Gallen (1994), Fribourg (1994), Solothurn (1995), Appenzell Ausserrhoden (1995), Graubünden (1998), Luzern (2001), Bern (2002) and, as the last one for the time being, the Wallis (2002). (In St. Gallen they actually codified a praxis which had lasted already over sixty years.)<sup>14)</sup> These regulations are partly fixed in the cantonal constitutions, mainly, however, in the cantonal budget laws.

The canton St. Gallen may be used as an example or a 'case study'.<sup>15)</sup> The rules require that the current budget has to be balanced. The deficit may not be larger than 3 percent of the 'simple tax revenue', which at the moment is about 60 percent of total tax revenue.<sup>16)</sup> Whenever a deficit is to be expected, the tax rate has to be adjusted in order to stick to this limit. Moreover, if there are no savings available, the deficit is transferred to the budget of the year after the next year. Whenever there is a surplus, e.g. because of an economic upswing, this money has to be saved and/or used for additional depreciations. The tax rates cannot be reduced before these savings are not seven times the maximum allowable deficit.

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12. Source of the data: EIDGENÖSSISCHE FINANZVERWALTUNG, *18 Öffentliche Finanzen der Schweiz*, 1990, p. 52, 2002, p. 74.

13. See for this the overview in G. LUTZ and D. STROHMAN (1988, p. 151).

14. For a detailed description of the different regulations see TH. STAUFFER (2001, pp. 85ff) as well as VERWALTUNGSRAT DES KANTONS BASEL-STADT (2002). Attempts to introduce similar regulations are currently underway in different other cantons as well. Whether they will be successful or not is an open question. Not all such attempts have been successful in the past. In the canton of Vaud, e.g., such a proposal has been rejected in 1998. See for this also TH. STAUFFER (2001).

15. See for this Art 82 of the cantonal constitutions and especially Art. 61 and 64 of the 'Staatsverwaltungs-gesetz'. A detailed description of these institutions in the canton St. Gallen is given in P. SCHÖNENBERGER (1995). See also TH. STAUFFER (2001, pp. 86f).

16. The 'simple tax revenue' is the basis for the income and property tax revenue; actual revenue is given by the simple tax revenue times a multiplier in the sense of a surcharge (called 'tax foot') which currently is 115 percent.

Besides the current budget there is the capital budget, which is used to finance public investment. The rule is that investment projects up to 5 millions CHF have to be included into the current budget, while projects between 5 and 10 millions CHF have to be depreciated within five years and projects above 10 millions within 10 years. The depreciations have to be included into the current budget. Thus, such projects cannot lead to a long-run debt increase. It is possible to raise debt in order to buy shares of firms, e.g. of the cantonal banks, but there have to be returns as compensation.

On the expenditure side there is a fiscal referendum. It is optional for recurring expenditure of more than 300'000 CHF and for non-recurring expenditure of more than 3 millions CHF. It is mandatory for recurring expenditure of more than 1.5 millions CHF and for non-recurring expenditure of more than 15 millions CHF. In relation to the budget which in 2002 was about 3.46 billions CHF these limits amount to 0.009 or 0.043 percent, respectively, for current expenditure, and 0.09 or 0.43 percent, respectively, for non-recurring expenditure. Compared to the regulations of other cantons these limits are rather low. In order for an optional referendum to take place, 4'000 signatures have to be collected within 30 days. This corresponds to about 1.5 percent of the electorate.<sup>17)</sup>

Thus, the citizens have – within the boundaries of the federal constitution – the competence with respect to the tasks the canton has to perform and the necessary expenditure. With respect to the expenditure side they decide about all constitutional and statutory rules, especially about the different taxes and the tariff scales (including the progression of the direct taxes) but not about the tax rates. The competence with respect to the latter is with the cantonal parliament which, however, is very much restricted by the regulations described above. Fundamental (and exceptional) for these regulations is the fact that the canton is obliged to build up savings (up to a certain amount) before tax rates can be reduced. This implies that surpluses are built up in ‘good’ years which can be used to cover (up to a certain extent) deficits in the upswing. This institutionalises anti-cyclical fiscal policy at the cantonal level which – contrary to the experience which led to the proposals of J.M. BUCHANAN and R.E. WAGNER (1977, 1978) – did not lead to an increase of public debt.<sup>18)</sup>

This combination of direct democratic expenditure restrictions, quasi-automatic revenue adjustment and the building up of savings has proved to be successful. In 2002, e.g., cantonal public debt per capita was 3'678 CHF in the canton St. Gallen; only the cantons Schwyz, Zug, Aargau and the two Appenzell had lower cantonal public debt. Even more important is the fact that interest payments of 41 millions CHF have been overbalanced by returns of 81 mil

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17. See for this A. TRECHSEL and U. SERDULT (1999, p. 330f.).

18. This is interesting also for another reason. Usually, it is assumed that anti-cyclical fiscal policy can only be performed successfully at the federal level; the medium and lower levels are supposed to perform a pro-cyclical policy. See as a classical reference: “It remains to note that responsibility for stabilisation policy has to be at the national (central) level. Lower levels of government cannot successfully carry on stabilisation policy on their own for a number of reasons. This is obviously the case for the unitary state, where fiscal decentralisation is limited to the provision of local public goods. But it also holds for the federation.” (R.A. MUSGRAVE and P.B. MUSGRAVE (1984, pp 515).

lions CHF. Thus, taxes per capita have been unburdened by 88 CHF.<sup>19)</sup> The most important part is the revenue from shares of (semi-) public enterprises, especially of the St. Galler Kantonalbank. One might debate whether today it still makes sense for a government to engage in private markets in such a way; it is often demanded (and at least sometimes with good reason) that such enterprises should be privatised. This does not change the fact, however, that the canton St. Gallen has net financial assets.

It is also useful to compare this situation with the one in 1990, i.e. before the long lasting recession of the nineties. In that year cantonal debt was 2'524 CHF per capita which was 56.8 percent of the national average. At that time also, only three cantons had lower debt: Zug Graubünden and Aargau.<sup>20)</sup> The counterpart of interest payments of 32.8 millions CHF were returns of 'only' 30.5 millions CHF. Compared with its national income the debt of the canton St. Gallen rose from 7.6 to 8.5 percent between 1990 and 2001. This has, however, to be qualified, first, because the average cantonal public debt rose from 11.8 to 20.3 percent (in relation to national income) during this period and second, because the value of its financial assets increased even more during this period. With respect to its finances and compared to the other cantons, the position of the canton St. Gallen has improved during this period while its relative economic position remained almost the same: National income per capita was 91.4 percent of the Swiss average in 2001 compared to 87.4 percent in 1990, but according to this criterion its rank fell from 14 to 15.<sup>21)</sup>

As has been mentioned above, similar rules exist today in seven other cantons. The cantons Solothurn and Graubünden, e.g., also accumulate savings in order to equalise revenue fluctuations over the business cycle. In Appenzell Ausserrhoden the rule is that no deficit is allowed to be budgeted as soon as there is an accumulated deficit of more than five percent of the cantonal and local tax revenue which is budgeted for the current year.<sup>22)</sup> This rule is intended to force the government to build up reserves in 'good times' and to eliminate structural deficits.<sup>23)</sup> While the canton Fribourg also strives for a budgetary balance over the business cycle, the regulation is even stricter with respect to a balancing of the annual budget: The tax rate has to be increased as soon as the deficit in the proposal for the current budget exceeds 3 percent of total revenue.<sup>24)</sup>

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19. Source of the data: EIDGENÖSSISCHE FINANZVERWALTUNG, *18 Öffentliche Finanzen der Schweiz* 2002, p. 74.

20. Source of the data: EIDGENÖSSISCHE FINANZVERWALTUNG, *18 Öffentliche Finanzen der Schweiz* 1990, p. 52.

21. Source of the data: *Statistisches Jahrbuch der Schweiz* 2004, p. 244., as well as the sources mentioned in footnotes 18 and 19. – Usually, debt is related to GDP. However, for the Swiss cantons only national income (NNP) figures are officially available.

22. Art. 9, Finanzhaushaltsgesetz des Kantons Appenzell Ausserrhoden of April 30, 1995.

23. See for this E. BUSCHOR, K.A. VALLENDER and TH. STAUFFER (1993, pp. 12ff.).

24. Art 38 (3), Gesetz vom 25. November 1994 über den Finanzhaushalt des Staates, Kanton Freiburg. – This rule goes back to the Finanzhaushaltsgesetz des Kantons Freiburg of 1960; this law had similar regulations in Art. 5. As in St. Gallen, the law from 1994 did not create a really new situation. See for this TH. STAUFFER (2001, p. 93).

As far as there exist experiences from these cantons, up to now they are also positive. In Fribourg debt per capita rose from 1990 to 2002 from 2'871 CHF to 4'924 CHF, thus, only by 46 percent (in real terms), which is far below the average of the Swiss cantons with 92 percent. In a similar way, even though with 12 percent to a lesser extent, the returns on financial investments are larger than the interest payments. In Appenzell Ausserrhoden debt per capita even declined from 1990 to 2002 from 3'060 CHF to 2'545 CHF i.e. by 29 percent (in real terms). However, a major reason for this was that the sale of the Kantonalbank made it possible to reduce total cantonal debt considerably. In Graubünden public debt rose from 1990 to 1998, as the debt brake had been introduced, by about 150 percent from 2'306 CHF to 6'996 CHF; this large increase was a major incentive to introduce this institution. Since then it declined to 5'285 CHF in 2002, and, thus, by 27 percent. Finally, in Solothurn, between 1994, the year, before the debt brake was introduced, and 2002, the debt per capita rose only from 5'826 CHF to 6'255 CHF and, therefore, by only 3 percent altogether. Thus, all those cantons which have debt brakes since more than five years show a good performance in this respect.

### 3 An Econometric Model

In order to present more than just this casual evidence, we use an econometric model with the budget deficit and the cantonal debt as dependent variables.<sup>25)</sup> The variables of interest are the institutional variables which represent the constitutional and legal structure of fiscal policy decisions in the Swiss cantons. The first and most important variable is the index of direct democracy as it is employed by B.S. FREY and A. STUTZER (2000, 2002) in various studies. Most cantons have some form of semi-direct democracy with a parliamentary system with legislators elected according to a system of proportional party representation. Only two rural cantons, Appenzell-Innerrhoden (AI) and Glarus (GL), take political decisions in cantonal meetings (Landsgemeinde). In addition, the cantons have different institutions of political participation rights.<sup>26)</sup> Proposals can be initiated by the voter initiative, and new laws passed by the legislature are, to different degrees, subject to an optional or a mandatory popular referendum. Given the results by S. PELTZMAN (1992) that voters are fiscally more conservative than representatives, we can expect that fiscal referenda restrict the spending capabilities of representatives. It should lead to lower spending, revenue, and deficits.

As a second explanatory variable, an index of the statutory fiscal restraints, which are described above, is employed. The more restrictive the statutory fiscal constraints are, the lower the budget deficits and debt should be. However, since it takes considerable time after the introduction, before such restraints exhibit their full impact on the debt, it might be that the corresponding coefficient in the debt equation is not significantly different from zero.

The third institutional peculiarity of Switzerland is its strong extent of fiscal autonomy at the sub federal level which establishes a system of competitive federalism. To analyse the impact of federalism on cantonal fiscal policy, two different variables are used: decentralisation and

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25. The model we use is quite common in the study of fiscal policy, it corresponds, e.g., to the deficit and debt models of N. ROUBINI and J.B. SACHS (1989).

26. See for this A. TRECHSEL and U. SERDÜLT (1999).

tax competition. Decentralisation is proxied by the ratio of local revenue to the aggregated state and local revenue. Tax competition is measured by the inverse of the weighted average of the competing cantons' tax burden in the highest income tax bracket of a million Swiss francs annual taxable income. The competing cantons are all cantons except the one of consideration, weighted by the inverse of the distance.<sup>27)</sup> This variable is included to reflect that the lower the average tax burden of the other cantons, the higher the pressure of tax competition on the cantonal and local tax authorities is which should have a dampening effect on government revenue and spending. The impact of tax competition on the budget deficit and the public debt is, however, indeterminate.

In order to control for the impact of intergovernmental grants between jurisdictions, the model also contains federal unconditional grants per capita. In contrast to matching grants, unconditional grants enable cantons to allocate the funds according to their own priorities. A higher level of unconditional grants should lead to higher spending as well. In the literature on the flypaper effect, it is much discussed whether the availability of lump-sum grants increases public spending by more than the amount of these grants.<sup>28)</sup> Unconditional grants may also be used to reduce spending from own public funds such that the increase of spending due to the grants is less than 100 percent. In addition, a high amount of grants is related to a higher extent of bail out by other jurisdictions. This might lead to lower incentives to use the resources economically. Therefore, it may – *ceteris paribus* – incur higher budget deficits.

We also include a regional dummy variable that reflects the language differences among the Swiss cantons and takes on the value of one for cantons with a French or Italian speaking population. A quite common prejudice is that 'Latin' cantons and communities have stronger preferences for 'public sector solutions' of social problems and are thus inclined to have more 'unsound' public finances, i.e. higher spending, higher revenue, and higher deficits. Moreover, the model contains a political variable which follows the arguments of the partisan cycles models that left wing parties generate unsound public finances. The share of left wing parties in the government should have a positive impact on the level of public spending, public revenue, and budget deficits.

We additionally include economic, demographic and political control variables. The economic and demographic variables are those usually employed in models of fiscal policy. The most important of these variables is the disposable income per capita. Generally, higher income is supposed to lead to higher spending and revenue. Higher spending results because citizens increase their demand for public services if their income increases. Higher revenue results because revenue of the Swiss cantons is mainly derived from progressive personal income taxes. Whether lower or higher deficits occur due to higher income is not easy to determine a priori. On the one hand, higher income may be accompanied by a lower level of public deficits for liquidity reasons. On the other hand, sub-federal jurisdictions with higher incomes may have to contribute larger amounts to fiscal equalisation systems and thus have an incen

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27. See L.P. FELD and E. REULIER (2002) for a discussion of empirical studies.

28. See L.P. FELD and Ch. Schaltegger (2004).

tive to increase public deficits in order to reduce these contributions. In this case, higher income might be associated with higher deficits.

Since the number of inhabitants can play a crucial role on the level of public expenditure, a population variable has to be included in the equation as well. However, the expected sign of this variable is ambiguous. On the one hand, more inhabitants will pay for public goods. This reduces cost per capita, and it should lead to lower public expenditure. On the other hand, due to economies of scale in their provision some public goods might only be provided in agglomerations. In this case, the overall level of public expenditure for the agglomeration might increase and – ceteris paribus – budget deficits might also rise. In order to disentangle both effects, the share of the urban population is additionally included in the model. Moreover, we control for the demographic structure of a canton by using the shares of the population older than 65 and younger than 20 years. Both variables may be interpreted as indicating the demand of these two particular population groups for public spending as well as their ability to generate public revenue. Finally, a dummy variable for the canton of Appenzell a.Rh. in 1996 is included. In this year, cantonal revenue of that canton lies about 50 percent above the ‘normal’ value, because this canton sold its ‘own’ Cantonal Bank to the Union Bank of Switzerland (UBS) which created a large additional revenue.<sup>29)</sup>

Thus, for our empirical analysis we end up with the following model:

$$(1) \quad y = \alpha_0 + \alpha_1 \text{Dem} + \alpha_2 \text{Constr} + \alpha_3 \text{Fed} + \alpha_4 \text{Taxcomp} + \alpha_5 \text{grants} + \alpha_6 \text{Ideol} \\ + \alpha_7 \text{inc} + \alpha_8 \text{pop} + \alpha_9 \text{Urban} + \alpha_{10} \text{Latin} + \alpha_{11} \text{Old} + \alpha_{12} \text{Young} \\ + \alpha_{13} \text{D(AR-96)} + \varepsilon .$$

where the dependent variable  $y$ , stands for the following variables (all in per capita): the cantonal deficit, the cantonal and local deficits together, and the logarithm of cantonal debt. The explanatory variables are:

Dem	index of direct democracy,
Constr	statutory fiscal constraints which takes on values between zero for the cantons with none and three for those with the strongest statutory fiscal restraint,
Fed	share of local from the sum of cantonal and local spending,
Taxcomp	inverse of the weighted average of the competing cantons’ tax burden in the highest income tax bracket of 1 million SFr annual taxable income (logarithms in the debt equation),
grants	federal unconditional grants per capita (logarithms in the debt equation),
Ideol	ideological position of the cantonal government,
inc	disposable income per capita (logarithms in the debt equation),
pop	population (logarithms in the debt equation),

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29. Because these variables might have an impact on cantonal public finances, we have to include these variables in order to get unbiased estimates for the coefficients of the other variables. –However, we restrict the discussion of our results on the interesting institutional and political variables.

Urban	share of urban population,
Latin	dummy variable = 1, for cantons with a French or Italian speaking population,
Young	share of population younger than 20,
Old	share of population older than 65,
DAR96	dummy variable = 1, for the canton of Appenzell a.Rh. in 1996,
$\varepsilon$	stochastic term.

The analysis uses annual data for the 26 cantons from 1980 to 1998 deflated to the year 2000. The empirical analysis is performed using a pooled cross-section time-series model. We follow L.P. FELD and G. KIRCHGÄSSNER (2001), who argue that despite the panel structure of the data the inclusion of fixed effects in the cross-section domain is inappropriate because the institutional variables vary only very little or remain even constant over time in most cantons. Accordingly, cantonal intercepts do not make sense as the captured impact on fiscal outcomes is either solely driven by the time variation or in case of time invariant variables, fixed effects are likely to hide the effect of institutional variables and render them insignificant. Cantonal dummies are however used as instruments in order to cope with possible endogeneity of the decentralisation variable. Moreover, year dummies are included to circumvent time dependency, and the standard errors are corrected by a GMM method (Newey-West). The deficit equations are formulated in absolute terms (CHF per capita), while the debt equation is estimated in logarithms.

#### 4 Empirical Results

The results are given in *Table 1*.<sup>30)</sup> Our model explains nearly half of the variance of the deficit equations and nearly two thirds of the variance of the debt equation. If we consider the two deficit equations, neither the index for direct democracy nor the amount of fiscal decentralisation do have a significant impact on the budget deficit. The signs indicate that direct democracy and fiscal decentralisation might have a negative impact on the cantonal deficit, but the t-statistics are far from indicating significance. On the other hand, fiscal constraints have a highly significant dampening effect on the cantonal deficit. Moreover, the fact that the two coefficients in the two deficit equations are nearly identical indicates that the deficit is not shifted to the local communities: there is no relevant impact on the local deficits. Tax competition among the cantons seems to increase the cantonal deficit, but the estimated coefficients are also not significantly different from zero. Moreover, as with the fiscal constraints, tax competition at the cantonal level does not seem to have any impact on the local deficits. A left-wing orientation of the cantonal government increases (as expected) public expenditure, but this effect is also not significant. Moreover, contrary to what is usually assumed, deficits are significantly smaller in those cantons where French or Italian is the dominant language. This does not only hold for the cantonal but also for the sum of the local budget deficits. Finally, the amount of unconditional grants reduces the deficits considerably: An additional

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30. The estimates have been performed with EViews, Version 4.1.

franc of grants reduces the cantonal deficits by about 75 cents and the sum of all deficits together by more than 90 cents.

*Table 1: Cantonal Deficits and Debts per Capita, 1980 - 1998*

dependent variable	cantonal deficit	cantonal and local deficit	log of cantonal debt
constant	-1726.722(*) (1.94)	-2961.395* (2.53)	20.182*** (5.16)
direct democracy	-49.489 (0.82)	-23.493 (0.82)	-0.125* (2.08)
fiscal constraints	-106.768*** (3.67)	-109.545*** (2.96)	-0.050 (1.18)
fiscal decentralisation	-299.387 (0.85)	24.694 (0.06)	-1.462*** (4.02)
(log of) tax competition	617.461 (1.41)	726.284 (1.41)	-0.273(*) (1.87)
(log of) unconditional grants	-0.756** (2.82)	-0.928** (2.72)	-0.395** (2.91)
share of leftist parties in the government	69.039 (0.43)	110.891 (0.56)	0.096 (0.46)
(log of) disposable income	0.012* (2.13)	0.014* (2.02)	-0.566(*) (1.81)
(log of) population	0.067 (0.52)	0.100 (0.63)	-0.224*** (3.71)
urbanisation	499.292* (2.23)	591.414* (2.25)	1.576*** (6.01)
dummy for French and Italian language	-313.814* (2.05)	-528.718** (2.75)	0.276 (1.46)
share of young population	52.883* (2.46)	80.145** (3.01)	-0.036 (1.48)
share of old population	37.062* (2.57)	63.159*** (3.59)	-0.041(*) (1.93)
dummy for Appenzell Ausserrhoden in 1996	-3065.430*** (25.78)	-3038.398*** (22.33)	-0.148 (1.57)
$\bar{R}^2$	0.489	0.478	0.631
SER	348.798	433.530	0.310
J.-B.	205.347***	82.908***	22.027***

The numbers in parentheses are the absolute values of the estimated t-statistics, based on the Newey-West autocorrelation-consistent standard errors. '\*\*\*', '\*\*', '\*' or '(\*)' show that the estimated parameter is significantly different from zero at the 0.1, 1, 5, or 10 percent level, respectively. SER is the standard error of the regression, and J.-B. the value of the Jarque-Bera-test for normality of the residuals.

It might be objected against these results that, according to the result of the Jarque-Bera test, the estimated residuals are not at all normally distributed. This might impair the validity of the results. Due to the large number of observations this should not be that much of a problem. However, to consider this argument, we re-estimated the model excluding some outliers. Then, the null hypothesis that the estimated residuals are normally distributed can no longer be rejected even at the 10 percent significance level, while the results show only minor changes.<sup>31)</sup>

The important question is, however, whether these impacts are not only statistically significant but also economically important. To address the economic significance, we calculated how large the difference in cantonal and local deficits and debts is between those cantons where the corresponding variables take on their maximum value in our sample and those cantons where they have their minimum. To calculate these partial effects we assumed that all other variables take on their mean.<sup>32)</sup>

<i>Table 2: Quantitative Impacts of the Explanatory Variables</i>			
explanatory variables	cantonal deficit	cantonal and local deficit	cantonal debt
direct democracy	-199 CHF (1.88)	-95 CHF (0.89)	-2'535 CHF (39.56)
fiscal constraints	-320 CHF (3.03)	-329 CHF (3.11)	-899 CHF (14.03)
fiscal decentralisation	-93 CHF (0.88)	8 CHF (0.07)	-2'336 CHF (36.43)
tax competition	168 CHF (1.87)	198 CHF (1.87)	-919 CHF (14.36)
unconditional grants	-593 CHF (5.60)	-728 CHF (9.60)	-1'252 CHF (19.54)
ideology of the government	69 CHF (0.65)	111 CHF (1.05)	648 CHF (10.10)
French and Italian speaking population	-314 CHF (2.97)	-529 CHF (5.00)	2'036 CHF (31.76)
mean (standard deviation) of the dependent variable	156 CHF (488 CHF)	237 CHF (600 CHF)	6'411 CHF (4533 CHF)

For public debt, the numbers in parentheses are in percent of the mean. In the case of budget deficits, it is in percent of expenditure. The amount in Swiss Francs is in prices of the year 2000.

31. We did the same with similar results debt equation. The results of these additional regressions are given in the Appendix.

32. Descriptive statistics of the political and institutional data are given in the Appendix.

The results are given in *Table 2*. It is shown that unconditional grants, fiscal constraints and the culture (language) of the population have strongly dampening effects on cantonal deficits which are quantitatively well above the average deficit with a maximal effect of more than five percent or about three percent, respectively, of total expenditure.<sup>33)</sup> Direct democracy as well as tax competition do also seem to have a considerably impact, but it should be kept in mind that their estimated coefficients are not significantly different from zero. Finally, in addition to being not statistically significant, fiscal decentralisation as well as the ideology of the government do not seem to have quantitatively relevant impacts on the cantonal deficit.

The results are somewhat different for the debt equation. Direct democracy as well as fiscal decentralisation have a significant negative impact, whereas the impact of the fiscal constraints is negative (as expected) but not significant. These results also hold if we exclude the outliers in order to get normally distributed residuals. At first glance, such differences are astonishing because public debt is nothing more than the temporally aggregated deficit. Thus, while the deficit equations rather capture the short-run, the debt equation captures the long-run effect of these institutions on the sustainability of the public finances. But this implies that those institutional variables which are almost constant over time, as the extent of direct democratic rights as well as of fiscal decentralisation, might exhibit their impact more in the debt equation, while those which have a high variation rather in the deficit equations. The latter certainly holds for the impact of the fiscal constraints because they have only been introduced quite recently and can, therefore, not yet show their (long-run) impact on public debt.

The amount of unconditional grants does not only reduce the deficit, but also public debt to a considerable extent. For this variable, there is no difference in the signs and significances of the different equations. But the same does not hold for the impact of tax competition as well as the language of the population. There, we even get different signs. Again, a possible (but, of course, rather tentative) explanation might stress the difference between long-run and short-run effects. A strengthening of tax competition might at the moment increase the current deficit, but it might also provide in the long-run incentives for a more sound fiscal policy and it might, therefore, lead to lower public debt in the end. With respect to the culture of a canton, French speaking cantons might have had a looser fiscal policy in the past, leading to larger debt burdens, but are now forced to limit the deficit more strictly. Of course, further analyses are necessary to support such conclusions.

The maximal quantitative impacts are again shown in *Table 2*, and they are again quite considerable. Comparing the two most extreme cantons in this respect, Geneva and Obwalden, direct democracy leads to a reduction of public debt by about 2'500 CHF.<sup>34)</sup> This is about 40

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33. When comparing the (maximal) quantitative impact of the different variables it should be taken into account, however, that the deficit variables are highly non-normal: Excluding the obvious outlier of Appenzell Ausserrhoden in 1996, we get a skewness of 0.928 and a kurtosis of 7.731 for the cantonal deficits. This leads to a Jarque-Bera statistic of 531.537. For the sum of all deficits, the deviation from normality are somewhat lower but still very considerable: With a skewness of 0.271 and a kurtosis of 5.539 we get a Jarque-Bera statistic of 138.761. This is still largely above any conventional significance level.

34. However, when making this comparison, as in the case of the deficit equations, the even more extreme non-normality of the debt variable should be taken into account: With a skewness of 2.732 and a kurtosis of

percent of average debt. Fiscal decentralisation has a similar impact, but this is somewhat trivial as the cantonal debt should – *ceteris paribus* – be smaller if the canton is more decentralised and has, therefore, less tasks to perform and less need for revenue and expenditure. Because no data for the sum of cantonal and local debts in a canton are available, we cannot say whether there is (besides this shifting) an additional effect from fiscal decentralisation.

Though its coefficient is not statistically significant different from zero when all observations are included, the culture of the canton also seems to have a considerable impact: Non-German speaking cantons seem to have – *ceteris paribus* – a debt which is about 2'000 CHF higher. This result is reinforced as by excluding the outliers: The estimated coefficient does not only increase such that the effect accounts for about 2'400 CHF, but it is also almost significant at the 5 percent level. This is somewhat astonishing as – contrary to the usual belief – cantonal public debt in the German speaking cantons is about 1'600 CHF higher than in Latin Switzerland.

Finally, unconditional grants also have a quantitative significant impact, which amounts to about 20 percent of average public debt (and about 6 percent of the maximal cantonal debt). The effects of the other explanatory variables are not only not statistically significant, but are also quantitatively less important; their maximal effect is always below 5 percent of the maximal cantonal debt.

These results are in line with previous results mentioned in the introduction and support the political conjecture of the usefulness of fiscal restraints to obtain sound public finances. They also corroborate the findings of M. FREITAG and A. VATTER (2004) for the impact of fiscal referenda and fiscal decentralisation as well as CH.A. SCHALTEGGER and L.P. FELD (2004) for the impact of fiscal referendums and fiscal restraints on deficits and debt. They are also in line with the U.S. evidence. However, in contrast to the U.S. situation, the effective Swiss fiscal restraints are at the statutory level only while, for example, H. BOHN and R.P. INMAN (1996) in their study for the U.S. conclude that constraints grounded in a state's constitution are more effective than constraints based on statutory provisions. Most Swiss cantons have constitutional provisions for balanced budgets, but those that additionally have fiscal restraints at the statutory level have sounder public finances.

## **5 The 'Debt Brake' at the Federal Level**

If we disregard some exceptions at the cantonal and local level, the problem to limit the public debt is today much more serious at the federal than at the lower governmental levels. As *Figure 1* shows, total public debt increased quite a lot during the nineties, but this increase was mainly due to the rise of the federal debt. It increased from 38.5 billions CHF in 1990 to 122.9 billions CHF in 2002, which is a real increase of 173 percent, compared to an increase of 105 percent at the cantonal and of only 14 percent at the local level.<sup>35)</sup> Moreover, though being discussed in the national parliament, there is up to now no fiscal referendum at the fed

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10.776 we get a Jarque-Bera statistic of 1858.874. Thus, if Geneva would adopt the institutions of Obwalden, it might reduce its own average debt only by about 14 percent.

35. Calculated according to the figures in: *Statistisches Jahrbuch der Schweiz* 2004, p. 821.

eral level. Thus, except from a situation when a new law is necessary, the citizens generally do not have the possibility to reject planned expenditure.<sup>36)</sup> On the other hand, people do not only vote on the tax structure but also on the maximal rates. As far as the latter are fixed in the federal constitution, as, e.g., for the value added tax and for the direct federal (income) tax, increases of the tax rates are subject to a mandatory referendum, and in addition to the majority of voters the majority of the cantons has to agree as well. This has two consequences: First, the citizens can deny the parliament additional revenue, without necessarily having an influence on the expenditure side. This holds in particular if expenditures which are determined by laws develop ‘dynamically’ and the revenue does not keep pace with them. Such a situation is, e.g., given today with respect to the mandatory first pillar of the Swiss old age pension system which is financed by a pay-as-you-go system. Second, it is much more difficult and takes more time to adapt the revenue to changing situations. These two effects led to considerable deficits in the nineties and – as a consequence – to the strong increase of the federal debt mentioned above.

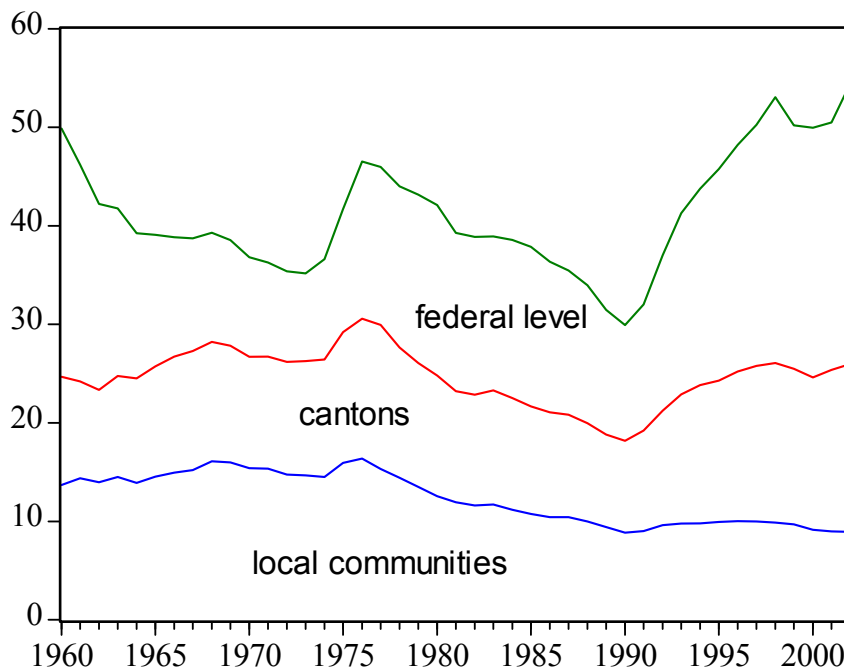


Figure 1: *Development of Swiss Public Debt, 1980 – 2002 (in percent in relation to GDP)*

36. If for some expenditure a new legal basis is necessary, the citizens can take a referendum against this law. On this basis the Swiss people voted twice about the New Alpine Railway Axes' (NEAT), on September 27, 1992 (Bundesbeschluss über den Bau der schweizerischen Eisenbahn-Alpentransversale (Alpentransit-Beschluss)), and on November 29, 1998 (Bundesbeschluss vom 20. März 1998 über Bau und Finanzierung von Infrastrukturvorhaben des öffentlichen Verkehrs). Moreover, it is possible to start a constitutional initiative to prevent some expenditure. This was, e.g., done (without success) in June 1993, when, by starting the initiative “for a Switzerland without new military aircrafts”, some citizens tried to prevent that such new aircrafts were bought. Compared to the fiscal referendum the initiative is, however, not a well designed instrument to reach such objectives, and the chances that an initiative gets the necessary majority of the people and the cantons are generally rather small.

One possibility to change this situation would be the introduction of the fiscal referendum at the federal level as well. This idea was part of the proposal of the BUNDESRAT (1995) for a reform of the direct popular rights.<sup>37)</sup> However, the parliament did not follow the government in this respect and refused to consider this possibility. Quite recently, the situation has changed and the Swiss parliament seems to be willing to discuss this issue now.<sup>38)</sup> Thus, while not having been available up to now, such a referendum might be introduced within the next years.

After several, hardly successful attempts to get back to fiscal discipline,<sup>39)</sup> the actual crisis at the end of the nineties has been solved by a corporatist procedure, the ‘budgetary objective 2001’ which has been decided on at the ‘round table’ and has been accepted by the people on June 7, 1998. Its objective was to limit the federal deficit to 5 billion CHF in 1999, to 2.5 billion CHF in 2000 and to less than 2 percent of the federal revenue from 2001 onwards. Because of the surprisingly strong economic recovery and some other special reasons, this objective has been easily met in 2000; the federal budget had then a surplus of 3.8 billion CHF. However, since 2001 we face considerable budget deficits again.

Such a corporatist procedure seems, as experiences from other countries also show, a feasible (and sometimes very well suited) instrument to cope with current crises. In the long-run it cannot, however, substitute appropriate institutions. As the cantonal solution with a determination of the expenditure side by the citizens and the automatic adjustment of the revenues cannot be realised (at least at the moment) at the federal level and because the introduction of an ‘expenditure brake’ in 1995 did not prove to be efficient,<sup>40)</sup> only the reverse solution remains possible: The revenues are (as up to now) decided on by the people, and the parliament has to be forced to adjust public expenditure to the revenue.

This is the approach of the ‘debt brake’ which has been accepted by the people on December 2, 2001, and which – somewhat simplified – is operating in the following way:<sup>41)</sup> Expenditures have to be adjusted to the revenue which, however, is smoothed over the business cycle.

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37. See for this also G. KIRCHGÄSSNER, L.P. FELD und M.R. SAVIOZ (1999, pp. 45f.).

38. The fiscal referendum does not seem to be very popular with governments and parliamentarians generally because it intervenes with the budgetary sovereignty of the parliament. This is also argued in Germany. Contending that this would endanger the solidity of the public finances which is – according to the available empirical evidence – not at all convincing, the fiscal referendum is explicitly excluded from the (rather limited) popular rights which are guaranteed by the constitutions of the German Bundesländer. It was also explicitly excluded in the Weimar Republic at the federal level. It seems as if parliaments do not want to lose their budgetary sovereignty which they have bullied from the kings and princess in favour of the people.

39. Besides the introduction of the value added tax and the increase of its rate by 0.3 percentage points in 1993, on March 12, 1995, the proposal for an ‘expenditure break’ has been accepted.

40. In analogy to the fiscal referendum not only a simple majority but a majority of all members is demanded in both chambers of the Swiss parliament for new recurring expenditure of more than 2 millions CHF and for new non-recurring expenditure of more than 20 millions CHF. But this higher hurdle for new expenditure did not prevent the strong increase of public debt in the following years.

41. For more details see the legal documents: Bundesbeschluss über eine Schuldenbremse vom 22. Juni 2001 (BBl 2000, 4653) as well as Änderung des Bundesgesetzes über den eidgenössischen Finanzhaushalt vom 22. Juni 2001 (BBl 2000, 4728f., Entwurf.). See for this also: EIDGENÖSSISCHES FINANZDEPARTEMENT (2001) as well as BUNDESRAT (2000, 2001).

In calculating this smoothed revenue extraordinary revenue is not considered; it has to be used to pay back debt. ‘Normal’ surpluses and deficits are accounted in a separate account and they are to be balanced over several years. Deficits which exceed 6 percent of the expenditure of the preceding year have to be balanced within the next three years. Extraordinary expenditure (which are not included in these calculations) can be decided on by the majority of the members in both chambers of the federal parliament.

To make the necessary expenditure cuts, the federal government can decide on additional savings, as long as legal entitlements are not violated. Moreover, it has to make proposals to the parliament for changes of laws in order to make additional cuts possible.

There are two points which are remarkable in this concept:

- (i) The philosophy behind it is to limit public revenue and to adjust expenditure to revenue.<sup>42)</sup> It is also possible to adjust revenue by increasing taxes thus changing the projections which are relevant for the expenditure planning, but as this generally demands changes of laws and/or of the constitution, such increases are difficult to carry through (and only in a process which takes some time). This voluntarily designed asymmetry is in accordance with the international experience which shows that effective stabilisations of public finances in most cases were reached by cutting expenditure and not by increasing revenue.<sup>43)</sup> It negates, however, the positive experience in the Swiss cantons described above where the reverse causal direction has proved to be successful.
- (ii) There is no really strong pressure to balance the budget. On the one hand there is the possibility of extraordinary expenditure. On the other hand the possibilities of the government for cutting expenditure are rather limited. The parliament is still free to pass laws with financial consequences, and it also does not have to agree to the changes of laws which are proposed by the government.<sup>44)</sup> Insofar, these regulations are much weaker than the corresponding ones in the cantons.

The original idea was to apply the debt brake for the first time in 2003, i.e. for the budget of 2004. However, the financial situation of the Swiss Federation deteriorated considerably since the referendum on the debt brake in 2001, and a ‘new’ structural deficit has been detected in 2003. In order to give the government and the parliament three more years to cope with this deficit, a temporary solution has been decided by the parliament in 2003 which shifts the full effectiveness of the debt brake to the year 2007. At the moment, considerable efforts are undertaken to make this possible. Nevertheless, we have to wait for another few years to see whether this debt brake is really well suited to stabilise (and in the long-run also to reduce) public debt. The willingness, by which centre-right coalitions in the Lower Chamber of the Swiss national parliament were ready to reduce taxes and centre-left coalitions to decide on

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42. This was one of the main arguments of the Social Democrats who opposed this regulation. See for this, e.g.: H. FÄSSLER, *Bremst die Schuldenbremse!*, *Neue Zürcher Zeitung* No. 265, November 14, 2001, p. 15.

43. See, e.g., A. ALESINA and R. PEROTTI (1995).

44. Contrary to, e.g., the Federal Republic of Germany, in Switzerland there is no constitutional court which could be appealed to if the parliament is passing a law which violates the constitution. In this respect, there is neither an abstract nor a concrete norm control.

new expenditure during the period of a surplus at the turn of the century, which both increased expected future deficits, justifies at least some scepticism.

## 6 The Bail Out Problem

What, however, happens, if the lower, cantonal or local level jurisdictions do not follow a sustainable fiscal policy but instead violate fiscal discipline and raise excessive debt? How far can they hope that there will be a bail out by the upper, federal or cantonal level or, to state it differently, how credible is the statement that such a bail out will not take place? For many citizens it is difficult to believe that a member state (canton) or a local community can actually go bankrupt. Moreover, Switzerland does not have explicit bankruptcy rules or laws for such situations.

The Swiss Federal Constitution provides the cantons with a sufficient financial basis; they have, in particular, tax autonomy with respect to (personal as well as corporate) income and property taxes. Thus, there is no reason that the federal government would have to intervene if a canton gets into a financial crisis. After all, the cantons can increase tax revenue, should this be necessary. Actually, there was no situation up to now in which the federal government has been asked to intervene and to financially support a canton or in which the federal government has done this on its own initiative. This does not preclude that the possibilities to raise tax revenue and – in addition – that the expectations about what they have to contribute to national tasks are quite different in the different cantons. However, the problems which arise from this situation have to be solved with the fiscal equalisation system which – just at the moment – is going to be newly designed.<sup>45)</sup> A reasonable solution of this problem should prevent a separation of the country in rich and poor communities but at the same time sustain the incentives that the cantons take care of their own tax base. If this objective can (at least approximately) be met by the fiscal equalisation system there is no reason why the cantons should not take on their own fiscal responsibility. According to their preferences they will have different debt burdens, and their different indebtedness will, as it is actually the case in Switzerland, be reflected in different ratings on the capital market.

The picture is somewhat different at the level of the local communities. In principle, they also have a sufficient tax base to perform their tasks. If a local community is highly indebted and actually goes bankrupt, as was the case in the community of Leukerbad, first of all the private banks (and those individuals who hold the corresponding bonds) have to depreciate their credits at least partially. On the other hand, there is a supervision duty of the canton. In the case of Leukerbad, e.g., the banks blamed the canton Valais to have violated this duty and went to court. However, the supreme court in Lausanne has decided that the canton Valais is not responsible.<sup>46)</sup> Thus, there will be no bail out.

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45. See for this BUNDESRAT (2001a) as well as R.L. FREY and CH.A. SCHALTEGGER (2001, 2003).

46. Decisions 2C.1/2001, 2C.4/1999, 2C.4/2000 and 2C.5/1999 of July 3, 2003. – See CH.B. BLANKART and A. KLEIBER (2004).

Actually, however, at least if a financial crisis is foreseeable, cantons intervene long before attempts to reach a settlement are necessary. If, e.g., the financial situation of a local community in the canton St. Gallen strongly deteriorates and it has, therefore, to be included into the cantonal fiscal equalisation system, it is partly losing its sovereignty. This allows the canton to prevent the local community from going bankrupt. As, on the other hand, the local communities have a strong interest in their sovereignty, they try to avoid such a situation as far as possible.

Of course, it can never be totally excluded that a situation occurs in a federal country where a lower level community performs an ‘irresponsible’ fiscal policy and hopes for a bail out by the upper level community. The Swiss example shows, however, that with appropriate institutional rules the bail out problem can be solved in a federal country in a satisfactory way; it does not have to lead to irresponsible behaviour of the lower level communities. Possible objections that a federal country should not be able to perform a sustainable fiscal policy for this reason are, therefore, unfounded.

## **7 Summary and Concluding Remarks**

In this paper, institutions have been described which are designed to reach sustainability of public finances at the different levels of a federal state. Besides the debt brake introduced in 2001 at the federal level, the St. Gallen Model has been presented as an example at the cantonal level. Using an econometric model, it is shown that the institutions which are existing in some cantons are quite successful. At the federal level we still have to wait before we can evaluate the results. Finally, we describe how the problem of a possible bail out of cantons and local communities is solved in Switzerland. It is shown that even this problem can be handled in a federal state by choosing appropriate institutions.

An important precondition for using such instruments is that the member states and local communities possess their own tax authority, i.e. that they have their own broad tax base and that they have sufficient leeway in determining the tax rates. A second precondition are direct popular rights with respect to the budgetary process. Because in other countries these preconditions are not realised to the same extent, the Swiss results which have been presented here cannot directly be transferred to other federal countries like, e.g. Germany and Austria. This does, however, not speak against the institutions which have proven to be effective in Switzerland, but rather implies that in those other countries reforms should be performed which lead in this direction.

As, in addition, political decisions are made closer to the citizens (even in purely representative systems), the civic sense of responsibility can be more effective in federal compared to unitary countries. Thus, contrary to what one might assume a priori, a federal constitution can – *ceteris paribus* – rather be helpful to perform a sustainable fiscal policy than impeding it.

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## Appendix

### Source of the data

- cantonal and local public deficits per capita,
- cantonal debt per capita,

Source: Swiss Federal Finance Administration

- disposable income per capita,
- cantonal population,
- share of population younger than 20,
- share of population older than 65,
- share of urban population, i.e. of people living in local communities with more than 10'000 inhabitants

Source: Swiss Federal Statistical Office

- federal unconditional grants per capita,
- tax burden in the highest income tax bracket of 1 million SFr annual taxable income, weighted with the inverse of the distances of the cantons' capitals,

Source: Own calculations on the basis of data of the Swiss Federal Finance Administration

- ideological position of the cantonal government

Source: Own calculations on the basis of data of the Swiss Federal Statistical Office

- index of direct democracy

Source: Own calculation of an index proposed by B.S. FREY and A. STUTZER (2000), using additional data from A. TRECHSEL and U. SERDULT (1999).

- index of constitutional constraints

Source: Own calculations, based on TH. STAUFFER (2001) and

All monetary data have been deflated using the implicit GDP deflator with basis 2000 = 100.

**Table A1: Descriptive Statistics of the Explanatory Variables**

Variables	Mean	Standard Deviation	Theoretical Range	Empirical Range
Fiscal decentralisation <sup>1</sup>	0.331	0.109	0 – 1	0.152 – 0.462
direct democracy	4.285	1.224	1 – 6	1.627 – 5.653
fiscal constraints	0.298	0.820	0 – 3	0.000 – 3.000
tax competition	0.237	0.079	0 – 1	0.101 – 0.373
unconditional grants	267.065	106.443	0 – ...	223.49 – 1'318.68
ideology of the government	-0.100	0.185	-1 – 1	-0.600 – 0.400

The empirical range is calculated for the average values of the cantons over the total observation period, with the exception of the ideology of the government. For this variable the empirical range is calculated for the most left-wing and the most right-wing government.

<sup>1</sup>) The canton Basel-City is excluded from the empirical range, because its cantonal budget is nearly identical with the local budget.

*Table A2: Cantonal Deficits and Debts per Capita, 1980 - 1998*

dependent variable	cantonal deficit	cantonal and local deficit	log of cantonal debt
constant	-1623.805* (2.18)	-3052.820** (2.97)	17.060*** (7.76)
direct democracy	-42.381 (0.93)	-17.195 (0.26)	-0.128* (2.26)
fiscal constraints	-97.665*** (4.24)	-106.330*** (3.05)	-0.061 (1.55)
fiscal decentralisation	-324.413 (1.25)	-0.324 (1.25)	-1.759*** (6.23)
(log of) tax competition	746.060* (2.17)	605.947 (1.26)	-0.267* (1.99)
(log of) unconditional grants	-0.535** (2.78)	-0.789* (2.56)	0.300** (2.74)
share of leftist parties in the government	25.656 (0.20)	33.630 (0.19)	0.071 (0.37)
(log of) disposable income	0.008(*) (1.84)	0.012* (1.96)	-0.558* (2.00)
(log of) population	0.105 (1.01)	0.144 (0.95)	-0.201*** (3.55)
urbanisation	400.974* (2.47)	563.710* (2.50)	1.383*** (5.96)
dummy for French and Italian language	-248.905* (2.03)	-498.359** (2.97)	0.327(*) (1.96)
share of young population	40.477* (2.45)	79.520** (3.29)	-0.037 (1.64)
share of old population	41.504** (3.39)	63.986*** (3.86)	-0.039* (2.05)
dummy for Appenzell Ausserrhoden in 1996	-3110.939*** (31.88)	-3034.673*** (23.97)	-0.150(*) (1.74)
$\bar{R}^2$	0.533	0.504	0.704
number of observation	476	487	482
SER	272.582	390.030	0.278
J.-B.	3.909	4.471	4.72(*)

The numbers in parentheses are the absolute values of the estimated t-statistics, based on the Newey-West autocorrelation-consistent standard errors. '\*\*\*', '\*\*', '\*' or '(\*)' show that the estimated parameter is significantly different from zero at the 0.1, 1, 5, or 10 percent level, respectively. SER is the standard error of the regression, and J.-B. the value of the Jarque-Bera-test for normality of the residuals.