

FISCAL PREFERENCES AND FISCAL PERFORMANCE: SWISS CANTONAL EVIDENCE ¹

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Introduction

The growing support to the view that political and institutional settings have a role to play ensuring fiscal performance has paradoxically been accompanied by an increasing lack of confidence about the results achieved. It could be possible that budgetary institutions are endogenous, and their apparent efficiency finally depends on the fiscal preferences of voters and politicians that enact them. We propose a measure of fiscal preferences based on cantonal voters' behavior regarding federal referenda with fiscal content between 1979 and 1998. The empirical model shows that fiscal preferences have a strong inverse effect on fiscal performance: the more a canton is fiscal conservative, the less it accepts deficits, *ceteris paribus*.

Political and Budgetary Institutions and Fiscal Performance

Fiscal evolution of the OECD countries has been quite disparate since the seventies although the economic evolution is rather similar among these countries. Consequently, an important amount of literature has emerged these last years aiming at identifying which are the key political and institutional variables added to the standard economic and social variables that lead to a better explanation of the different fiscal behavior of industrialized countries. The theoretical models and the empirical results are well established, and they are usually built up using the tools offered by the Positive Political Economics of Deficits. Alesina and Perotti (1995) and Persson and Tabellini (1998) propose a comprehensive review of the state of the question, advancing the main theories and the empirical results. Poterba (1996a), Krol (1997), von Hagen (1998) and Pujol (1999) focus more specifically on the literature concerning the impact of formal budgetary constraints. Empirical evidence suggests that the political configuration can influence the fiscal performance (i.e. minority governments, coalitions governments and in some cases left-wing governments are related with more deficits, *ceteris paribus*, while direct democracy reinforces debt control). Also, budgetary engineering seems to influence the final fiscal imbalances (negotiations dominated by the prime minister or the minister of finance are related with less indebtedness, and the same occurs if the executive body controls the budgetary process over the legislative branch. As expected, empirical evidence shows that the more a formal rule is stringent against debt financing, the less the level of deficits.).

Can Budgetary Institutions be Considered Exogenous?

The growing support to the view that political and institutional settings have a role to play ensuring fiscal performance has paradoxically been accompanied by an increasing lack of confidence about the results achieved. Apparently, political institutions and budgetary institutions seem to be crucial for fiscal discipline. But, if certain institutions are more favorable to fiscal discipline, it would be possible that these mechanisms have been adopted because voters or politicians in this collectivity are more conservative against debt financing

that in others collectivities with more "debt-friendly" settings. Poterba is, to our knowledge, the first author to raise this potential misspecification of the models, pointing out the problem in a very clear way: "The critical question for policy evaluation is how to interpret this correlation between budget institutions and fiscal-policy outcomes. It is possible that the correlation simply reflects correlation involving fiscal discipline, fiscal institutions, and an omitted third variable, voter tastes for fiscal restraint. Voters in some jurisdictions may be less inclined to borrow to support current state outlays or to use deficits to shift the burden of paying for current state programs to the future. If these voters are also more likely to support the legislative or constitutional limits on deficit finance, then the observed link between fiscal rules and fiscal policy could be spurious" (Poterba 1996b, p. 399). If it was the case, public or political preferences could become at the end a main factor explaining the comparative evolution of debt. The argument could be presented in the following simplified way. Let us call "A" the voters' preferences for fiscal restraint, "B" the budgetary or fiscal rules or institutions and "C" the fiscal policy outcome. The possible sequences of argument are : $C=f(B)$, in this case preferences have no influence; $C=f(A)$, fiscal institutions play no role; and $C=f(A,B)$, both are simultaneously important. The observed correlation - thus Poterba - could appear as $C=f(B)$ formally, but in fact reflect either $C=f(A)$ or $C=f(A,B)$.

Which attitude has been adopted among the specialists of political economics of debt after Poterba's question has been raised? The scope of answers is rather large. A first group of economists, even considering the potential influence of preferences (that is $C=f(A,B)$), prefer to consider institutions as if they were completely exogenous, renouncing to any attempt to introduce in the model some kind of variable that catches the notion of fiscal conservatism ($C=f(A)$). That is the choice taken by Bayoumi and Eichengreen (1995), or Stein, Talvi and Grisanti (1998).

Other authors have tried to theoretically evaluate the potential impact of fiscal conservatism on fiscal performance. These economists often arrive to the (theoretical) conclusion that fiscal preferences have great chances to imply a minor impact on empirical results (again, $C=f(A)$). Von Hagen and Harden (1994) argue that, as the institutional framework was similar among industrialized countries in the 1960s, this setting gives the opportunity to estimate the direct influence of preferences on debt control. But, as Von Hagen and Harden observe, the budget outcomes were comparable among the mentioned group of countries. Since then, the authors conclude the limited impact on preferences. Nevertheless, it is possible to justify the second part of the alternative, ignored by von Hagen and Harden. Indeed, perhaps at that time, fiscal preferences were homogeneous among countries. Furthermore, even if preferences were different among countries, this fact did not imply differential fiscal outcomes at that time, as the 1960 were years of continuous and stable economic growth, without major economic shocks.

Another argument presented to weaken the link between preferences and debt is that debt constraints at the level of USA States had been adopted many years ago, even in the last century. It would be hard to assume that preferences have remained unchanged since this period for each singular State. It would be then reasonable to consider the budgetary rules as exogenous variables (Bayoumi and Eichengreen 1995, Poterba 1996a, Alesina and Perotti 1997). But, even accepting the existence of a shortage between preferences and institutions, the stability of rules does not necessarily imply that they are independent from preferences. As GAO (1985) and NASBO (1992) suggest, past decisions and choices can produce a tradition in the fiscal behavior, formal restrictions contributing to mould this inheritance. The notion of tradition introduces a more complex relationship between institutions and

preferences, but this fact would nevertheless confirm the specific effect of preferences. Otherwise, any useful fiscal rule for a given collectivity could be applied in another one and a similar pro-discipline effect would automatically be expected.

Poterba (1994) has tried to avoid the problem of endogeneity analyzing the effects of fiscal rules in the short term, assuming that in this case, one can expect that even if existing, different fiscal preferences have less impact in the short term reaction to budget imbalances. We think that, even if Poterba is surely right assuming that fiscal conservatism has a lesser impact in this case, the same argument than above can be repeated. If preferences do not play a real role, short-term-effect performing rules could be adopted anywhere, and produce similar effects automatically the day after being introduced. It could be the case, but it would be better to estimate the effect of preferences when short-term rules are applied, to confirm or invalidate this hypothesis.

Because these attempts to minimize the eventual impact of preferences are not fully satisfactory, other economists use variables that are supposed to catch the complex notion of "preferences on debt". The first attempt done in this direction was logically to take into account the political affiliation of executive or legislative power. That is the solution retained by Holtz-Eakin (1988) and Poterba (1995). But, as Bohn and Inman (1996) remark, this is a too much crude notion of preferences.

Another possibility tempted is to consider fiscal conservatism as a dummy variable that becomes active for countries or collectivities that are reputed to be fiscal conservatives and null otherwise. Bohn and Inman (1996) adopt this choice and define the States of the South of the USA as being conservatives. They obtain the sign of the relation predicted, i. e., the South States have a lower burden of debt. Alesina and Bayoumi (1996) obtain the opposite result. The main caveat of this approach is that fiscal conservatism is not captured from a measurable social or political variable, but only on the ground of the researcher's intuition, supposing to follow a "general agreed feeling".

Bohn and Inman (1996) had gone a step further in their effort to tackle fiscal preferences using the CBS/New York Times opinion poll that indicates the percentage of voters that themselves identify as conservatives (for the period 1976-1988). This variable seems to have little impact on debt and the introduction of this latest variable does not modify the results obtained before regarding the effectiveness of certain formal debt constraints. Even if this measure of conservatism is better than the other used before, we feel that it does not capture the state of preferences quite well enough. The pertinent measure of conservatism for our issue ought to be directly related to the notion of fiscal conservatism which is different from the general notion of political conservatism. Also, ideally, a pertinent measure of fiscal preferences would need to be directly linked to actual budgetary choices, rather than being solely a theoretical engagement for or against fiscal conservatism.

Rueben (1995) shows that, in the near field of constraints in expenditures growth, if preferences are taken into account (measured here by the presence of referendum) empirical results change dramatically. A positive correlation appears between constraints and expenditure control, when the initial model without preferences did not show such a relationship.

Considering all these attempts we strongly support the need to take into account preferences in the models. It is important to point out in addition that preferences not only can play a

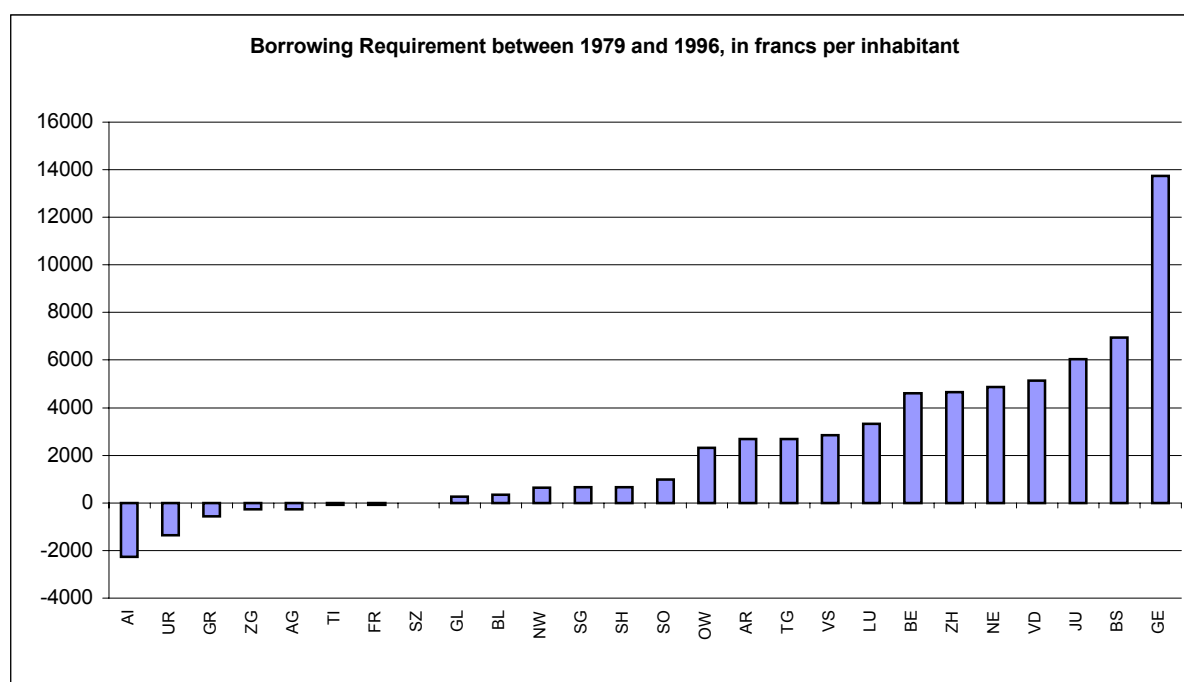
major role in better explaining the specific effects of budgetary institutions, but also can help to explain different fiscal behavior between collectivities *ceteris paribus*, that is, independently of the nature of existing budgetary processes and constraints.

Measuring Swiss Cantonal Preferences on Debt

Switzerland counts two institutional characteristics that, added, allow us to propose an index of cantonal fiscal conservatism. The first necessary condition for our objective is the existence of fiscal federalism. Each of the twenty-six cantons, that is the second layer of government in Switzerland, has its own range of public policies competencies and disposes of its own fiscal resources to fulfil these tasks. Cantons benefit from a broad degree of budgetary freedom, reflected in the differences among them concerning the size of the public sector in the economy, the range and the importance of each policy inside the budget and the choice among different taxes and the global level of the fiscal burden (Dafflon 1999). The small dimension of each canton and the openness of their economies reduce dramatically the economic meaning of a fiscal policy at under-national level (Rosen 1992, Weber 1997), but even in this framework it is possible to imagine different budgetary reactions to business cycles.

As a consequence, the extent of debt financing varies strongly among cantons, as it is reflected in Graph 1. We have chosen the total amount of borrowing requirement assumed by each canton between 1979 and 1996. The borrowing requirement is defined (ignoring internal imputations) as the sum of current expenditures (without amortization) plus the net costs of new investments less the revenues from the current account (variable DEFCUM thereafter). We retain in this article the notion of borrowing requirement because it gives a good indication of the public choices taken by politicians, disregarding the nature of the expenditure financed (current or capital outlays). Doing this we follow the choice adopted by Natal (1997) and Lambelet (1998). Another clear advantage of this measure of fiscal imbalance is that it offers homogeneous data for all the Swiss cantons that covers the entire interval chosen, contrarily to the other measures. To simplify, we will often simply speak about debt or deficits instead of borrowing requirement, but having in mind that we are thinking about this latter term.

Graph 1



The second institutional characteristic that enables us to build up an index of fiscal preferences is the existence of popular referendum, a democratic tool that is employed at all three political layers in Switzerland. Swiss citizens have to vote on all kind of subjects, typically these lasts decades two to four times a year, and normally concerning several independent federal, cantonal and local issues at each consultation.

We propose an index of cantonal fiscal preferences based on the level of acceptance of objects submitted to referendum reflecting voters' fiscal conservatism ("rigorisme budgétaire"). As we choose federal objects submitted to referendum, we dispose of the level of acceptance/refusal of each canton for the very same issue. That constitutes for us the main advantage of the index, that cannot be provided when using the responses of people to cantonal referenda on budgetary affairs : it is impossible to find subjects voted that are strictly comparable. By contrast, at the federal level, each single person decides on the same issue all across the Swiss territory, ignoring the decision made by the other cantons at the time of vote.

What do we understand by "fiscal conservatism" has to be clarified before moving forward. A conservative fiscal behavior will be determined in our model on the basis of the following assertions.

a) The aggregate choice of a given canton will be considered more conservative than that from another canton if it has a higher rate of acceptance of the following measures :

- The introduction of a new tax or raising existing ones;
- The suppression of an existing grant or other public expenditures;
- The adoption of rules to control the expenditure growth, deficit limits, and combined measures searching deficit reduction as primary goal.

b) The aggregate choice of a given canton will be considered more conservative than that from another canton if the more conservative one has a lower rate of acceptance of the following measures :

- Tax reduction;
- The adoption of new expenditures or public policies when this measure is not explicitly accompanied with an introduction of new taxes or the increasing of existing ones.

We exclude for the construction of our index of fiscal preferences the objects submitted to referendum that propose at the same time a new expenditure accompanied by a new source of revenues to finance it. The referenda on these kind of subjects reflect more a preference on individual policy and the size of the public sector rather than an expression of the degree of fiscal conservatism.

Having this criteria in mind, we have analyzed each voting since 1979, selecting those that seem to fit one of the criteria proposed. Table 5 in annex II presents the main information of each one of the objects that we have retained, that is, 75 different voting from February 1979 to September 1998. This period was chosen because in 1978 Jura became the 26th canton of the Swiss Confederation, seceding from its elderly dependence to the Canton of Bern. During this period, a total amount of 156 were been submitted to federal referendum.

A wide scope of subjects fall under our selection, as it appears in Table 1.

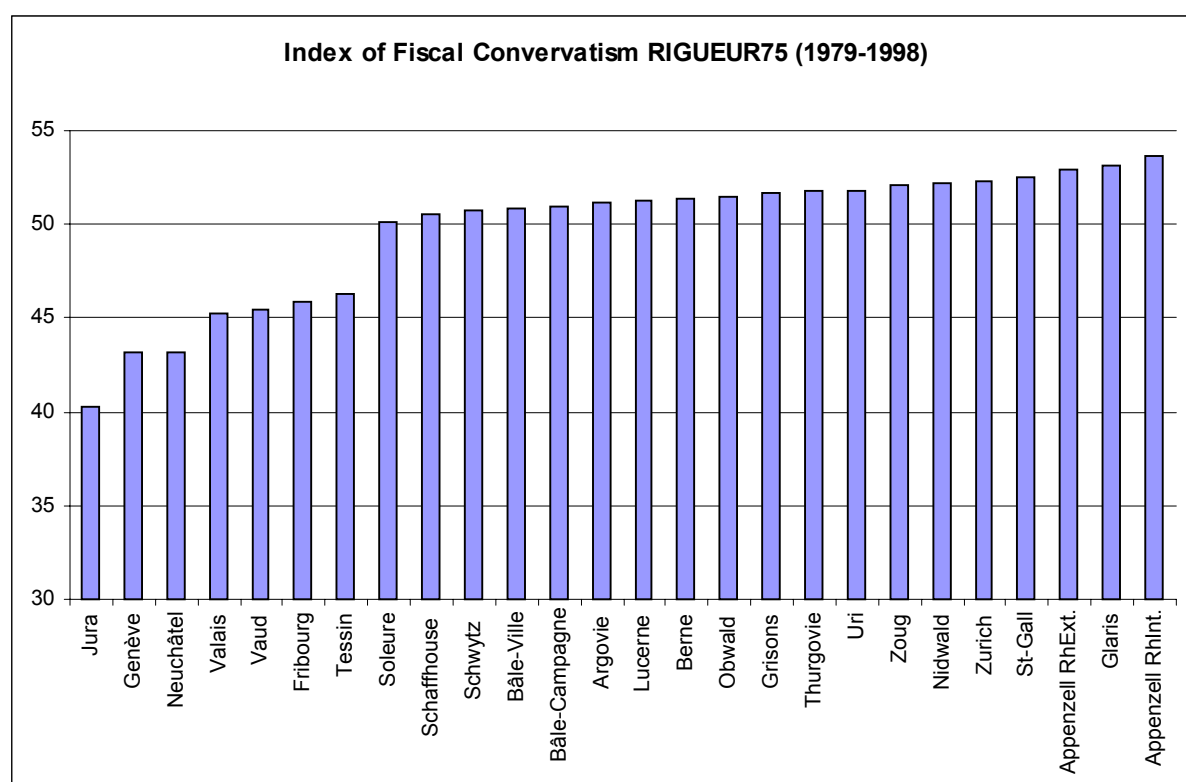
Table 1. Fiscal issues submitted to referendum between 1979 and

1998

Conservative voting		Number of voting
More Taxes	General Transportation	297, 308, 312, 371, 398, 399, 316, 317, 343, 351, 405, 406, 407, 442
	Finance Specific	302, 331, 389, 303, 312, 324, 332, 401
Less Expenditures	Army	346, 393, 427
Less Grants	Agriculture	304, 333, 413, 428, 446
	Education	326, 328
	Social Security	325, 327, 373, 397, 422, 437
	Transportation	429
	Economy	436
Fiscal Adjustment		400, 421, 439
Laxists voting		Number of voting
Less Taxes		384
More Expend	Social security	305, 323, 350, 352, 415, 416, 423, 444
	Culture, Education	339, 340, 410, 425
	Transportation	347, 368, 370, 382
	Environment, Energy	294, 313, 349, 367, 377, 381
	Administration	386, 387, 431
More Grants	Economy	335
	Agriculture	341, 356, 363, 418, 430
	Housing	342

After having chosen the pertinent voting, we arrange the cantons applying the criteria of conservatism proposed above. We have normalized the percentage of yes/no votes of each canton, giving to the Swiss mean the value 50. This transformation allow us to give the same weight to each one of the 75 voting, independently of the mean degree of acceptance for each one of them. Importantly, the normalization that we have introduced conserves the difference of intensity of vote inside a given voting and among all voting. We propose an aggregate value of relative fiscal preferences of each canton by simply computing the arithmetic mean of the 75 single values obtained by each canton.² Graph 2 below shows the index of fiscal preferences of the 26 Swiss cantons for the period 1979 to 1998, defined as RIGUEUR.

Graph 2



The interpretation of our main aggregate index of fiscal conservatism, RIGUEUR presented in the Graph 2, is analogous to the score given for a singular voting.³ If a canton is systematically over the Swiss mean degree of acceptance of fiscal measures submitted to referendum between 1979 and 1998, it would have a final score greater than 50, and lower than 50 otherwise.⁴

In that way, we consider to propose a fairly accurate “revelator” of budgetary preferences whom influence on fiscal performance can be tested in empirical models. At the same time, we find some caveats that can not be ignored, even if we think that these limitations do not give away the utility and pertinence of our measures of fiscal conservatism.

- Remember that we look for cantonal fiscal preferences. We have obtained ours analyzing federal referenda. That is logically a source of limitations. First of all, the final evaluation of the index depends on the objects submitted to vote. Some of them belong typically to the federal sphere of competencies that are not shared by the cantons. Conversely, other issues that play a significant role in cantonal budgets are almost ignored at federal level. It could be argued then that fiscal preferences that affect the cantonal budgetary issues are not captured quite well enough.
- The economic, social or demographic characteristics of each canton can influence the response for specific domains. If among the objects selected for the elaboration of each one of our indexes, specific political issues are over-presented, they can produce a bias towards/against the true level of conservatism for a certain group of common cantons. Considering that having 75 different objects for the main index cover a wide extent of policies, this eventual distortion has not to be exaggerated.

- The index of fiscal conservatism is measured by the popular will. It would be better to have an index directly linked to politician preferences, as they establish finally the budgetary choices. With our proposition we assume implicitly that politicians choices follow voters preferences. In fact, this hypothesis, often adopted in similar studies referring to the median voter model or other theoretical presentations, can be accepted with confidence for the Swiss case precisely because of the presence of semi-direct democracy not only at federal level but also at cantonal and communal level.
- The index of fiscal conservatism changes in time for each canton and we have chosen a synthetic value that covers all the period. We introduce thus the hypothesis that preferences are stable at mean-term. In fact, if we introduce for instance the Holdrik-Prescott filter for these individual temporal series we observe that for some cantons the value taken in 1979 differs substantially from values given inside the period or at the final stage, in 1998. Even if it would be worthwhile to go further into the detail of the evolution of cantonal preferences in time, we renounce to do this in this article, as we discuss further in point 4, endnote 7.

The Econometric Model

Evaluating the impact of cantonal preferences on fiscal performance, we consider that the pertinent exogenous budgetary variable to take into account is the total borrowing requirement assumed by each canton during the period 1979 to 1996 as defined at the beginning of point 3. This measure is preferred to total gross or net cantonal debt because we are trying to identify the specific influence of budgetary preferences. We assume that borrowing requirement depends on political choices based largely on the economic and social facts inside the period 1979-1996 and, of course, on the fiscal preferences prevailing during this period. By contrast, the total amount of cantonal debt (gross or net) depends also of changes in the patrimonial assets of a particular canton and of budgetary choices done before 1979 that, logically, depend themselves of past economic and social framework, together with past preferences on debt, and it is possible that they differ from those calculated for the interval 1979-1998.

The explanatory variables.

We propose a somehow comprehensive model that takes into account the most relevant variables - at least to our point of view - following the way opened by other authors on the political economics of debt. As the size of our sample is not so big (26 cantonal states) we have to be careful choosing the explanatory variables, limiting the degrees of freedom to the lesser extent and retaining for each group only those that we consider more theoretically valuable. We have considered five group of variables : i) economic; ii) structural characteristics defining each canton; iii) political variables; iv) budgetary variables; v) the measure of fiscal preferences. Table 4 in annex II presents the main information about each variable. Let us present each one in a certain detail.

i) Economic variables.

We have selected the mean level between the first and the latest year of cantonal revenue, measured in Swiss francs per inhabitant (REVENU). It can be asserted that the more the economic wealth of the canton, the more it will be able to assume larger nominal deficits per inhabitant, if we consider that people measure the burden of public debt in relative term rather than in absolute term.

We have also selected the rate of economic growth (CROISS) for each canton. Even if the cantons are not expected to play an active counter-cyclical debt policy because of the inefficiency of such a choice at local level, it is evident that economic performance has an impact on cantonal fiscal balance. The business cycle automatically affects the budget through the built-up stabilizers. But, as we propose a simple cross-section model, we ought to provide a synthetic measure covering the entire period under analysis (1979-1996). We consider that the best approximation of the effects of business cycles is the annual nominal economic growth rate for each canton. Since the values of the evolution of prices for each canton do not exist, we assume that they have evolved in a similar path. In any case, nominal growth is coherent with the measure of deficits, evaluated also in nominal terms.

The last economic variable selected is the level of gross debt existing at the beginning of the period (DETTEINI), measured in francs per inhabitant. Two opposite phenomena can affect the relation of this last variable with the debt accumulated afterwards. On the one hand, the more the burden of initial debt, the more a canton will spend in the future to pay for interests and thus, the more a canton will be indebted consecutively compared to another with a lower initial debt. On the other hand, the more the initial indebtedness, the more stringent will be the fiscal adjustments to maintain a manageable level of debt.

We ignore two other economic variables. First, the level of cantonal unemployment, because it is less interesting that the variable CROISS for three reasons. The level of unemployment is almost null in all cantons during the 1980 and it increases to a peak 6 to 8 percent for certain cantons after 1993, having then a limited impact on the budget. Secondly, unemployment indemnities are mainly financed at federal level. And finally, the diminution of fiscal revenues consecutive to unemployment is indirectly caught by the variable CROISS. The other economic variable ignored is the level of cantonal fiscal burden, as it can be considered largely endogenous, depending on the variable REVENU. Also, as the level of public expenditures is strongly correlated with the level of initial debt, we have preferred the latter one, as it is more consistent for the model.

ii) Structural variables show the economic and institutional factors that can influence the budgetary outcomes. They are rather stable cantonal characteristics but vary strongly among the cantons. We have selected four of them. The part of revenues coming from the Confederation funds (CH) is the first structural variable retained. The origin of these revenues coming from the central government is multiple, ranging from reimbursement of the cantonal share of taxes raised at federal level, to equalizing funds or grants. The assumption advanced by some authors (Natal 1997, Von Ungern-Sternberg 1998) is that the highest this percentage, the less a canton will recur to debt financing.

The second variable is the proportion of cantonal and communal expenditures that is assumed by the cantonal budget (PARTCANT). It has been often argued (see for instance Natal 1997) that the highest the percentage of expenditures supported by one canton the higher will be its

deficits. One explanation is simply that if, for a given period, cantons and communes close the exercise with deficits (as it has been the case during the 1990s), a canton assuming a higher part of the total outlays will logically support a larger deficit. Another argument is given in term of the relative power between the cantons and the communes. As communal leaders are well represented in the cantonal parliament, the canton cannot easily impose new burdens to communes and thus, cantonal budget is relatively penalized.

AGRICULT is a third structural variable. It measures the percentage of cantonal income produced by the primary sector. This variable tries to catch the relative strength of the agricultural sector in the economy and in the cantonal life. It is commonly agreed that the so-called "rural cantons" have specific political and social behaviors, though it is hazardous to establish theoretically in which direction this characteristic is linked with deficits. One possible argument is that peasant people are considered to be traditionally less confident regarding the role and the activities of the State and, thus, could be less prone to accept public expenditures or the use of debt financing. In this case, the variable would be negatively correlated. On the other hand, since agriculture is highly subsidized by the center, one could fear that restriction rules in general at the center will be pervasive and touch their own interest. Simultaneously, it is known that taxation burden in this sector is well below average in almost all the cantons. In that case, the variables could be positively correlated.

The fourth structural variable reflects the structure of ages in the canton (AGING), and is measured by the percentage of resident people being 65 and older. This variable measures the so much debated bequest effect. One of the necessary conditions for the principle of neutrality of debt advanced by Barro (1974) is that agents behave following an infinite horizon plan. For this to be the case, the solidarity between generations ought to be ensured : the old people refuse to take advantage of debt financing to preserve the descendants' wealth. If it was not the case, as it has been often stated, a positive relationship would appear between the percentage of aging people and the amount of deficits.

The last variable retained is PARTVILLES, the percentage of people living in towns of more than 10,000 inhabitants. The expected relationship between this variable and the amount of debt is positive, as cities concentration requires more public services solutions. It is also often argued that the greater the size of the collectivity, the lesser the strength of fiscal discipline, as the subjective distance between the citizen and the government tends to be higher. Remark that this notion is not exactly the same as that measured by AGRICULT, although they are logically negatively correlated.

iii) We have chosen two political variables. The first one for the party affiliation at the executive branch, DROITE, defined as the percentage of seats occupied by center-right parties, accordingly to the criterion followed by the *Annuaire statistique de la Suisse*. We select right parties percentage because all the cantons observed for all the legislatures between 1979 and 1998 have been dominated by right-wing coalitions. We expect that the higher the percentage, the less the level of debt, remembering nevertheless that no clear empirical evidence has been attained concerning this relationship. This link could be even less clear in the Swiss framework, as cantonal governance is more in the collegial consensus style rather than in right-left opposition, so that the right-left spectrum is not very large.

The second political variable is the mean number of parties governing the cantonal executive branches, COALITION. We think that in the Swiss framework, a weak government is more a minority government (Edin and Ohlsson 1991) rather than a coalition government (Roubini

and Sachs 1989). In fact, it cannot be excluded a positive relationship between the number of parties and fiscal performance because the existence of cantonal referenda demands large coalitions to ensure the acceptance of political decisions.

iv) As budgetary variables we choose a dummy variable for the presence of cantonal compulsory referenda for new public expenditures exceeding a given amount fixed by law, REFEREN. Even if this measure has as primary goal the control of expenditures growth, it can be argued that cantons counting with fiscal referendum will limit the financing of public outlays by borrowing.

We have renounced to include a variable for the presence of formal constraints referring explicitly to current deficits, as we find that all not cantons have such an instrument for the entire period 1979-1996. In addition, for those cantons with legal constraints, the various elements that enter this constraint need much more detailed elaboration to provide an accurate measure. We have nevertheless built-up a dummy variable REGLES containing this information for three cantons with well-established stringent constraints for the entire period (Fribourg, the Grisons and Saint-Gall). Even if the coefficient obtained in the regression is negatively correlated with the amount of deficits, this relationship is not strong enough to be statistically significant. The other coefficients are not affected with or without REGLES.

v) As measure of fiscal conservatism we choose, of course, the index RIGUEUR.

We regress the index of fiscal conservatism following the econometric technique of weighted least squares (WLS), to take into account the eventual heteroskedasticity of errors, a likely hypothesis in the case of cross-section analysis with heterogeneous observations. As usually done, we transform the original values normalizing them by the size of the sample. In our case, we choose the number of inhabitants per canton, that varies widely among cantons (Feld and Kirchgässner 1997 adopt the same solution). We present two variable transformations. First, the square root of the number of inhabitants, if we assume that the relationship between errors and size is linear (column 1 in table 2). The second transformation uses simply the number of inhabitants per canton, and that implies an exponential relationship between size of the sample and errors (column 3 in table 2). We have also estimated the model once more following the same econometric technique, but regressing only against the variables that shown statistical relation with borrowing requirement in the original global model (column 2 and 4 in the table 1). In general, as expected, the level of significance of the remaining variables is increased.⁵

Results

Table 2 presents the regression of the borrowing requirement during the period 1979-1996.

We identify the following main results:

a) Four to five variables out of twelve show a statistically significant relation with the level of indebtedness depending on the model chosen.

b) The variable of fiscal preferences RIGUEUR seems to have a clear impact on cantonal deficits. The more the cantons are rigorist as referenda voters, the less the extent of borrowing requirement, *ceteris paribus*. Furthermore, it is a variable which is statistically significant at a

level of confidence of 1 % in three of the four regressions proposed. This result suggests a certain robustness of the relationship between debt and preferences.

c) Two other variables are always statistically significant. One economic variable follows the expected behavior. The level of economic growth (CROISS) is associated with fewer cantonal debt. One structural variable enters also in this category. The more the percentage of people living in towns (PARTVILLE), the higher the amount of debt, also as theoretically predicted.

Table 2 : Estimation of cantonal borrowing requirement (DEFCUM)

	WLS (POPRAC)				WLS (POP)			
	Global Model Coefficient		Reduced Model Coefficient		Global Model Coefficient		Reduced Model Coefficient	
C	38165.17 (3.381)	***	26989.6 (4.604)	**	51846.15 (4.899)	***	34128.9 (7.468)	***
REVENU	0.14941 (0.894)				0.25141 (1.112)			
CROISS	-3619.11 (-2.749)	**	-2497.22 (-2.522)	**	-3586.05 (-3.007)	***	- (-4.716)	***
DETTEIN	-0.16186 (-0.445)				0.05707 (0.120)			
CH	-120.049 (-1.182)				-203.054 (-1.924)	*	- (-2.634)	**
AGRICUL	565.731 (2.099)	*	250.123 (1.392)		628.875 (2.507)	**	491.320 (3.342)	***
PARTCA	-8.01180 (-0.088)				-105.128 (-0.939)			
AGING	60.5969 (0.193)				155.904 (0.530)			
PARTVIL	93.9863 (2.365)	**	131.399 (6.634)	**	90.9878 (2.401)	**	128.503 (8.229)	***
DROITE	-6.68229 (-0.101)				-25.3548 (-0.419)			
COALITI	15.0287 (0.015)				-1184.10 (-1.091)			
REFEREN	188.007 (0.181)				393.908 (0.395)			
RIGUEUR	-535.198 (-2.686)	**	380.340 (-3.278)	**	-652.781 (-3.615)	***	- (-5.083)	***

Notes : In parentheses, the t-student values. * for statistical significance at 10 % level of confidence; ** for statistical significance at 5 % level of confidence; *** for statistical

significance at 1 % level of confidence. Adjusted R^2 values do not give the standard notion of fitness of the model, as the constant of the model disappear after the variable transformation. The adjusted R^2 of the OLS model are, respectively : 0.554; 0.619; 0.554; 0.607.

d) Two variables are significant depending on the econometric model chosen. As expected, the percentage of cantonal revenues coming from the central government (CH) is negatively related with debt, but this relationship is only statistically significant when the weight selected is POP. Finally the more rural the canton (AGRICULT), the more it tends to cover expenditures by loans. As we pointed out above, it was no clear for us *a priori* which could be the sign of the relation, and the statistics give us positive correlation surprisingly high, even if in the reduced model using POPRAC this correlation is not significant. Thus, the second hypothesis seems to prevail, that is, rural cantons obtain lower-than-average fiscal yield; to ensure public services at federal standards, these cantons are obliged to find a higher external financing. This hypothesis needs further investigation.

e) The other variables seem not to be statistically linked with budgetary performance, based in our results. The relation between the level of the cantonal income (REVENUE) and the amount of deficits is positive as predicted, but not stronger enough to be statistically significant. The relation with the initial amount of debt (DETTEINI) is not significant at all. This result invalidates the views of some people for whom present deficits are largely determined because of the burden of past debt. Surprisingly, the distribution of competence between cantons and communes (PARTCANT) seems not to have a determinant impact on debt. Also, even if, as expected, the more the elderly people living in the canton (AGING), the larger the amount of deficits, this relation is too much weak to be significant. Regarding the political variables, the left-right distribution of power in the cantonal governments (DROITE) and the number of parties in the executive branch (COALITIONS) appear not to have any influence on the level of debt. More intriguing, the budgetary rules are not systematically linked with budgetary performance. Compulsory fiscal cantonal referenda seems no to have real effect on debt, contrarily to the results of Feld and Kirchgässner (1997)⁶ who found negative relation. We think that perhaps this variable is more linked with the size of the public sector, rather than with fiscal imbalances. In fact, we find cantons among the heaviest debt burdened having the fiscal referendum (Jura, Neuchâtel, Zürich or Lucerne), when at the same time, other cantons with practically no new debt have not this mechanism (Argovie, Basel Land, Tessin, Zug). Note that we cannot test directly the influence of preferences on the effectiveness of budgetary rules as the latter seem in our model not to have a systematic positive relation with fiscal performance, even if we estimate our model without the variable RIGUEUR. Further investigation along this line is needed.

Conclusions

The empirical results suggest that fiscal preferences have a real impact on fiscal performance. We are then tempted to reject the hypothesis of some authors who argue that preferences can be considered as innocuous, and thus can be ignored in the empirical models. The exceptional Swiss institutional setting has enabled us to provide an index of cantonal fiscal conservatism that seem to be a good “ detector ” of citizen preferences, even after taking into account some eventual caveats. If our empirical results confirm the interest to introduce this kind of variable

in the empirical models, the disappointing element is that the index we have proposed cannot be easily replicated outside the Swiss framework, as we do not find the system of federal referenda anywhere. It can be imagined that a modified version of our index could be found and applied. In any case, these results confirm the need to find an accurate index of fiscal preferences, in any form it would take. Further studies, such as Pujol (1998) and Imbeau (1999) are needed to provide a general method to discern political preferences on public deficits

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Notes

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² Formally, if Y_{ti} is the original percentage of yes of the canton i for the referendum object t , the value Z_{ti} that we will obtain in our calculations is defined as :

$Z_{ti} = Y_{ti}/Y_i * 50$, being Y_i the percentage of yes at the Swiss level for the object i .

The value of fiscal preferences for each canton during the period 1979 to 1998 is simply

$Z_i = \sum Z_{ti}/n$, for $t = 1$ to 75 and $n = 75$

³ We have calculated other 5 derived indexes from RIGUEUR to take into consideration two facts. i) Referenda can have a different legal source (compulsory referendum; facultative referendum or popular initiative) and this could influence voters' behavior. ii) Some of the objects we have selected are submitted to referendum the same day with other fiscal objects. The response to several one-day voting tend to be more homogeneous than otherwise. We have then calculated a second series of indexes giving only one value per day of voting. Taking these into account does not modify the basic result obtained with RIGUEUR. For this reason, only the latter is presented here.

⁴ We test for the equality of means between series, applying ANOVA statistics, and the null hypothesis has to be rejected at a level of confidence of 1 % (F-statistic value of 12,24). That implies that we cannot consider that the individual values of the whole example are statistically equal to the Swiss mean of 50.

⁵ Another natural alternative econometric model in a cross-section sample with time-series is the panel data analysis. We have run panel data regressions using Pooled Least Squares and

GLS method introducing Cross Section Weights. The measure of fiscal preferences RIGUEUR appears to be negatively correlated with the value of annual deficits. We find nevertheless severe difficulties to deal with our main variable, RIGUEUR, in a time variant framework. Thus, we present the methodological discussion and the econometric results in Annex II.

⁶ Feld and Kirchgässner (1997) utilized a more broad notion of "direct democracy" opposed to the notion of "representative democracy". Remark also that the results were obtained concerning the Swiss local level. Since then, results are not directly comparable.

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Annex I. Estimation of Cantonal Deficits in a Panel Data Framework

An alternative technique to the Weighted Least Squares is the Panel Data analysis, as we have temporal series for each canton. Even if this latter technique provides more accurate estimations, we find some obstacles to proceed definitively in this direction. We have not all the year to year data for all the series. More puzzling is the temporal treatment to give to the

series of fiscal conservatism we have calculated. It has been built up with the voting between 1979 and 1998. The problem is that, contrarily to all the other series, the single observations are far from being periodical. For instance, we have no values for 1982, and only one value for 1989. At the opposite, we have 7 values for 1985, 1992, 1994 and 1996. It would be necessary to transform the variable in some way. Another difficulty is that voters responses are coherent and quite constant in time, but they change substantially from one specific voting to the following, even if real preferences remain unchanged. A smoothing transformation would be required, weakening the meaning of this variable. Another severe difficulty is that we have a measure of relative cantonal conservatism, as it has been elaborated relative to the Swiss mean. But we have not the let us call “absolute” value of cantonal preferences. This difference is important for the interpretation of results coming from the panel data analysis. Finally, as we pointed out in point 3, a limit of RIGUEUR is that it depends on the kind of issues voted, that can affect more some cantons than other. This difficulty is avoided if we take the mean of the 75 objects submitted to vote, but it appears if we try to propose a time-variant version of RIGUEUR. We have thus decided to explain the evolution of annual cantonal deficits using the same measure of fiscal preferences RIGUEUR applied in the WLS framework, that is, we take the arithmetic mean of the 75 voting during the entire period, assuming that relative preferences between cantons remain unchanged, which is not a strong hypothesis.

We have selected fundamentally the same variables that in the main econometric model. We have operated nevertheless two main transformations. The first one is that the original dependent variable DEFCUM, the total amount of requirement of cantonal borrowing, becomes DEFICIT, the annual value of the former variable. This transformation is more coherent with the panel data framework. The consequent transformation refers to DETTEINI, which is no more pertinent when the variable DEFICIT is introduced. We have thus replaced it by the lagged value of deficits, that is DEFICIT(-1). In WLS model using mean values it was no clear to state which was the sign of the correlation between the initial amount of debt and the subsequent accumulation of deficits. Here it can be expected a strong positive correlation between actual and one year lagged value of annual deficits.

We have also explored the possibility to use lagged values of the annual growth rate of cantonal income as it can be argued that the effects of economic fluctuations can be felt in the public budget one or two years after. We have finally chosen present values, CROISS because the introduction of lags diminish the number of periods available for the regression. We have tested nevertheless some regressions with lagged values and we obtain similar results concerning CROISS and also the other variables.

Two additional remarks can be pointed out. First, as we are obliged to introduce time-invariant variables (with different values for each canton) and Auto Regressive terms (AR) terms, we eliminate one of the main interest of the Panel Data technique, that is, the possibility to estimate fixed effects depending on each individual (the cantons). In fact, this limitation is not definitive as we introduce precisely these time-invariant variables to capture individual characteristics of the cantons. Also, this model can provide more accurate estimations as it counts with the information provided by the time-variant series (among them, the explained variable). The second remark is that our specification approaches to the lower bound for a judicious use of Panel Data technique, as the number of pooled elements is rather exiguous (26 elements), taking into account that we use twelve explanatory variables plus a common constant.

Concerning the econometric model, we use DEFICIT as dependent variable. We choose common coefficients for all the explanatory variables, as the estimation of cross-section specific coefficients is impossible if we introduce several time-invariant variables. One of our explanatory variables contains AR terms (DEFICIT(-1)). We assume that there is a common AR error for all the cantons. For the intercept, we have selected an identical intercept for all pool members, that is, the same constant C for each 26 cantons. As we have said before, we cannot estimate fixed effects, that is, a C_i different for each canton, as we have introduced time-fixed variables. We ought to renounce also to estimate random effects (i. e. as if C_{it} were random variables across pool members, with $C_{it} = C + u_i$, $E(u_i, \varepsilon_{it}) = 0$), because of the existence of AR terms.

We count with two kinds of explanatory variables : four of them are time-variant, that is, we have one different observation for each year and for each canton. They are : REVENU, CROISS, DEFICIT(-1) and CH. The remaining eight variables are constant over time, but logically different among cantons. These are : PARTVILLE, AGRICULT, PARTCANT, AGING, DROITE, COALITION, REFEREN, RIGUEUR.

The length of the model is 15 years, from 1981 to 1995, as we use balanced observations, that is, the same periods for all cross-sections. This provides 390 panel observations.

To establish a parallelism with the WLS specification, we have estimated a second specification, giving weights to the observations. As we discussed in point 4 in the main text, the presence of heteroskedasticity can be guessed in the presence of individuals having significant different size. That is the case for the size of the Swiss cantons, as measured by their population. We used this latter variable as weight in the WLS case. In the Panel Data framework we ought to use the estimated cross-section residual variances to regress the model by Generalized Least Squares (GLS).

Finally, we proceed as we did before and we rerun a regression of DEFICIT once more, but taking only into account the variables that appeared statistically significant in the broad specification.

Table 3 shows the results of the different regressions.

First column presents the coefficients of the explanatory variables estimated by Pooled Least Squares. The second column shows the results of the reduced version, regressing DEFICIT only against the variable that were statistically correlated in the precedent model. Columns three and four show the results of the GLS estimation with Cross Section Weights and its reduced form.

Of course, we do not go into detail to the interpretation of the results, as it has been made in the main text. We refer only to the new outcomes.

As expected, the strength of the relationship between DEFICIT and DEFICIT(-1) is dramatically reinforced compared to the weak relation between DEFCUM and DETTEINI in the former model. As we said, the logic behind these two relations is not the same. According to the results, more than two thirds of present deficit can be explained by the former year level of deficit, the strength of this relationship being high (t-value over 18).

The level of cantonal income (REVENU) appears to be determinant also, more than its variation (CROISS), contrarily what it happened in the WLS case.

Table 3 : Estimation of cantonal annual deficits (DEFICIT)

	Pooled Least squares		GLS (Cross Section Weights)	
	Global Model Coefficient (t-stat)	Reduced Model Coefficient (t-stat)	Global Model Coefficient (t-stat)	Reduced Model Coefficient (t-stat)
C	388.091 *	464.389 ***	252.3597	328.269 **

	(1.638)	(2.586)	(1.089)	(2.202)
REVENU	0.00536 *** (2.563)	0.00471 *** (3.157)	0.00445 *** (2.589)	0.00403 *** (3.317)
CROISS	-6.69481 ** (-2.035)	-6.55675 ** (-2.055)	-2.462 (-1.049)	
DEFICIT(-1)	0.69637 *** (18.898)	0.71176 *** (20.119)	0.68758 *** (18.094)	0.73108 *** (21.104)
CH	-0.00963 (-0.551)		0.01727 (1.018)	
AGRICULT	5.60017 (0.978)		6.56446 (1.520)	
PARTCANT	-0.84355 (-0.636)		-1.35851 (-1.054)	
AGING	9.91225 (1.258)		4.01765 (0.566)	
PARTVILLE	0.83156 (0.958)		0.92749 (1.296)	
DROITE	1.08384 (0.818)		-0.25841 (-0.244)	
COALITION	1.91375 (0.095)		14.9107 (0.979)	
REFEREN	7.55521 (0.933)		1.73637 (0.274)	
RIGUEUR	-14.6261 *** (-3.085)	-11.1266 *** (-3.053)	-8.63136 ** (-2.021)	-8.47729 *** (-2.813)
Adjusted R ²	0.609	0.612	(Unweighted Stats for R ²)	
S.E. of Regres	243.374	242.208	245.438	237.963
F- Statistic	51.394 ***	154.583 ***	47.918 ***	199.669 ***
Sum squ. res	22330108	22585873	21866855	23628093

Notes : In parentheses, the t-student values. * for statistical significance at 10 % level of confidence; ** for statistical significance at 5 % level of confidence; *** for statistical significance at 1 % level of confidence.

Among the time invariant series, only the measure of fiscal conservatism RIGUEUR appears to be statistically correlated with the level of annual deficits. Accordingly to results, an additional point of "fiscal rigorousness" implies between 8.5 and 14.5 francs per inhabitant less of annual deficits. This effect is not negligible at all, if we consider that the mean value of the annual cantonal deficit (unweighted) is 125.19 francs per inhabitant.

The sign of the correlation of the other variables remains substantially the same, and this relationship is almost significant concerning the variables PARTVILLES and AGRICULT.

In conclusion, even if further consideration can be carried out concerning a better specification of the Panel Data model and specially concerning the treatment to give to the measure of the evolution of fiscal preferences over time, we confirm the results obtained in the standard version WLS. In that way, all the econometric techniques proposed (Weighted Least Squares with the square root of population as weight; Weighted Least Squares with cantonal population as weight; Pooled Least Squares; and Feasible Generalized Least Squares with Cross Section Weights, and all their respective reduced forms) show that the measure of fiscal conservatism RIGUEUR is statistically negatively correlated with the level of cantonal deficits at least at a 5% interval of confidence. This tends to ensure the plausibility of our hypothesis : preferences actually play a role in the explanation of the evolution of public deficits at Swiss cantonal level, altogether with other economic, social and political cantonal characteristics.

Annex II

Table 4. Summary of data used in the econometric model

Variable	Description	Mean	St. Dev	Min	Median	Max
Defcum	Summation of annual borrowing requirement in current value between 1970 and 1997, in francs per inhabitant	2247.27	3371.06	-2279.20	817.85	13746.12
Revenu	Mean value of the level of cantonal income in 1980 and in 1995, in francs per inhabitant	33078.38	6908.78	25306.45	30768.92	54920.65
Croiss	Annual growth rate of cantonal income in nominal terms, between 1980 and 1995, in percentage points	4.46	0.44	3.46	4.47	5.35
Detteini	Nominal value of gross cantonal debt in 1980, in francs per inhabitant	4882.83	2273.28	0.00	4231.61	13187.99
Ch	Cantonal revenues coming from the central government, in francs pr inhabitant. Computed as the mean of annual data between 1979 and 1996	1449.46	823.30	613.90	1171.91	4397.31
Partcant	Percentage of the addition of cantonal and communal public expenditures ensured by the canton. Computed as the mean of annual data between 1980 and 1996	66.99	10.86	54.72	62.92	98.22
Agricult	Percentage of the cantonal production done by the primary sector. 1990 data.	5.57	3.54	0.50	5.20	17.60
Aging	Percentage of total resident people aged 65 and more. 1990 federal census of population data.	14.46	2.01	10.95	14.46	20.09
Partville	Percentage of cantonal population living in cities with more than 10'000 inhabitants. 1997 data	32.00	25.16	0.00	29.32	99.41
Droite	Percentage of seats at the executive branch controlled by center-right parties. Mean values between 1979 and 1998	81.03	11.44	60.00	80.00	100.00
Coalition	Number of parties represented at the executive branch. Mean values between 1979 and 1998	3.28	0.88	1.00	3.10	5.00
Referen	Dummy variable for cantons having compulsory fiscal referenda	0.65	0.49	0.00	1.00	1.00
Rigueur	Measure of fiscal conservatism based on federal referenda between 1979 and 1998	49.70	4.19	38.09	50.35	54.08

TABLE 5. Description of voting											
N. votation	Date	Object	Type	Legal Form	Pos. CF	Conservative attit.	Message CF	Arrêté Parlem.	Colaterals	Sample correl	Consec. correl
294	févr.79	Sentiers	Exp +	IP	yes	refuse	1977 I 1083	1978 II 901	Mountain	0.309	
297	mai.79	Réforme Icha	Tax +	OBL	yes	accept	1978 I 840	1978 II 1827		0.547	0.114
302	nov.80	Dr. Timbre	Tax +	OBL	yes	accept	1980 I 477	1980 II 633		0.890	0.440
303	nov.80	Impôt alco	Tax +	OBL	yes	accept	1980 I 477	1980 II 634		0.891	0.988
304	nov.80	Blé	Grant -	OBL	yes	accept	1980 I 477	1980 II 635	Rural	0.876	0.952
305	avr.81	Solid étr	Exp +	IP	no	refuse	1979 III 605	1980 III 715		0.877	0.767
308	nov.81	Régime financier	Tax +	OBL	yes	accept	1981 I 20	1981 II 545		0.167	0.049
312	févr.83	Droits de douane	Tax +	OBL	yes	refuse	1982 I 1361	1982 III 109		0.496	-0.123
313	févr.83	Energie	Exp +	OBL	yes	refuse	1981 II 299	1982 III 111		0.527	0.415
316	févr.84	Tax poids	Tax +	OBL	yes	accept	1980 I 1089	1983 II 722	Mountain	0.483	-0.236
317	févr.84	Vignette	Tax +	OBL	yes	accept	1980 I 1089	1983 II 724	Cities	0.776	0.876
323	déc.84	Maternité	Exp +	IP	no	Refuse	1982 III 805	1983 III 1052		0.811	0.459
324	déc.84	Radio, TV	Tax +	OBL	yes	Refuse	1981 II 849	1984 I 898		0.016	-0.446
325	déc.84	Victimes	Exp -	FAC	yes	accept	1983 III 901	1984 II 836		0.567	0.691
326	mars.85	Education primaire	sub -	OBL	yes	accept	1981 III 705	1984 II 12		0.799	0.672
327	mars.85	Santé publique	Grant -	OBL	yes	accept	1981 III 705	1984 III 15		0.806	0.974
328	mars.85	Formation prof	Grant -	OBL	yes	accept	1981 III 705		Unemployment	0.801	0.913
331	juin.85	Part cantons timbre	Tax +	OBL	yes	accept	1981 III 705	1984 III 16	Centralism	0.689	0.778
332	juin.85	Répartition Tax alcool	Tax +	OBL	yes	accept	1981 III 705	1984 III 17		0.626	0.975
333	juin.85	Blé	Grant +	OBL	yes	refuse	1984 I 1281	1984 III 1470	Rural	-0.440	0.173
335	sept.85	Garanties entr	Sub +	FAC	yes	refuse	1983 III 497	1984 III 90	Unemployment	0.843	-0.554
339	sept.86	Culture	Exp +	IP	no	refuse	1984 II 521	1986 I 46	Cities	0.671	0.815
340	sept.86	Form prof	Exp +	IP	no	refuse	1984 II 1397	1986 I 856	Unemployment	0.598	0.933
341	sept.86	Sucre	Sub +	FAC	yes	refuse	1984 II 1420	1985 II 302	Rural	0.418	-0.259
342	déc.85	Protection locataires	Exp +	CP	yes	refuse	1985 I 1369	1986 I 854	Cities	0.582	-0.139
343	déc.86	Taxe poids lourds	Tax +	IP	no	accept	1985 II 655	1986 II 666	Mountain	0.184	-0.536
346	avr.87	Référ. pour Exp. militaires	Exp -	IP	no	accept	1986 II 481	1987 I 14		-0.672	0.385
347	déc.87	Rail 2000	Exp (inv)	OBL	yes	refuse	1986 I 181	1987 I 46		0.267	-0.431
349	déc.87	Protection marais	Exp +	IP (CP ind.)	no	refuse	1985 II 1449	1987 I 969	Rural	0.333	0.354
350	déc.87	Assurance maladie	Exp +	FAC	yes	refuse	1981 II 1069	1987 I 971		0.381	0.457
351	juin.88	Cadre pol transport	Tax +	OBL	yes	accept	1983 I 909	1987 I 964	Mountain/Cities	0.471	-0.448
352	juin.88	Age retraite	Exp +	IP	no	refuse	1985 II 597	1986 III 359		0.754	-0.061
356	juin.89	Petits paysans	Exp +	IP	no	refuse	1988 I 594	1988 III 1409	Rural	-0.231	0.308
363	avr.90	Viticulture	Exp +	FAC	yes	refuse	1989 I 245	1989 II 866	Rural	0.581	-0.535
367	sept.90	Loi énergie	Exp +	OBL	yes	refuse	1988 I 297	1989 III 861		0.212	-0.331
368	sept.90	Circulation routière	Exp +	FAC	yes	refuse	1986 III 197	1989 III 901	Cities	0.723	-0.092
370	mars.91	Tr publ	Exp +	IP	no	refuse	1989 I 1218	1990 I 868	Cities	-0.311	-0.604
371	juin.91	Loi finances	Tax +	OBL	yes	accept	1989 III 1	1990 III 1581		0.591	-0.582
373	févr.92	Ass-mal supportable	Exp -	IP	no	accept	1990 I 1515	1992 III 723		0.149	0.311

TABLE 5. Description of voting (cont.)

N. votation	Date	Object	Type	Legal Form	Pos. CF	Conservative attit.	Message CF	Arrêté Parlem.	Colaterals	Sample correl	Consec. correl
377	mai.92	Protection eaux	Exp +	FAC	yes	refuse	1987 II 1081	1991 I 226		-0.076	-0.006
381	mai.92	Sauvegarde eaux	Exp +	IP	no	Refuse	1987 II 1081	1989 III 859	Mountain	-0.048	0.906
382	sept.92	Train alpin	Exp (Inv) +	FAC	yes	Refuse	1991 III 1570	1992 II 1015	Mountain	0.713	0.221
384	sept.92	Droit timbre	Tax -	FAC	yes	Refuse	1991 IV 505	1991 III 1588		0.201	0.591
386	sept.92	Indemnités parlem	Exp +	FAC	yes	Refuse		1991 III 1358		0.461	0.462
387	sept.92	Infrastr. Partis	Exp +	FAC	yes	Refuse		1991 III 1360		0.415	0.986
389	mars.93	Tax essence	Tax +	FAC	yes	Accept	1992 III 341	1992 VI 103	Cities	0.852	0.123
393	juin.93	Ko avions militaires	Exp -	IP	no	Accept	1992 VI 432	1993 I 980		-0.699	-0.496
397	sept.93	Renchérissement ass mal	Exp -	FAC	yes	Accept				0.594	-0.522
398	sept.93	Assurance-chômage	Tax +	FAC	yes	Accept	1993 I 645	1993 I 981	Unemployment	0.635	0.698
399	nov.93	Régime financier	Tax +	OBL	yes	Accept	1992 I 781	1993 II 852		0.406	0.242
400	nov.93	Assainissement finances	Tax +	OBL	yes	Accept		1993 II 850		0.604	0.901
401	nov.93	Maintien sécu	Tax +	OBL	yes	Accept	1992 I 781	1993 II 848		0.482	0.972
405	févr.94	Vignette	Tax +	OBL	yes	Accept	1992 II 725	1993 II 865	Cities	0.743	0.622
406	févr.94	Taxe poids lourds	Tax +	OBL	yes	Accept	1992 II 725	1993 II 863	Mountain	0.638	0.976
407	févr.94	Tax poids lourds	Tax +	OBL	yes	Accept	1992 II 725	1993 III 867	Mountain	0.566	0.992
410	juin.94	Culture	Exp +	OBL	yes	Refuse	1992 I 515	1993 II 845	Cities	0.735	0.017
413	sept.94	Blé	Grant -	OBL	yes	Accept	1993 IV 301	1994 II 222	Rural	0.442	-0.100
415	déc.94	Lamal	Exp +	FAC	yes	Refuse	1992 I 77	1994 II 239		0.840	0.106
416	déc.94	Ass-mal saine	Canton	IP	no	Refuse	1991 IV 961	1993 I 3		0.862	0.945
418	mars.95	Agriculture compétitive	Exp +	CP	yes	Refuse	1992 VI 284	1994 III 1777		0.659	0.404
421	mars.95	Frein Exp	Exp -	OBL	yes	Accept	1993 IV 301	1994 III 1783		0.298	-0.032
422	juin.95	Lamal 10 rév	Exp -	FAC	yes	Accept	1990 II 1	1994 III 1784		0.807	0.484
423	juin.95	Extension AVS	Exp +	IP	no	Refuse	1993 II 533	1994 III 1780		0.740	0.763
425	mars.96	Protection langues	Grant +	OBL	yes	Refuse	1991 II 301	1995 IV 451		0.678	0.811
427	mars.96	Dépenses militaires	Exp -	OBL	yes	Accept	1995 I 85	1995 II 349		0.188	-0.381
428	mars.96	Distillation	Grant -	OBL	yes	Accept	1995 I 85	1995 II 350	Rural	0.033	0.879
429	mars.96	Parkings en gares	Grant -	OBL	yes	Accept	1995 I 85	1995 II 351	Cities	0.528	0.569
430	juin.96	Agriculture	Exp +	CP	yes	Refuse	1992 VI 284	1996 I 233	Rural	-0.095	-0.547
431	juin.96	Gover réf	Exp +	FAC	yes	Refuse	1993 III 949	1995 IV 454		0.738	0.391
436	juin.97	Régale poudres	Grant -	OBL	yes	Accept	1996 II 1023	1996 V 961		0.382	-0.020
437	sept.97	Prest. Chômage	Exp, Grant -	FAC	yes	Accept			Unemployment	0.935	0.352
439	juin.98	Frein dette	Dette -	OBL	yes	Accept	1997 IV 199	1997 IV 1408		0.898	0.904
442	sept.98	Redevance poids lourds	Tax +	FAC	yes	Accept	1996 V 505	1997 IV 1414	Mountain	-0.061	-0.135
444	Sept.98	Age retraite	Exp +	IP	no	Refuse	1997 IV 1406	1997 II 593		0.899	-0.365
446	Nov.98	Blé, libéraliser	Grant -	FAC	yes	Accept	1996 IV 1	1998 2467	Rural	-0.072	-0.295

