Rules, Referendum and Fiscal Discipline. The Role of Preferences.

Bernard Dafflon
Department of Economics
University of Fribourg

Francesc Pujol
Department of Economics
University of Navarra

ABSTRACT

Many empirical studies show the efficacy of formal deficit constraints and deficits as means to control deficits. This result may lack of robustness if the potential endogeneity of institutions is not tested, as the causal effect could be produced by the omitted variable of voters' preferences. We analyse this issue proposing hypothesis about the potential effect of preferences on the observed impact of institutions on deficits. We proceed to an empirical test applied to the 26 Swiss cantons. We find that the apparent efficacy of deficit constraints disappear when taking into account preferences, while the control effect of mandatory fiscal referendum is maintained. This results ask for a revision of the robustness of some results achieved in previous studies concerning the institutional performance as instruments to promote fiscal discipline.

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1. Institutions and Fiscal Discipline. The Endogeneity Open Question.

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 misespecification 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 Porteba'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 continuos 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 that 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 changes 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.

Dafflon and Pujol (2001) built up an index of fiscal conservatism taking advantage of the unique Swiss institutional setting. Dafflon and Pujol find that this measure of fiscal preferences, introduced with other standard variables in an explanatory model of Swiss cantonal deficits, does matter for fiscal performance. That is, the more fiscally conservative a canton is, the smaller the amount of deficits, *ceteris paribus*. The model includes a set of economic variables concerning each canton (income, economic growth, initial public debt), structural variables (public revenues coming from the federal level, distribution of public outlays between the canton and its communes, the primary sector share in the cantonal revenue and the percentage of people living in towns), political variables (party affiliation at the executive branch and number of parties in the cantonal government), budgetary variables (the presence of cantonal compulsory referendum and the presence of rules against deficits) and, finally, the measure of fiscal preferences. The cross-section analysis using WLS shows that the index of fiscal conservatism has a clear impact on cantonal deficits. An additional point of the index of fiscal conservatism supposes a decrease of 380-650 Swiss francs of debt per inhabitant. A similar model is proposed using a panel data framework. In this case the dependent variable series is the annual variation of public cantonal debt. The estimates again show that the higher the level of fiscal conservatism, the lower the extent of cantonal deficits.

The limitation of their contribution is that they offered little evidence about the interaction between institutions and preferences, for two reasons: they did not include any variable referred to rules restricting deficits among the explanatory variables. Also, the variable referred to fiscal referendum was a rather crude one, as it was simply defined as a dummy variable, referred only to mandatory referendum. Subsequent studies (Novaresi 2001) have shown that this measure requires a much more sophisticated treatment. The main goal of our paper is to cover the gap, testing the hypothesis we expose in the following section concerning the influence of preferences on fiscal institutions performance.

2. The expected impact of voters' preferences on institutions

As mentioned before, some authors have pointed out the eventual influence of preferences on the performance of institutions and Dafflon and Pujol (2001) have empirically tested such relationship. Nevertheless, to our knowledge, no comprehensive reflection has been developed up to now concerning the expected relationship between preferences and fiscal performance of institutions.

We assess in this section which is to our view the expected impact of the inclusion of preferences on the fiscal performance of the institutions and rules that we consider in this paper: formal rules against deficits, mandatory referendum and optional referendum. In each case we will follow the same analysis strategy.

First of all, we take for granted that fiscal preferences do exert an influence on deficits, i.e.: any given public collectivity will tend to present lower levels of deficits if voters are fiscal conservatives, ceteris paribus (economic and socio-demographic factors), and the opposite otherwise. Of course, we will need afterwards to empirically test this assumption, and check if we find similar results as Dafflon and Pujol (2001). We assume this result at this theoretical stage as it is the only way to theoretically consider the eventual impact of preferences: before studying their impact on institutions, we have to accept methodologically that preferences have a certain impact on deficits. We also assume that politicians tend to be in average less sensitive to deficits than voters, as deficits is for them an additional way to finance new expenditures or to cut taxes.

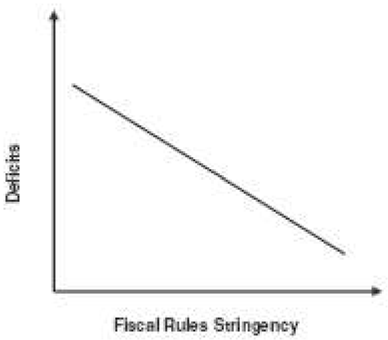
The following step is to establish the relation of each one of the selected institutions and the level of deficits according to the standard models not taking into account the role of preferences (practically all of them). We set this relationship according to theoretical grounds and to empirical results when existing.

The third step consists in revaluating the expected impact of each institution on deficits conditional to the influence of fiscal preferences. We will compare new results with those form the standard models. We will proceed to this analysis by a segmentation of the group of voters or collectivities according to their actual fiscal preferences. We will assess first the impact of preferences on the fiscal performance of institutions when those preferences are weakly attached to fiscal discipline principles. A similar analysis will be made assessing the expected impact of stringent preferences firmly attached to fiscal discipline. The final impact of preferences on institutional performance will be presented as the average of the impact of weak and stringent preferences, as we do not know a priori which set of preferences will dominate in the sample.

We analyze the expected impact of preferences following the mentioned procedure, commencing with formal fiscal rules. The effect stringent rules oriented to restrict or forbid the creation of deficits has been widely analysed in the literature in standard models. The theoretical expectation is that stringent rules are associated with lower levels of deficits, as this effect is the primarily goal of such legal instruments. Nevertheless, some authors cast doubts about the real effect of formal rules. This scepticism is grounded in two different streams of arguments. In one side, many authors consider that institutions are pure inoperant veils, and that only economic and socio demographic factors influence into fiscal discipline. In the other hand, other authors argue, based in public choice and political economy considerations, that the efficacy of stringent rules is disarmed by strategic movements of politicians.

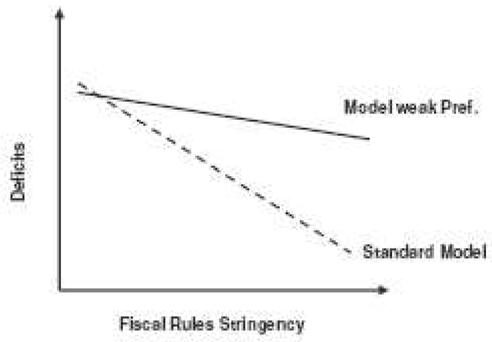
The highly developed empirical literature on this issue tends to suggest that stringent fiscal rules do actually have an impact on deficits, even if the political strategic behavior uses to weaken the performance of these formal rules. All in all we conclude then the existence of a negative relation between the stringency of rules and deficits, as depicted in figure 1.

Figure 1



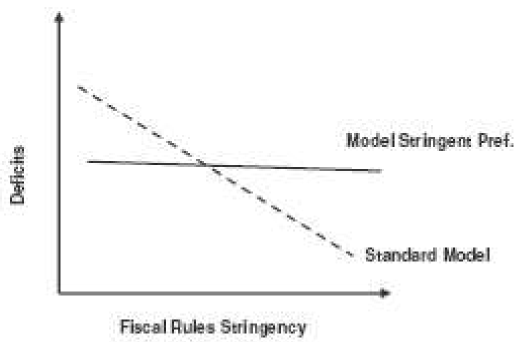
We analyze now the impact of the relationship according to standard models when introducing the effect of fiscal preferences. The analysis starts with the assessment of the influence of weak preferences. In this case, voters do not consider deficits as a problem and they do not put pressure on politicians as the fight against deficits does not become a political concern. Thus, politicians will have a large room to find and use ways to detour the strict implementation of formal rules, creating higher deficits than allowed or using accountancy fudges, as this behaviour will not be penalized by the voters. In this kind of collectivities with weak fiscal preferences the increase of the stringency of formal rules will have a lower impact on deficits than previously estimated by standard models.

Figure 2



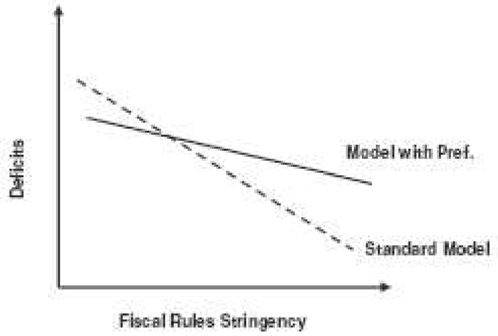
Let us consider now the impact of stringent preferences on the performance of fiscal rules compared to previously considered standard models. If voters are completely opposed to deficits and they consider it as a political evil, they won't accept that politicians present budgets with such outcome. The political pressure put on representatives will force them to take any measure to avoid deficits. This political effort will be rendered quite independent of the institutional setting regarding the reglementation of deficits. In a collectivity with stringent rules deficits will be low, but driven in fact by voters' views on deficits rather than because of the application of the rule. In parallel, collectivities with weak or absent rules limiting deficits will also produce low deficits, because citizens do not accept deficits. Even if the rules don't act as restraint, stringent preferences impose the same fiscal discipline to representatives as a stringent rule. Under strongly fiscal conservative preferences, deficits are rather insensitive to the level of fiscal rules stringency. We get in the case a completely different picture that the one obtained under the standard model.

Figure 3



If we fusion results taking into account preferences, both weak and stringent fiscal preferences and we compare them to the standard model we can conclude that the model with preferences suggest that the actual impact of fiscal rules on fiscal discipline has to be substantially lower than predicted by standard models.

Figure 4

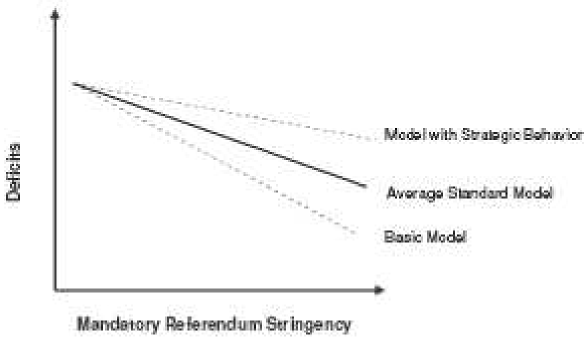


We analyze now the case of the mandatory referendum, its relationship with deficits according to standard models and the re-evaluation of these results when taking into account preferences.

Mandatory referendum refers to the practice introduced in collectivities in some countries at the local and regional level, where voters are asked to decide whether or not they approve new public policies proposed by the political representatives implying new expenditures surpassing a given threshold. Even if the original purpose of this measure is mainly to attain a better match between public policies and voters preferences, the literature indicates that this measure generates as a by-product a better command of public finances, with lower levels of expenditures and deficits. Empirical papers have shown the actual impact of the presence of mandatory referendum on fiscal discipline. The expected theoretical extent of such impact has a different consideration depending on authors. Some authors consider that this rule produces substantial economies in comparison with the collectivities where fiscal referendum is absent. These economies lead to lower deficits. Other authors are less confident about the impact of mandatory referendum, because they consider that strategic political behaviour tends to weaken its theoretical efficacy as economies generator. For instance, politicians may be prone to artificially cut a project in some subprojects in order to not attain the threshold which imposes a popular consultation.

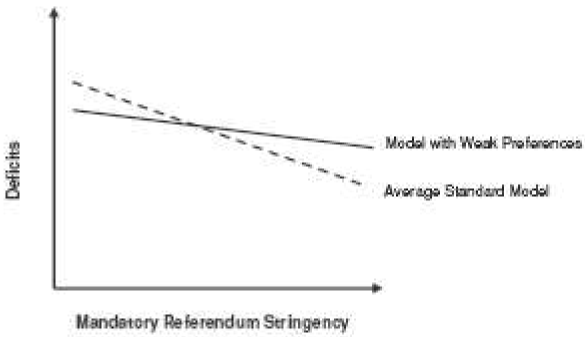
We take into account both views, and we assume the existence of a certain positive relationship between the presence and the stringency of mandatory referendum and fiscal discipline. This positive relationship goes somewhere in between those that attribute a strong impact of the mandatory referendum, and those that consider that it has just a small impact.

Figure 5



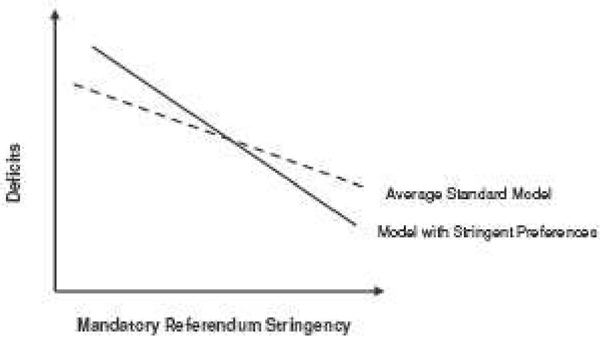
We consider now how the result of the standard model is revised after taking into account voters' preferences on fiscal discipline. As before, we start the analysis with collectivities where weak preferences against deficits are predominant. In these collectivities voters are not sensitive to the extent of deficits produced by the public activity. In this collectivity the voters will tend to accept all kind of new public proposals, as they do not care specially care about the financial effects of these new projects. Even if in this collectivities there exist mandatory referendums with stringent clauses, almost all new votings will be accepted or, if refused, this will not be because of financial considerations but to ideological preferences. When preferences against deficits are weak, the deterrent effect of mandatory referendum is substantially inoculated, as politicians know that any proposal, even if submitted to popular approval, will not be refused for financial grounds. A small negative slope can still be present if we assume that politicians do fear public consultations even if they are sure to get the popular acquiescence.

Figure 6



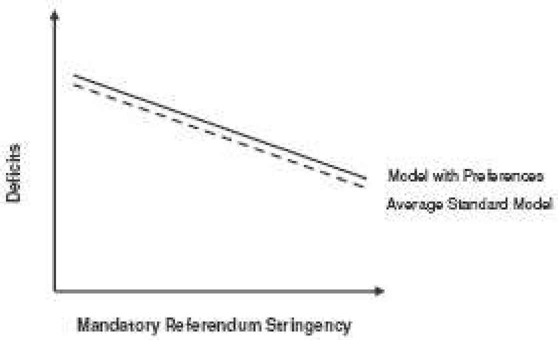
The opposite is expected to happen in collectivities where voters present strong views against deficits. In this case the existence of mandatory referendum will become a powerful ally to control politicians' decisions. All proposition that has to be presented to the popular acceptance will be refused in this collectivity if it creates risks of new deficits or the information about financial effects is not clear enough. The refusal of dubious public projects will force politicians to always seek to elaborate and propose the most economic alternative. This will lead to lower deficits. The impact of mandatory referendum on deficits in collectivities with stringent preferences will increase as the stringency of the referendum clauses increase.

Figure 7



If we put together the effects of weak and stringent preferences on the impact of mandatory referendum on deficits we can observe that both effects tend to be compensated as they affect them in opposite directions. In this case, the inclusion of preferences leads us to conclude that in average it will not produce a substantially different picture than that produced by the standard model which ignores the influence of preferences.

Figure 8

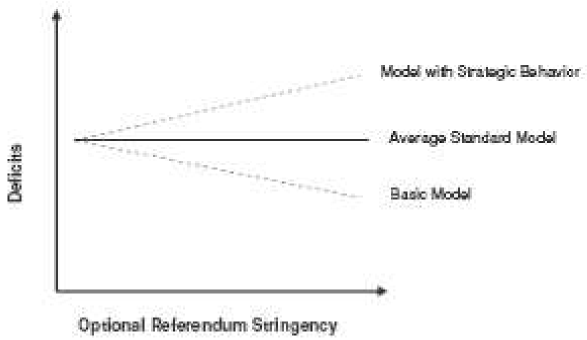


We consider now the third institutional instrument included in this paper. It refers to optional referendum. This institutional tool is similar to the previous one just analyzed. The difference comes from the fact that this fiscal referendum is not automatically launched when the local or regional government proposes a new public expenditure exceeding a certain amount. In this case, a given number of citizen's signatures have to be obtained in a given period of time are necessary in order to submit to public consultation a new project adopted by the local or regional government. The political dynamics of optional referendum is completely different from those of mandatory referendum. Mandatory referendum can exert a substantial pressure on politicians even if voters are passive and poorly organized. By contrast, the effectiveness and political orientation of optional referendum will be crucially dependent from the activeness of citizens as a whole and of groups of interests.

The literature concerning the relationship between optional referendum and deficits is much scarcer, and we are not conscious of the existence of empirical papers testing the relationship between both variables.

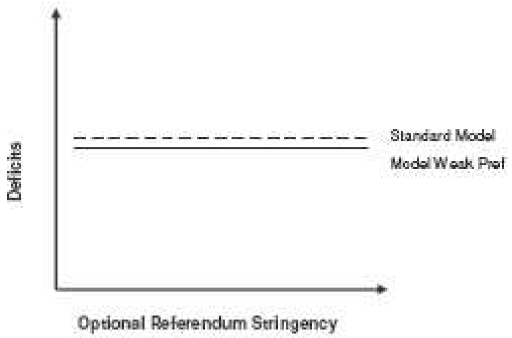
The efficacy of optional referendum as means to control deficits through higher economies in expenditures is an open and disputed question. For some authors this instrument plays a certain effect in moderating expenditures and costs by the always present risk to put into the public arena dubious projects proposed by the local or regional politicians. This instrument would then be a complementary support to lower deficits. For other authors this tool can even have a perverse effect on expenditures and deficits through logrolling ransom by active interests groups (Linder 1998, Eichenberger 1999, Novaresi 2001). The argument run as follows: contending interests groups with influence on local or regional governments can exert additional pressures to impose their proposals on new projects beneficial to their group using the existence of optional referendum as political menace. A pressure group can menace with the launching of the process of signatures collection among their own group members against projects from other interests groups to force a popular consultation, if they do not obtain sufficient support from other interests groups and their supporting political parties to get their own project approved by the government. This behaviour can be replicated by all the active interests groups in the collectivity, creating a collusion of interests and rents of pressure groups. Under this assumption of dominance of strategically behaviour of well organized interests groups, optional referendum becomes a powerful ally for the objective of approving new projects in the collectivities, producing by this an increase of deficits. We count then with two competing hypothesis concerning the impact of the presence of optional referendum on fiscal discipline. As they arrive to opposite conclusions, we consider that there is no a clear connection between optional referendum and deficits under standard models which do not take into account voters preferences.

Figure 9



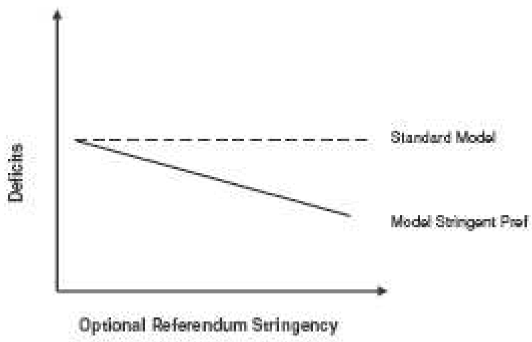
We proceed to the analysis of the influence of voters preferences studying first the impact in collectivities presenting weak preferences against deficits. In a collectivity where voters do not consider deficits as an important political issue they will be insensitive to the movements of interests groups in a sense or another. If interests groups are not dominant in the political decisions, optional referendum will play a similar role than in the standard model without preferences, helping somehow to control deficits. If the collusion of interests groups operates, optional referendum will play the same role of menace argument leading to higher level of expenditures. As voters do not care specially about the consequent increase of deficits, they will not react organising themselves in order to stop these new expenditures by collecting the sufficient number of signatures to launch an optional referendum. We conclude that under the assumption of weak fiscal preferences optional referendum exert the same ambiguous effect on deficits than in the standard models.

Figure 10



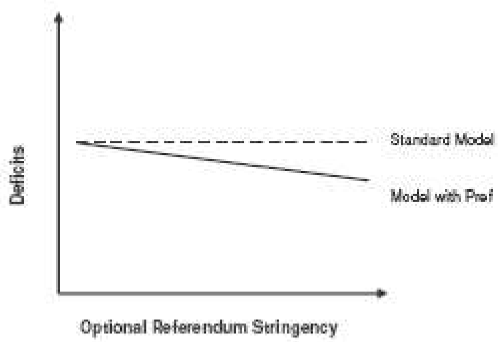
If we chose a collectivity where preferences are predominantly strict and highly opposed to deficits, the expected impact of optional referendum changes dramatically as compared to the results of standard models. Voters will always count with the implicit menace of the optional referendum as tool to discipline the political representatives' demands and proposals. Under this hypothesis politicians know that if they propose policies that are in contrast with voters expectations in terms of cost-benefict analysis, they will show enough political opposition allowing the citizens to collect a sufficient amount of signatures to oppose the new measure, and probably to refuse it in a popular consultation. This pressure on politicians will remain even if interests groups are well organized and put pressure on politicians with the logic of logrolling ransom. In the framework of voters' stringent fiscal preferences the effectiveness of the collusion interests groups is considerably weakened as politicians will be inclined to follow the general citizens' pressure rather than interests groups pressure, as the former implies a higher political sanction. The menace of optional referendum in collectivities with voters with preferences strongly attached to fiscal discipline is constant for political representatives, as each individual measure can be rejected potentially by referendum (if the public policy reach the threshold allowing the collection of signatures). The easier the possibility to launch an optional referendum, the lower the extent of deficits in a collectivity driven by stringent fiscal preferences. The degree of facility to launch an optional referendum depends of the threshold of the new project in term of expenditures, of the number of signatures to obtain and of the deadline imposed to reach these signatures. The easier to launch a referendum, the stringent it will be in terms of our analysis. We conclude then that in a collectivity with stringent rules, the existence of an optional referendum should be associated with lower level of deficits.

Figure 11



If we sum up the effects of weak and stringent fiscal preferences on the expected impact of optional referendum we conclude that we will tend to find a positive relationship between the presence of this instrument and fiscal discipline, whereas standard models tended to suggest the absence of a clear relationship between both variables.

Figure 12



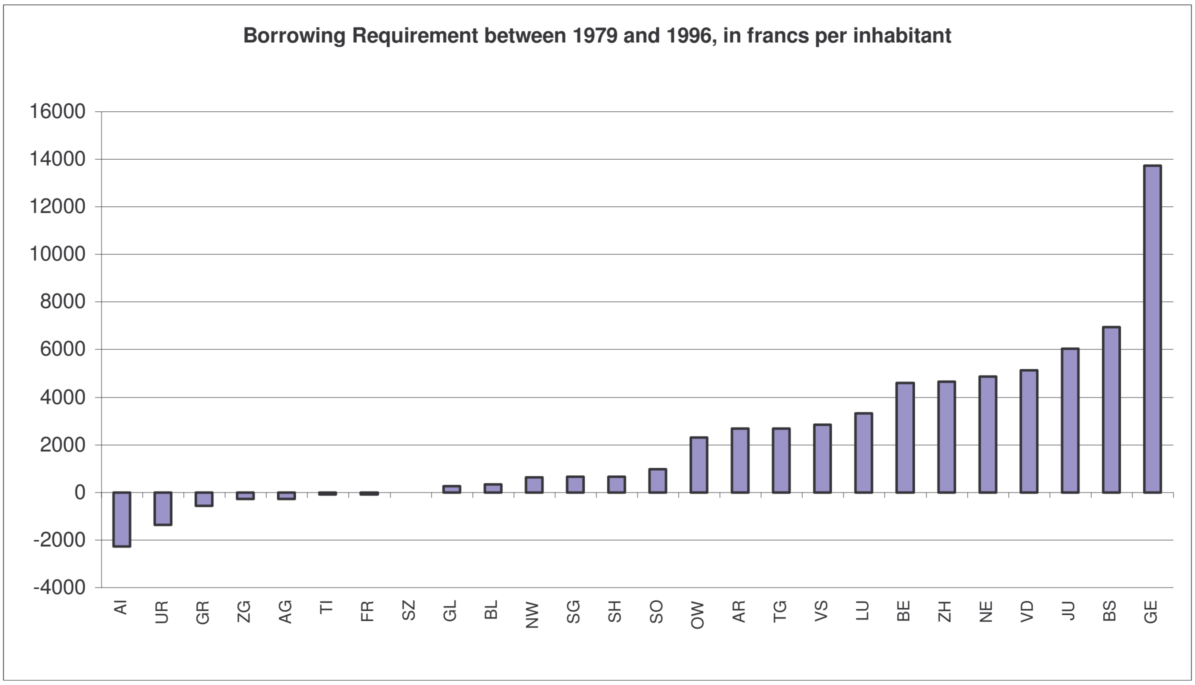
The theoretical exercise followed in this section offers a number of significant pieces of information, that merit to be empirically contrasted, as they can have potentially relevant implication for public policy considerations. The theoretical results concerning the interaction between preferences and institutional performance are also informative in the sense that the explicit consideration of preferences effects on institutions is not linear as one could expect. We find that in some cases the expected impact is to weaken the apparent efficacy of the institutions and rules to control deficits, while in other cases this relationship can be reinforced, even if this is not visible in standard models ignoring the influence of preferences.

Our objective in the following sections is to empirically test the specific role of preferences on the apparent relationship between fiscal institutions and deficits as stated in standard models theoretically and empirically.

3. Data and empirical strategy

In order to proceed to the empirical test of the hypothesis formulated in the previous section concerning the impact of preferences on the apparent performance of some fiscal institutions, we have chosen the Swiss cantonal case, corresponding to the regional or state level in international standards. This case is practically optimal for our purposes for many reasons. First of all, the Swiss extraordinary political organization offers us all the ingredient we need: as a country with a systematic semi-direct democracy we count with the presence of continuous popular consultations at the local, cantonal (regional) and federal (central) level; as a highly decentralized country (confederation of sovereign cantons), each canton has a substantial legal and practical autonomy to chose their own fiscal institutions and fiscal outcomes. This condition provides us a high variability of institutions concerning the presence and the level of stringency of the three instruments analyzed in the precedent section, among cantons which are otherwise rather homogeneous in other significant issues, as they are all part of the same confederation, for many centuries in many cases. The other attractive point of the Swiss case is that even if it is a small country in international comparison, it counts with 26 cantons, all of them highly autonomous, which offers us a sufficient amount of observations to run an econometric analysis. Finally, the financial autonomy of cantons is reflected by their different fiscal performance, as shown in figure 13. Borrowing Requirement for each canton is the dependent variable whose behaviour we want to explain in this paper.

Figure 13



Dafflon and Pujol (2001)

The specificity of the Swiss case produces an additional advantage: different empirical studies have elaborated measures of any one of the variables we need to test and to use as control:

cantonal rules restricting deficits, presence and level of stringency of optional and mandatory referendum and, finally a cantonal measure for voters' fiscal preferences. This latter measure is proposed by Dafflon and Pujol (2001). As these authors proposed a specific and elaborated measure of fiscal preferences, and as they tested their influence on deficits, we will use Dafflon and Pujol (2001) measures and explanatory model as reference and benchmark. This implies that we will use their measure of fiscal preferences and all the socio-economic, demographic and political explanatory variables applied in their empirical model.

We present now the main characteristics of the explanatory variables chosen, and we start presenting the measure of preferences, followed by the fiscal institutional variables, to finish with all the remaining variables that we use as controls.

The measure of fiscal preferences

Dafflon and Pujol (2001) select federal referendums with fiscal content as a way to capture the degree of fiscal conservatism of each of the 26 cantons (the second political layer in Switzerland). As federal objects submitted to referendum are chosen, they reflect the level of acceptance/refusal of people of each canton for the very same issue. For votes at the federal level, each single person decides on the same issue all across Swiss territory, ignoring the decision made by the other cantons at the time of vote.

A conservative fiscal or budgetary behavior reflects attitudes towards the acceptance of deficits. Voters' preferences concerning fiscal conservatism are identified according to the following pattern:

a) The aggregate choice of a given canton is considered more fiscally conservative than that from another canton if it presents 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 expenditure growth, deficit limits, or fiscal adjustment programs.

b) The aggregate choice of a given canton is considered more fiscally conservative than that from another canton if it 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 by an introduction of new taxes or the increasing of existing ones.

Each poll between February 1979 and September 1998 is analyzed, selecting those that fit the criteria, that is, 75 different polls. During this period, a total of 156 issues have been submitted to federal referendum.

The percentage of yes/no votes of each canton is normalized, giving the value 50 to the Swiss mean. This transformation gives the same weight to each one of the 75 polls, independently of the mean degree of acceptance for each one. Importantly, the norming introduced maintains the difference of intensity of vote within a given poll and among all voting. The aggregate value of relative fiscal preferences of each canton is computed simply by the arithmetic mean of the 75 single normalized values obtained by each canton.

The interpretation of the aggregate index of fiscal conservatism is analogous to the score given for a single poll. If a canton is systematically above the Swiss mean degree of acceptance of fiscal measures submitted to referendum between 1979 and 1998, it will have a final score greater than 50, and lower than 50 if the opposite were the case.

The measure of formal rules restricting deficits

Concerning the measure of formal rules restricting deficits, we adopt the values given by Novaresi (2001). Novaresi shows how each cantonal value has evolved in time, for a time period very similar to that used by our reference model, Dafflon and Pujol (2001). We have modified Novaresi's values by weighting each subperiod value in a unique measure for all the period, in order to make it compatible with the measure of fiscal preferences, which is time invariant.

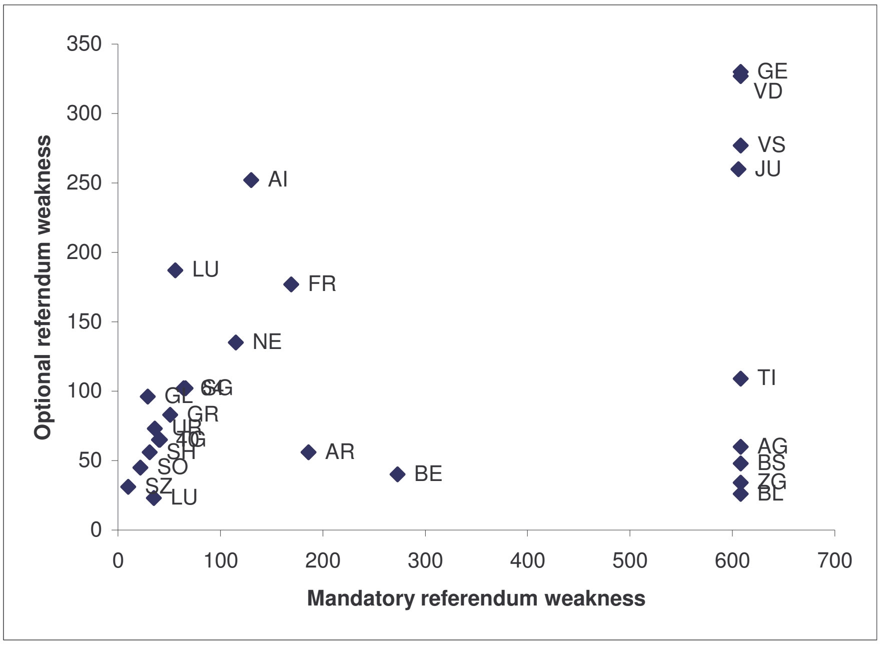
Measures of referendum rights

Concerning the measures of the cantonal presence and stringency of mandatory and optional referendum rights, we also adopt the estimations elaborated by Novaresi (2001). Trechsel and Serdült (1999) propose another index for mandatory referendum, while Feld and Matsusaka (2003) prefer to use just dummy variables, also referred exclusively to mandatory referendum. Like in the precedent case, we have reestimated the final value by weighting the values that change for some cantons inside our time series interval.

It is not common among empirical papers dealing with the Swiss experience to count together with both types of referendum. When the analysis refers to the impact of institutions on economic variables, the preference goes always in selecting only mandatory referendum, as it is considered to have the more powerful and direct influence on those economic variables. In our study we count also with optional referendum, because our main goal is to evaluate the impact of the inclusion of preferences on the observed performance of these institutions and rules. It is clearly pertinent to extent this analysis to the role of optional referendum. Our theoretical reflection in the precedent section tells us about the interest of observing the relationship between preferences and optional referendum performance, as it should produce a revision of its ambiguous impact according to standard models.

The inclusion of both type of referendum does not pose severe econometric problems, as the correlation between both variables is not significantly high. The cantonal variability in this case is also important, and all the different combinations of the presence of these two instruments exist, as it is reflected in figure 14. We have cantons in each one of the four quadrants of the figure.

Figure 14



Other explanatory variables.

Concerning the selection of the remaining explanatory variables, we follow the common practice applied in similar empirical analysis, mainly in the Swiss cantonal case and for the states of USA. The selection of variables is basically the same as that chosen by Feld and Matsusaka (2003) or Martin and Soguel (2003). As we mentioned before, we cope directly Dafflon and Pujol (2001) selection of control variables, as this empirical paper is our reference, as it used the same variable for preferences that we use in our study.

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

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 (INCOME). 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.

We have also selected the rate of economic growth (GROWTH) 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.

The last economic variable selected is the level of gross debt existing at the beginning of the period (DEBTINI), 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.

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 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 (SHARECANT). 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 is has been the case during the 1990s), a canton assuming a higher part of the total outlays will logically support a larger deficit.

AGRICULTURE 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.

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. A positive relationship would appear between the percentage of aging people and the amount of deficits.

The last variable retained is URBAN, 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.

iii) We have chosen two political variables. The first one for the party affiliation at the executive branch, RIGHT PARTIES, defined as the percentage of seats occupied by center-right parties, accordingly to the criterion followed by the *Annuaire statistique de la Suisse*. 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.

As for the econometric model, we apply a cross-section analysis. We run a Weighted Least Squares technique using the size of the cantonal population as weights, as Dafflon and Pujol (2001). We do not apply a panel data analysis as our reference variables are all time invariant by construction and by logic purpose. Time variation analysis could refine the relationship between annual deficits and cantonal growth, but is has no particular impact in determining the relationship between deficits and our key variables for preferences and budgetary institutions.

Our strategy is the following one: we run first a regression with the full set of explanatory variables except the preferences variable. This corresponds to the standard model testing the impact of budgetary rules on deficits, already done in the previous literature. The contribution of this paper comes from the second regression, where we also include the variable of voters' fiscal preferences. We will check the effects of the interaction of preferences with budgetary institutions, comparing them with the precedent results from the standard model.

Even if we run a comprehensive explanatory model including all the control variables, we will focus our analysis in a reduced version of it taking into account only the institutional and preferences variables, plus all the remaining control variables that appeared as statistically related with deficits in our comprehensive model or in Dafflon and Pujol (2001) regression. The reason of selecting a reduced form is that we increase by this the degrees of freedom of the regression, which is needed as we count just with 26 observations.

4. Empirical analysis

The results of the first regression coping standard models without preferences show basically results in line with precedent studies. We show the results including only the selected explanatory variables, as explained in the precedent section.

The level of cantonal average economic growth during the period is one of the key variables explaining the different level of cantonal deficits, as one should expect. Concerning the socio-demographic variables, the most influencial is the share of urban inhabitants in a canton: the higher this value the higher the amount of deficits. The share of federal resources in cantonal budgets is linked with lower levels of deficits, even if not at a statistically significant level, at least in the selected regression. The share of the agricultural sector is associated to higher deficits. As for the political variables, only the share of right and centre-right parties in local cantonal parliament does influence fiscal discipline.

Concerning the impact of budgetar institutions, we obtain the following results. The presence of stringent fiscal rules limiting the presence and extent of deficits is associated with lower levels of deficits. This result is in line with the theoretical prediction and the empirical results obtained in previous studies, like Martin and Soguel (2003).

The results concerning the impact of referendum in cantonal fiscal discipline are quite intriguing. It appears that the presence and stringency of the mandatory referendum is associated with lower levels of deficits. This result is perfectly consistent with other similar empirical studies, like Feld and Matsusaka (2003). The surprising result comes from the impact of optional referendum. The result of our regression indicates that cantons having this instrument tend to present higher level of deficits, and in a statistically significant way. We do not count with empirical precedents to contrast with our results. This finding should then support the hypothesis that this tool can be used by cantonal pressure groups as means to better achieve their own goals, raising as a consequence the amount of cantonal expenditures and wasteful projects.

Table 1: Explaining Swiss Cantonal Deficits with a Standard Model without Preferences, by Weighted Least Squares (Using Cantonal Population as Weight)

Constant	24164.99 (4.625)	***
Growth	-3424.94 (4.190)	***
Federal Grants	-85.3755 (-1.402)	
Urban	92.650 (4.027)	***
Agriculture	191.333 (1.144)	
Right Parties	-79.2422 (-2.344)	**
Deficit Rules	-49.594 (-1.807)	*
Mandatory Ref	-4.2102 (-2.192)	**
Optional Ref.	14.1893 (4.610)	***

The empirical findings of the standard model offers us the desired reference framework to test the impact of preferences, as the model that ignores them shows an apparent influence of budgetary rules and referendum in the sense expected and confirmed by other empirical investigations. We can now estimate the influence of voters' preferences on institutional performance, by including its measure into the explanatory model, as done in Table 2.

As for the control variables, the picture remains basically unchanged when taking into account voters' preferences. This is a sign of the robustness of the results, as there are not theoretical arguments to expect a singular influence of the inclusion of preferences on the impact of the control variables on deficits.

The only control variable that presents a new behaviour is precisely one that could react to the inclusion of preferences: in the standard model the presence of right wing parties in the parliament was associated with lower level of deficits, like in many other empirical studies, also referring to US States analysis. When taking into account voters' preferences this relationship is no more statistically significant. This result is relevant as it suggest that for fiscal discipline considerations, voters' preferences can be more determinant than elected preferences, even if standard models do attribute all the effect to politicians.

We analyze now how the institutional performance has been affected by the inclusion of preferences. Deficit rules are no more statistically linked too lower deficits, even is the sign of the relationship remains the same. This is a special important result, as it tends to empirically confirm that budgetary institutions effectively suffer from a certain degree of endogeneity. A share of the apparent efficacy of deficit constraints in ensuring fiscal discipline is in a sense stolen from the actual impact of voters' preferences. The performance of the rule is then not entirely genuine, but strongly dependent of the stringency the preference of voters pushing to enact severe rules and forcing politicians to respect them. This result, if confirmed elsewhere puts a serious question mark about the robustness of precedent empirical findings concerning the efficacy of formal deficit constraints.

Concerning the impact of the presence of referendum instruments, it appears that the inclusion of preferences does not alter substantially the previous result attained in the standard model. This result is in line with the expected undetermined impact of preferences as studied in the theoretical section of the paper. If this result is extended to other cases, the implication is that the inclusion of preferences does not need to raise doubts about the robustness of standard models like Feld and Matsusaka (2003).

We obtain another relevant empirical finding when considering the interaction of preferences with optional referendum, as now this instrument is no more statistically associated to higher level of deficits even if the sign of the relationship remains). This result also confirms the theoretical prediction that the inclusion of preferences should indicate a better picture of optional referendum as tool to control deficits. In our case the impact does not imply a reversal of the sign of the relationship, but at least it annuls the apparent negative influence of optional referendum on fiscal discipline as showed in the standard model.

Table 2: Explaining Swiss Cantonal Deficits with a Model with Preferences, by Weighted Least Squares (Using Cantonal Population as Weight)

Constant	40737.02 (2.538)	**
Growth	-3630.72 (-4.351)	***

Federal Grants	-143.459	*
	(-1.779)	
Urban	100.422	***
	(4.191)	
Agriculture	346.417	
	(1.584)	
Right Parties	-51.637	
	(-1.227)	
Deficit Rules	-21.6904	
	(-0.580)	
Mandatory Ref	-3.6665	*
	(-1.858)	
Optional Ref.	4.9042	
	(0.542)	
Voters Preferences	-359.39	
	(-1.092)	

We can summarize the results attained using a graphical representation of the influence of preferences in the Swiss cantonal case, following a similar presentation as done in the theoretical section. We can appreciate the strong connexion with the hypothesis advanced in the theoretical section.

5. Conclusions

Even if the Swiss institutional setting will remain always an outlier case in international comparisons, nothing prevents us to extrapolate our empirical results and conclusions to other more standard institutional framework where fiscal rules and constraints operate. It is true that we would have a hard time to find ways to measure fiscal preferences of voters and representatives outside the amazing Swiss case. But we do not have any argument to reject the influence of fiscal preferences on fiscal outcomes and on fiscal rules efficacy in other countries and collectivities, as we have found in the Swiss case.

Our empirical results confirm that when taking into account seriously the engodeneity of formal deficit constraints, their initial impact on fiscal discipline is substantially weakened thereafter. This result poses a serious criticism about the robustness of precedent evidence on such relationship.

The inclusion of voters' preferences has also obliged us to revise our conclusions concerning the relative impact of optional fiscal referendum, confirming by this the crucial influence of the orientation of voters preferences in its usefulness as control tool.

Even if we have generated our results using a very specific data set, the change of the influence of the explanatory institutional variables observed after including preferences as additional explanatory variable also suggests that the problem of institutional endogeneity is a relevant issue, which does probably affect other economic issues besides fiscal discipline, like the level of inflation, the extent of institutional corruption and so on.

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