Deficits and surpluses in federated states:
A review of the Public Choice empirical literature

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Abstract: The purpose of this paper is to review the empirical Public Choice literature explaining deficits levels in federated states. First, I describe theoretical constructs, showing how new theories are developed by releasing one of the basic Ricardo-Barro assumptions. Empirical results bearing on the federated states of Australia, Canada, Germany, Switzerland, and the United States are then reviewed to assess which hypothesis, in which setting, is confirmed by systematic observation. On the whole, this literature shows that economic cycles have an impact on budget balances. It also shows that deficits are higher in election years in German Lander, Canadian provinces, and American states, but not in Australian states nor in Swiss cantons. In addition, the literature tends to support the hypothesis that the stringency of budgetary rules is related to higher budget balances in Canada, Switzerland, and in the United States. Finally, government fragmentation has no impact on the budget balances of federated states and parties of the left do not have higher deficits than parties of the right, except in Switzerland where empirical evidence is mixed. Rather, parties of the center or of the right do have higher deficits in German Lander and in Canadian provinces. In the concluding section, I discuss two issues: the impact of rules, and the partisan cycle hypothesis.

Introduction

Governments in federated states of large modern federations face the same kind of basic budgetary responsibilities as sovereign states: allocate resources, correct inequities through redistribution, and stabilize economic cycles. However their room to manoeuvre varies from one federation to the next according to the prevailing institutional arrangements. Thus, Canadian provinces and Swiss cantons have a large autonomy vis-à-vis their federal government with regard to their budgetary policy. Without any obligation to consult with their federal governments, these federated states can decide the level of their own taxes, allocate expenditures in the areas of their constitutional competencies, and borrow money on financial markets. Germany and Australia present the opposite type of budgetary federalism. «In fact, Braun wrote, one seldom finds legislation concerning fiscal matters that does not require the approval of the *Bundesrat* simply because all laws that have an effect on the financial affairs of the *Länder* are subject to their consent» (Braun 2004: 25). Likewise, the Australian constitution explicitly states that debts and borrowing are the responsibility of the Commonwealth (Winer and Maslove 1996: 48). American states have a degree of

fiscal autonomy comparable to that of the Canadian provinces or the Swiss cantons but they also have a long tradition of fiscal discipline. Indeed all American states except Vermont have anti-deficit laws, some of them enacted in the nineteenth century (Garand and Kapeluck 2004). It is not surprising then that the budget balance of American states is globally significantly higher than that of other federated states.

In his comparison of federated state budget balances in five federation, Pétry (2004) shows that the mean budget balance of American states over the 1981-1997 period was 10.3 percent of total spending, whereas it was -1.5 percent in Switzerland, -2.2 percent in Australia, -6.1 percent in Canada, and -6.3 percent in Germany. In other words, except in the United States, the budget balance of federated states was negative on average over 1981-1997. But the variation is much larger than these simple statistics suggest. Indeed, the largest budget balance among American states in this period was that of Arkansas in 1981 (102 percent of total spending) while Connecticut had the lowest balance in 1991 (-12 percent of total spending). To be sure, several American states had actual deficits in this period but they were never more than eight in any single year (Garand and Kapeluck 2004).

One finds the same kind of variation in other federations. In Switzerland, the canton of Appenzell AR had the highest budget balance in 1996 (41 percent of total spending) and the canton of Genève the lowest, -19 percent in 1993 (Martin and Soguel 2004). In Canada, the province of Alberta had the highest and the lowest budget balance, 26 percent of total spending in 1981 and -27 percent in 1986 (Imbeau and Tellier 2004). The variation is even greater in Western Germany where budget balances varied from 18 percent of total spending in Westphalia in 1992 to -88 percent in West-Berlin in 1981 (Galli and Rossi 2004), and in Australia, where budget balances went from 9 percent in Queensland in 1994 to -175 percent in New South Wales in 1982 (Jakee 2003).

On average, one can classify federations in three groups as far as budget balance outcomes of their federated states are concerned: first, the United States which manifested the highest level of fiscal discipline, then, Switzerland and Australia, whose federated states had a relatively strong fiscal discipline, and finally Canada and Germany with the lowest level of fiscal discipline in the 1980s and the 1990s.

The purpose of this paper is to review the empirical Public Choice literature explaining this variation among federated states. Theoretical constructs

are first described showing how new theories have developed from the basic Ricardo-Barro assumptions. Empirical results bearing on the federated states of Australia, Canada, Germany, Switzerland, and the United States are then reviewed to assess which hypothesis, in which setting, is confirmed by systematic observation. In the concluding section, I discuss two issues: the impact of rules, and the partisan cycle hypothesis.

Public choice theories of deficits and debts

Why do governments of federated states within a federation not adopt similar fiscal policies? More precisely, why do they not show a similar level of fiscal conservatism as the high variation in budget balances suggests? Economists and political scientists have raised that question concerning OECD countries and, in order to answer it, have elaborated several empirical theories of the deficit. I devote this section to presenting these theories[1]. I show how the modification of a few assumptions allows new theoretical formulations and the deduction of different hypotheses. I will present a synthesis of the empirical results found in the literature in the next section.

One finds at least nine theories of public deficits and debts in the public choice literature. They may be classified according to the main assumptions on which they rest (see table 1). Some of these theories insist on actors' preferences (i.e., decision-makers' and societal agents') while ignoring institutions. Others rather insist on institutions and their impacts.

Table 1 about here

Economic theories. Two of the theories assuming the neutrality of institutions are economic explanations of deficit levels. One refers to Ricardo's equivalence theorem, the other to Keynesian principles.

[1] Here I follow quite closely my own presentation of the literature on deficits in OECD countries (Imbeau 2004a).

Ricardo's equivalence theorem, also called Barro's neutrality theorem, is the most often-cited economic model in the literature on budget deficits. Barro considers a closed economy in which a representative agent consumes, works, and saves. The government is represented by a benevolent planner whose objective is to maximize the welfare of the representative agent. Both the government and the agent have an infinite temporal horizon; therefore, neither intergenerational aspects nor the limited terms of government mandate are taken into account. When public deficits increase public debts, the representative agent knows that, in the future, the government will have to increase taxes in order to pay the debt back. According to the theory of permanent income, the agent determines his consumption level based on his total actualized future revenues. In this case, he concludes that financing public spending through taxes is «equivalent» to financing through borrowing (Barro 1989: 38-39).

In this context, the optimal strategy for the benevolent planner is to maintain tax rates constant in order to avoid costs related to unexpected variations in tax rates. To reach this goal, he uses surpluses and deficits as cushions through the application of a tax-smoothing policy: deficits appear when public spending is temporarily high, surpluses when spending is temporarily low (Roubini and Sachs 1989: 910-913). In other words, the Ricardo-Barro model predicts that budget balances follow economic cycles: they are large in periods of growth and small in periods of recession or war.

These predictions correspond to those of *Keynesian theories*. Keynesians argue that budgetary instruments can be efficient to stabilize economic cycles notably because of the multiplier effects of public finance. In theory, these effects allow governments to increase economic activity in periods of recession or to slow down economic growth in periods of expansion. Thus, in periods of important recession, a decrease in the budget balance may be used to stimulate demand, thus increasing national revenue, and reducing unemployment.

To summarize, both Ricardian and Keynesian theories predict that deficits are a function of economic cycles, mainly of variations in economic growth and unemployment. But these theories pose a major problem. Indeed, if they are right, how can we explain the persistence of deficits and growing debts since the beginning of the 1970s? It makes no sense to argue that the social planner made recurrent deficits because of an economy in constant recession. To answer this question, public choice theoreticians have explored the political and institutional determinants of fiscal policy choices, controlling for the effect of

economic variables identified by normative theories. Through the modification of Ricardo-Barro's assumptions, they proposed alternative models. In general, they have considered two sets of modifications to these assumptions: assumptions concerning the preferences of actors, and assumptions concerning institutional arrangements.

Theories Based on Actors' Preferences. Among the theories based on actors' preferences, one finds two important modifications to the Ricardo-Barro set of assumptions. The first releases the single decision-maker assumption in order to consider several decision-makers in competition (cell C in table 1). This is the *electoral cycle model* which adds two assumptions to the Ricardo-Barro set: voter's myopia and politicians' opportunism. The median voter, victim of fiscal illusion, does not understand the government inter-temporal budget constraint; in particular, he overestimates the benefits of present spending and underestimates his future fiscal burden. Politicians, motivated by their re-election, use this confusion to increase spending more than taxes immediately before elections in order to please the myopic voter. This theoretical modification allows one to predict that deficits are higher before elections than at any other moment of the electoral cycle.

The theory of electoral budget cycles was developed by Tufte (1978) in the wake of Nordhaus's seminal contribution (1975). The theory was then amended by rational expectation theorists who argued that a rational voter cannot be deceived over a long period (Rogoff 1990; Rogoff and Sibert 1988). Despite these changes, the central thesis of electoral cycles concerning fiscal policy

> survives even when voters are not myopic and gullible as long as they are imperfectly informed about some characteristics of the environment, the policymaker's objectives, or his ability to manage the economy. For instance, immediately before elections, incumbent may want to appear as "efficient" as possible in providing new public goods, services, or transfers. By "hiding" or delaying the budgetary consequence, the incumbents may succeed in creating a temporary illusion of prosperity, before the voters realize that they will have to pay for it with post-election taxes. The budgetary process is sufficiently complicated, that even relatively informed and attentive voters may be "fooled" at least temporarily (Alesina, 1989: 63).

To summarize, the budgetary behavior of the opportunist politicians of those models depends on the preferences of a myopic, or ill-informed, voter.

Another theory makes the alternative assumption that societal agents are numerous and in competition whereas the competition among decision-makers is ignored (cell B in table 1). This is the *negative bequest theory*. One of the conclusions of Ricardo's equivalence theory, which is linked to the assumption of infinite temporal horizon, is that taxing and borrowing are equivalent ways of financing public spending if there is sufficient intergenerational altruism. More precisely, the distribution of the fiscal burden between generations is not influenced by the size of the public debt since changes in public debt are compensated by changes in private bequests. But intergenerational altruism may not be universal. In this perspective, Cukierman and Meltzer (1989) proposed a political model of intergenerational redistribution. Here is how they reasoned. In the present generation, some are «rich» and some are «poor». The formers plan to leave a positive bequest to their heirs. For them, the Ricardian equivalence holds. The poor, however, would prefer to leave a negative bequest. But as this is not allowed, they will support larger deficits and increasing debts. This way they indirectly borrow from the following generation. In summary, the rich are indifferent between taxing and borrowing for the financing of public spending whereas the poor favor debt financing. In the measure that a society comprises more poor than rich, the majoritarian social choice tends to lead to accumulated public debts (Cukierman and Meltzer 1989; Tabellini 1991).

Finally, an important theory of the budgetary process modifies both the assumption of a single decision-maker and the assumption of a single societal agent in order to consider a situation where several decision-makers and agents, in competition among themselves, influence the deficit level (cell D in table 1). This is the *partisan cycle theory*. According to this theory, politicians are ideologues and they base their decisions on the preferences of their parties or of their constituents rather than on the preferences of all voters (Hibbs 1977, 1992)[2]. In its most simple expression, this theory assumes that there are two types of decision-makers, each supported by a distinct group of voters whose interests she maximizes. One of the groups wants higher public spending (the left or the liberals) and, therefore, higher deficits; the other group wants smaller spending

[2] See also the pioneering work by Edward Tufte (1978) and David R. Cameron (1978). The empirical results generated by this theory have been the object of a meta-analysis by Imbeau, Pétry and Lamari (2001).

and deficits (the right or the conservatives). The assumption of voters' myopia is not necessary to this theory. Quite the opposite: voters are assumed to understand the difference between parties and to vote accordingly. From the partisan cycle theory, the following hypothesis is deduced: deficits are higher under a government of the left than under a government of the right.

Models insisting on the preferences of politicians and voters do not allow explaining all the variation in public deficits among governments or temporal variation within a single state. For example, the electoral cycle theory does not entirely explain the huge variance in debt levels unless one is ready to assume that voters are more myopic, or ill-informed, in some states than in others. This theory does not explain either why recurring deficits appeared in the 1970s and not before. Other theories are necessary. This is why researchers elaborated theories relaxing the assumption of the neutrality of institutions.

Theories Based on the Impact of Institutions . With the additional assumption that institutions matter, a new research front opened up, both in economics and in political science. For institutional economics and neo-institutionalism, institutions have an impact on the agenda setting of policy decisions, on the final result of a vote in an assembly, or on the implementation of a public policy. Indeed, it is assumed that institutions (i.e. formal rules and informal norms) can correct the deficit bias induced by fiscal illusion, political opportunism, or party ideology. In general, two types of institutions can play that role: political and budgetary institutions. Political institutions are rules and norms that structure a political system. They might have an impact on the decisions coming out of that system because they can influence the choice of public decision-makers and the nature of the interactions among them. The most important models linking political institutions to fiscal policy outcomes insist on the conflicts opposing decision-makers on the distribution of the fiscal burden. Budgetary institutions are the rules and norms that structure the budgetary process (budget elaboration, adoption, implementation, and evaluation). These rules vary much from one state to the next and they may potentially explain differences among them. In general, the theoreticians of the political economy of fiscal decisions argue that there are three types of budgetary institutions that influence fiscal decisions: laws, procedures of voting, and the transparency of budgets (Alt and Lowry 1994; Poterba 1994; Bayoumi and Eichengreen 1994; Bohn and Inman 1996; Alesina and Bayoumi 1996).

One finds four theories that show how institutions may influence budgetary decisions. All assume multiple egotistic decision-makers. That is why cells E and F of table 1 are empty. Two of these theories, i.e. the log rolling model and the strategic use of debt model, assume a single societal agent while the other two, i.e., the war of attrition model and the tragedy of the commons, release this assumption to consider several agents in competition.

The *log rolling model* insists on the impact of the organization of legislatures on budgetary decisions. Since voters are geographically concentrated, elected officials tend to overestimate the benefits of the spending allocated to their electoral district, while underestimating their costs as these are paid for by all tax payers. In exchange for the support of other elected officials to a spending project aimed at her district, a representative will offer her own support to her colleagues' projects. In other words, elected officials do not internalize the costs of spending programs. The combined effect of their decisions yields a level of spending and deficits higher than optimal (Shepsle and Weingast 1985; Weingast, Shepsle, and Johansen 1981). The log rolling model predicts high deficits unless there are stringent rules, and strong fiscal authorities, that can dampen the effects of this dynamic.

The *strategic use of debt model* considers that debts are a strategic variable linking the present government to future ones. When in power, political parties determine the nature and the level of public spending for strategic purposes. Indeed, by manipulating the fiscal policy, a government can influence the choices of his successors (Alesina and Tabellini 1990; Persson and Svensson 1989)[3]. A party anticipating not to be reelected may use indebtedness to influence the decisions of the incoming party. Through a higher deficit, it can create a constraint that the new government will have no choice but to accept by sacrificing part of its own fiscal program. This model is based on party preferences. The very similar model proposed by Aghion and Bolton (1990) and by Milesi-Ferreti and Spolarore (1993, 1995) imagines a different way for a party strategically to use debt. For them, budget deficits are used to change the future preferences of the median voter by changing the nature of the assets he holds: the higher the debt, the more a median voter holds government bonds, and the more he is opposed to inflation and to any expansionary macro-economic policy. In both interpretations, the effect of the strategic use of debt on deficits and debts is higher where budgetary rules are less stringent.

[3] For a literature review, see Milesi-Feretti and Spolaore 1995.

Another theory considers a coalition government whose members have distinct interests and electoral districts. Lacking a common objective function, they face a «prisoner dilemma» situation when it comes to budget restructuring. Even though all government members prefer a restrictive policy to control its deficit, it happens that each member of the coalition wishes to protect her own spending program from austerity measures. Without a strong coordination between the members of the coalition, the non cooperative solution, «no deficit reduction» is the equilibrium. Deficits increase and debts accumulate. This is the *war of attrition* model proposed by Alesina and Drazen (1991) who analyzed the budget outcome emerging from a political system where different sociopolitical groups must take fiscal decisions collectively. One may think of a coalition government where each party has a veto on the budget, for example. In this model, decisions-makers oppose each other not about the size of public spending but about the distribution of the fiscal burden. Let's consider, for example, a permanent choc disturbing the budget of a government and increasing the deficit. According to the prescription of the fiscal smoothing policy, a benevolent social planner would immediately react by increasing fiscal revenues and cut expenditures in order to balance the budget. But conflicts among social groups in society delay the adoption of the stabilization policy. The more unequal the distribution of the fiscal burden imposed by stabilization measures (one of the groups must bear a disproportionate share of the burden), the higher the interest of the disadvantaged group in delaying the adoption of the policy. Moreover, the implementation of the stabilization policy will also be delayed if the costs associated with non-decision are small. The war of attrition model allows one to predict that fragmented and unstable governments will wait longer before adopting a stabilization policy, thus contributing to recurring deficits and accumulating debts (Spolaore 1993; Drazen and Grilli 1993; Alesina and Drazen 1991).

Velasco (1995, 1999), whose model is similar to the *tragedy of the commons*, also concludes that coalition or divided governments have higher deficits. He describes a society divided into several interest groups, each profiting from a specific spending program. He further assumes that the government is weak, meaning that each group can influence budget authorities to have them transfer funds at their preferred level. As a consequence, the budget process is fragmented. Here again, public spendings provide advantages to specific groups but their costs are born by everyone. Such a society provides

incentives for higher spending and deficits. Indeed, if the government net asset (i.e., the present value of future revenues minus debts) is the common property of all budget authorities, a problem similar to that of the «tragedy of the commons» appears. Two distortions arise when *n* agents share a common resource pool. The first comes from the fact that each one bases his consumption, or spending, decisions on the whole pool rather than on the n^{th} part of the pool. The second distortion relates to the revenue drawn from savings. As perceived by each agent, these revenues correspond to the interest rate, or the growth rate of the natural resources minus what the other *n-1* agents draw from the pool. Therefore, since saving depends on the return rate, each agent under-saves (or over-spends in the case of the fiscal policy, or over-exploits in the case of natural resources). This means that deficits occur and debts accumulate where a benevolent central planner would balance the budget.

For Velasco, this dynamics may manifest itself in several ways. First, pressures for higher spending may come from special interest sectoral ministers or parliamentary committees facing a weak finance minister (it was the case of European countries with less stringent rules studied by von Hagen and Harden (1994), and of the Latin-American countries studied by Alesina (1996)). Pressures for higher spending may also come from sub-central governments which have an interest in borrowing more than they should, knowing that the central government will assume these debts in the long run (this was the case in federal countries like Argentina and Brazil). Finally, public enterprises may engage in high risk investments since the government will guarantee their losses (it was the case in East European countries when communism was declining).

Velasco's model also takes into account stabilization efforts. Indeed, interest groups can coordinate in order to lower deficits by threatening to return to excessive deficits if one of them defects as the benefits of these groups depend on the government accumulated debt. As debts increase and the government becomes poorer, efficiency gains associated with stabilization policy become more attractive compared to what they would be if interest groups continued to pressure for aggressive transfers of public resources. Thus this model may generate a delayed stabilization *à la* Alesina and Drazen (1991).

This discussion of the main economic, political, and institutional explanations shows the creativity of public choice theoreticians and the cumulative character of their theoretical investigations. Hopefully, these researchers did not limit themselves to developing theoretical constructions. They

also assessed their theories through empirical research by comparing federated states. In the next section, I review these empirical findings.

Empirical Results

From their theories of deficits and debts, researchers deduced testable hypotheses. Two of these hypotheses ensue from economic theories linking growth and unemployment to budget deficits. Two more follow from the modification of assumptions concerning actors' preferences, namely the electoral and partisan cycle hypotheses. Finally, there are three hypotheses stemming from the modification of assumptions concerning institutional arrangements: political fragmentation, rule stringency, and use of referendum[4]. I found 18 studies in which empirical results concerning these hypotheses in federated states are presented: four on Canadian provinces, nine on American states, five on Swiss cantons, three on German Lander, and one on Australian states. These findings are summarized in table 2 and are the object of the rest of this paper.

Table 2 about here

The *economic cycle hypothesis* predicts that deficits are higher in periods of high unemployment and low growth. Empirical findings on federated states confirm this hypothesis in three settings, the Canadian provinces, the American states, and the Swiss cantons, but they disconfirm it in Australian states and German Lander. However there is no unanimity. Indeed, Pétry (2004) contradicts this conclusion for the American states and the Swiss cantons. For example, in their full specification model, Martin and Soguel (2004) find that «[C]learly, macro-economic performance is directly related to the magnitude of budget balances in Swiss cantons. When economic growth is on the rise and unemployment is down, cantons experience lower deficits or higher surpluses; when the economy is in a slump, the cantons tend to experience higher deficits (or lower surpluses)» (2004:

[4] There is no empirical study on federated states testing the hypothesis of a fourth hypothesis following from the assumption that institutions matter, namely that government instability induces higher deficits.

151). However, while confirming the negative effect of unemployment on deficit level in Swiss cantons, Pétry reports a non significant relationship with income growth (2004: 219). Because he lacked better data, Pétry used national income growth. It would be interesting to test whether the use of cantonal income growth data would confirm Martin and Soguel's findings. In general, it is safe to say that budget balances in federated states follow the same economic cycle as in OECD countries.

The *proximity of election hypothesis* predicts that deficits are higher immediately before an election and that more stringent budget policy appears only after an election. Imbeau and Tellier (2004), for example, ask whether budget balances in Canadian provinces follow an electoral cycle. More precisely, they want to know which of two versions of the electoral cycle dominates: the manipulation of macro-economic indicators or the manipulation of voters' micro-economic choices. In the first version, it is assumed that governments try to influence the unemployment rate and the growth rate through increased spending before the election. As there is a delay between the time public money is spent and its impact on macro-economic variables, the first-version hypothesis predicts that deficits will be higher in the year preceding the electoral year. But on the other hand, the second version of the electoral cycle hypothesis assumes that politicians want to create the illusion of government efficiency through higher spending just before an election. In this case, deficits are expected to be higher in the electoral year. Imbeau and Tellier show that the second version is confirmed by their data. Provincial governments in Canada have smaller budget balances (higher deficits) in the years where there is an election. These results are confirmed by Kneebone and McKenzie (2001) and by Tellier (2004), but they are contradicted by Pétry (2004).

One also finds a confirmation of the electoral cycle hypothesis in German Lander (Galli and Rossi 2002; 2004), and American states (Clingermayer 1991; Garand and Kapeluck 2004; Pétry 2004; Sorensen, Wu, and Yosha 2001) but not in Swiss cantons (Martin and Soguel 2004; Pétry 2004). However these conclusions are rejected by Pétry (2004) on German Lander and by Lowery (1985) on American states. On the whole, as shown in table 2, out of ten studies proposing an empirical test of this hypothesis, eight confirm it, two disconfirm it. These results correspond to what one finds in the empirical literature on OECD countries where an electoral cycle was found in budget balances (Imbeau 2004a).

The *partisan cycle hypothesis* states that fiscal policy is expansionary under governments of the left who prefer more government intervention and higher spending. In a context where all parties tend to finance part of their spending through borrowing, it is expected that the higher spender will have higher deficits. Despite the intuitive attractiveness of this hypothesis, most authors who empirically tested it came to the conclusion that there is no relationship between the strength of the left and deficits or debts. The hypothesis is disconfirmed for German Lander, Australian states, Canadian provinces, and American states (see table 2). However, there are contradictory results concerning Swiss cantons.

Indeed, noting that all cantonal legislatures were dominated by rightist coalitions from 1979 to 1998, Dafflon and Pujol (1999) show that there is no significant relationship between the percentage of seats held by center-right parties in cantonal parliaments and annual deficits. Pétry (2004) also disconfirms the partisan cycle hypothesis by showing that the strength of the right is significantly related to lower budget balances in Swiss cantons. On the other hand, Kirchgassner and Pommerehne (1997), Martin (2000), and Martin and Soguel (2004) find that the budget balance is higher when the right is stronger in cantonal legislatures. It seems then that, before we can definitively discard the classical hypothesis that there is a partisan cycle in budget deficits, we will have to resolve the contradiction presented by the Swiss case. We will return to this issue in the concluding section below.

The *political fragmentation hypothesis* suggests that, in order to resist deficit pressures, decision-makers must hold a position of strength in the decision process. One source of weakness is the fragmentation of government manifested through divided majorities in the legislative and the executive, coalition governments, and minority governments. In those cases, the theory predicts that deficits will be higher.

This hypothesis is disconfirmed in the four federations where it has been tested (there is no empirical test for the Canadian provinces). Garand and Kapeluck, for example, look at the degree to which state government (governorship and legislature) is unified under the control of one party. They show that the political fragmentation of the legislative and the executive in American states has no direct significant impact on budget balance. However, some of their results show that the reaction of state governments to economic and social conditions normally conducive to a smaller budget balance varies

according to whether political control is divided and according to the party in power. And they conclude: «The evidence on this point is not stark or compelling, but it is suggestive enough to call for future research on the subject» (Garand and Kapeluck 2004: 78). It seems that governments in federated states do not have the same sensitivity to political fragmentation as central governments in OECD countries where this hypothesis is generally confirmed.

The *rule stringency hypothesis*. An important research effort has been targeted to determining whether the stringency of budgetary rules had an impact on budgetary performance: are deficits lower in states where rules are more stringent? In testing this hypothesis, Garand and Kapeluck, for example, look at two rules: carryover provisions, and taxing and spending limitations. They hypothesize that states that permit deficits to be carried over to the next fiscal year will have smaller surpluses, since carryover provisions create an incentive for deficit spending by delaying their costs. They find that the coefficient for the carryover variable is negative and significant, indicating that states that have such provisions lower their surpluses by an average of 1.8 percent of state expenditures (Garand and Kapuluck 2004: 74). Their coefficient for the tax and spending limitations variable is also in the expected (positive) direction. In my literature review of the political-economy of public deficits in OECD countries, I found that this hypothesis was confirmed in most studies (Imbeau 2004a). The empirical research on the federated states of Canada, the United States, and Switzerland unanimously leads to the same conclusion: more stringent rules yield smaller deficits or higher surpluses. One finds no empirical result on German Lander or on Australian states.

The *referendum hypothesis*. Another institutional hypothesis is that direct democracy through referendum has the same effect as stringent rules. Here is how Martin and Soguel formulate the argument: «Cantonal referenda on spending have been shown to be an effective instrument to control the growth of public expenditures. Although referenda on spending are an example of the "bottom-up" process of direct democracy, from a theoretical standpoint, they are expected to have the same impact on budget balance as "top-down" government rules intended to constrain deficits. In addition, referenda on finances are supposed to curb capital expenditures (direct effect on capital expenditures) and therefore to curb depreciation and the interest payments in the current accounts (indirect effect)» (2004: 148). These authors find a significant coefficient for their referendum variable but it is so small that they conclude: «despite the correct sign, the effect of referenda on budget balance can only be a trivial one»

(p. 152). Other authors concur with this conclusion. Indeed, Dafflon and Pujol (1999) and Martin (2000) show that there is no significant relationship between the use of referendum and budget balances in Swiss cantons. Therefore it seems correct to consider that the referendum hypothesis is disconfirmed for now.

On the whole, the empirical literature reviewed here shows that economic cycles have an impact on the budget balance of the federated states of Germany, Canada, the United States, and Switzerland. It also shows that deficits are higher in election years in German Lander, Canadian provinces and American states, but not in Australian states or in Swiss cantons. In addition, the literature tends to support the hypothesis that the stringency of budgetary rules is related to higher budget balances in Canada, Switzerland, and in the United States. Finally, government fragmentation has no impact on the budget balances of federated states and parties of the left do not have higher deficits than parties of the right, except in Switzerland where empirical evidence is mixed. Rather, parties of the center or of the right do have higher deficits in German Lander and in Canadian provinces.

Discussion and Conclusion

In this section, I would like to address two of the lessons one can draw from this literature. The first lesson, a normative one, is that budget performance is sensitive to electoral cycles and to the characteristics of budget institutions. Should we then reform our electoral systems and adopt more stringent rules? The second lesson, a positive one, is that the classical partisan cycle hypothesis linking left governments to higher deficits and debts systematically fails most empirical tests. Is it time to discard this hypothesis altogether?

Budget rules and deficits. Democratic institutions force decisionmakers regularly to go for election. Empirical research shows that this institution is an incentive for politicians to make higher deficits prior to elections when a benevolent planner would balance the budget. Is this sufficient to convince us to reform electoral systems in such a way as to reduce the frequency of elections thus favoring a more conservative fiscal policy? Answering this question implies a tradeoff between two values, democracy and fiscal conservatism. We could argue that a higher deficit is the price to pay for working democratic institutions. The problem then is to devise means to dampen the deficit bias induced by them. And the obvious conclusion seems to be that more stringent rules is the most realist

way to increase politicians' fiscal conservatism while maintaining democratic institutions since empirical research has shown that states with more stringent rules have lower deficit and debt.

But such prescription calls for prudence because it rests on empirical research whose validity has been questioned on the ground that institutions may be endogenous. The endogeneity problem may take two forms. On the one hand, the stringency-conservatism relationship may well be spurious. The correlation between rule stringency and fiscal performance may be the effect of a third, hidden, variable, namely voters' preferences. Thus states where voters supported the adoption of rules limiting tax and spending may also be those where voters actually want less tax and spending. On the other hand, stringent rules may be caused by high deficits, rather than the other way around. Indeed, it is possible that voters ask for more stringent rules because they had enough of high deficits. In both cases, nothing allows us to conclude that more stringent institutional norms will lead to higher fiscal conservatism in states where such budget institutions have not been adopted yet. To develop our knowledge on this issue, we should include in our statistical analyses control variables that could reveal the presence of this hidden, or antecedent, variable, if it exists (Poterba 1995). Another method consists of analyzing the historical development of budget institutions. Kneebone and McKenzie (1999) adopted this perspective to address this issue of the endogeneity of budget institutions. They analyzed the budget reforms adopted in the Canadian province of Alberta in 1993 to conclude that they could not reject the possibility that budget institutions are endogenous.

But what can we say about constitutional rules? This review of the empirical literature on the budgetary performance of federated states in five federations gives us the unique opportunity to test the relative impact of market and constitutional institutions for curbing the deficit bias induced by fiscal illusion and political opportunism. Indeed, as argued above, the five federations reviewed here clearly present two types of fiscal federalism. Federated states in Canada, Switzerland, and the United States are much more autonomous with regard to their fiscal policy than are those of Australia and Germany. Federated states in the first group of federations are free to decide the level of their budget balance and borrowing. Thus, their room to maneuver in those areas is limited by market institutions like credit rating agency decisions, interest rates, and debt maturity. These institutions act as a control mechanism over egotistical and opportunistic politicians who otherwise might indulge in a fiscal behaviour that departs from what the benevolent planner would do. When state officers face a

downgrading of their state credit rating and when they see, as a consequence, their state bonds ignored by the market and the interest rates that must be paid on its debt eat up an ever increasing part of their budget, they are more likely to adopt a conservative attitude toward the budget and to redress public finance.

Federated states of Australia and Germany do not have the same autonomy. Decisions regarding borrowing and debt administration are made by their federal government, a superior institution that cannot be easily overridden for opportunistic or other political purposes. Constitutional limits to borrowing, to taxing, or to spending have exactly the same characteristics. They are superior institutions that a government cannot ignore or change easily. As such, they are an alternative to market controls that are presently at play for sovereign states and autonomous federated states.

Now, one important question that the empirical public choice literature does not answer is whether constitutional rules are more efficient in curbing deficit biases than market controls. It is possible to answer this question through a comparison of the empirical results one finds in the literature. In table 3, I synthesized these results in such a way as to compare more autonomous (market control) to less autonomous (constitutional control) federated states. The most striking feature of this comparison is that the explanations developed specifically for sovereign governments (OECD countries) fare much better in explaining deficit levels when applied to more autonomous federated states. Indeed, when less autonomous federated states are considered, only one hypothesis is confirmed in one federation (Unemployment in German Lander) and another one presents mixed results (Electoral cycle in German Lander). All other hypotheses are disconfirmed. The situation is quite different with more autonomous federated states. Economic cycle hypotheses are confirmed in all three federations for both economic growth and unemployment rate, as well as the rule stringency hypothesis. Moreover, an electoral cycle is found in Canada and the United States.

Table 3 about here

The conclusion to draw from these results is that the effects of economic and electoral cycles on budget balances seem to disappear under constitutional control (less autonomous federated states). When exposed only to market control mechanisms, budget balances follow economic as well as electoral cycles. Are

these results robust enough to allow us to prescribe the application of a constitutional rule limiting the capacity of governments to tax and to make deficits? Two facts should teach us prudence in this regard. First, deficits are still present in less autonomous federated states (the highest 1981-1997 average deficit occurred in the only federation with an explicit constitutional rule giving competency over government borrowing to the federal government, Australia) and the variation in deficit level is very high in these federations. Therefore, a constitutional rule is not sufficient to eliminate recurring deficits. The problem with these results is that we do not seem to understand the fiscal behaviour of less autonomous federated states as most explanations yield insignificant results. Are less autonomous federated states so different from more autonomous ones that they respond to a different logic, a logic that we have not yet uncovered? Second, the empirical results reported in table 3 for Australia (and partly for Germany) come from one single study. The risk is high that these results are artifacts that will only be recognized as such once we can compare them with results coming from several other studies. Therefore our «test» of the relative impact of constitutional rules and market mechanisms is not yet convincing enough. Further research is needed, especially on Australian states and German Lander.

Nevertheless, it is clear that we must be prudent with any recommendation based on the empirical research on the impact of institutions, given the methodological problems raised above. Let's not forget Ferejohn and Krehbiel's warning that more stringent budgetary rules may result in higher spending. They showed that if we force legislators to vote first on the total spending level, and only then, on the allocation among spending programs, it would be rational for the median legislator, anticipating the outcome of the second vote, to support higher total spending than he would have otherwise (Ferejohn and Krehbiel 1987).

Besides, one wonders whether budget deficits really are this absolute wrongdoing that many ideologues would like to eradicate, even at the cost of a severe deterioration of public services. Indeed, public finance specialists are far from being unanimous on the meaning of deficits. In its report on budgetary discipline in the American federal system, the Advisory Commission on Intergovernmental Relations (ACIR) identified five positions in the discourse on budget deficits:

1- Deficit is an illusion. If we applied private sector accounting rules to the public sector, the American federal deficit would become a surplus.

2- The deficit «problem» is an illusion. The deficit has no significant impact on interest rates and inflation. There might be a crowding out effect but this effect does not come from the deficit itself but from government spending which reduce the stock of resources available to the private sector because of taxes and borrowing[5].

3- High and recurrent deficits pose a significant economic problem. But this phenomenon is recent and results from the convergence of a certain number of political events. The political system will eventually solve this problem through administrative reforms or through pressures from interested individuals and public opinion.

4- Deficit is an important problem resulting from the structure of the decision-making process. Any solution to this problem requires limited reforms in decision-making rules.

5- Deficits stem from a major structural failure which requires radical reforms. They are the inevitable consequence of a political budgeting process in which politicians have a tendency to favor increasing spending while maintaining taxes constant and in which the preference of the majority for fiscal discipline is not coherently and consistently expressed in the polls.

In such a context, it is clear that the importance given by an analyst to the implementation of stringent budgetary rules might depend as much on his position on this scale as on objective criteria based on empirical research.

The partisan cycle hypothesis. The second lesson one could draw from our review concerns the partisan conceptions of budget deficits. The hypothesis relating higher deficits to the strength of leftist parties in government, or to another form of the partisan cycle theory, has been rejected in most of the studies that tested it. In my review of the literature on OECD country deficits, I found

[5] In a federal system, there may be another type of crowding out effect that ACIR ignores: federal borrowing reduces the stock of funds available for federated states and local government borrowing thus inducing a pressure on interest rates that these lower level governments must pay on their debts.

that sixteen out of seventeen studies reporting empirical results on this hypothesis disconfirmed it. The literature on federated state deficits provides the same picture: nine out of twelve such studies yield the same conclusion. Moreover, many studies showed that the opposite of what is predicted by the theory was true: governments of the center or of the right systematically have lower budget balances. Is it time to declare that the hypothesis of a partisan cycle in deficits and debts has been definitely falsified by systematic empirical observation? After all, is it not the purpose of empirical research to «slain beautiful theories with ugly facts» (Larkey, Stolp, and Winer 1981: 202)?

One could argue that this deadlock ensues from a measurement problem. Characterizing the ideological orientation of a party on the basis of a label is such a simple measurement process that one might be inclined to question its validity. Why should two parties using the label «socialist» have the same ideology? Social phenomena are complex enough that we are justified to distrust too simple observation methods. Yet empirical research on party platforms and on party behaviour once in power confirms the validity of this measurement procedure. The Essex-based Manifesto Research Group, for example, did find two different discourses, left and right, in party platforms (Budge and Hofferbert 1996) and confirmed that parties tend to adopt policies that are coherent with their discourse (Hofferbert and Budge 1996). These conclusions were confirmed by a plethora of empirical research reviewed in a meta-analysis of the party-policy relationship (Imbeau, Pétry, and Lamari 2001).

I do not think that we have a measurement problem. My contention is rather that partisan conceptions of deficits and debts do not correspond to a left/right, liberal/socialist, laissez-faire/interventionist dichotomy, but on a partial/total vision of the budget. It is not surprising then that empirical tests relating the left/right dichotomy to deficit levels fail to reach the appropriate significance level.

Indeed, what basically separates leftist from rightist parties is their position about the size of government. The left wants more, the right wants less. Furthermore, each ideology has a preferred fiscal instrument to pursue its objective. The left wants more spending, the right wants less taxes. Thus, pursuing their objective, as we expect rational actors to do, each contributes to create a deficit: the left tries to maintain or to increase spending while avoiding the tax increases that would produce a balanced budget; the right tries to lower taxes while postponing the spending cuts that would balance the budget. Whether

or not a government will adopt a fiscally conservative behaviour does not depend on its preferences regarding the size of government but on its vision of the budget. A spatial illustration may be useful here.

Let there be a two-dimensional budget policy space defined by taxes and spending (see figure 1)[6]. Each axis represents ideological positions on spending and taxing decisions, the origin corresponding to the status quo. The ideological space thus created represents multiple ideological positions relative to what a government should do regarding taxing and spending: [More OR Less spending] AND [More OR Less taxes]. Any political party, or any individual, can be located somewhere on this space. Typically, leftist parties would be located in quadrant B (B1+B2) and rightist parties in quadrant C (C1+C2). Now, let's add a third dimension to this budget policy space, defined by a 45-degree diagonal representing the status quo balance as every point on the diagonal corresponds to the same difference between revenues and expenditures. This diagonal splits the policy space into two zones: above the diagonal, the budget balance is higher (deficit is lower) than the status quo; below it, the balance is lower. These zones correspond to ideological positions relative to the vision of the budget a party holds, partial (below the diagonal) or total (above the diagonal): if the party program (more or less tax and spending) is more important than the budget balance, then the vision is partial; if the budget balance is more important than a party's taxing or spending preferences, then the vision is total. Thus, the ideological spaces of the left and of the right are split into two zones. A party of the left can have a partial vision of the budget; in that case it is located in zone B2. Or it can have a total vision of the budget thus located in zone B1. The same applies to parties of the right, located either in zone C1 or C2.

From this theory, we can deduce the hypothesis that the budget balance will be higher if the government-party is located above the diagonal, be it of the left (zone B1 in figure 1) or of the right (zone C1). The balance will be lower with a government-party located below the diagonal (zones B2 and C2). Thus the empirical results reported above make new sense. Leftist parties in federated states tend to be located along the diagonal. This is why they do not have significantly higher deficits than parties of the right. On the other hand, some rightist parties are located below the diagonal, in the partial vision zone of the ideological space as they give more importance to their low tax program than to

[6] This development is inspired by an article by Ferejohn and Krehbiel (1987), expanded by Imbeau (2004b).

the budget balance. In this case, we find that deficits are systematically higher under their leadership, as shown by Galli and Rossi (2002; 2004) in the German Lander, Imbeau and Tellier (2004) in the Canadian provinces, and Pétry (2004) in the Swiss cantons.

This brings me to conclude that it is two early to discard the possibility of a partisan cycle in budget deficits. On the contrary, empirical research on this hypothesis could very well give this theory a new life as it would force us better to back up our theoretical thinking, to be more rigorous in the deduction of our hypotheses, and to develop new measurement instruments of the ideology of fiscal conservatism. If we could empirically classify parties according to their vision of government budget, we would be in a position to make a valid test of the partisan cycle hypothesis in deficits and debts. Furthermore, this way of measuring party preferences could allow us partly to solve the rule endogeneity problem raised above. If the regression estimates of rule stringency variables come out as significant when party preference is not included in the model and if they turn insignificant when party preference is included, then we would have a proof that the stringency-conservatism relationship is spurious. Otherwise, we would confirm that this relationship is real.

Using federated states as laboratories for addressing the two issues raised here may yield useful result because the comparison of federated states allows one to minimize the variability on factors, mainly institutional and historical, which are not directly relevant to the explanations we want to assess but which can contaminate results in cross-national comparisons. Furthermore, additional empirical research on the German Lander and the Australian states could usefully complement my test of the impact of constitutional rules vis-à-vis market institutions as control devices on the deficit bias of induced by democratic institutions.

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Table 1 - Theories and Hypotheses of Public Deficits and Debts by Theoretical Assumptions

	Assumptions about Institutions			
	Neutral Institutions		Non-neutral Institutions	
	Assumptions about decision-makers		**Assumptions about decision-makers**	
	Single-Benevolent	Competing-Egotistical	Single-Benevolent	Competing-Egotistical
Assumptions about societal agents				
Single Agent	**A** *T: Ricardo-Barro Equivalence Theorem* *H: Economic cycles*	**C** *T: Electoral cycle* *H: Proximity of elections*	**E**	**G** *T: Log rolling* *T: Strategic use of debt* *H: Fragmentation* *H: Instability* *H: Stringency of rules* *H: Referendum*
Competing Agents	**B** *T: Negative bequest* *H: No hypothesis*	**D** *T: Partisan cycle* *H: Leftist governments*	**F**	**H** *T: War of attrition* *T: Tragedy of the Commons* *H: Fragmentation* *H: Instability* *H: Stringency of rules* *H: Referendum*

Legend: *T*: theory; *H*: hypothesis.

Table 2 : Synthesis of the empirical research on deficits and surpluses in the federated states of five federations

	Economic growth	Unemployment	Strength of the left	Proximity of elections	Government fragmentation	Rule stringency	Referendum
Germany	**Failed to reject H_0:** Pétry 2004	**Rejected H_0:** Pétry 2004	**Failed to reject H_0:** Galli et Rossi 2002; 2004 [2] Seitz 2000 Pétry 2004	**Rejected H_0:** Galli et Rossi 2002; 2004 [6] **Failed to reject H_0:** Pétry 2004	**Failed to reject H_0:** Pétry 2004		
Australia	**Failed to reject H_0:** Pétry 2004	**Failed to reject H_0:** Pétry 2004	**Failed to reject H_0:** Pétry 2004	**Failed to reject H_0:** Pétry 2004	**Failed to reject H_0:** Pétry 2004		
Canada	**Rejected H_0:** Imbeau et Tellier 2004 Pétry 2004 [4] Tellier 2004	**Rejected H_0:** Imbeau et Tellier 2004 Pétry 2004 Tellier 2004	**Failed to reject H_0:** Kneebone et McKenzie 2001[1] Imbeau et Tellier 2004 [2] Pétry 2004 Tellier 2004 [5]	**Rejected H_0 :** Kneebone et McKenzie 2001 Imbeau et Tellier 2004 Tellier 2004 **Failed to reject H_0:** Pétry 2004		**Rejected H_0:** Imbeau et Tellier 2004 Pétry 2004	
United-States	**Rejected H_0:** Garand et Kapeluck 2004 Eichengreen et Bayoumi 1994 Sorensen, Wu et Yosha 2001 **Failed to reject H_0:** Pétry 2004	**Rejected H_0:** Garand et Kapeluck 2004 **Failed to reject H_0:** Pétry 2004	**Failed to reject H_0:** Garand et Kapeluck 2004 Pétry 2004	**Rejected H_0:** Clingermayer 1991 Garand et Kapeluck 2004 Pétry 2004 Sorensen, Wu et Yosha 2001 **Failed to reject H_0:** Lowery 1985	**Failed to reject H_0:** Garand et Kapeluck 2004 Pétry 2004	**Rejected H_0:** Bohn et Inman 1996 Alesina et Bayoumi 1996 Bayoumi et Eichengreen 1995 Garand et Kapeluck 2004 Pétry 2004 Sorensen, Wu et Yosha 2001	
Switzerland	**Rejected H_0:** Martin 2000 Martin et Soguel 2004 Dafflon et Pujol 1999 **Failed to reject H_0:** Pétry 2004	**Rejected H_0:** Kirchgässner et Pommerehne 1997 Martin 2000 Martin et Soguel 2004 Pétry 2004	**Rejected H_0:** Martin 2000 Martin et Soguel 2004 Kirchgässner et Pommerehne 1997 **Failed to reject H_0:** Pétry 2004 [2] Dafflon et Pujol 1999	**Failed to reject H_0:** Pétry 2004 Martin et Soguel 2004 [3]	**Failed to reject H_0:** Pétry 2004 Dafflon et Pujol 1999	**Rejected H_0:** Pétry 2004	**Rejected H_0:** Martin et Soguel 2004 **Failed to reject H_0:** Dafflon et Pujot 1999 Martin 2000

H_0 : Null hypothesis stating that there is no significant relationship between the explanatory facto rand the level of, or change in, budget balance (one-tail test).
«Anomalies», i.e., significant relationship with the wrong sign are classified under «Failed to reject H_0» and identified with a footnote.

[1] Governments of the Liberal Party are associated with increases in deficits, those of the Social Credit with decreases. Governments of the right (Conservative and Social Credit) are associated with larger deficits in election years.

[2] Governments of the right are associated with smaller budget balance (higher deficits).

[3] The budget balance is higher in election years.

[4] A smaller balance is associated with a stronger income growth.

[5] Budget balance is significantly smaller under goverments of the Liberal Party (Center).

[6] The budget balance is smaller in mid-mandate year.

Table 3: Summary of empirical findings of the public choice research on deficits and surpluses in federated states

	Dependent variable		Independent variables (Empirical Results Reported in the Literature)						
	Surpluses (Deficits)		Economic Cycles		Political Cycles		Institutions		
	Average	Range	**Growth**	**Unemployment**	**Partisan**	**Electoral**	**Fragmentation**	**Stringency**	**Referendum**
More autonomous states:									
Canada	(6.1)	53	Sig.	Sig.	n.s.	Sig.	-	Sig.	-
Switzerland	(1.5)	60	Sig.	Sig.	?	n.s.	n.s.	Sig.	?
United States	10.3	114	Sig.	Sig.	n.s.	Sig.	n.s.	Sig.	-
Less autonomous states:									
Australia	(6.3)	106	n.s.	n.s.	n.s.	n.s.	n.s.	-	-
Germany	(2.2)	284	n.s.	Sig.	n.s.	?	n.s.	-	-

Average: in percent of total spending, 1981-1997

Range: in percentage points

?: mixed results

Sig.: significant result reported

n.s.: non significant result reported

Figure 1: Ideological Zones of the Fiscal Policy Space