

HOW TO TAME TWO LEVIATHANS? REVISITING THE
EFFECT OF DIRECT DEMOCRACY ON PUBLIC EXPENDITURE

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How to Tame Two Leviathans? Revisiting the Effect of Direct Democracy on Public Expenditure

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Abstract

We estimate the effect of direct democracy at state level on local expenditure. Thanks to a new dataset with higher information on municipal characteristics, we are able to extend previous analysis by discriminating the results on municipal decision making process in a federal context. Considering 112 municipalities belonging to 21 Swiss cantons for the period 1993-2007 we highlight that municipalities belonging to cantons with direct democracy present higher expenditure.

PRELIMINARY AND INCOMPLETE

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1 Introduction

Empirical tests have generally shown that direct democracy lowers expenditure. The same clear result cannot be shown when the attention is focused on the effect of the decision making process into a federal structure of expenditure. The empirical results are contrasting. How direct democracy institutions at a particular level of government affect the policies of another level of government is still an open issue. In this paper, we attempt to make a first step toward a better understanding of how varying institutional settings across levels of jurisdictions in a federation affect political outcomes.

The vertical structure of expenditure is mainly defined in the constitutional task assignment. Nevertheless, the actual decisions in terms of dimension of public intervention is the outcome of a political process. Often, while politicians are the main actors in this process, they have diverging interests from the constituents. Whether

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citizens could participate directly or not in the definition of public policies becomes then an important aspect of the legislative process.

For the purpose of this research a main distinction must be made between legislative processes. The ones which allow for citizen intervention and the ones which don't allow for citizen intervention. Referendum and popular initiative are the main forms of direct democracy. In this study we focus on the effects of direct democracy in the specific case of referendum.

For a referendum to take place, citizens need access to information. As the information allows a higher level of control on the politicians involved in the legislative process, the ability of rent extraction may be reduced. However, a federation also implies that different levels of government are involved in the definition of public policies. Upper and lower level governments might actually have different degrees of direct democratic participation. In Switzerland both middle tier (cantons, equivalent to states) and local jurisdictions (municipalities) enjoy large autonomy on setting the degree of direct democratic participation in their respective decision making process, including the possibility to introduce fiscal referenda. Thus, within a canton (state) with a fiscal referendum there usually exists municipalities which also feature a fiscal referendum and some which do not. Similarly for cantons without fiscal referendum.

The empirical tests are performed by using data concerning Switzerland. Our dataset consists of annual expenditure decisions, institutional settings and control variables for 21 of the 26 cantons and 112 of the largest municipalities in the country for the period 1993 to 2007. First, we estimate the effect on municipal expenditure of the availability of mandatory referenda at the municipal level and at the cantonal level in isolation from each other. Second, we estimate the effect of the availability of fiscal referenda at the cantonal level on municipal expenditure outcomes, controlling whether this effect is different for municipalities with or without referendum. Our results suggest that municipalities with referendum present a lower expenditure and that in cantons with referendum local expenditure is higher. Once we consider both the municipal and cantonal decision making process we verify that having direct democratic institution also at the municipal level reduces the positive effect on expenditure due to cantonal setting.

2 Literature Background

In recent years a series of studies both theoretical and empirical highlighted interest on how decision making processes affect public policies. The discussion was focused on understanding and testing differences in the policy outcome between representative and direct democracy system.

2.1 Theoretical

In a representative system citizens delegate power to politicians through elections. Elected representatives, given their position, have an informative advantage and specific skills which should allow the promotion of more efficient policies (Kessler,

2005). Nevertheless, the representatives could deviate from citizens' preferences. This happens either because they seek to maximize their own utility function (Tullock, 1959) or because, despite being welfare maximizer, they are not able to really understand constituents' preferences (Matsusaka, 1992). The presence of direct democracy instruments should have the advantage to decrease the distance between citizens' preferences and policy outcomes (Matsusaka, 2005).

Direct democracy can assume two main forms: the referendum and the popular initiative. The main difference between the two is the time in which the citizens become part of the legislative process. With the referendum the citizens are called at the end of the process. Referendum gives veto power to citizens on representatives' decisions. The gap between median voter's preferences and policy outcome is reduced but still policy makers have the main role in policy formation (Romer and Rosenthal, 1979). Nevertheless, as it is suggested by Feld and Kirchgässner (2000), thanks to referendum politicians work is under scrutiny because the citizens are better informed about it. In the case of popular initiatives citizens' intervention is at the beginning of legislative process. According to Vatter (2000) it is the most powerful instrument of direct democracy, considering that a minority of voters become able to go against parliamentary majorities.

Other theoretical contributions give insights on how direct democracy and representative democracy differently affect the vertical structure of public good provision. Redoano and Scharf (2004) shown that representative democracy sustains centralization even when direct democracy would not be able to support it because regionals' preferences on policy are too different. This result is based on a model of two heterogeneous jurisdictions and policy spillovers in which strategic delegation in representative democracy plays a crucial role. Centralization is more likely to occur when the decisions are taken in a situation of representative rather than direct democracy. Schnellenbach et al. (2010) carried out similar results by developing a model close to the previous. A first main difference is given by the possibilities that centralization does not imply harmonization of policies across regions. Further, they include politicians rent extraction as integrating part of the model.

2.2 Empirical

Empirical studies show that the presence of direct democracy institutions in a specific jurisdiction reduce both the level of public expenditure and public debt¹. These results should confirm the idea that citizens prefer a level of expenditure which is lower than the one preferred by politicians (Peltzman, 1992).

Results are contrasting when the analysis looks at the relationship between vertical structure of the expenditure and direct democracy. In work carried out by both Matsusaka (1995) and Feld et al. (2008) the presence of direct democracy at higher level of government produces an increase in the level of expenditure at the lower level. More in detail, Matsusaka (1995) shown that in the U.S. expenditure at local

¹Among the others: Feld and Matsusaka (2003), Feld and Kirchgässner (2001a), Feld and Kirchgässner (2001b), Feld et al. (2011), Funk and Gathmann (2011) and Matsusaka (1995).

level is higher in those municipalities belonging to states which allow for voter initiative. Feld et al. (2008) highlight that the level of centralization is lower in those jurisdictions in which a referendum on expenditure is mandatory. This finding would suggest citizens preferences for local expenditure. These results are challenged by Funk and Gathmann (2011). Thanks to a wider temporal data set they were able to control for both heterogeneity among cantons (states) and for endogeneity in the definition of the main explanatory variable. The new results suggest that compulsory referendum on expenditure at higher level of government does not increase the level of expenditure at a lower level and neither affect the level of decentralization.

3 Direct democracy and expenditure.

Studies on decision making process suggest that referendum makes it easier for citizens to take politicians behavior under control. With the assumption that politicians are not welfare maximizer and they actually aim to maximize their own utility function, a decrease in the ability of rent extraction should imply a decrease in public expenditure.² Although many authors have suggested that the effect of citizens participation in the decision making process is significant and with similar sign for both upper level (state, canton) and lower level government (local jurisdiction), the papers that concern two levels of government present controversy results. Funk and Gathmann (2011) highlight that cantonal (state) direct democratic institution does not affect municipal (local jurisdiction) policies, in contrast with previous finding that showed a positive effect of upper (state) level referendum on lower (local jurisdiction) level expenditure (Matsusaka, 1995) and (Feld et al., 2008).

As in the U.S.A., Switzerland presents variation in the degree of direct democracy within and between cantons³. Thus, in principle the results so far carried out might be biased to the effect of referenda of the higher level of government which affect in different way the local authorities whether they are also constrained by citizen participation or not.

If the two levels of government are considered in a complete way then the possible situations, as shown in Table 1, increase with respect to the previous studies, which just compared situation (a) versus (b), from 2 to 4. Theoretically the interaction of such institutions could lead to several outcomes.

When both levels have referendum then we should verify a low level of expenditure for the municipality, both tiers have the constraint given by the citizens control. If the municipality does not present referendum and the canton does then one can think of two opposite effects that are at work. On the one hand, citizen control at the upper level of government could allow unconstrained local authorities to extract more rents, which implies a higher local expenditure. On the other hand, local expenditure could be reduced through the possibility of vertical yardstick competition, i.e. citizen can observe the “good” behavior of state authorities and hold local

²We assume that politicians' utility is positively affected by public expenditure

³In U.S.A. within the 20 biggest cities: New York City has the initiative, while New York state does not; Boston does not have the initiative, while Massachusetts does; in California the initiative exists both at the state and local level; finally, neither Indianapolis nor Indiana have the initiative.

politicians in check, reducing the agency problem. We are mainly interested in test whether the existence of fiscal referendum in the state (upper level) affects local expenditure decisions and whether this effect varies across municipalities with or without a referendum.

Hypothesis - "Having a referendum at higher level of government affects differently the policies of lower level government depending on its the decision making process"

4 Swiss institutional setting

In the economic literature Switzerland is often indicated as a natural laboratory. This is mainly true for studies that concern with direct democracy and federalism issues. Switzerland is a federation which consists of three levels of government⁴, all with legislative and executive institutions and wide-ranging autonomy, both in tax setting and expenditure decisions. In the period 1990-2009 the expenditure (revenue) on average is given 32% (31%) by the federal, 41% (41%) by the cantonal and 27% (28%) by local administrations. This situation is quite stable overtime. Evidence suggests that federal government has a minor role if compared with the others levels of government. This is the result of the swiss system of residual competence which enables the sub federal levels of government to act in all those cases not defined in the federal constitution. Differently from many other countries, local governments have actually a wide autonomy. Responsibilities are defined both at municipal and cantonal level. There are public goods which are independently provided by municipalities or by cantons, others which are provided in sharing by both and others which the municipalities provide because of cantonal mandate.

Given this autonomy in task assignment, it is clear that in Switzerland the vertical structure of expenditure depends mainly on the municipalities considered and on the respective canton.

The same variety of possible settings is noticed also if we consider the decision making process. The possibilities for citizens to be part of the decision making process is possible at each of the three levels of government. The leading direct democratic institution in Switzerland are the popular initiative and the referendum. With the first citizens can propose a new law and depending on the subject they should be approved by representative institutions or directly by the population. With the referendum the citizens are called to vote in favor or against a decision already taken by the representative body. The referendum can be mandatory or optional. When mandatory the authorities must hold a referendum to confirm their decision. In the case of optional referendum it would be held only when some precise conditions is fulfilled. Usually citizens need to collect a certain number of signatures in a given interval of time. The constitutions of both cantons and municipalities define the

⁴Apart from the federal level, there are 26 cantons (state) and 2551 municipalities (local jurisdictions)

kind of referendum allowed in each jurisdiction.⁵ The mandatory referendum plays a prominent role in our study. Usually it concerns with public decision that affect directly or indirectly fiscal issues. This direct democratic instrument is extensively present at sub-federal level and allows the highest level of citizens' control on politicians' decisions.

Given this description become clear that Switzerland presents the perfect conditions to test our hypothesis.

5 Data and empirical model

5.1 Data

For the aim of our studies we collected a panel data set which considers 112 of the largest municipalities belonging to 21 Swiss cantons. The data covers the period from 1993 to 2007. We take municipal information on direct democratic institutions from a research elaborated by Micotti and Bützer (2003)⁶, and cantonal information by the support of a study carried out by Fischer (2009)⁷. Almost 68% of the municipalities in our sample have a mandatory referendum. In 1995, 17 cantons over 26 had mandatory fiscal referendum. In 2007 the number of these cantons decrease to 16. Tough this number seems to be stable, 5 cantons changed at least once⁸. In our dataset the cantons which present variability in the institution at municipal level are 6: Berne, Lucerne, St. Gallen, Thurgau, Zug and Zurich as presented in Figure 1. Although the number of municipalities considered is not large, our sample allows us to consider all the possible institutional interactions. Considering the whole period in analysis there are 20% of the municipalities without referendum that belong to cantons also without referendum, while 12% are the ones which belong to cantons with referendum. Municipalities with referendum that belong to cantons without referendum are 37% of the total, while 31% are the ones which belong to cantons with referendum.

We supplement the institutional information with data on public expenditure, socio-economic and political characteristics (see Table 2 summary statistics). By considering these variables we want to catch the municipal expenditure variance which is not related with the main variables used to test the hypothesis.

⁵The municipal constitution have to be conform with the cantonal constitution. Actually the cantons present a higher power in the definition of the institutional setting.

⁶We will consider direct democracy information at municipal level as invariant overtime. As reported in Micotti and Bützer (2003) democratic institutions at the municipal level are quite stable, more than the cantonal one.

⁷The level of details of our cantonal information allow us to be more specific and talk about mandatory fiscal referendum.

⁸Look at Funk and Gathmann (2011) for details of the variation for the period 1890-2000.

5.2 Empirical model

The model that we estimate is:

$$Y_{ict} = \beta_1 MunRef_i + \beta_2 CanRef_{ct} + \beta_3 MunRef_i * CanRef_{ct} + \beta_4 \mathbf{X}_{it} + t_t + \epsilon_t \quad (1)$$

where the subscript i denotes the municipality, c the canton and t the year. The dependent variable Y is the log of municipal expenditure per capita. \mathbf{X}_{it} are other control variables and t_t is the year fixed effect. ϵ_{it} is the error term.

More in detail we control for *population* to deal with possible economies of scale in the provision of public good. We use age structure variables, old and young people shares of population (*share pop > 64* and *share pop < 20*), to consider the possible differences in the demand of public goods. *Share foreigners* is included for the same reason. Large *area* of a municipality should be related to a higher cost in provision of public services. *Unemployment* has the double function to consider both the economic condition and the effect on social security. The presence of a *university* in a municipality should affect positively the level of expenditure either because of direct funding or because of related facilities. We control also for municipalities that are *urban center*, to consider the possible higher demand for public goods. *Distance to freeway*, *distance to airport* and *lake shore* are included as a proxy for municipalities' attractiveness which should be related with tax payer features. We do not use other variable strictly related with taxpayer income to avoid the endogeneity problem that typically arise in study that consider public expenditure as dependent variable.

Finally, we are also interested in how political variables could affect per capita municipal spending. The number of ministers and the number of parties in the executive (*ministers in the cabinet*) and (*parties in the cabinet*), should be positive related with our dependent variable because of the common pool problem (Roubini and Sachs, 1989). The share of left-wing ministers in the executive (*share left ministers (mun)*) is usually used as proxy for citizens' preferences. Left-wing parties should be more in favor of government intervention which should imply a higher level of expenditure.

We use several econometric approaches to deal with our hypothesis. Funk and Gathmann (2011) show that unobserved heterogeneity among cantons is important in the definition of their results. Thus, when possible we will use cantonal fixed effects. We are aware, given the low variability of our main independent variables, that cantonal fixed effect could not be the best solution. We then use other kinds of control on cantonal or cultural heterogeneity. We also use random effects as an alternative to fixed effect⁹. Our baseline regressions consider robust standard error. Then, as robustness check, we consider also cluster error for different groups. Further, given that our observations are geographical units we control for spatial correlation among municipalities¹⁰.

⁹TBC

¹⁰TBC

6 Empirical Results

6.1 Basic results

We start by testing the model in Equation (1), without considering institutional interaction. By doing so we use our dataset to replicate previous analysis. Regressions results are reported in Table 3. Direct democracy effect on expenditure seems to be coherent with some of the previous finding. As in the cross-sectional analysis by Feld and Kirchgässner (2001b) we find that direct democratic institution at municipal level foster a reduction in the expenditure. By looking at the first three columns of Table 3 we highlight that this is true when we control for socio-economic features and also political condition. Compared to the previous dataset our panel allow us to consider cantonal fixed effect to deal with cantonal heterogeneity.

In the last three columns of Table 3 we show that cantonal referendum affects positively the municipal expenditure. This is coherent with the finding of Matsusaka (1995) and Feld et al. (2008) but in contrast with Funk and Gathmann (2011). In this case we control for language group heterogeneity.

Control variables are mainly significant and the signs looks coherent with our expectations.

Political control variables show interesting results. First it seems that in general left-wing parties do not foster more expenditure. This is in line with previous finding for studies focused on Switzerland (Feld and Kirchgässner, 2001b). Second, the variables related with the common pool problem present contrasting results. On the one hand a higher number of ministers entails more expenditure. On the other hand we find that the number of parties in the government at the municipal level reduce the expenditure, in contradiction with the common pool problem. This could be the case of specific feature of the Swiss case. We know that, differently from others countries, all the three levels of government are usually composed by a coalition of the biggest parties which present different electoral program and ideology. Given this situation could happen that the mechanisms of control arise instead of one of cooperation. Again, these results are coherent with other studies on Switzerland (Feld et al., 2011).

In Table 4 we present the results of the regression which include all the regressors specified in Equation 1. The interaction term is now taken into account. In this case the coefficients does not represent the marginal effects of the variables. Thus, we compute further tests to check for joint significance of the parameters. Considering our hypothesis we see that cantonal referendum entails an higher level of municipal expenditure. The interaction term is significant only when we start considering for language group heterogeneity. Municipal referendum is significant only when we do not use controls. We can conclude that referendum at cantonal level seems to affect positively the level of municipal expenditure also when the interaction term is included. Municipal referendum effect on the expenditure is overcome by the cantonal one. By the way, if we consider the last column municipal referendum seems to less the positive effect on expenditure due to cantonal referendum. More in details, if the municipality does not have a referendum this effect is stronger (0.179) than the case

in which municipality have the referendum ($0.179 - 0.053 = 0.126$). The F-statistic to test for joint significance of the coefficients *Mandatory ref. (can)* and *Mandatory ref. (can)*(mun)* is significant at 99% confidence level.

6.2 Robustness check- TBC

In Table 5 we show the results after subjecting the baseline regression in column four of Table 4 to different robustness check. We first correct the error by clustering¹¹ That allows us to deal with the correlation of the error within cluster. We cluster for both municipalities and cantons. As shown in the first two columns the interaction term lost significance while cantonal referendum is still significant. We confirm that municipal expenditure is higher in those cantons with mandatory referendum. Finally, we use cantonal fixed effect to deal with the unobserved heterogeneity among cantons. The results are reported in the last column of Table 5. The coefficient of the interaction terms turns out to be significant for all the three errors specification used. The value is now higher than the one of the cantonal referendum. This result should imply that having a referendum also at municipal level completely nullify the increase of local expenditure given by the cantonal referendum.

6.3 Decentralization - TBC

Given the previous results become interesting to check whether also the level of decentralization is affected by referendum. Again, with respect to previous studies on this specific topic we are able to control for decision making process at both levels of government instead of considering only one of the two. Our dependent variable is calculated as $\frac{LocalExp}{LocalExp+CantExp}$. As basic assumption we consider that canton spends the same amount of money in each of the municipalities. In Table 6 we show the results.

7 Conclusion

We revisit previous empirical findings on the relationship between public expenditure and decision making process. We deal specifically with the different policy outcomes due to representative versus direct democracy legislation. We test for the effect of upper level referendum on public expenditure of lower level jurisdictions. Using the particular features of Swiss institutional setting we are able to discriminate these results for lower level decision making process. We verify that in cantons with referendum municipalities spend less. We verify also that depending on the control that we use for the heterogeneity among language group or cantons this effect varies between on municipalities with and without referendum.

¹¹When the clusters are few the error should be adjusted. A common procedure is to consider wild bootstrap (Miller et al., 2008) - TBC.

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Table 1: Interactions possibilities

| Jurisdiction | (a) | | (b) | |
|--------------|---------|---------|---------|------|
| | (1) | (2) | (3) | (4) |
| Cantonal | No Ref. | No Ref. | Ref. | Ref. |
| Municipal | No Ref. | Ref. | No Ref. | Ref. |

Table 2: Summary statistics

| Variable | Mean | Std. Dev. | Min. | Max. | N |
|------------------------------------|--------|-----------|-------|--------|------|
| Municipal expenditure p/c (Log) | 12.774 | 0.318 | 11.86 | 14.089 | 1677 |
| Mandatory ref. (mun) | 0.679 | 0.467 | 0 | 1 | 1680 |
| Mandatory ref. (can) | 0.431 | 0.495 | 0 | 1 | 1680 |
| Mandatory ref. (mun)*(can) | 0.308 | 0.462 | 0 | 1 | 1680 |
| Population (Log) (mun) | 9.801 | 0.622 | 8.888 | 12.79 | 1680 |
| Unemployment (mun) | 4.18 | 2.031 | 0.2 | 12.3 | 1677 |
| Share pop < 20 (mun) | 0.214 | 0.026 | 0.151 | 0.283 | 1680 |
| Share pop > 64 (mun) | 0.163 | 0.031 | 0.074 | 0.248 | 1680 |
| Share pop foreigner (mun) | 0.251 | 0.087 | 0.079 | 0.519 | 1680 |
| Area (mun) | 0.203 | 0.273 | 0.022 | 2.544 | 1680 |
| University (mun) | 0.074 | 0.263 | 0 | 1 | 1680 |
| Urban center dummy (mun) | 0.42 | 0.494 | 0 | 1 | 1680 |
| Distance to freeway (mun) | 3.53 | 4.651 | 0.028 | 42.908 | 1680 |
| Distance to airport (mun) | 0.463 | 0.378 | 0 | 1.648 | 1680 |
| Lake shore (mun) | 0.249 | 0.468 | 0 | 2.591 | 1680 |
| Parties in Gov (mun) | 3.971 | 0.943 | 2 | 8 | 1677 |
| Left wings parties - cabinet (mun) | 0.266 | 0.174 | 0 | 0.8 | 1677 |
| Ministers (mun) | 7.335 | 3.494 | 3 | 30 | 1677 |

Table 3: Estimation of the model without interaction term for the period 1993-2007

| | (1) | (2) | (3) | (4) | (5) | (6) |
|------------------------------------|---------------------|----------------------|----------------------|---------------------|----------------------|----------------------|
| Mandatory ref. (mun) | 0.223*** (0.017) | -0.047** (0.018) | -0.065*** (0.019) | | | |
| Mandatory ref. (can) | | | | 0.106*** (0.014) | 0.154*** (0.012) | 0.140*** (0.013) |
| Population (Log) (mun) | | 0.017 (0.016) | 0.054*** (0.017) | | 0.044*** (0.016) | 0.086*** (0.016) |
| Share pop foreigner (mun) | | -0.181* (0.100) | -0.139 (0.096) | | -0.344*** (0.096) | -0.339*** (0.093) |
| Share pop < 20 (mun) | | -3.673*** (0.435) | -3.855*** (0.434) | | -6.705*** (0.337) | -6.637*** (0.349) |
| Share pop > 64 (mun) | | 2.431*** (0.443) | 2.208*** (0.422) | | -0.555* (0.316) | -0.213 (0.324) |
| Area (mun) | | 0.024 (0.040) | 0.008 (0.041) | | -0.076* (0.041) | -0.106*** (0.041) |
| Unemployment (mun) | | -0.005 (0.005) | -0.007 (0.005) | | 0.013** (0.006) | 0.013** (0.006) |
| University (mun) | | 0.119*** (0.032) | 0.100*** (0.032) | | 0.070** (0.032) | 0.063** (0.032) |
| Urban center dummy (mun) | | 0.065*** (0.016) | 0.077*** (0.016) | | 0.019 (0.013) | 0.025* (0.014) |
| Distance to freeway (mun) | | 0.006*** (0.002) | 0.006*** (0.002) | | 0.011*** (0.002) | 0.013*** (0.002) |
| Lake shore (mun) | | 0.071*** (0.014) | 0.080*** (0.014) | | 0.049*** (0.012) | 0.043*** (0.012) |
| Distance to airport (mun) | | -0.432*** (0.050) | -0.428*** (0.050) | | 0.013 (0.023) | -0.015 (0.023) |
| Left wings parties - cabinet (mun) | | | -0.262*** (0.043) | | | -0.303*** (0.047) |
| Parties in Gov (mun) | | | -0.024*** (0.007) | | | -0.008 (0.007) |
| Ministers (mun) | | | 0.008*** (0.002) | | | 0.004** (0.002) |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Cantonal FE | Yes | Yes | Yes | No | No | No |
| Language control | No | No | No | Yes | Yes | Yes |
| R ² | 0.424 | 0.658 | 0.670 | 0.096 | 0.447 | 0.466 |
| N | 1677 | 1677 | 1675 | 1677 | 1677 | 1675 |

Table 4: Estimation of the model with interaction term for the period 1993-2007

| | (1) | (2) | (3) | (4) |
|------------------------------------|---------------------|----------------------|----------------------|----------------------|
| Mandatory ref. (mun) | 0.070*** (0.023) | 0.001 (0.020) | -0.001 (0.020) | 0.017 (0.021) |
| Mandatory ref. (can) | 0.020 (0.027) | 0.170*** (0.022) | 0.163*** (0.023) | 0.179*** (0.023) |
| Mandatory ref. (can)*(mun) | 0.123*** (0.032) | -0.026 (0.026) | -0.038 (0.027) | -0.053* (0.027) |
| Population (Log) (mun) | | 0.044*** (0.016) | 0.082*** (0.016) | 0.089*** (0.016) |
| Share pop foreigner (mun) | | -0.291*** (0.094) | -0.266*** (0.094) | -0.336*** (0.094) |
| Share pop < 20 (mun) | | -6.688*** (0.360) | -6.627*** (0.373) | -6.822*** (0.369) |
| Share pop > 64 (mun) | | -0.517 (0.322) | -0.183 (0.328) | -0.268 (0.324) |
| Area (mun) | | -0.080** (0.040) | -0.113*** (0.041) | -0.110*** (0.041) |
| Unemployment (mun) | | 0.017*** (0.005) | 0.020*** (0.005) | 0.014** (0.006) |
| University (mun) | | 0.078** (0.031) | 0.077** (0.031) | 0.059* (0.031) |
| Urban center dummy (mun) | | 0.016 (0.014) | 0.019 (0.015) | 0.025* (0.014) |
| Distance to freeway (mun) | | 0.012*** (0.002) | 0.014*** (0.002) | 0.013*** (0.002) |
| Lake shore (mun) | | 0.046*** (0.014) | 0.038*** (0.014) | 0.038*** (0.014) |
| Distance to airport (mun) | | 0.027 (0.021) | 0.010 (0.021) | -0.015 (0.023) |
| Left wings parties - cabinet (mun) | | | -0.291*** (0.046) | -0.310*** (0.047) |
| Parties in Gov (mun) | | | -0.010 (0.007) | -0.008 (0.007) |
| Ministers (mun) | | | 0.003* (0.002) | 0.004** (0.002) |
| Year FE | Yes | Yes | Yes | Yes |
| Language control | No | No | No | Yes |
| Significance inter + (can) | *** | *** | *** | *** |
| Significance inter + (mun) | *** | - | - | - |
| R ² | 0.132 | 0.447 | 0.464 | 0.467 |
| N | 1677 | 1677 | 1675 | 1675 |

Table 5: Robustness check

| | Cluster Mun (1) | Cluster Can (2) | Robust (3) |
|----------------------------|---------------------|--------------------|----------------------|
| Mandatory ref. (mun) | 0.017 (0.063) | 0.017 (0.085) | 0.010 (0.024) |
| Mandatory ref. (can) | 0.179*** (0.058) | 0.179* (0.087) | 0.114*** (0.022) |
| Mandatory ref. (can)*(mun) | -0.053 (0.067) | -0.053 (0.099) | -0.118*** (0.026) |
| Year FE | Yes | Yes | Yes |
| Demo-Eco control | Yes | Yes | Yes |
| Political control | Yes | Yes | Yes |
| Language control | Yes | Yes | No |
| Cantonal FE | No | No | Yes |
| R ² | 0.467 | 0.467 | 0.674 |
| N | 1675 | 1675 | 1675 |

Table 6: Decentralization: estimation of the model with interaction term for the period 1993-2007

| | (1) | (2) | (3) | (4) |
|------------------------------------|----------------------|----------------------|----------------------|----------------------|
| Mandatory ref. (mun) | 0.063*** (0.006) | 0.030*** (0.005) | 0.025*** (0.005) | 0.014*** (0.005) |
| Mandatory ref. (can) | 0.074*** (0.006) | 0.082*** (0.006) | 0.073*** (0.006) | 0.063*** (0.005) |
| Mandatory ref. (can)*(mun) | -0.035*** (0.007) | -0.041*** (0.007) | -0.039*** (0.006) | -0.030*** (0.006) |
| Population (Log) (mun) | | -0.005 (0.004) | 0.010** (0.004) | 0.006 (0.004) |
| Share pop foreigner (mun) | | -0.086*** (0.025) | -0.040 (0.024) | 0.004 (0.024) |
| Share pop < 20 (mun) | | -1.645*** (0.097) | -1.555*** (0.102) | -1.432*** (0.097) |
| Share pop > 64 (mun) | | -0.322*** (0.098) | -0.158 (0.104) | -0.105 (0.099) |
| Area (mun) | | -0.015 (0.010) | -0.026** (0.010) | -0.028*** (0.010) |
| Unemployment (mun) | | -0.002 (0.001) | -0.002 (0.001) | 0.002 (0.001) |
| University (mun) | | 0.002 (0.009) | 0.004 (0.008) | 0.015** (0.008) |
| Urban center dummy (mun) | | 0.029*** (0.003) | 0.027*** (0.003) | 0.024*** (0.003) |
| Distance to freeway (mun) | | 0.001 (0.001) | 0.001** (0.001) | 0.001** (0.001) |
| Lake shore (mun) | | 0.020*** (0.003) | 0.017*** (0.003) | 0.017*** (0.003) |
| Distance to airport (mun) | | 0.013** (0.006) | 0.008 (0.006) | 0.023*** (0.006) |
| Left wings parties - cabinet (mun) | | | -0.107*** (0.011) | -0.095*** (0.011) |
| Parties in Gov (mun) | | | -0.001 (0.002) | -0.003 (0.002) |
| Ministers (mun) | | | 0.003*** (0.000) | 0.003*** (0.000) |
| Year FE | Yes | Yes | Yes | Yes |
| Language control | No | No | No | Yes |
| Significance inter + (can) | *** | *** | *** | *** |
| Significance inter + (mun) | *** | *** | *** | *** |
| R ² | 0.214 | 0.455 | 0.506 | 0.524 |
| N | 1677 | 1677 | 1675 | 1675 |

Figure 1: Variability in municipal institutions

