

Web Appendix

for

The Political Economy of Direct Legislation: Direct Democracy and Local Decision-Making

by

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This appendix contains two parts. The first presents details on the sources for the data used in the paper. The second presents a more detailed description of the econometric model and discusses a number of econometric issues.

1. DATA SOURCES

Cantonal Data

expenditure

revenue

debt

Source: Eidgenössische Finanzverwaltung (Federal Finance Administration), *Öffentliche Finanzen der Schweiz*, Bern, various years, Table D.2 (expenditure), Table D.3 (revenue), Table D.9 and personal correspondence with the Federal Finance Administration (debt).

matching grants

federal lump-sum grants

Source: Eidgenössische Finanzverwaltung (Federal Finance Administration), *Öffentliche Finanzen der Schweiz*, Bern, various years, Table D4.5.

population

population density

share of people older than 65 years

share of young people younger than 20 years

share of urban population

Source: Bundesamt für Statistik (Federal Statistical Office), *Informationsdienst, Sektion Bevölkerungsentwicklung*, Neuchâtel, personal correspondence with Ursula Wegmüller.

cantonal GDP

Source: BAK Basel, personal correspondence.

national GDP

Source: Bundesamt für Statistik, *Statistisches Jahrbuch der Schweiz*, various years, Table T4.4, NZZ, Zurich.

unemployment rate

Source: SECO (State Secretariat for Economic Affairs), Bern, personal correspondence.

fraction of parliament seats held by left-wing parties

number of parties in the executive

Source: H. Hirter *et al.*, *Année politique suisse/ Schweizerische Politik*, Bern, various years.

fiscal referendum

signature requirement for the statutory initiative

Source: Trechsel and Serdült (1999, pp. 39, 81).

statutory fiscal restraints

Source:

Stauffer (2001, p. 72).

Local data

cantonal expenditure, revenue, debt and own revenue

population

share of people older than 65 years

share of young people younger than 20 years

Source: Statistik der Schweizer Städte, *Statistisches Jahrbuch des Schweizer Städteverbandes 1992*, Zürich and Bern 1992, pp. 10f, pp. 58f.

average taxable income

Source: Eidgenössische Steuerverwaltung (Federal Tax Office), personal correspondence.

unemployment rate

Source: Statistik der Schweizer Städte, *Statistisches Jahrbuch des Schweizer Städteverbandes 1991*, Zürich and Bern 1991, pp. 20f.

fraction of parliament seats held by left-wing parties

number of parties in the executive

Source: Statistik der Schweizer Städte, *Statistisches Jahrbuch des Schweizer Städteverbandes 1990*, Zürich and Bern 1990, pp. 62f.

dummy for referenda on budget deficits

fiscal constraints

agenda setting power

Source: Own survey of the Swiss municipalities.

2. ON THE ESTIMATION PROCEDURE

A. The estimating equations for cantons and local communities

We estimate the following model using panel data for the 26 cantons with annual data from 1986 to 1997:

$$(1) \quad X = f(Y^N, \Delta Y, U, Grants, Pop, Dens, Old, Young, Urban, French, Left, Coal, DD, Sign, Constr),$$

where the dependent variable X , stands for the following four fiscal variables,

- log of (net) public expenditure per capita;¹
- log of (net) public revenue per capita;
- budget deficits per capita;
- log of public debt per capita,

(these data have been deflated such that 1995 = 100).

The explanatory variables are:

- Y^N log of national GDP per capita;
- ΔY log of difference between regional (cantonal) and national GDP per capita;
- U unemployment rate;
- $Grants$ log of federal lump-sum grants per capita;
- Pop log of population;
- $Dens$ population density;
- Old share of population older than 65;
- $Young$ share of population younger than 20;
- $Urban$ share of urban population;
- $French$ share of the French or Italian speaking population
- $LEFT$ share of leftist parties in the parliament;
- $COAL$ number of parties in the executive;
- DD a dummy variable which takes on the value of one if there is a fiscal referendum on new spending and zero otherwise;
- $Sign$ number of signatures required for a statutory initiative in percent of the population;

¹In order to exclude the distorting impact of matching grants we use net spending and revenue. In particular in the cantonal case, matching grants per capita, with a mean of about \$787 compared to a mean of lump sum grants per capita of \$255, are highly unequally distributed among the cantons. Matching grants per capita range from \$3177 in the canton of Uri in 1989 to \$171 in the canton of Basel-Landschaft in 1991, while the range of lump-sum grants is from \$137 in Thurgau in 1990 to \$666 in Zug in 1987.

- *Constr* statutory fiscal constraints which takes values between zero for the cantons with no statutory fiscal requirement and three for those with the most stringent fiscal restraint;

and using cross-section data for 134 local communities for the year 1990:

$$(2) \quad X = f(Y^N, U, Grants, Pop, Old, Young, French, Left, Coal, DD, Agenda, Constr, D-Zug),$$

where Y^N is the log of taxable income per taxpayer and the other variables are as explained above.

B. Estimation issues

With panel data as they are employed for the cantonal model, a fixed cross-section effects model is typically tested against the simple pooled model and then against a random effects model. We allowed for fixed effects in the time domain by using time dummies, but they never proved to be significant. Thus, we excluded them from the estimations presented below. In the cross-section domain, it does not make sense to include fixed effects (besides the dummy variables for the two cantons Basel-City and Geneva), because the particularly interesting political variables on the fiscal referendum and on formal fiscal constraints vary only slightly or do in many cantons not vary at all over time. In the period between 1986 and 1997, the canton of Berne abolished the mandatory fiscal referendum in 1995, while the canton of Valais adopted it in 1994. Similar examples could be found with respect to formal fiscal restraints. Thus, fixed effects might simply mask the impact of the institutional variables and render them insignificant. Even if they remained statistically significant, the resulting estimates would capture the impact these institutions have on fiscal policies by exploiting the time variation only. The result would be a measure of the influence of the cantons which have changed their institutional framework, with respect to the mandatory fiscal referendum Berne and Valais only. Thus, given the limited time variation in these political variables, the fixed effects models do not seem to be appropriate for our investigation.

At least for the expenditure, revenue and deficit equations, endogeneity of the explanatory variables does not seem to be a problem in our model. This is especially true for the institutional variables because they only changed slightly during the time period covered by our data. It should also hold for the economic variables, as on the cantonal level public revenue and expenditure have hardly any influence on unemployment or average per capita income of this canton in the same year. There should also be no endogeneity problem for the equation of public debt with respect to the structural variables, but there might well be such a problem with respect to the economic variables. Public debt is the sum of earlier deficits which – with some time delay – might have had an impact on the economic development of a canton. However, because public debt is accumulated over many years, the usual procedure to use an instrumental variable estimator with lagged variables as instruments cannot solve this problem. Moreover,

there are hardly any instruments available to sufficiently address the endogeneity question. Thus, despite the possible endogeneity problem we use the same estimation procedure for the debt as for the other equations.

Letting aside the possible simultaneity problem with the economic variables in the debt equations at least the other equations can consistently be estimated with OLS. However, the residuals of the cantonal equations are (highly) autocorrelated, which has no impact on the consistency of the estimated parameters, but renders the OLS-estimates of the standard errors inconsistently. Thus, for the cantonal estimates we use a GMM procedure to correct the standard errors to take autocorrelation as well as heteroscedasticity into account (Greene, 1998, p. 408), while for the estimates of the local communities we take account of the rather different sizes of the local communities by using White-corrected standard errors.

To estimate a model for the local jurisdictions we use data of the members of the Swiss Association of Local Communities (Schweizerischer Städteverband) for the year 1990. In this year, this association had 137 members: towns and local communities whose population ranges between 2300 and 400 000 people. However, despite of several attempts we did not get the institutional data we asked for from three of these communities. (At the time this article went to print, we still did not have data from the municipalities of Baar (ZG), Onex (GE) and Locarno (TI) and so they were excluded from our sample; these communities, however, account for only 0.66% of the Swiss population.) Moreover, a first investigation of the data revealed that the city of Basel, which is also a member of this association, is a strong outlier. The reason for this is that the city of Basel and the canton Basel-City are nearly identical, i.e., ‘cantonal’ and ‘local’ revenue and expenditure are put together. Thus, this city/half-canton is not only an outlier with respect to cantonal but also with respect to local expenditure and revenue. For similar reasons, we excluded Glarus from our sample, a town of 5700 inhabitants in a mountain canton, which is heavily dependent on transfers from its canton and the federation, which results in a share of own revenue of only 45%, compared to an average share of 96% (the standard deviation is 6.1% including and 4.2% excluding this observation; the next lowest value of this share is 81%). Thus, excluding the three communities for which data are missing as well as Basel-City and Glarus we still have 132 observations (this is different for Geneva because this canton is also an exclusively urban canton that consists of several independent local communities besides the city of Geneva).

REFERENCES

- Greene, W.H. (1998). *LIMDEP Version 7.0: User's Manual*, Econometric Software, Inc., Plainview.
Stauffer, Th.P. (2001). *Instrumente des Haushaltsausgleichs: Ökonomische Analyse und rechtliche Umsetzung*, PhD thesis, University of St Gallen.
Trechsel, A. and U. Serdült (1999). *Kaleidoskop Volksrechte: Die Institutionen der direkten Demokratie in den schweizerischen Kantonen 1970–1996*, Helbing and Lichtenhahn, Basel.