

Trust and Fiscal Performance: A Panel Analysis with Swiss Data

by

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Abstract

Social capital in the sense of trust among members of a society, civic cooperation and social cohesion fosters the working of government institutions. This paper provides empirical evidence that trust is crucial for fiscal performance using data for the full sample of Swiss cantons over the 1981-2001 period. In cantons with high levels of trust, the level of indebtedness is significantly lower. Trust supports fiscal discipline. In order to get a useful approximation for mutual trust among citizens and between citizens and their representatives, we use information from direct voter participation on political issues (initiatives and public referenda) held in Swiss state (cantonal) governments. Electoral support of government proposals reveals an important aspect of trust in a real world setting. Hence, our trust variable measures the behavior at the ballots thereby reducing possible subjective biases derived from surveys and questionnaires.

Keywords: Trust, Social capital, Fiscal performance, Indebtedness.

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Social capital is a new field, suffering from a great lack of good, reliable data. Both time series and cross-country evidence are missing. In the meantime much speculation is going on ... it is hopefully clear that social capital is a promising concept, which can be operationalized by relatively simple measurement. However, it will take some time and a lot of work has to be done before it is known if social capital can deliver what it promises (p. 649).

Paldam (2000, p. 649)

1. Introduction

Several OECD countries have accumulated large government debts over the last 30 years. Very much the same applies for sub-federal governments. Why do we observe large debts in certain governments but not in others? An explanation to that question can be found looking at the institutional framework of jurisdictions. They are particularly important for fiscal policy decisions as fiscal institutions create the environment, the incentives, the rules, the regulations and the constraints under which budgets are drafted, approved, and implemented. Fiscal institutions can promote fiscal discipline if properly designed while an institutional framework that results in soft budget constraints provides incentives for loose fiscal discipline. These rules greatly vary over governments and thus provide a reasonable explanation for cross-section variations in debt levels (Alesina and Perotti, 1995; Poterba and von Hagen, 1999 or Persson and Tabellini 2001).

According to Buchanan (1980) we can broadly distinguish between quantitative and procedural institutions. Quantitative rules entail tax and expenditures limitation laws, debt brakes and other formal restraints to balance the budget. As empirically shown by Bohn and Inman (1996), Poterba (1997) or Shadbegian (1998) such budget rules can effectively support the fiscal discipline of policy makers. Procedural institutions define how property rights over political decisions are acquired, and who can exercise them. As shown by Persson and Tabellini (2003) the

constitutional design of the regime type and the electoral rules also shape fiscal policy decisions to a significant extent.

However, it will never be possible to design a constitution and to establish a framework of quantitative and procedural institutions that answers all future questions of a society. Hence, in all those cases where there is a degree of uncertainty, trust becomes a crucial aspect. Guerra and Zizzo (2003) point out that “without uncertainty, trust is not a significant issue because certainty means the outcome will be the same whether or not a trusting act was involved” (p. 3). Mutual trust in the case of uncertainty reduces transaction costs and makes the institutional architecture to work smoothly (Putnam 1993, 2000; Fukuyama 1995). Trust can be seen as the social capital of a society. Consequently, trust should be a crucial aspect in explaining fiscal policy decisions. Moreover, it is reasonable to assume that deep-seated social capital fosters fiscal discipline.

The paper concentrates on the relationship between public debts and trust in the government using the full sample of Swiss state governments over the 1981-2001 period. We measure trust as the ratio of concurrence between Swiss state (cantonal) government’s recommendation for an issue put to a vote and the actual outcome at the ballot, but also taking into consideration the number of ballots per year to measure the level of citizens’ chance to express their preferences. Ballots help to increase governmental accountability, so that the government is forced to be responsive to citizens’ preferences and the underlying “social contract” at large, which leads to a higher level of fiscal discipline. Our hypothesis states that more trust in government, measured as the electoral support of government decisions is a signal for a stronger social cohesion between the government and the electorate and within the electorate, which in turn results in sounder fiscal policy decisions. The results indicate that we find a fairly robust negative relationship between trust in the government and public debt. Thus, we conclude that fiscal policy is

strongly influenced by individuals' trust in the government. A higher level of citizens' trust in the state leads to a stronger fiscal discipline.

To our knowledge, our paper provides some novelties compared to previous studies: First, empirical studies in the social capital literature often work with cross-country data. However, it is very difficult to draw conclusions from cross-cultural comparisons. Institutional and Cultural frameworks typical for specific countries might influence trust. The problem is that such features cannot always be controlled in a satisfactory manner. Our study on the other hand, focuses on *within* country data at the state (cantonal) level and thus allows to better isolate the impact of trust. Second, social capital is usually measured by survey data asking individuals questions about trust (social trust, agreement to the statement whether most people can be trusted) and the level of participation in voluntary organizations. Another possibility is to search for a social capital proxy that measures individuals' *observable behavior* rather than their attitudes or statements. Our behavioral trust variable that measures the behavior at the ballot reduces possible subjective biases derived from survey questionnaires. Third, a huge amount of studies work with cross-sectional data. Our panel analysis, covering a long period of more than 20 years, allows exploiting time variation in trust, too.

The remainder of the paper is as follows: First, we provide a quick overview of the literature on social capital and trust. Then, we develop a concept of trust revealed in a real world setting and present some evidence of the level of trust among Swiss cantons over the last twenty years. In section five follows the empirical implementation of the impact of trust on fiscal performance while section six offers some concluding remarks.

2. Overview: Social Capital and Trust

Trust has been studied at length by many different disciplines. It has advanced to an important concept in social sciences, enforcing the interdisciplinary social discourse among researchers. The political scientists Almond and Verba (1963) have been among the first who intensively investigated the concept of trust. Many years later, there has been a renewed interest in the social basis of political and economic life thanks to the work by Putnam (1993) and Fukuyama (1995). Social capital advanced to an important research agenda in political sciences. Putnam (1993) claims the importance of social capital for the effective governance of democracy. He defines social capital as “features of social organization, such as trust, norms, and networks that can improve the efficiency of society by facilitating coordinated actions” (p. 167). Many authors have singled out trust as an important feature of productive social relationships (see, e.g., Gambetta 1988, Hardin 1993). Sociologists have also intensively investigated the concept of social capital. Key figures at the beginning were Bourdieu (1979) and Coleman (1988, 1990). They both have strongly influenced the social capital literature focusing on individuals and small societal units. Portes and Mooney (2002) point out that the most widely accepted definition of the term social capital in sociology is the “the ability to secure resources by virtue of membership in social networks or larger social structures” (p. 305). Also economists increasingly pay attention to the concept of social capital and trust. Many studies have been published in leading economic journals. For example, Knack and Keefer (1997) tested the impact of civic duty and trust on growth and investment rates in a cross section analysis. They find a strong and significant positive relationship between social capital variables and economic growth. Looking at the public finance literature, Slemrod (1998) argues that the social capital derived from the willingness to pay taxes voluntarily lowers the cost of the operating government and of equitably assigning its cost to citizens. Social capital has also attracted non-academic institutions such as the World Bank, which developed a Social Capital Initiative focusing mainly on developing countries and investi-

gating the practical relevance of this concept. Grootaert (2001, pp. 10-11) stresses that there are three major views on social capital: First, the concept developed by Putnam (1993) interpreting social capital as a social network, as networks of civic engagement facilitating coordination and cooperation. Second, Coleman's (1988, p. 598) approach defines social capital as "a variety of different entities", consisting of some aspects of social structure and facilitating certain actions of actors. This allows taking into account not only horizontal but also vertical social relationships. The third concept considers the social and political environment that enforces norms and shapes social structures.

The rapid growth of the social capital literature underlines a widespread unease with the standard explanations for the differential political and economic performances not only across nations but also across sub-national jurisdictions (Ostrom and Ahn 2003). Many studies in the last ten years tried to check to which extent social capital can be seen as an important omitted factor in previous studies.

Our investigation in this paper grounds basically on the third concept, which takes the more formalized institutional relationship between state and citizens at the vertical level into account. As trust is a multidimensional concept, we restrict our focus on a specific dimension: citizens' political trust. This is in line with Rothstein (2003), who argues that the explanation of social capital is much more grounded in political instead of sociological variables.

3. Trust in Politics

There are three ways in which trust affects government performance according to Knack (1999). First, trust broadens government accountability. Policy decisions have to be responsive to the preferences of a large part of the population. Knack (1999), for example, provides empirical evidence, that US states with a higher social capital significantly perform better than the other

states. Second, trust can facilitate an agreement, where political preferences are polarized. Third, social cohesion in a society is a breeding ground for innovations in politics. In general, the space for innovations is greater if trust between members of a society is established. If new challenges have to be tackled, governments with high social capital are more flexible in adapting to the new circumstances than regions with widespread interests. Little political polarization in regions with a strong social cohesion makes it easier for the government to implement policies preferred by the electorate. Moreover, little social fragmentation in the society reduces the asymmetry between spending claims of different interest groups and taxing decisions. Therefore, a more homogenous citizenry supports fiscal discipline.

Government accountability can be seen as the most important aspect of trust with respect to fiscal performance. Engagement, involvement and participation in political and public issues by a large part of the electorate are an important feature to hold politicians and bureaucrats accountable. In Putnam (2000, p. 346) words: “Citizens in civic communities expect better government, and (in part through their own efforts) they get it ... if decision makers expect citizens to hold them politically accountable, they are more inclined to temper their worst impulses rather than face public protests.” Political participation in ballots allows citizens to discuss the topics and helps to improve political awareness. Thus, the government knows that citizens are discussing and monitoring their behaviour, which will produce the incentive to govern more effectively. It also offers citizens the possibility to articulate themselves and thus to visualize their preferences which contributes to a more effective governance, too. As the government is better aware of citizens’ preferences, policies will better reflect citizens’ needs (see Boix and Posner 1998).

Game theory and experimental findings have shown that trust facilitates the co-operation between the actors and allows reaching superior social outcomes. However, Boix and Posner (1998) criticize that such an investigation “leaves us without an explicit articulation of the mechanism by which the ability of people in society to co-operate affects the performance of the

governmental institutions (p. 689)". Our study takes this into account by trying to investigate the interaction between citizens and their state. Trust in politics measures the level of confidence citizens have in their political leaders or institutions. To capture such an interpretation of trust, contrary to previous studies, we measure trust as the ratio of concurrence between Swiss state (cantonal) government's recommendation for an issue put to a vote and the actual outcome at the ballot, but also taking into consideration the number of ballots per year to measure the level of citizens' chance to express their preferences. Thus, we have a trust proxy that measures individuals' *observable* behavior interacting with the government, rather than measuring trust with survey data. Observing the behavior at the ballots reduces possible subjective biases derived from survey questionnaires. If the citizens and the authorities interact in a sense of collective responsibility influenced by the institutional structures, then the system may be better governed and its policies may be more effective. Trust promotes effectiveness through its impact on governments' behavior. In our paper we focus on public debt as dependent variable. It is reasonable to argue that a prudent debt management and thus a certain level of fiscal discipline can be seen as a proxy for governmental performance. Ballots help to increase governmental accountability, so that the government is forced to be responsive to citizens' preferences and the underlying "social contract" at large, favoring a higher level of fiscal discipline. Trust in government is a signal for a stronger social cohesion between the government and the electorate and within the electorate, which in turn results in sounder fiscal policy decisions. Thus, the following hypothesis can be derived:

Hypothesis: *The stronger trust is established in a jurisdiction the better its fiscal performance.*

4. Measuring Trust in the Swiss Cantons

The political process in Swiss cantons offers a fruitful database to measure trust. In our case, we use information from direct voter participation on political issues by voter initiatives and public referenda as an approximation for mutual trust among citizens and between citizens and their representatives. Several aspects of trust are of importance in the process of direct voter participation in Switzerland. To launch a voter initiative or to veto government decisions by a popular referendum represent possibilities to reveal distrust in the government. Even if we assume that the government is benevolent, such instruments can be useful in case the governments fall out of step and make mistakes in interpreting voters' preferences (Matsusaka, 2004). This may happen as a result of strong political polarization on a specific issue or high information costs. Contrarily, if social cohesion in the electorate is strong, it is easier for the government to implement policies according to the preferences of the electorate. They make fewer mistakes in interpreting the voters' preferences. Hence, if social cohesion is strong, fewer decisions by the government will be vetoed and fewer voter initiatives will be successfully launched. As a consequence, support of government decisions by the electorate is a useful indication of trust and social capital among members of a society.

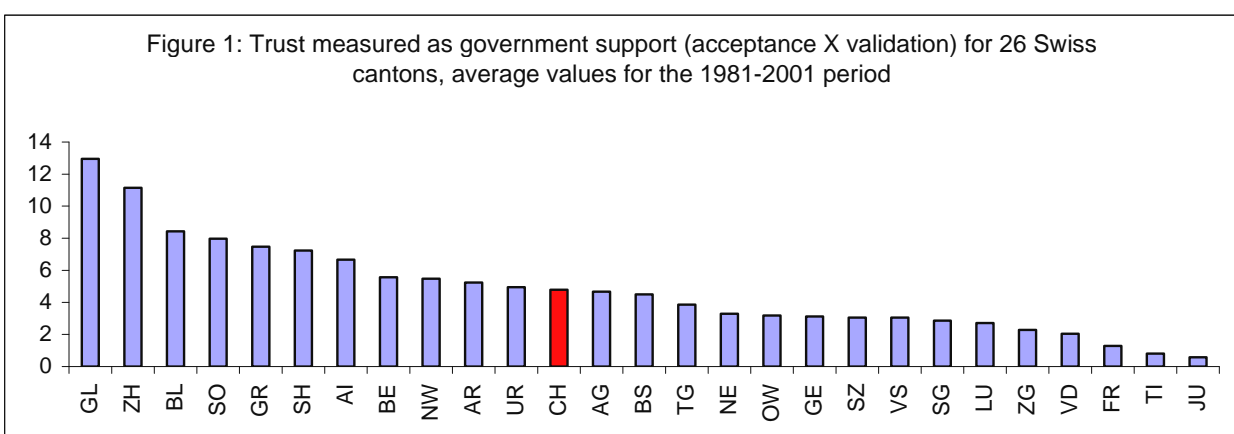
Assuming now that the government is not benevolent in any case, direct voter participation in this case is a possibility to control the discretionary power of politicians. Voter control can help to limit the abuse of political power by selfish politicians. As citizens cannot completely foresee the preferences of their incumbents, elements of direct democracy empowers them with an instrument to control their government. This also has an *ex ante* effect on policy formulation by the elected incumbents since they always have to take into account a possible voter intervention. If politicians should try to abuse their policy discretion, voters will increasingly reject the governments' proposals. Thus, the support of government decisions by direct voter participation

is also a measure of trust in government. If government proposals acknowledge common interests, voters will support the trustworthiness of their incumbents at the ballots.

Number of ballots	3100
Average number of ballots per year	148
Average number of ballots per canton	119
Lowest value (number of ballots)	22 (Jura)
Highest value (number of ballots)	285 (Zurich)*
Ratio of accepted government proposals	75.7 %
Highest value (Ratio of accepted government proposals)	94.3 % (Appenzell a. Rh.)
Lowest value (Ratio of accepted government proposals)	37.7 % (Jura)

* In the town-meeting canton Glarus 294 ballots were held.

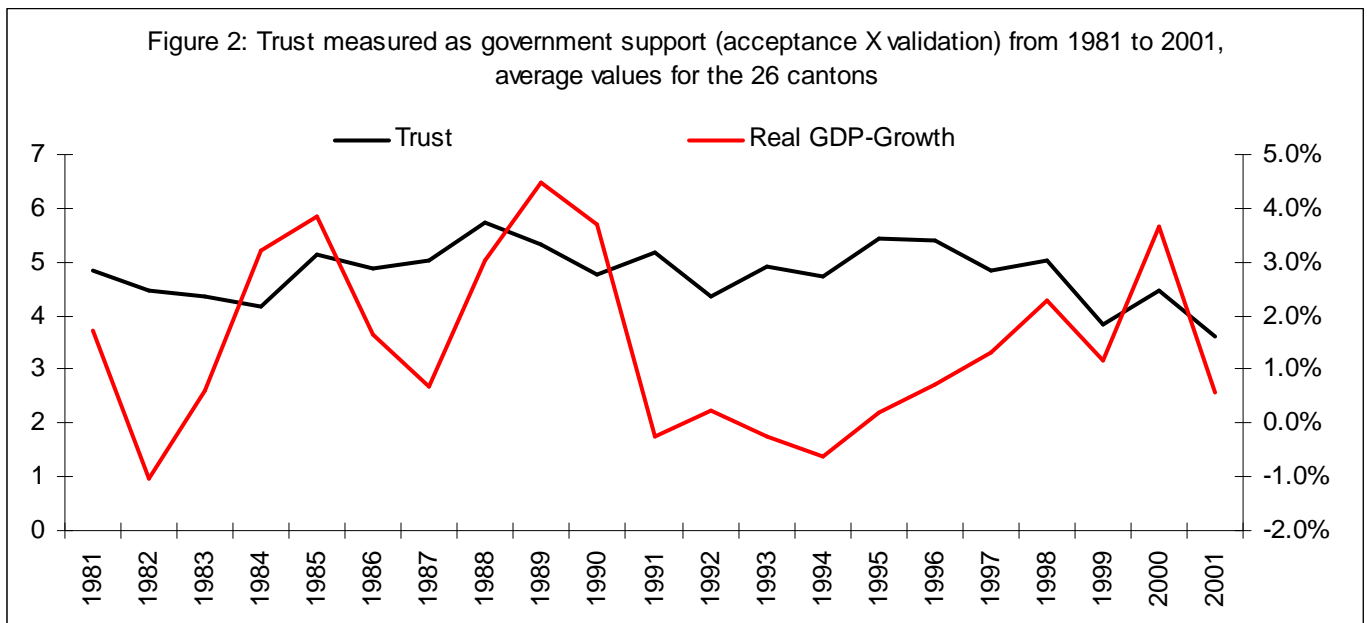
In order to take both aspects of trust into account – trust among members of a society and trust between principal and agent – we collected data from all cantonal ballots held between 1981 and 2001 in all 26 Swiss cantons. As can be seen in *Table 1*, 3100 cantonal ballots were held while 75.7 % of them succeeded in the sense of supporting the government proposals. The variation goes from Jura with a ratio of 37.7 % to Appenzell a. Rh. with a ratio of 94.3 % accepted government proposals. Interestingly, the number of ballots held varies quite a lot among cantons.



The reason is that some cantons offer much broader possibilities of voter participation than other cantons (see Feld and Matsusaka 2003 or Feld, Schaltegger and Schnellenbach, 2004). In order

to take the institutional variation into account, we construct our trust measure by the ratio of at the ballots accepted government proposals multiplied with the number of ballots held (acceptance X validation).

As *Figure 1* shows trust varies considerably among cantons over the 1981-2001 period. The lowest value accounts for 0.57 represented by canton Jura while the highest value with 13 belongs to the canton Glarus. Similarly, there is a variation of trust over time as can be seen in *Figure 2*. With 3.615 the lowest value of trust is observed in 2001 while in 1988 trust was highest with a value of 5.75. Such a strong variation among cantons as well as over time allows exploiting *within*-country variation to identify effects of trust on governments' fiscal performances. It is also important to note, that the correlation between real GDP-growth and trust is only 0.0323, indicating that our measure is not just reflecting subjective well-being influenced by economic development.



5. Empirical investigation

In order to test whether trust fosters fiscal discipline, we propose the following equation:

$$DEBT_{it} = a + b CTRL_{it} + zTRUST_{it} + TD_t + CD_i + e_{it} \quad (1)$$

where i indexes the 26 cantons in the sample, $DEBT_{it}$ denotes the cantonal debt-levels per capita and per GDP over the 1981-2001 period and $TRUST_{it}$ is our indicator for trust described in the previous section. The regression contains also several control variables $CTRL_{it}$ like GDP per capita, share of urban population, share of workforce, share of population with higher schooling, share of unemployed, share of pensioners, share of pupils, population and a variable for the share of German speaking population in a canton. In order to control for time as well as cantonal invariant factors we include fixed time TD_t and fixed cantonal CD_i effects. e_{it} denotes the error term.

The baseline regressions are reported in *Table 2*. The two sorts of regressions differ in the scaling of their left-hand variable. In the first three columns we present the results of debts per capita regressions while the second three columns reports the debt per GDP regressions. As can be seen by the multivariate analysis trust has a statistically significant negative impact on fiscal discipline (public debt) in all regressions, controlling for other determinants. Thus, our hypothesis finds strong empirical support looking at Swiss cantons over the periods 1981-2001.

Not surprising, real GDP per capita reduces public debts significantly and sizeable, too. On the other hand, the share of urban population pushes up debt levels. This points to a higher governmental willingness to increase public debts in urban areas, which may be caused by specific problems of central cities like social heterogeneity. The provision and maintenance of central city infrastructure such as higher education, traffic, public health, public security or cultural facilities require high government revenue for the central city. At the same time, the tax bases in central cities are sensitive to high tax burdens. People react to tax incentives and move from the

center to nearby local communities where the tax burden is lower. The asymmetry of spending claims and revenue capacity is often seen as a major driving force for problems of fiscal discipline in urban jurisdictions (Frey, 1990; Brueckner, 1983). Socio-demographical factors such as the share of elderly and the share of pupils expectably push up debt-levels, too. These two groups only perceive a small fraction of the initiated costs eventually creating pressure for higher government spending. In addition, especially pensioners have an incentive to finance public services by deficit spending in order to postpone the costs to future generations (Meltzer and Richard, 1981). The language variable is significantly negative indicating that the German speaking population cares more about fiscal discipline than their French and Italian speaking counterparts. The result is very much in line to the results in federal ballots and the behaviour of members of parliament from the roman part of Switzerland. The other control variables have not a robust and significant impact on public debt. In particular, there seems not to be a significant positive impact of better educated citizens on fiscal discipline. Obviously, better educated voters do not demand a more fiscally prudent government, which is somewhat surprising. One could have thought of a “supply side” effect since better educated citizens provide a larger tax base which in turn may make it easier to offer higher salaries to the public servants and also provide a larger pool of talents from which the government can recruit (Knack, 1999).

In addition, we have included a variable capturing the degree of centralization of canton governments in Switzerland to check the sensitivity of our results. As shown by Shadbegian (1999) and other researchers for US states and by Feld, Kirchgässner and Schaltegger (2003) and Schaltegger (2003) for Swiss cantons government centralization favors the size of government. De Mello (2004) shows that fiscal decentralization also strengthens social capital in a cross-country study. Thus, it is not surprising that in our analysis government centralization is of high explanatory power for the level of government indebtedness, too. Note that also after including

government centralization, trust remains an important and significant feature in explaining fiscal performance of governments.

Table 2: Regression Results on the Impact of Trust on Public Debt, 26 Swiss Cantons, 1981-2001.
Dependent Variable: Debt per capita / debt per GDP

Explanatory Variables	Debt p.c.	Debt p.c.	Debt p.c.	Debt p.GDP	Debt p.GDP	Debt p.GDP
Trust	-0.004*** (-2.72)	-0.004** (-2.58)	-0.004** (-2.57)	-0.001** (-2.14)	-0.001** (-1.97)	-0.001* (-1.96)
Government centralization		1.184*** (6.22)	1.179*** (6.19)		0.354*** (6.45)	0.351*** (6.41)
Share of registered house proprietors			-0.492 (-0.91)			-0.227 (-1.46)
GDP	-0.806*** (-2.90)	-1.141*** (-4.17)	-1.089*** (-3.90)	-0.481*** (-5.99)	-0.581*** (-7.38)	-0.557*** (-6.93)
Labor Force	0.564 (1.53)	0.557 (1.57)	0.643* (1.75)	0.030 (0.28)	0.028 (0.27)	0.067 (0.64)
Higher Schooling	0.227 (0.74)	0.160 (0.54)	0.186 (0.63)	0.075 (0.86)	0.055 (0.65)	0.067 (0.79)
Unemployment Rate	0.004 (0.50)	0.002 (0.21)	0.003 (0.42)	0.002 (1.00)	0.002 (0.71)	0.002 (1.04)
Urban	0.564** (2.51)	0.734*** (3.37)	0.716*** (3.27)	0.206*** (3.18)	0.257*** (4.09)	0.249*** (3.95)
Population	-1.553*** (-3.25)	-1.986*** (-4.26)	-2.049*** (-4.34)	-0.223 (-1.61)	-0.352*** (-2.62)	-0.381*** (-2.81)
Population > 65	2.332*** (2.53)	2.681*** (3.01)	2.904*** (3.15)	0.899*** (3.38)	1.003*** (3.92)	1.106*** (4.17)
Population < 15	5.787*** (6.47)	6.655*** (7.63)	6.930*** (7.50)	2.201*** (8.53)	2.460*** (9.79)	2.587*** (9.75)
German Language	-1.856*** (-4.08)	-1.792*** (-4.09)	-1.732*** (-3.91)	-0.819*** (-6.24)	-0.800*** (-6.34)	-0.772*** (-6.06)
State (Canton) Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Effects	Yes	Yes	Yes	Yes	Yes	Yes
R-Squared	0.822	0.835	0.835	0.766	0.784	0.785
# of Observations	546	546	546	546	546	546

Note: *t*-statistics in parentheses. *, ** and *** denote significance at the 10%, 5% and 1% level. For definitions of variables see Appendix.

Next, proprietors of houses have made a commitment to their jurisdiction by voluntarily increasing their opportunity costs for the exit option to migrate to another jurisdiction. This can be seen as an alternative measure of trust in government¹. However, the inclusion of the share of

¹ Note that the simple correlation of the variables “trust” and “share of housing proprietors” in our data sample is rather weak with a value of 0.017.

housing proprietors as a further regressor in the equation does not significantly increase the explanatory power of our public debts regressions.

Other institutional variations in Swiss cantons that do hardly vary over time are not included in our regressions since state (canton) dummy variables have been included. The canton dummies would render these institutional feature variables insignificant, anyway.

Table 3 differs from Table 2 in using instruments for our trust variable. Evaluating the direct effect of trust on fiscal performance in a setting where unobserved voter preferences might affect both trust and fiscal performance requires an instrumental variable technique to separate the impact of trust from the underlying voter preferences. A suitable instrument must be contemporaneously uncorrelated with the error term but must be highly correlated with trust. In our case, we use the number of votes as an instrument. Conceivably, in cantons in which voters have frequent possibilities to reveal their trust, trust will be more likely. Now, to test for possible endogeneity of trust a Hausman test is carried out in two steps. First, we regress the number of votes on trust including all other regressors from equation (1). The number of votes is highly significant in explaining trust, as expected. Second, we take the obtained residuals from that regression and include them in the original regression of equation (1). Since the coefficients of the included residuals are not significant (t-value of -0.187), trust can be considered as an exogenous variable. Thus, unsurprisingly the coefficients of the trust variable in the two-stage least square estimations in Table 3 do hardly change from those obtained in the ordinary least square regressions.

As can be seen in Appendix C two cantons are considered as outliers. The cantons Basel-Stadt (BS) as well as Geneva (GE) have a relatively and extraordinary high level of indebtedness. In the following, in order to check the robustness of the results, we take these two cantons out from our sample (excluding outliers) . In Table 3, columns two and four present the results.

The coefficients of the trust variable remain significant even after excluding outliers indicating that our basic hypothesis is supported.

Table 3: Sensitivity regressions on the Impact of Trust on Public Debt, 26 Swiss Cantons, 1981-2001.
Dependent Variable: Debt per capita / debt per GDP

Explanatory Variables	Debt p.c.♠	Debt p.c.♣	Debt p.c.♥	Debt p.GDP♠	Debt p.GDP♣	Debt p.GDP♥
Trust	-0.004*** (-2.64)	-0.004*** (-2.65)	-0.004** (-2.54)	-0.0001* (-1.827)	0.001*** (-2.657)	0.001* (-1.93)
Government centralization			1.142*** (6.08)			0.341*** (6.32)
Share of Protestants			-0.447 (-1.11)			-0.1978* (-1.71)
Share of Catholics			1.100*** (2.66)			0.288** (2.43)
GDP	-0.807*** (-2.82)	-1.013*** (-3.13)	-1.263*** (-4.66)	-0.482*** (-6.267)	-0.491*** (-5.842)	-0.619*** (-7.96)
Labor Force	0.562 (1.56)	0.221 (0.498)	0.301 (0.81)	0.028 (0.274)	-0.011 (-0.097)	-0.033 (-0.31)
Higher Schooling	0.226 (0.64)	-0.097 (-0.246)	0.139 (0.48)	0.074 (0.758)	-0.004 (-0.036)	0.052 (0.62)
Unemployment Rate	0.004 (0.45)	0.008 (0.876)	-0.003 (-0.34)	0.002 (0.913)	0.002 (0.608)	0.0002 (0.08)
Urban	0.565*** (3.03)	0.967*** (4.293)	0.922*** (4.19)	0.207*** (3.604)	0.276*** (4.457)	0.312*** (4.95)
Population	-1.556** (-2.57)	-2.678*** (-3.954)	-1.104** (-2.17)	-0.225 (-1.251)	-0.545*** (-2.856)	-0.073 (-0.50)
Population > 65	2.332** (2.30)	3.050*** (2.850)	3.061*** (3.36)	0.899*** (3.103)	0.893*** (2.962)	1.084*** (4.14)
Population < 15	5.786*** (4.56)	7.265*** (5.543)	5.230*** (4.77)	2.199*** (5.520)	2.289*** (5.723)	1.931*** (6.13)
German Language	-1.858*** (-4.30)	-2.258*** (-4.784)	-2.224*** (-5.00)	-0.820*** (-6.741)	-0.804*** (-6.258)	-0.929*** (-7.27)
State (Canton) Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Effects	Yes	Yes	Yes	Yes	Yes	Yes
R-Squared	0.831	0.659	0.840	0.789	0.680	0.792
# of Observations	546	504	546	546	504	546

Note: *t*-statistics in parentheses. *, ** and *** denote significance at the 10%, 5% and 1% level. For definitions of variables see Appendix.

♠ denotes the two stage least square regressions. Instrument for trust is the number of votes.

♣ denotes regression after excluding the values of the canton Basel-Stadt (BS) and the canton Geneva (GE), which are considered as outliers (see Appendix C).

♥ There is a high simple correlation between the two regressors share of Protestants and share of Catholics (-0.921). However, eliminating either the former or the latter variable from the regression hardly changes the estimated coefficients as well as their significance level.

In the next step, we control for the religious composition of the cantons. Putnam (2000) recognizes the religion denomination as an important factor in building social capital. Knack (1999) finds a high correlation between trust and the mainline Protestants in the US states. Hence, religious composition may serve as a good instrument for trust. In fact, La Porta et al. (1997) and Knack (1999) both use religious composition to instrument for interpersonal trust. However, in our case there is only a weak simple correlation between trust and the share of Protestants (0.394) or share of Catholics (0.348). A further sensitivity analysis has been performed in order to evaluate whether these two variables affect the size or the significance of our trust variable.

Columns three and six show that trust still has a statistically significant negative impact on the level of indebtedness after including the two most important religious groups in Switzerland. Interestingly, religion denomination has an impact on fiscal performance. While we obtain a negative impact of Protestantism on cantonal indebtedness, the share of catholic population on total cantonal population is positively associated with the level of debt. The negative impact of the share of Protestants can be explained using the concept of Protestant ethic, that emphasizes specific values such as the virtues of prudent reinvestment of savings, individual entrepreneurial initiatives, and independence (see Weber 1930, Norris and Inglehart 2004). Such moral values at the individual level seemed to have an impact on states' fiscal discipline, especially in societies based on active political participation rights.

All in all, the significant impact of the trust variable remains unaffected whether we control only for one or for two religious groups, whether we additionally include government centralization or not and whether we additionally control for the share of registered house proprietors or not.

6. Conclusion

This panel analysis within Switzerland provides evidence for the hypothesis that trust in a society influences fiscal performance. The stronger mutual trust is established, the sounder fiscal

policy decisions and hence the lower public debts. The results are robust to a number of control variables and the inclusion of additional variables such as government centralization in Swiss states (cantons). In our case, we use information from direct voter participation on political issues (voter initiatives and public referenda) held in Swiss state governments as an approximation for mutual trust among citizens and between citizens and their representatives. In order to take both aspects of trust into account – trust among members of a society and trust between the incumbent and the constituency – we collected data from all cantonal ballots held between 1981 and 2001 in all 26 Swiss cantons. In total, we analyzed data from 3,100 cantonal ballots that were held in our period of observation. While 75.7 % of the ballots succeeded in the sense of supporting the government proposals, 24.3% failed to support the government. However, since there is a considerable variation in the extent to which Swiss cantons offer possibilities of direct voter participation, the ratio of accepted government proposals would give a biased picture of trust. In order to take the institutional variation into account, we construct our trust measure as the ratio of the ballots that accepted government proposals multiplied with the number of ballots held (acceptance X validation).

These results are consistent with those reported by Putnam (1993) from Italian regions, Keefer and Knack (1997) or Zak and Knack (2001) from cross-country regressions or Knack (1999) from US state governments for government performance. The results presented in this paper as well as in previous studies underline the importance of trust as an essential aspect for the well functioning of a government and the institutional architecture in place. However, the understanding of how social capital is built and how government can foster trust remains a fruitful field for further research.

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Appendix A

<i>Data description</i>		
<i>Variable name</i>	<i>Description</i>	<i>Source</i>
Trust	Electoral support of government proposals multiplied by number of ballots (support X validation)	Own investigations on the basis of the C2D-Database, Amtsblätter of Obwalden and Appenzell a. Rh. and protocols of town meetings in Glarus, Appenzell i.Rh and Nidwalden.
Debt	Cantonal debt per capita deflated to the year 1980 in CHF and Nominal cantonal debt per nominal GDP	Swiss Federal Finance Administration
Share of registered house proprietors	Share of registered cantonal house proprietors on the cantonal population	Swiss Federal Statistical Office
Share of protestants	Share of protestant population on the total cantonal population	Swiss Federal Statistical Office
Share of catholics	Share of catholic population on the total cantonal population	Swiss Federal Statistical Office
Government Centralization	Share of cantonal public spending on cantonal and local spending	Swiss Federal Finance Administration
GDP	Real cantonal GDP per capita	BAK Basel Economics
Labor Force	Share of employment on the cantonal population	Swiss Federal Statistical Office
Higher Schooling	Share of population with secondary education on the cantonal population	Swiss Federal Statistical Office
Unemployment Rate	Share of unemployment on the cantonal population	Own calculations on the basis of Swiss Federal Statistical Office
Agglomeration	Proportion of local communities having more than 10'000 inhabitants.	Swiss Federal Statistical Office
Population	Cantonal population	Swiss Federal Statistical Office
Population > 65	Share of cantonal population over the age 65 on total cantonal population	Swiss Federal Statistical Office
Population < 15	Share of cantonal population under the age 15 on total cantonal population	Swiss Federal Statistical Office
German Language	Share of German Speaking population	Swiss Federal Statistical Office

Appendix B

Descriptive statistics				
<i>Variable</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>Minimum</i>	<i>Maximum</i>
Trust	4.785	4.103	0	25
Debt per capita	3850	2865	795	20453
Debt per GDP	0.129	0.059	0.019	0.458
Share of registered house proprietors	0.410	0.113	0.125	0.628
Share of protestants	0.310	0.199	0.051	0.783
Share of catholics	0.562	0.231	0.161	0.931
Government Centralization	0.673	0.106	0.510	0.99
GDP	41590	13064	26324	117228
Labor Force	0.480	0.032	0.396	0.564
Higher Schooling	0.137	0.059	0.023	0.334
Unemployment Rate	0.018	0.018	0	0.078
Agglomeration	0.324	0.249	0	0.995
Population	261938	272497	12781	1228628
Population > 65	0.146	0.021	0.103	0.210
Population < 15	0.186	0.024	0.113	0.241
German Language	0.714	0.353	0.050	0.980
<i>Note:</i>				
For a detailed description of the variables see Appendix A.				
All statistics are computed for 546 observations.				

Appendix C

