

A Knight without a Sword or a Toothless Tiger?

The Effects of Audit Courts on Tax Morale in Switzerland

by

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The intention of this paper is to analyse how audit courts affect tax morale, controlling in a multivariate analysis for a broad variety of potential factors. Switzerland with its variety of audit court competences among the cantons has been analysed. With data from the ISSP 1998 (Swiss data 1999) evidence has been found that a higher audit court competence has a significantly positive effect on tax morale. Thus, the results in Switzerland suggest that in the cantons where audits courts are not just knights without swords or toothless tigers, they help improve taxpayers' tax morale and thus citizens' intrinsic motivation to pay taxes. (JEL Classification: H260, H730, D700)

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1 Introduction

Tax morale, the intrinsic motivation to pay taxes, is a key determinant to explain the high degree of tax compliance, taking into consideration the low level of deterrence. The high tax compliance cannot be explained with risk aversion. There is a big gap between the amount of risk aversion that is required to guarantee such a compliance and the effectively reported degree of risk aversion (see GRAETZ AND WILDE [1985], ALM, MCCLELLAND AND SCHULZE [1992], FREY AND FELD [2002]). An increasing number of researchers point out that there must be a certain degree of tax morale or social norms to explain the high degree of tax compliance (for empirical and experimental papers see, e.g., SCHWARTZ AND ORLEANS [1967], LEWIS [1982], ROTH, SCHOLZ AND WITTE [1989], ALM, MCCLELLAND AND SCHULZE [1992, 1999], POMMEREHNE, HART AND FREY [1994], FREY [1997, 2003], FREY AND FELD [2002], FELD AND TYRAN [2002]; for a survey see Torgler [2001]). Some studies have analysed tax morale as an exogenous residual (see, e.g., Weck [1983], Torgler [2003a]). However, FELD AND FREY [2002] point out that

“Most studies treat „tax morale“ as a black box without discussing or even considering how it might arise or how it might be maintained. It is usually perceived as being part of the meta-preferences of taxpayers and used as the residuum in the analysis capturing unknown influences to tax evasion. The more interesting question then is which factors shape the emergence and maintenance of tax morale” (pp. 88-89).

The purpose of this paper is to fill this gap identifying which factors have an impact on tax morale. It can be supposed that the extent of tax morale depends on the type of constitution. On the whole there are not many studies which systematically analyse the influence of institutions on tax morale or tax compliance. We are going to focus on audit courts, an institution that exists in many countries (for example, Federal Audit Court in Germany (Bundesrechnungshof), local audit courts in Switzerland (Rechnungsprüfungsorgan), General Accounting Office (USA), National Audit Office (United Kingdom), Supreme Audit Court in France (Cours des Comptes), the Italian State Audit Court, the Office of the Auditor General (Canada), the Rigsrevisionen in Denmark or the Riksrevisionsverket in Sweden).¹ However, empirical evidence about the effects of audit courts is rare. Thus, we are going to analyse if

¹ For an overview on the degree of autonomy of some of these audit courts see STREIM [1994].

audit courts have an influence on tax morale, controlling for additional variables. It is essential to analyse under which institutional conditions citizens are more willing to pay their taxes. For this, the study analyses a cross-section of individuals throughout Switzerland using the International Social Survey Programme (ISSP) data set 1998 “Religion II” (Swiss data from 1999). Switzerland is chosen as it allows to observe the influence of audit courts very well, because there is a certain variation in the degree of audit courts rights in the cantons (see Figure 1 in the next section).

Thanks to this variation for Swiss audit courts at the local and cantonal level, this institution can be analysed empirically. In Section 2 theoretical considerations on audit courts and the link between audit courts and tax morale are presented. Section 3 introduces the data set, the model and the variables and presents the empirical findings. Section 4 finishes with some concluding remarks.

2 How Audit Courts Affect Tax Morale

2.1 General Overview

We observe many supreme audit courts at the national level. We do not find many papers on that. Interestingly, the few that exist have mostly been published in the *European Journal of Law and Economics* (see FREY [1994], FORTE AND EUSEPI [1994], STREIM [1994]). FREY [1994] surveys the advantages and the systematic distortions audit courts are faced with. Regarding the advantages Frey points out that

“The information made available by the supreme auditing institution is a necessary precondition for the control of the public administration ... the activity of the supreme auditing institution is of crucial importance for a well-functioning political and administrative system” (p. 169).

This information function (collecting, processing, interpreting) helps - according to Frey - the members of parliament, the opposition parties and the media to better supervise the administration performances.

However, FREY especially discusses the problems with audit courts stressing four major distortions. Audit courts have the tendency to observe the formal rules and regulations.

This might have the consequence that efficiency is reduced and new sources are wasted. Audit courts furthermore overemphasize budgetary aspects. Nonbudgetary costs and alternative uses of money or even the positive effects of competition between administrative units are often neglected. It should also be considered that individuals in the administration sector have their own goals and interests and are not selfless people who pursue the best solution for the society (for an overview of the public choice theory, see e.g., MUELLER [2003]). They react in a systematic way to specific institutional conditions. FREY gives a good example: The *Salzburger Festspiele* (see p. 172). It makes no sense to publish huge reports on the inefficiency of such a festival when the federal law states that all the deficits will be covered by the public purse. Finally, auditing institutions are driven by a “mini-maximizing strategy”. The cases presented are not sufficiently weighted. Important and highly political aspects are often disregarded.

FORTE AND EUSEPI [1994] give an overview on the profile of the Italian State Audit Court, which has a long tradition in Italy (more than 150 years). The authors criticise that the audit court work does not produce any strong real effects. Ex ante controls lack of an important financial impact:

“ex ante checking by the court of such details as the regularity and costs of any of committees appointed by the various ministers; the formal correctness of the documents produced and of the examining activities by the committees charged with the appointment of state employees; the overcharged procedure of promotions of civil servants (even in cases of regular seniority based promotions) – appears like a waste of human resources” (pp. 157-158).

They suggest that efficiency could be increased if the transfers to public and private entities were under an ex ante and an ex post control. Ex post controls by the audit courts have the same problems as the ex ante controls and are less efficient due to the lack of effective controls based on the registration requirement. In Italy, audit courts are not controlled at the regional/local level, which would be essential to increase transparency. All in all the authors stress the relevance of the taxpayers acting as principals of the court, but they also see the difficulties to add new institutional rules as the government, the parliament and the bureaucracy have incentives to reduce external controls, and rather accept to “control each other, in a friendly trust relation” (p. 160).

SCHREIM [1994] also points out the difficulty to motivate auditors to perform high-quality audits, due to, e.g., fixed salaries or lifetime tenure positions. He stresses the relevance

of developing technologies that measure the efficiency and the effectiveness of the audits. But there is still the problem of how it can “be ensured that the politicians would really use the audit results” (p. 187).

Recently, SCHELKER AND EICHENBERGER [2003] have filled a gap with their study, doing an empirical analysis using audit courts as independent variable, working with Swiss data. As dependent variable they used tax burden and expenditures and found that a stronger audit court leads to a lower tax burden and lower expenditures. Surprisingly, direct democracy and federalism had no statistically significant impact on either dependent variable. However, it should be noticed that, due to the low number of observations (26 or less) and the relatively high number of control variables (around 9), the empirical results obtained by the authors should be treated with caution. In a further step SCHELKER AND EICHENBERGER [2004] work with a dataset covering 730 municipalities in a cross-sectional analysis from 1999, using tax rate as the dependent variable. The results indicate that stronger audit courts have negative impact on the tax rate. Local direct democracy had a statistically significant positive impact on the tax rate and cantonal direct democracy a negative (not statistically significant). On the other hand, more local autonomy leads to lower tax rates. Our empirical analysis goes a step further, working with a higher number of observations at the individual level (around 1000) and focusing not on revenues and expenditures, but on the individuals’ willingness to pay taxes.

2.2 Audit Courts in Switzerland

Switzerland offers a good case study as the audit court structures vary strongly among the 26 cantons. In some cantons the audit courts only have a low influence as they have similar competences as the supreme audit courts in other countries at the national level. In other cantons they can even be regarded as a shadow cabinet (SCHELKER AND EICHENBERGER [2003]).

SCHELKER AND EICHENBERGER [2003, 2004] give a good overview of the competences of audit courts (finance commissions, *Rechnungsprüfungskommissionen*) in Switzerland. These are strongly influenced by the direct democratic traditions in many cantons. In direct democratic communes without a parliament, citizens have the right to decide in a municipal assembly (*Gemeindeversammlung*). There, the audit courts have more competences than the national supreme courts and have the advantage that they control not only the public

administration, but also the *executive*. They are more independent and are more actively integrated in the political process with *ex ante* verification competences (e.g., budget proposals, application right). There are even cases where the audit court members are chosen by elections in the *Gemeindeversammlung*. Thus, audit courts help to improve the competition among institutions. *Ex ante* provision of additional information by the audit courts reduced the principal agent problem between the government and the citizens. Audit courts with proposal and amendment rights compete in the agenda setting process against the government which reduces the power of a government. Both bodies compete with their proposals in the political process to win the majority of citizens' votes. As audit courts are independent (no executive power) and less integrated in the political network, their incentive to extract political rents is lower (contrary to an opposition party).

SHELKER AND EICHENBERGER [2003] have developed a useful index that measures the rights and competences of audit courts in the different cantons. In order to build the index the authors in a first step studied the cantonal legislation on municipalities and in a second step checked whether the communities make use of this opportunity the cantonal law offers.² The index catches the following four main differences among the cantons: 1) resource accounting (*Gesamtrechnung*) *ex ante*³, 2) individual businesses (*Einzelgeschäfte*) *ex ante*⁴, 3) individual businesses (*Einzelgeschäfte*) *ex post*⁵, 4) amendments (*Änderungsanträge*)⁶. These values have all been added to a sub-index which goes from 0 to 4.⁷ *Ex post* resource accounting and governmental proposition recommendations have not been included in this index, as these aspects are common to all audit courts. In a next step, the sub-index has been multiplied by a factor that measures the prevalence of municipal assemblies (*Gemeindeversammlung*) in a canton.⁸ Communities with municipal assemblies have strong audit courts which take the function of a competing political unit. Thus, the final index (V-RPK) measures two dimensions: the *strength* and the *diffusion* of audit courts aggregated at the cantonal level. The values are presented in Figure 1. We observe strong differences among

² Additionally, a survey among experiments in the cantonal controlling institutions to collect missing information.

³ Budget proposals are evaluated based on accounting standards.

⁴ Evaluation of the efficiency of individual investment projects before they are adopted and implemented.

⁵ Evaluation of the implementation effectiveness and identification of misuse of public funds.

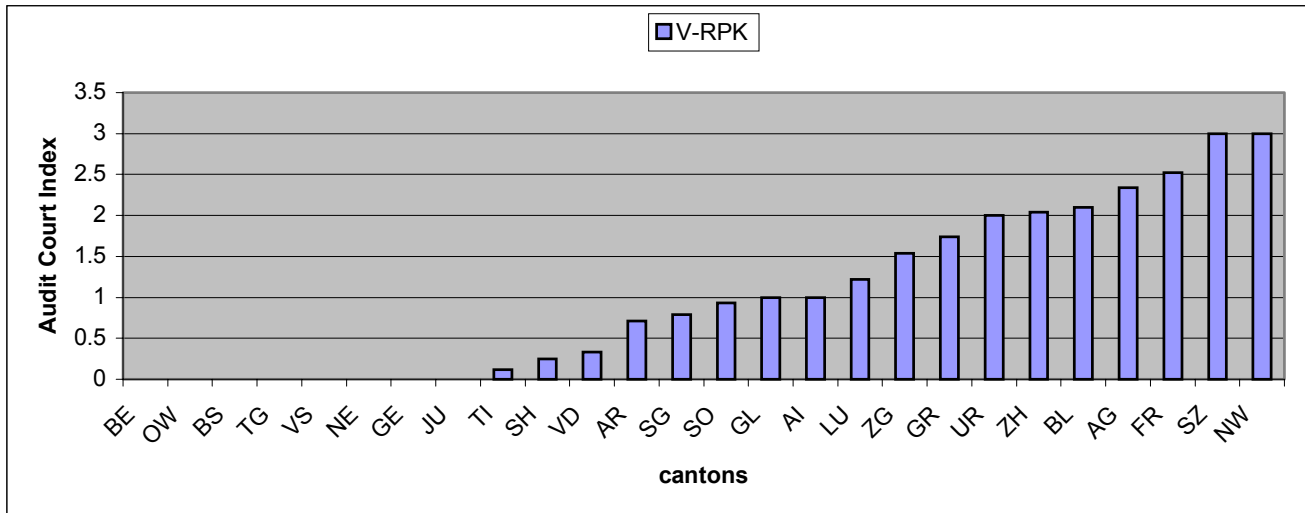
⁶ Recommendation and amendment rights to bring the information in the political process, which reduced citizens' information costs and helps to reduce the asymmetric information between the citizens and the government.

⁷ Value 1 if the instrument is available, 0 if not.

⁸ The values are between 0 and 1. Each cantonal value represents an aggregation from its communities.

the 26 Swiss cantons, which allows using this variable as the independent variable in our multivariate analysis.

Figure 1
Strength and Dissemination of Audit Courts in Swiss Cantons



Notes: BE: Bern, OW: Obwalden, TG: Thurgau, VS: Valais, NE: Neuchâtel, GE: Genève, JU: Jura, TI: Ticino, SH= Schaffhausen, VD: Vaud, AR: Appenzell a. Rh., SG: Sankt Gallen, SO: Solothurn, GL: Glarus, AI: Appenzell i. Rh., LU: Luzern, ZG: Zug, BL: Basel-Landschaft, AG: Aargau, FR: Fribourg, SZ: Schwyz, NW: Nidwalden. Source: SCHELKER AND EICHENBERGER [2003, 370].

2.3 The Effects on Tax Morale

How can audit courts affect individuals' tax morale in Switzerland? It should be noticed that taxes are collected at the communal level. Local audit courts inform taxpayers about public finance aspects. They control the executive and the public administration. This reduces the principal agent problem between taxpayers and the state, especially with the ex ante rule. Thus, it can be supposed that tax revenues might be spent more in accordance with taxpayers' preferences.

Tax morale might depend on the type of institutional settings. Institutions that respect the preferences of the citizens will have more support by the people than a state that acts as a Leviathan (see Prinz [2002]). Levi [1988] points out that a possibility to create or maintain compliance is to provide reassurance by the government. A government that precommits itself with specific rules such as a strong audit court imposes itself restraints on its own power and

thus sends a signal that taxpayers are seen as responsible persons. Furthermore, if citizens can elect the members of the government and the audit court, the government signalise that citizens are not ignorant or uncomprehending voters, which might create or maintain a certain social capital stock. Taxpayers' preferences are taken into account in the political process. The more taxpayers are informed on political issues (especially tax issues), the more the tax contract is based on trust and the higher is tax morale. Taxpayers are in the position to better monitor and control politicians with the help of audit courts. An intensive every-day interaction between taxpayers, the audit court, and the local politicians and bureaucrats induces trust and thus enhances tax morale. Thus, audit court reports and suggestions become less complex as the ones prepared at the national level in different countries, and are thus more suitable to attract the citizens' interest. Furthermore, elected audit court members have an incentive to take citizens' preferences into account. They have a strong incentive to control the executive and the public administration in line with taxpayers' preferences. Thus, the following hypothesis can be developed:

Hypothesis: *The more extensive the competences of the audit court, the higher the intrinsic motivation to comply in the form of tax morale.*

3 Data Analysis

3.1 Data Set

The most frequently used instrument to measure tax morale, the intrinsic motivation or the willingness to pay taxes are surveys. New survey data sources such as the *International Social Survey Programme (ISSP)*, the *World Values Survey*, the *European Values Survey* or the *Latinobarómetro* allow to develop proxies that allow to measure tax morale as dependent variable and to search for factors that shape tax morale. All surveys cover many countries and are conducted on a regular basis. These surveys pay special attention to the representativeness of the data set. A main advantage is that they include many socio-economic, demographic and attitudinal variables. All three data sets are designed as wide-ranging surveys, allowing to investigate many different aspects. In the last years, economists have increasingly focused on

surveys (see, for example, the happiness research done by Frey and Stutzer 2002). One reason might be that survey research uses more sophisticated statistical techniques and designs than in its early years. Compared to experiments, surveys have the disadvantage that it is more difficult to reduce causality problems and thus to give good information about the direction of a specific effect.

The *International Social Survey Programme (ISSP)* cross-national collaboration started in 1983 and has grown to more than 30 nations (mostly European countries) and brings together different kinds of social science projects. We will analyse the data set ISSP 1998 RELIGION II (Swiss data 1999), the only ISSP data set that allows to measure tax morale. The ISSP has also been chosen because it allows to investigate the most recent available data set on tax morale for Switzerland. The population surveyed in Switzerland consisted of German, French or Italian speakers aged between 16 and 75, who were living in Switzerland in 1999. The survey questions were asked in a written questionnaire sent by post to people who had already taken part in another research project, “Religion and the social bonds”, which was a telephone interview.⁹ The households and their representatives were selected by means of a random-random method based on a random system allowing thus to avoid several people within one household to be questioned.

3.2 Dependent Variable: Tax Morale

To assess the level of tax morale we use the following question:

Do you feel it is wrong or not wrong if a taxpayer does not report all of his or her income in order to pay less income taxes? (0= not wrong, 1= a bit wrong, 2= wrong, 3=seriously wrong).

The measurement of tax morale is also not free of biases. The available data is based on self-reports, as there is no objective or observable measure of tax morale available. Self-reports may provide inaccurate information. There is the tendency that subjects overstate their degree of compliance (ANDREONI, ERARD AND FEINSTEIN [1998]). ELFFERS, WEIGEL AND HESSING [1987] found strong differences between assessed evasion and evasion reported on the survey. However, the way we define tax morale is less sensitive compared to a question asking

⁹ It should be noticed that 5% of the population that didn't have a private telephone link were excluded.

whether a person has evaded taxes or not. Thus, it can be supposed that the degree of honesty in the answers to these questions is higher. Furthermore, the data set has the advantage that they are designed as wide-ranging surveys, which reduces the probability of people being suspicious and of creating framing effects by other tax context questions. But it can still be argued that a taxpayer who has been evading in the past, will tend to excuse this kind of behavior reporting a higher tax morale in the survey. It can be pointed out that people in Switzerland pay taxes to different levels of government (local, cantonal and federal) and there may be different attitudes towards paying taxes for these different levels. For example, individuals may have a higher incentive to free ride on the federal tax pool. Unfortunately, communal data on institutions were not available in our data set. But since the tax morale question abstracts from different types of taxes and investigates the general sense of tax morale, neglecting these different levels (especially inter-communal differences) is not a problem. Finally, it can certainly be discussed whether it is more appropriate to use an index rather than a single question to measure tax morale. However, a single question has the advantage that problems associated with the construction of an index can be avoided.

In the 90s, aspects around tax morale have increasingly attracted attention. Why so many people pay their taxes although fines and audit probability are low has become a central question in the tax compliance literature. ERARD AND FEINSTEIN [1994] stress the relevance of integrating moral sentiments into the models to provide a reasonable explanation of actual compliance behaviour. And ANDREONI, ERARD AND FEINSTEIN [1998] point out that “adding moral and social dynamics to models of tax compliance is as yet a largely undeveloped area of research” (p. 852). Tax compliance experiments also indicate that individuals report a higher level of income than the expected utility model would predict (for an overview see ALM [1999], TORGLER [2002]). Many years ago, BALDRY [1987, 377] pointed out: “Rather than question the experimental method, these results suggest that it is perhaps the theory which needs revision (...)” .

Many researchers have argued that tax morale helps to explain the high degree of tax compliance. Contrary to tax evasion, tax morale does not measure individual’s *behavior*, but individuals’ *attitude*. It can be seen as the moral obligation to pay taxes, the belief in contributing to the society by paying taxes. WECK [1983] found in an empirical analysis that there is a negative correlation between tax morale and the size of shadow economy. Compared to other variables tax morale had the strongest significant impact on the size of

shadow economy. In a multivariate analysis with data from the *Taxpayer Opinion Survey*, using tax evasion as a dependent variable, TORGLER [2003a] found that tax morale significantly reduces tax evasion. However, in such an analysis, tax morale is treated as an exogenous residual. Using tax morale as a dependent variable allows us to go beyond treating tax morale as a black box or a residuum, and thus analyze which factors help shape or maintain tax morale

Similarly, the high co-operation observed is not specific to the tax compliance literature. Ultimatum experiments have shown that, in many experiments, the modal offer is (50,50), the mean offer somewhere around (40,60), and the smaller the offer, the higher the probability that the offer is rejected (see OCHS AND ROTH [1989], ROTH [1995]). Public good experiments indicate that, on average, subjects contribute between 40 and 60 percent of their endowment to a public good (see, e.g., LEDYARD [1995], DAVIS AND HOLT [1993]).

3.3 Model

In order to examine our hypothesis, the following estimation equation is postulated:¹⁰

$$TM_i = \beta_0 + \beta_1 \cdot t_i + \beta_2 \cdot y_i + \beta_3 \cdot CTL_i + \beta_4 \cdot TR_i + \beta_5 \cdot INST_c + \varepsilon_i$$

1. TM_i : Tax morale (dependent variable)
2. t_i : Individual tax rate.
3. y_i : Is the taxpayer's individual income class
4. CTL_i a panel of control variables at the individual level covering: age, gender, education, marital status, employment status, religiosity and religion.
5. TR_i measures the confidence in the courts and the legal system.
6. $INST_c$: Institutional factors at the cantonal level c
 - AUDIT COURT INDEX developed by SCHELKER AND EICHENBERGER [2003].
 - To check the robustness of the results, in some estimations we include two further indexes: i) index for the degree of direct democratic participation and ii) index for the degree of local autonomy. The direct democracy index reflects the extent of direct democratic participation (1= lowest and 6 highest degree of participation) at

the cantonal level.¹¹ Local autonomy is measured with an index developed by LADNER [1994] based on survey results where chief local administrators in 1865 Swiss municipalities were asked to report how they perceive their local autonomy on a 10 point scale. (1= no autonomy, 10 = very high communal autonomy, see Appendix Table A2). Both institutional variables have also been used in other studies (see, e.g., FREY AND STUTZER [2000, 2002]).

Table 1 discusses the hypothesized impact of the control variables on tax morale. Previous tax compliance and tax morale studies have shown the relevance of considering socio-demographic, socio-economic variables and proxies for religiosity (for an overview, see TORGLER [2003b], TORGLER [2005]). It was not possible to consider further factors that may have an impact on tax morale, such as the perceived fairness of the tax burden, the benefits received from the government for tax payments,¹² the level of risk aversion or the government's commitment to enforce tax laws and the way taxpayers are treated by the tax authority. Institutional variables such as direct democracy may help to catch somehow different treatments by the tax authority. FELD AND FREY [2002b] analysed how tax authorities treat taxpayers in Switzerland and found that tax authorities of cantons with more direct participation rights, compared to cantons with less direct democracy, treat taxpayers more respectfully and are less suspicious if taxpayers report too low incomes. On the other hand, not submitted tax declarations are more heavily fined. Risk aversion would have been an important factor to integrate as possible gender and age differences in tax morale may be driven by differences in risk attitudes. However, controlling for risk attitudes with the *World Values Survey* in a cross-country analysis, TORGLER [2005] still finds gender and age differences in tax morale.

¹⁰ See Table A1 in the Appendix for the derivation of the main variables and some descriptive statistics.

¹¹ The index includes the four legal instruments: the popular initiative to change the canton's constitution, the popular initiative to change the canton's law, the compulsory and the optional referendum to prevent new law or changing of a law and the compulsory and the optional referendum to prevent new state expenditure. The index is based on the degree of restrictions in form of the necessary signatures to use an instrument, the time span to collect the signatures and the level of new expenditure which allows to use the financial referendum (for a detailed discussion see STUTZER [1999]).

¹² Tax compliance experiments have shown that average compliance is higher in the presence of a public good (see, e.g., ALM, JACKSON AND MCKEE [1992] AND ALM, MCCLELLAND AND SCHULZE [1992]).

Table 1

The Predicted Impact of the Control Variables

Variables	Hypothesis	Interpretation
AGE (under 30, 30-49, 50-64, 65+), with under 30 as reference group	+	Higher age leads to a higher tax morale. Older people have acquired greater social stakes, such as material goods, status, and a stronger dependency on the reactions of others, raising the potential costs of a sanction increase. This leads to a higher tax morale.
GENDER (female/male), with male in the reference group	-	Female have a higher tax morale than male. Previous studies show the tendency that women are more compliant and less self-reliant than men.
EDUCATION (continuous variable, see Appendix, Table A1).	+/-	More educated individuals... + are better aware of the services the state provides; - are more critical about how the state acts or spends tax revenues; - better understand opportunities for evasion and avoidance, which negatively influence tax morale and are in a better position to take risks.
MARITAL STATUS (married/living together, divorced, separated, widowed, single), with single in the reference group	+	Individuals with stronger social networks try to have a higher tax morale. Thus, e.g., married people have a higher tax morale than singles.
TAX RATE AND INCOME	+/-	-/+ Depending on risk preferences and the progression of the income tax schedules (tendency to be negative) + Higher income classes have higher social stakes and are subject to stronger social pressure and therefore take less risk.
EMPLOYMENT STATUS (full-time employed, less than part-time employed, unemployed, at home, student, retired, at home, sick), with full-time employed in the reference group).	+/-	Differences between employment statuses may be visible. For example, students are not used to pay taxes and taxes are therefore less visible. Thus, they may have a higher tax morale than the reference group. Unemployed people may have a lower tax morale than full-time employees as they feel the financial restriction much more strongly.
RELIGIOSITY (proxy: CHURCH ATTENDANCE), measures how much time individuals devote to religion?	+	Higher religiosity leads to higher tax morale. Studies have shown that religiosity leads to higher compliance with the law, works as a social norm enforcer improving tax morale and reduces tax evasion.
TRUST IN THE COURT AND THE LEGAL SYSTEM	+	A higher trust in the court and the legal system increases taxpayers' positive attitudes and commitment to the tax system and tax-payment. Positive actions by the state are intended to increase taxpayers' positive attitudes and their commitment to the tax system and tax-payment and thus their compliant behavior (e.g., SMITH [1992], SMITH AND STALANS [1991]). Thus, if taxpayers trust the court and the legal system, they are more willing to be honest.
DIRECT DEMOCRACY	+	Individuals can set rules via initiative and are thus able to renegotiate the tax contract with the government influencing, e.g., the tax laws and the tax rates, which enhances civic virtue and thus tax morale.
LOCAL AUTONOMY	+	The strength of decentralized systems is a better transparency of this input-output relationship. The mechanism of entry and exit in federal states provides a strong incentive to produce public services in accordance to taxpayers' preferences. Thus, the more extensive the local autonomy, the higher the intrinsic motivation to pay taxes.

We don't test a model of tax evasion or tax compliance but a model of tax morale. Thus, deterrence factors are not integrated in our main model. However, if tax morale is seen as a good indicator of tax compliance one may suggest to integrate also deterrence factors in the model. ALLINGHAM AND SANDMO [1972] presented a formal model, showing that the extent of tax evasion is negatively correlated with the probability of detection and the degree of punishment. Thus, in one estimation we check whether the deterrence variables contribute to increase the goodness of fit of the regression and whether deterrence factors play a significant role in the determination of tax morale using a Wald-test. As an approximation for the probability of detection, we use the number of tax auditors as a percentage of the total number of taxpayers in each canton c . The penalty tax rate is approximated by the standard legal fine as a multiple of the evaded tax amount (in percent) in a canton c . However, it can be criticized that the perceived deterrence factors (especially the perceived probability of detection), which vary among individuals are expected to determine tax morale much stronger than the objective measurable factors used in this paper. However we were not able to collect this information in our study. SCHOLZ AND PINNEY [1995] find in their study support for the idea that subjective risk of getting caught is more closely related to the sense of duty than to objective risk factors.

We will estimate weighted ordered probit models. Some groups might be over-sampled. A weighted variable helps correct the samples and thus reflect national distribution. As the households have been selected by the random-random method, it is important to weight the data in accordance to the socio-demographic structure in Switzerland. Thus, the weighting variable provided by the ISSP was carried out by means of a factor combining the variables sex, age and linguistic region. To check the robustness of the results, it may be useful to present estimations treating the different data points equally. Thus, we will present some estimations without weighting variable. As we will see, the results remain robust.

Ordered probit models help analyse the ranking information of the scaled dependent variable tax morale. As in the ordered probit estimation, the equation has a non-linear form; only the sign of the coefficient can be directly interpreted and not its size. Calculating the marginal effects is therefore a method to find the quantitative effect a variable has on tax morale. The marginal effect indicates the change in the share of taxpayers (or the probability of) belonging to a specific tax morale level, when the independent variable increases by one unit. In the weighted ordered probit estimation, only the marginal effects for the highest value "seriously wrong not to report all the income" are shown. In general it could be criticised that

including aggregated cantonal variables as audit court, local autonomy or direct democracy produce downward biased standard errors (see, e.g., FREY AND STUTZER [2000]). Thus, we present standard errors adjusted for clustering on cantons. This allows to take into account heteroscedasticity. Furthermore, it should be noticed that answers as “don’t know” and missing values have been eliminated in all estimations.

3.4 Results

Table 2 presents the first results. Eq. 1 considers the basic variables without our main variable. In a next step we add the variable AUDIT COURT (Eq. 2). This allows to see to which extent AUDIT COURT is important. The results indicate that our hypothesis cannot be rejected. As we can see the coefficient is highly statistically significant. An increase in the audit court index by one unit raises the proportion of taxpayers with the highest tax morale by almost three percentage points. Thus we observe high marginal effects. The role played by the variable AUDIT COURT can also be investigated using a Wald-test for coefficient restrictions. The chi2-statistics indicate that the null hypothesis is rejected, meaning that audit courts play a significant role in the determination of individuals’ tax morale. We also observe that the Pseudo R2 increases after including AUDIT COURT in the regression.

In general, it can be argued that weighted regressions are only efficient when the weights can be estimated precisely. As the heteroscedasticity is already accounted for by adjusting standard errors for clustering on cantons, it may be reasonable to alternatively run regressions treating the different data points equally. Thus, we run a regression without a weighting variable (see Eq. 3). As can be seen, the results remain quite robust.

In all estimations we have included the variable TRUST IN THE COURT AND THE LEGAL SYSTEM, as a positive correlation between the audit court variable and tax morale might be driven by a higher trust. Therefore, it might be important to control for trust. The results indicate that the trust coefficient is highly statistically significant. An increase in the TRUST IN THE COURT AND THE LEGAL SYSTEM by one unit increases the share of subjects stating that tax evasion is never justifiable by around 3 percentage points.

Table 2. Tax Morale and Audit Courts (Std. Err. Adjusted for Clustering on 26 Cantons)

<i>Dependent Variable:</i>	<i>weighted</i>			<i>weighted</i>			<i>ordered probit</i>		
<i>Tax Morale</i>	<i>ordered probit</i>			<i>ordered probit</i>			<i>ordered probit</i>		
	<i>Eq. 1</i>			<i>Eq. 2</i>			<i>Eq. 3</i>		
<i>Independent Variables</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg.</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg.</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg.</i>
INSTITUTION									
AUDIT COURT				0.102**	2.34	0.029	0.086*	1.93	0.025
Tax Rate									
INDIVIDUAL INC. TAX RATE	-0.020	-0.91	-0.006	-0.007	-0.35	-0.002	-0.008	-0.43	-0.002
Demographic Factors									
AGE 30-49	0.065	0.51	0.019	0.086	0.67	0.025	0.107	0.86	0.031
AGE 50-64	0.066	0.41	0.020	0.073	0.45	0.021	0.099	0.62	0.029
AGE 65+	0.044	0.25	0.013	0.029	0.17	0.008	0.029	0.18	0.008
FEMALE	0.077	0.81	0.022	0.089	0.92	0.025	0.075	0.83	0.022
EDUCATION	0.031	1.30	0.010	0.032	1.34	0.009	0.034*	1.48	0.010
Marital Status									
MARRIED/LIVING TOGETHER	-0.049	-0.45	-0.014	-0.031	-0.27	-0.009	-0.036	-0.33	-0.010
DIVORCED	-0.327	-1.63	-0.083	-0.304	-1.51	-0.078	-0.298	-1.64	-0.076
SEPARATED	0.153	0.68	0.047	0.189	0.87	0.058	0.107	0.50	0.032
WIDOWED	-0.091	-0.50	-0.025	-0.069	-0.37	-0.019	-0.067	-0.38	-0.019
Economic Variable									
INCOME	3e-05	0.86	9e-06	1e-05	0.38	4e-06	2e-05	0.48	5e-06
Employment Status									
PART TIME EMPLOYED	-0.237	-1.45	-0.063	-0.233	-1.46	-0.062	-0.198	-1.28	-0.054
LESS THAN PART TIME	-0.046	-0.18	-0.013	-0.035	-0.14	-0.010	0.002	0.010	0.001
UNEMPLOYED	-0.193	-0.57	-0.051	-0.132	-0.41	-0.036	-0.125	-0.44	-0.034
STUDENT	0.311*	1.95	0.098	0.361**	2.41	0.116	0.396**	2.33	0.129
RETIRED	0.218	1.38	0.067	0.264*	1.69	0.081	0.293	2.03	0.091
AT HOME	0.118	0.60	0.036	0.151	0.82	0.046	0.142	0.83	0.043
SICK	0.202	1.32	0.063	0.268*	1.82	0.085	0.234	1.43	0.073
Trust									
TRUST IN THE COURT/LEGAL SYSTEM	0.100***	3.56	0.029	0.103***	3.54	0.030	0.106***	4.04	0.030
Religion									
PROTESTANT	0.102	1.05	0.029	0.117	1.39	0.034	0.082	0.89	0.024
NO RELIGION	0.383***	2.84	0.123	0.378***	2.89	0.121	0.309*	1.75	0.097
OTHER RELIGION	0.489***	3.45	0.164	0.517***	3.79	0.174	0.453***	3.24	0.150
Religiosity									
CHURCH ATTENDANCE	0.087***	4.44	0.025	0.087***	4.42	0.025	0.083***	4.53	0.024
Wald -Test: AUDIT COURT				5.49**			3.74*		
Wald-Test: Joint for TAX RATE & INCOME	0.83			0.15			0.25		
Observations	1068			1068			1068		
Pseudo R2	0.031			0.034			0.030		
Prob(LM-statistic)	0.000			0.000			0.000		

Notes: Dependent variable: tax morale on a four point scale. In the reference group are AGE <30, MALE, SINGLE, FULL TIME EMPLOYED and catholic. Significance levels: * 0.05 < p < 0.10, ** 0.01 < p < 0.05, *** p < 0.01. Marginal effect = highest tax morale score (3).

We also checked whether TRUST IN PARLIAMENT has a positive impact on tax morale. The results indicate that this trust variable performs in a similar way as TRUST IN THE COURT AND THE LEGAL SYSTEM, showing a positive impact on tax morale.¹³ Thus, the results indicate that trust is an important factor, which influences citizen's incentive to commit themselves to obedience. This finding is in line with our prediction and with other empirical studies (see, e.g., TORGLER [2003c]). Similarly, the coefficient for church attendance is statistically significant with a positive sign. Religiosity may act as a moral incentive to behave honestly, providing a certain level of social norm enforcement to act in the lines of accepted rules and acts as a sort of "supernatural police" (ANDERSON AND TOLLISON [1992]). Thus, the results seem to confirm our predictions suggesting that religiosity has a positive effect on tax morale. Regarding the religion, we find out that our reference group (CATHOLICS) has the lowest tax morale. Interestingly, people with the highest tax morale are those who do not have to pay church taxes in Switzerland.

Small differences are observed between the demographic factors, marital status and employment status. The INDIVIDUAL TAX RATE is statistically not significant either. The negative sign is consistent with many empirical papers analysing the correlation between tax rates and tax evasion (see, e.g., CLOTFELTER [1983], CRANE AND NOURZAD [1992]). However, it should be noticed that FEINSTEIN [1991] does not find a positive correlation between tax rates and non-compliance, trying to better separate the effects of marginal tax rates from those of income, which might justify that the coefficient is not statistically significant. Furthermore, neither INCOME nor EDUCATION have a statistically significant impact on tax morale, but for both the coefficient is positive. The high correlation between individual tax rate and income is not only a problem in our paper investigating the determinants of tax morale, but also a general one in the tax compliance literature. In order to deal with this problem without losing too many information (e.g., building a new variable at the cantonal level), we present in Table 3 one estimation including only the individual tax rate (Eq. 4) and one with only the income variable (Eq. 5). The idea behind such a procedure is to argue that both variables measure a stable phenomenon, so there is no point in trying to separate estimates of each one controlling for the other. To avoid a discussion about which one should be eliminated two

¹³ How much confidence do you have in the parliament (5=complete confidence to 1=no confidence at all). The results of this variable do not appear in the tables. With the TRUST IN THE PARLIAMENT variable we focus more closely on the current politico-economic level. On the other hand with the variable TRUST IN THE COURT AND THE LEGAL SYSTEM we focus on how the relationship between the state and its citizens is established. Both variables are highly correlated.

different estimations have been presented. Table 3 shows that there are no big differences between these estimations and the ones presented in Table 2. Both coefficients are still not statistically significant and have the same coefficient sign. Furthermore, a simple method that can be used to great advantage when it may be relevant to leave the collinear variables in the regression equation is to perform a joint hypothesis test. The most serious danger of multicollinearity is to conclude that none of the collinear variables has an effect on the dependent variables when any of them alone has a very strong effect. Thus, instead of looking at the test statistics and p values for each variable, it may be relevant to test the joint hypothesis that none of the collinear variables has a coefficient that differs from zero (see ALLISON [1999]). Thus, for each regression in Table 2 and 3 we ran the test of the hypothesis that both variables had a coefficient of 0. In all the cases the Wald-test indicates that the null hypothesis cannot be rejected. Thus, the conclusions are robust to the multicollinearity. Additionally, it should be noticed that the used data set has many advantages: Working with individual data and with a large sample size in a cross-sectional investigation helps to reduce the inflated standard errors that stem from multicollinearity.

Eq. 6 in Table 3 includes the deterrence factors in the regression. As we can see, both coefficients are not statistically significant. Looking at the goodness of fit (no change) and using a Wald-test for coefficient restrictions to test for joint significance (null hypothesis cannot be rejected) we can conclude that deterrence factors do not play a significant role in the determination of individuals' tax morale. Thus, for all further estimations, the deterrence factors have not been considered. As already mentioned, the reason might be that we analyze tax morale and not tax evasion itself. Thus, we cannot conclude that deterrence factors do not have an impact on tax compliance. It can still be possible that these determinants have a direct impact on tax compliance and tax evasion rather than influencing tax morale.

Table 3. Further Estimations (Std. Err. Adjusted for Clustering on 26 Cantons)

<i>Dependent Variable:</i>	<i>weighted</i>			<i>weighted</i>			<i>weighted</i>		
<i>Tax Morale</i>	<i>ordered probit</i>			<i>ordered probit</i>			<i>ordered probit</i>		
	<i>Eq. 4</i>			<i>Eq. 5</i>			<i>Eq. 6</i>		
<i>Independent Variables</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg.</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg.</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg.</i>
INSTITUTIONS									
AUDIT COURT	0.107**	2.45	0.031	0.107**	2.40	0.031	0.104**	2.25	0.030
Tax Rate									
INDIVIDUAL INC. TAX RATE	-2e-04	-0.02	-1e-05				-0.007	-0.35	-0.002
Demographic Factors									
AGE 30-49	0.092	0.70	0.027	0.088	0.68	0.025	0.085	0.66	0.025
AGE 50-64	0.081	0.47	0.024	0.076	0.46	0.022	0.070	0.43	0.020
AGE 65+	0.036	0.20	0.010	0.031	0.18	0.009	0.027	0.15	0.008
FEMALE	0.086	0.91	0.025	0.089	0.93	0.026	0.090	0.94	0.026
EDUCATION	0.034	1.41	0.010	0.032	1.43	0.009	0.033**	1.38	0.010
Marital Status									
MARRIED/LIVING TOGETHER	-0.027	-0.24	-0.008	-0.028	-0.24	-0.008	-0.033	-0.28	-0.010
DIVORCED	-0.299	-1.50	-0.076	-0.300	-1.51	-0.077	-0.299	-1.50	-0.077
SEPARATED	0.192	0.88	0.059	0.192	0.88	0.059	0.189	0.87	0.058
WIDOWED	-0.064	-0.34	-0.018	-0.067	-0.35	-0.019	-0.069	-0.36	-0.019
Economic Variable									
INCOME				4e-06	0.29	1e-06	1e-05	0.38	4e-06
Employment Status									
PART TIME EMPLOYED	-0.236	-1.47	-0.063	-0.226	-1.43	-0.060	-0.233	-1.48	-0.062
LESS THAN PART TIME	-0.033	-0.13	-0.009	-0.018	-0.07	-0.005	-0.032	-0.13	-0.009
UNEMPLOYED	-0.130	-0.41	-0.035	-0.118	-0.37	-0.032	-0.134	-0.42	-0.036
STUDENT	0.373**	2.58	0.120	0.386**	2.58	0.125	0.360**	2.42	0.115
RETIRED	0.263*	1.68	0.081	0.284**	2.01	0.088	0.266*	1.69	0.082
AT HOME	0.154	0.83	0.047	0.172	0.96	0.052	0.155	0.83	0.047
SICK	0.272*	1.81	0.086	0.290	1.61	0.093	0.272*	1.93	0.086
Trust									
TRUST IN THE COURT/LEGAL SYSTEM	0.104***	3.60	0.030	0.104***	3.57	0.030	0.102***	3.45	0.029
Religion									
PROTESTANT	0.119	1.43	0.034	0.120	1.45	0.035	0.114	1.26	0.033
NO RELIGION	0.380***	2.95	0.122	0.377***	2.88	0.121	0.375***	2.79	0.120
OTHER RELIGION	0.522***	3.83	0.175	0.522***	3.77	0.175	0.526***	3.87	0.177
Religiosity									
CHURCH ATTENDANCE	0.087***	4.45	0.025	0.086***	4.44	0.025	0.087***	4.42	0.025
Deterrence Factors									
FINE RATE							-3e-04	-0.32	-8e-05
AUDIT PROBABILITY							0.001	0.98	2e-04
Wald-Test: AUDIT COURT	6.02**			5.72**			5.07**		
Wald-Test: Joint for TAX RATE & INCOME							0.15		
Wald-Test: Joint for FINE RATE & AUDIT P.							0.97		
Observations	1068			1068			1068		
Pseudo R2	0.034			0.034			0.034		
Prob(LM-statistic)	0.000			0.000			0.000		

Notes: Dependent variable: tax morale on a four point scale. In the reference group are AGE <30, MALE, SINGLE, FULL TIME EMPLOYED and CATHOLIC. Significance levels: * 0.05 < p < 0.10, ** 0.01 < p < 0.05, *** p < 0.01. Marginal effect = highest tax morale score (3).

In a next step we are going to integrate two further institutions which are important for Switzerland: direct democracy and federalism. The Swiss constitution combines direct democracy elements as initiative and referenda with a high degree of federalism, which means that cantons and local authorities have extensive competences. The degree of institutionalised rights of political participation strongly varies between the 26 Swiss cantons (see Table A2 in the Appendix). However, it should be noticed that a stronger audit court goes in line with higher direct democratic rights. In our data there is a high correlation between the index of direct democracy and the index of audit court ($r=0.61^{***}$, significant at the 0.01 level). Certainly, the high correlation cannot be interpreted as evidence for causality. However, it can be argued that direct democracy may foster a stronger audit court at the cantonal level. It can be supposed that the significance of the audit court variable decreases when adding direct democratic rights to the equation, as direct democratic participation rights are a stronger instrument for taxpayers to express their preferences and might therefore have a stronger impact on tax morale.

Table 4 presents the results. Adding the proxy for local autonomy has no impact on the significance of the coefficient AUDIT COURT. The coefficient is still significant with marginal effects between 1.7 and 2.2 percentage points. If we compare these marginal effects with our previous estimations in Table 2 and 3, we observe a decay of the quantitative effect. However, the marginal effects in Table 4 are still quite high. High marginal effects can be found for the variable LOCAL AUTONOMY (between 4.2 and 4.8 percentage points). Not surprising, adding the proxy for direct democratic participation rights, the coefficient loses its significance and its size. On the other hand the coefficient of the variable DIRECT DEMOCRACY is statistically significant.

In Eq. 9 of Table 4 we check whether the findings regarding the variables AUDIT COURT and LOCAL AUTONOMY in Eq. 8 remain robust, accounting for different cultural background with the variable LANGUAGE. This helps isolate the institutional effect better from the cultural one. The results indicate that sign and significance of the variables AUDIT COURT and LOCAL AUTONOMY remain stable. Finally, in line with Eq. 3 in Table 2, Eq. 10 presents an unweighted order probit estimation. As we can see, the impacts of institutions on tax morale are very robust. The strength of institutions has also been evaluated using a Wald-test (also for the joint role played by the institutions). The chi2-statistics indicate that institutions play a strongly significant role in the determination of individuals' tax morale.

Table 4. Further Institutions (Std. Err. Adjusted for Clustering on 26 Cantons)

<i>Dependent Variable:</i> <i>Tax Morale</i>	<i>weighted ordered probit</i>			<i>weighted ordered probit</i>			<i>weighted ordered probit</i>					
	<i>Eq. 7</i>			<i>Eq. 8</i>			<i>Eq. 9</i>			<i>Eq. 10</i>		
<i>Independent Variables</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg.</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg.</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg.</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg.</i>
<i>all other variables included</i>												
INSTITUTIONS												
AUDIT COURT	0.054	1.14	0.016	0.079**	2.45	0.022	0.072**	2.52	0.020	0.061**	2.05	0.017
DIRECT DEMOCRACY	0.072**	2.03	0.021	0.168***	2.68	0.048	0.154***	2.67	0.044	0.145**	2.32	0.042
LOCAL AUTONOMY												
Language												
SWISS GERMAN							0.047	0.57	0.013	0.003	0.040	0.001
Wald-Test: AUDIT COURT	1.29			5.99**			6.35**			4.20**		
Wald-Test: DIRECT DEMOCRACY	4.10**											
Wald-Test: LOCAL AUTONOMY	7.83**			7.18***			7.12**			5.40**		
Wald-Test: ALL INSTITUTIONS				11.74***			14.43***			12.49***		
Observations	1068			1068			1068			1068		
Pseudo R2	0.035			0.037			0.037			0.033		
Prob(LM-statistic)	0.000			0.000			0.000			0.000		

Notes: Dependent variable: tax morale on a four point scale. In the reference group are AGE <30, MALE, SINGLE, and FULL TIME EMPLOYED. Significance levels: * 0.05 < p < 0.10, ** 0.01 < p < 0.05, *** p < 0.01. Marginal effect = highest tax morale score (3).

In general, the findings in Table 2 to 4 indicate that instruments at the constitutional level have a strong effect on tax morale. However, it can be criticized that institutions are endogenous in the long run. In Switzerland people cannot only vote on aspects of the tax structure, but also on the institutional structure. It can be stated that values and attitudes, which may partly differ across cantons, determine the extent of institutional structure in the long run. Thus, the effect of the institutions may partly reflect values. Or in other words, do taxpayers with a higher tax morale choose stronger audit courts or more direct democratic or local autonomy institutions? In general, these institutions have a long tradition in Switzerland and are quite stable over time (see Table A3 in the Appendix for direct democratic rights), which might suggest that the causality runs from institutions to tax morale and not the other way round. However, based on this kind of data set it is not possible to rule out the causality problem.

4 Conclusions

The intention of this paper was to analyse how audit courts affect tax morale, controlling for a broad variety of potential factors. Switzerland with a big variety of audit court competences in its states/cantons has been analysed. This variety makes Switzerland a good case study to investigate. With data from the ISSP evidence has been found that a higher audit court competence has a significantly positive effect on tax morale. This effect tends to persist even after controlling for factors as trust in the court and the legal system, age, income, education, gender, marital status, employment status, region and religiosity, local autonomy and culture. However, it should be noticed that the effect of audit courts is not statistically significant when direct democracy is included. But it can be argued that direct democracy and audit courts are not independent of each others. Cantons with stronger direct democratic participation rights have also institutionalised stronger audit courts. The indices for direct democratic rights and audit courts are highly correlated. This makes it difficult to clearly separate the effects of the two variables in one estimation. Thus, it is somehow no surprise that the coefficient of the audit court variable loses its significance. Audit courts can be seen as a sort of “supplement” or “transmission mechanisms” of direct democracy. The joint role played by both institutions has been investigated using a Wald-test for coefficient restrictions (test for *joint* significance). The results indicate that the null hypothesis is rejected, meaning

that the institutions as a whole play a significant role in the determination of individuals' tax morale. Thus, the results in Switzerland suggest that in some cantons the audits courts are neither knights without swords nor toothless tigers. Giving them a sword has an important impact on society. It enhances taxpayers' intrinsic motivation to pay taxes and thus their willingness to contribute as citizens to the society.

This paper contributes also to the tax compliance literature, analysing tax morale as dependent variable working with the International Social Survey Programme. Empirical and experimental findings in the tax compliance literature have shown that the standard model of tax evasion based on an expected utility maximisation approach predicts a higher degree of tax evasion than observed. Thus, the tax compliance puzzle is why people pay taxes. It has been argued that tax morale might explain such a high compliance. However, there is still a lack of empirical studies that analyze what shapes tax morale.

Finally, the paper is also novel in its nature, as institutions have often been neglected in the tax compliance literature. Tax morale is not only influenced by audit courts, but also by the level of local autonomy and direct democracy. A particularly strong impact has been observed for the variable LOCAL AUTONOMY, being highly statistically significant with high marginal effects of around 4 percentage points. The results clearly indicate that institutions matter and they help to understand individuals' willingness to pay taxes.

APPENDIX

Table A1
Derivation of Variables ISSP 1998 (Swiss data 1999)

Variable	Mean	Std. Dev.	Min	Max	Obs.	Derivation
Tax Morale (dependent variable)	1.767	0.917	0	3	1143	Do you feel it is wrong or not wrong if a taxpayer does not report all of his or her income in order to pay less income taxes? (0= not wrong, 1= a bit wrong, 2= wrong, 3= seriously wrong).
Trust in Court an the Legal System	3.119	0.906	1	5	1146	How much confidence do you have in courts and the legal system (5=complete confidence to 1=no confidence at all).
Fine Rate	78.241	33.292	30	200	1204	Standard legal fine (in percent) as a multiple of the evaded tax amount based on questionnaire data of Frey and Feld (2002) and Feld and Frey (2002a, 2002b).
Probability of Detection	53.006	36.141	7.05	188.98	1204	Number of tax auditors as a percentage of the total number of taxpayers based on questionnaire data of Frey and Feld (2002) and Feld and Frey (2002a, 2002b).
Individual Tax Rate	5.890	6.234	0.00	25.14	1204	Own calculations based on the average weighted value (in percentage) working with the income information done by the ISSP. From the tax table (Steuerbelastung in der Schweiz 1999, p. 48) the value closest to the ISSP income values (midpoint) is used. For simplicity, no differentiation between singles and married people has been made, working with the individual tax rate table for singles.
Income	2911	3445	0	22500	1204	Monthly earnings from employment in Swiss francs (midpoints).
Female	0.534	0.499	0	1	1204	Dummy
Education	3.657	1.681	1	7	1201	What is the highest educational level that you have attained? <ol style="list-style-type: none"> 1. Non, still at school 2. Incomplete primary school 3. Primary school (up to 12 years of age) 4. Incomplete secondary 5. Secondary completed 6. Incomplete + complete semi-higher qualification, incomplete university, others 7. University completed.
Religiosity	2.582	1.825	1	9	1188	How often do you take part in the activities or organisations of a church or a place of worship, other than attending services? Never (1), less than once a year, about once or twice a year, several times a year, about once a month, 2-3 times a month, nearly every week, every week, several times a week (9).
Catholic	0.480	0.500	0	1	1203	Dummy, 1=catholic, 0=else.
Protestant	0.382	0.486	0	1	1203	Dummy, 1=protestant, 0=else.
Other Religion	0.045	0.207	0	1	1203	Dummy, 1= other religion, 0=else.
No Religion	0.092	0.290	0	1	1203	Dummy, 1= no religion, 0=else.
Language	0.652	0.458	0	1	1204	German=1, non-German canton=0, mixed cantons (0.5).

Source: ISSP [1998]. The information about the probability of detection and the fine for tax evasion has been collected by Lars P. Feld and Bruno S. Frey with a questionnaire (see FELD AND FREY [2002a, 2002b] AND FREY AND FELD [2002]).

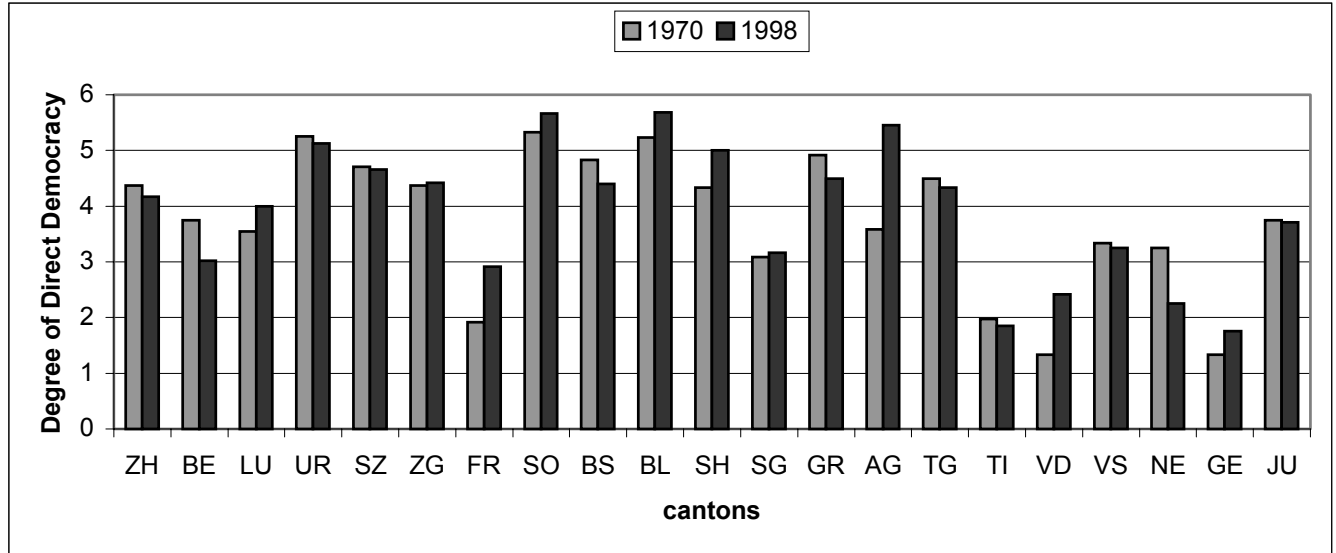
Table A2
Direct Democratic Rights and Local Autonomy in Swiss Cantons

<i>Canton</i>	<i>Composite Index for Direct Democratic Rights</i>	<i>Local Autonomy</i>
Aargau	5.46	4.9
Appenzell I. Rh.	5.25	5
Appenzell A. Rh.	5.5	5.8
Bern	3.5	4.6
Basel-Landschaft	5.69	4.3
Basel-Stadt	4.4	5.5
Fribourg	2.42	4.2
Genève	1.75	3.2
Glarus	5.5	5.6
Graubünden	4.75	5.8
Jura	3.71	4
Luzern	4.48	4.1
Neuchâtel	2.13	3.7
Nidwalden	4.92	5.5
Obwalden	5.58	6
Sankt Gallen	3.4	4.9
Schaffhausen	5.08	6.1
Solothurn	5.42	4.9
Schwyz	4.93	4.6
Thurgau	4.04	5.9
Ticino	2.1	4.3
Uri	5.42	5.4
Vaud	2.42	4.7
Valais	3.42	5.5
Zug	4.42	6
Zürich	4.17	5.4

Source: Index Direct Democracy, FREY AND STUTZER [2002, 192], Local Autonomy, LADNER [1994], see also FREY AND STUTZER [2002, 192].

Table A3

Degree of Direct Democracy Between 1970 and 1998



Notes: The cantons, which have or had until recently the 'Landsgemeinde' (town meeting) (Appenzell I. Rh., Obwalden, Glarus, Appenzell A. Rh. and Nidwalden), have not been included in these estimations. Source: calculations based on the index developed by FREY AND STUTZER [2002] on the basis of the data of TRECHSEL UND SERDÜLT [1999].

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