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## A Field Experiment on Moral Suasion and Tax Compliance Focusing on Under-Declaration and Over-Deduction

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# **A Field Experiment on Moral Suasion and Tax Compliance Focusing on Under-Declaration and Over-Deduction**

Working Paper No. 2012 - 06

# A Field Experiment on Moral Suasion and Tax Compliance

## Focusing on Under-Declaration and Over-Deduction

Benno Torgler<sup>\*</sup>

**Abstract:** *Field experiments in the area of tax compliance are rare. This field experiment generates a unique data set with respect to individuals' under-declaration of income and wealth and over-deductions of tax credits by obtaining exclusive full access to the audits. Using this commune level data from Switzerland, the paper explores the influence of moral suasion on tax compliance. Moral suasion was introduced through a treatment in which taxpayers received a letter signed by the commune's fiscal commissioner containing normative appeals. Interestingly, I observe differences between under-declaration and over-deductions. Moreover, the overall finding is in line with former results that moral suasion has hardly any effect on taxpayers' compliance.*

**Key words:** tax compliance, moral suasion, field experiment

**JEL classification:** H26; H71

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## I. INTRODUCTION

Moral suasion or moral appeals can be a powerful tool. A seminal book by Cialdini (2007) entitled *Influence: The Psychology of Persuasion* showed convincingly what can be achieved with persuasion. Research in the area of marketing relies heavily on persuasion as a tool to influence human nature. Advertisement, for example, might be seen as the ability to form and change attitudes and behaviours either consciously or outside of conscious awareness. On the other hand, economics has been substantially more critical about persuasion. Some results indicate that moral suasion does not work when individuals or institutions (e.g., firms) are under strong competitive pressure, but can be a useful *short-term* tool to generate voluntary cooperation in emergency situations (through, e.g., blood donations) or after a disaster (see, e.g., Baumol & Oates, 1979; De Alessi, 1975).

During the past 10 years we have gathered substantial knowledge regarding how moral sentiments or social norms of compliance (tax morale) shape tax compliance and the factors which influence such sentiments (for an overview, see, e.g., Torgler 2007). The results indicate that social norms are crucial to understanding why people comply with the law. Less evidence is available as to how moral suasion or moral appeals shape tax compliance. Blumenthal, Christian and Slemrod (2001) collaborated with the Minnesota Department of Revenue on a field experiment designed to analyse the impact of moral persuasion on voluntary income tax compliance. The authors focused on whether taxpayers who were subject to moral appeals changed their reports to a greater extent than taxpayers who were not. However, they did not have access to audits of taxpayers' returns. They found that those who received the moral suasion treatment increased their income report on average by \$220 more than the control group (0.08 percent of average income).

However, the coefficient was not statistically significant. Their results also indicate that people with greater opportunities to evade or avoid taxes (e.g., self-employees) are less susceptible to normative appeals. Torgler (2004) explored the effects of moral suasion on the timely paying of tax and the timely completion of the tax form in 2001. Results indicate that moral suasion has hardly any effect on taxpayers' compliance behaviour. The current paper complements this previous study and offers a unique opportunity to explore individuals' under-declaration of income and wealth and over-deduction of tax credits. As mentioned previously, unlike previous tax compliance studies and field experiments, I have full access to the audits.

## II. FIELD EXPERIMENTAL DESIGN

The experiment was conducted in the commune (municipality) of Trimbach in Switzerland. The commune is the smallest government division in Switzerland, and there are a total of 2596 communes. In January 2003 the commune of Trimbach had 3497 taxpayers. It is important to note that communes are financed through direct taxes and they are fully responsible for the tax collection process. Tax laws in Switzerland allow citizens to declare their own income and wealth and to make deductions. Of the 3497 taxpayers in Trimbach, I selected 578 individuals randomly before sending the tax form 2001. I divided the recipients randomly into two groups: a control group and a treatment group. The benefit of this division is explained by List (2011), who points out that "field experiments use randomization as an instrumental variable, balancing the unobserved variables across the treated and control states" (p. 4). Unfortunately, field experiments in the area of tax compliance are limited due to the fact that the law heavily restricts the ability to test questions on topics such as tax rates or deterrence. However, the exploration of (soft) factors such as moral suasion

or the provision of rewards for compliance (Feld, Frey and Torgler, 2006) are achievable.

The experimental treatment group received a letter immediately after a taxpayer received the tax form. The letter and its translation are shown in the Appendix. The letter was developed in concordance with the three phases in the processing of a persuasive message, namely attention, comprehension and acceptance of the message content (Hovland, 1959). The treatment group received a letter signed by the commune fiscal commissioner in February 2002. The letter was sent separately just after the 2001 tax form to increase the probability that taxpayers using professional assistance would read the letter. We chose to print on pink paper to attract attention. The style of letter (easy to read and to comprehend) and an adequate length (not too long) were selected in order to capture the attention and acceptance of taxpayers.

The available statistics confirm that both groups were very similar to each other before the experimental treatment (year 2000). For example, the mean taxable income was 44,761 Swiss Francs (CHF) for the control group and 44,427 for the treatment group, and the distribution appears to be very similar (see Figure A3 in the Appendix). Torgler (2004) also reports consistency on the compliance variables for year 2000 (paying on time: 2.808 for the control group and 2.804 for the treatment group<sup>1</sup>).

The selection of a small town such as Trimbach is discussed intensively in Torgler (2004). Here I should note that a strong interaction at the local level (as is the case in Trimbach) can promote cooperation (Torgler, Schneider & Schaltegger, 2010).

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<sup>1</sup> 3 = payments on time, remission of taxes, 2= first request for payment, 1= debt collection, 0= not paid the taxes.

Thus, if there is a moral suasion effect, it might be stronger at the local level (upper-bound level estimate) than at a more centralised level as in the experiment conducted by Blumenthal et al. (2001). On the other hand, if moral suasion does not work at the local level, it might be less likely to work at a more centralized level unless one can argue that the local level provides alternative channels to enforce cooperation.

The letter (included in the Appendix) introduced the following moral suasion appeal in the first paragraph: *“If the taxpayers did not contribute their share, our commune with its 6226 inhabitants would suffer greatly. With your taxes you help keep Trimbach attractive for its inhabitants”*. In line with Blumenthal et al. (2001), the message points out the importance of paying taxes voluntarily to guarantee the provision of public goods. Contrary to Blumenthal et al. (2001) I pointed out the number of inhabitants (6226) in the message to stress how “close” people are to each other. In the second paragraph I introduce a signal that citizens are trusted. The psychological tax contract between the tax administration and the taxpayers can be maintained by positive actions based on trust (Feld & Frey, 2002): *“In Switzerland, contrary to other countries, the citizens have the opportunity to actively participate in the legislative procedure. This advantage is also reflected in the tax legislation, which stipulates self-declaration by the taxpayers. This Swiss system presupposes that citizens have a sense of responsibility and are ready to maintain the functioning of municipalities, cantons, and the state. With your conscientious tax declaration you contribute to preserving this democratic and liberal structure<sup>2</sup>”*.

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<sup>2</sup> For a discussion of the advantages and limitations in the design and the use of a letter see Blumenthal et al. (2001) and Torgler (2004).

### III. RESULTS

To explore whether people in the treatment group are less likely to underreport their income I first build an *income tax evasion* variable: *total income reported by the tax administration – total income reported by the taxpayer in his/her tax form*. The experimental design allows a comprehensive analysis as the tax administration inspected all tax forms rather than randomly picking some tax forms to be audited. Reporting of the results begins with an observation of differences in the mean between the groups. The control group returns a value of 1,525 CHF while the treatment group reports over-compliance (-192 CHF). However, a two-sample t-test shows no statistically significant difference between the two groups. In 44% of cases the tax administration did not correct the total income earned in the treatment group, while the control group had no changes in 46% of the cases. In 15% of the cases, people reported too much income in the treatment group while in the control group 14% over-reported. Thus, it seems that moral suasion had a small positive (though not statistically significant) effect on tax compliance. However, the picture changes when considering total deductions. As a proxy for *tax evasion through over-deduction* I use: *total deduction reported by the taxpayer - total deductions reported by the tax administration*. Thus, positive values indicate that taxpayers have reported higher deductions than actually allowed. The control group returns a positive mean value of 816 CHF, while the treatment group reports an even higher mean value (namely 1351 CHF). Again, the difference is not statistically significant. In 31% (35%) of the cases no changes were made to the tax return by the tax administration in the treatment group (control group). On the other hand, in 55% (53%) of the cases, taxpayers claimed higher deductions than they were allowed. However, in most of the cases (more than 50%) the amounts of over-deductions were less than 10,000 CHF for both



groups. Key potential deductions are provided in the section on professional expenses. To my surprise, one actually observes substantial differences between the control and treatment groups. On average the treatment group deducted 791 CHF, while in the control group the mean is only 349 CHF. The difference borders on statistical significance when applying a t-test ( $t=1.61$ ). Interestingly, tax evasion on wealth (*total taxable wealth reported by the tax administration – total taxable wealth reported by the taxpayer in the tax form*) returns a very similar picture. The treatment group demonstrates higher values of evasion (mean=3,072 CHF) compared to the control group (mean=-12,431 CHF), although the difference is not statistically significant (t-test reports a value of 1.42). It should be noted that observations are lost when conducting the wealth analysis (197 in the control group and 206 in the treatment group). However, when investigating wealth I observe less tax evasion. In 82% (80%) of the cases no changes to the tax declaration were made by the tax administration in the treatment (control group). On the other hand, in 13% of the cases I observe tax evasion in the treatment group, while I only observe tax evasion in 10% of the control group.

Having obtained a large set of additional variables (based on the tax form) from the tax administration I apply a multivariate analysis. It is clear from the results (presented in *Table 1*) that the treatment dummy is never statistically significant. In general, the results should be treated with caution as the R-squared values are very low. Interestingly, one observes a U-shape for the relationship between age and over-deductions relationship a reverse relationship for under-declaration of wealth. It is also worth mentioning that when analysing wealth, Protestants and Catholics have a higher level of tax compliance than other denominations and people without a denomination. Looking at the same dependent variable I observe that homeowners are

also more compliant. Taxable income is only relevant when considering over-deductions, and in this case it returns a negative coefficient. Interestingly, tax declarations made on a computer are more likely to report over-deductions and under-declaration of wealth.

*Table 1: Determinants of Tax Evasion*

<i>OLS</i>	<i>OVERDEDUCTIONS</i>	<i>UNDERDECLARATION</i>	<i>UNDERDECLARATION</i>
<i>Dependent Variable</i>		<i>OF INCOME</i>	<i>OF WEALTH</i>
	(1)	(2)	(3)
MORAL SUASION	785.166 (1.08)	-1674.005 (-0.43)	5358.442 (0.88)
AGE	-278.598** (-2.11)	120.603 (0.15)	1315.154* (1.67)
AGE SQUARED	2.341** (2.08)	-1.159 (-0.17)	-10.021 (-1.46)
FEMALE	328.699 (0.52)	-4490.338 (-0.65)	-9615.241 (-0.92)
SWISS	141.508 (0.19)	4692.180 (0.72)	27053.670 (1.12)
MARRIED	254.785 (0.24)	-6671.359 (-0.90)	1770.238 (0.14)
CATHOLIC	-907.826 (-1.54)	-3028.389 (-0.66)	-15472.500** (-2.03)
PROTESTANT	-1889.816 (-1.53)	969.881 (0.17)	-18421.210** (-2.43)
TAXABLE INCOME	-0.016* (-1.70)	-0.045 (-0.96)	-0.203 (-1.00)
SELF-EMPLOYED	-500.264 (-0.49)	5330.595 (1.49)	16110.340 (0.97)
HOME-OWNER	-687.392 (-0.69)	7733.736 (1.46)	-18282.740* (-1.66)
DONE WITH THE COMPUTER	1629.651*** (2.52)	-1369.490 (-0.91)	10786.450* (1.78)
Number of observations	489	490	394
R-squared	0.035	0.016	0.057

Notes: Robust standard errors. In the reference group are: CONTROL GROUP (NO LETTER), MALE, OTHER NATIONALITIES, NOT MARRIED (ANYMORE) (SINGLE, DIVORCED, SEPARATED, WIDOWED), FOREIGNER, NO DENOMINATION OR OTHER RELIGION, NOT SELF-EMPLOYED, RENTING, DONE BY HAND OR TYPWRITER. Significance levels: \* 0.05 < p < 0.10, \*\* 0.01 < p < 0.05, \*\*\* p < 0.01 and t-values in parentheses.

In line with Blumenthal et al. (2001) I also explored the interaction between moral suasion and variables such as income, self-employment (greater opportunity costs), and home-owners (more permanent/long term connection to their immediate community). In most cases the interaction term was not statistically significant. It is only for income tax evasion that I observe home-owners are more receptive to moral suasion than other taxpayers, with a t-value on the border of statistical significance (t-value 1.65).

#### IV. CONCLUSIONS

Referring to Angrist and Pischke's (2010) article entitled *The Credibility Revolution in Empirical Economics: How Better Research Designs Is Taking the Con out of Econometrics*, Slemrod and Weber (2012) raise the criticism that "with regard to the empirical analysis of tax evasion and the informal economy, the credibility revolution has, for the most part, not yet arrived. The late arrival of the credibility revolution is not because of inattention by creative empirical researchers. Rather, it is because severe measurement problems plague empirical analysis in this context, problems that arise not by chance, but because of the nature of the subject matter" (p. 50). Field experiments offer an opportunity to promote the credibility revolution in the study of tax evasion. They have the advantage of being broadly generalizable in a best-case scenario where individuals do not make a choice whether or not to participate, and by "combining randomization and realism in this manner, natural field experiments provide a different parameter estimate than do laboratory, artefactual, and framed field experiments" (List 2011, p. 6). The treatments in this study were implemented

by the tax authority which evokes real processes allowing us to observe taxpayers' behaviour in their usual environment outside the laboratory setting (Torgler, 2004).

The strength of our field experiment compared to those by authors such as Blumenthal et al. 2001 or Slemrod, Blumenthal, and Christian (2001), is that I have been able to work with a large set of dependent variables (income, wealth, and deductions) having received access to results of the audits on all taxpayers<sup>3</sup>. The results are consistent with previous findings indicating that moral suasion has hardly any effect on tax compliance, despite an analysis of cooperation at the local level where moral suasion may be more effective. However, as Blumenthal et al. (2001) and Torgler (2004) point out, more research is required to explore short-term versus long-term effects with repeated moral suasion messages and communication with taxpayers, particularly with respect to implementing different sorts of messages and different methods of communication.

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<sup>3</sup> List (2011) argues that "original experiments represent a long-term investment in building the trust of the organization" (p. 13). I spent one day per week at the tax administration in Trimbach for a period of six months. That may have contributed to the chance of working with such a unique dataset.

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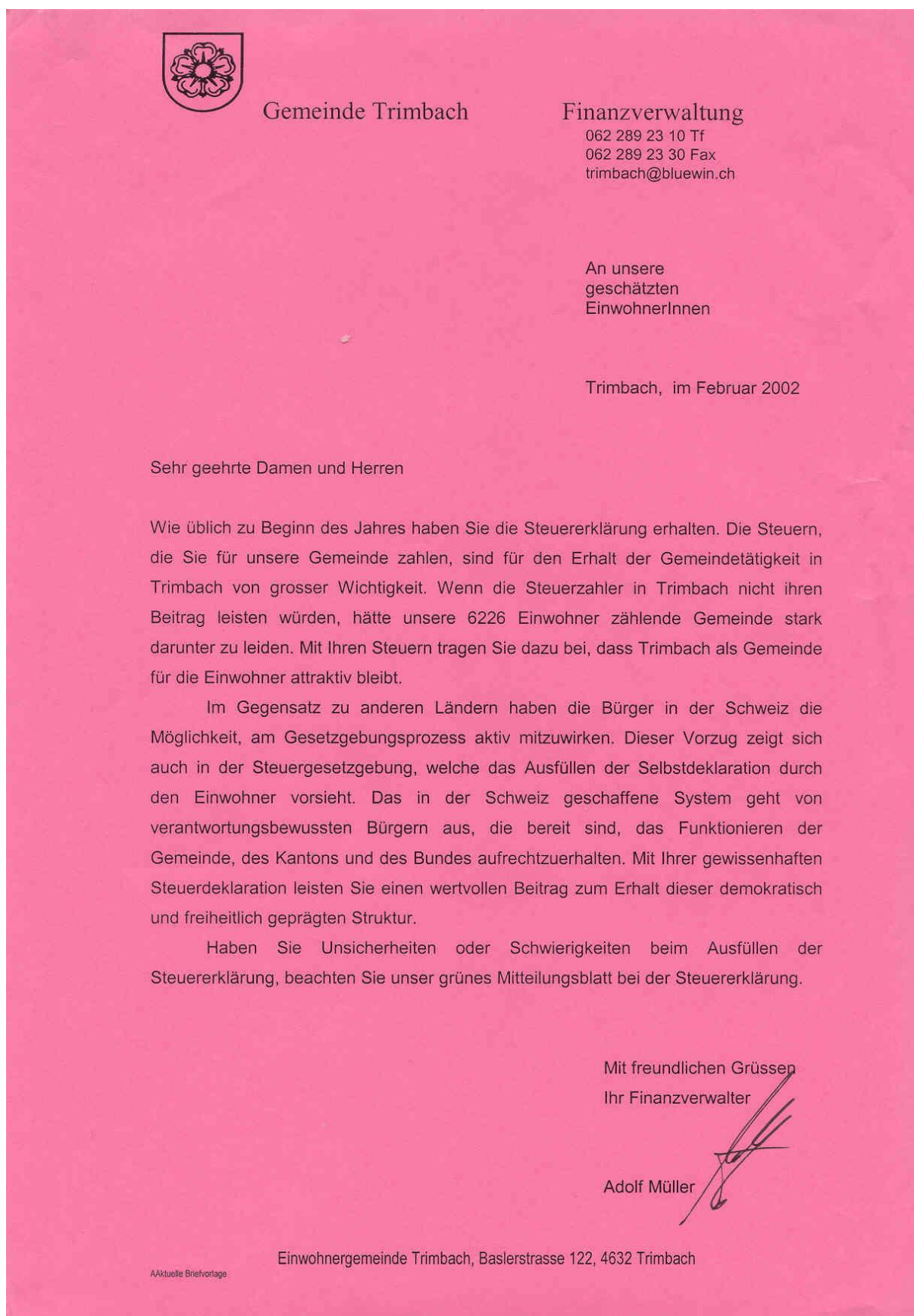
## APPENDIX

*Figure A1: Location of Trimbach*



Source: [http://en.wikipedia.org/wiki/File:Karte\\_Gemeinde\\_Trimbach\\_2007.png](http://en.wikipedia.org/wiki/File:Karte_Gemeinde_Trimbach_2007.png). Top left corner shows where Trimbach is located in Switzerland. The main image shows the location at the regional level. Trimbach is part of the canton Solothurn and not far away from the cantons Aargau and Basel-Landschaft.

Figure A2: Sample of the Letter



Sample of the letter (translation)

Dear Madam, dear Sir

As in the beginning of every year, you have just received the tax form. The taxes you pay are vital for maintaining the municipal tasks in Trimbach. If the taxpayers did not contribute their share, our commune with its 6226 inhabitants would suffer greatly. With your taxes you help keep Trimbach attractive for its inhabitants.

In Switzerland, contrary to other countries, the citizens have the opportunity to actively participate in the legislative procedure. This advantage is also reflected in the tax legislation, which stipulates self-declaration by the taxpayers. This Swiss system presupposes that citizens have a sense of responsibility and are ready to maintain the functioning of municipalities, cantons, and the state. With your conscientious tax declaration you contribute to preserving this democratic and liberal structure.

If you encounter any difficulties or doubts when filling in your tax declaration, please refer to the green sheet enclosed with the form.

Yours sincerely,

Your tax administrator



*Figure A3:* Distribution of Taxable Income between Control and Treatment Group in the Year before the Experiment

