

Dissertation

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„Freiwillige und erzwungene Kooperation
in sozialen Dilemmata“

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1. Einleitung

Oft wägen Menschen bei Entscheidungen ein gemeinsames Gut zu finanzieren den kollektiven Nutzen der Kooperation mit ihrem individuellen Nutzen bei unkooperativem Verhalten ab (z. B. Steuerehrlichkeit vs. Steuerhinterziehung, Fahrscheinkauf vs. Schwarzfahren). Der höchste gemeinsame Gewinn entsteht durch die Kooperation aller während der höchste individuelle Gewinn durch unkooperatives Handeln erlangt wird. Wenn in solchen Situationen zu viele Personen nicht kooperieren und ihren individuellen Profit maximieren, kann das gemeinsame Gut nicht mehr finanziert werden und das System kollabiert. In der Literatur werden solche Situationen soziale Dilemmata genannt (Dawes, 1980; Dawes & Messick, 2000).

In einem umfassenden Literaturüberblick fasste Kirchler (2007) zahlreiche Untersuchungen zu sozialen Dilemmata des Steuerzahlens zusammen. Dabei wurde die vorhandene Literatur zu Steuern in psychologische und ökonomische Faktoren, die Kooperation im Steuerbereich (d. h. Steuerehrlichkeit) bewirken, eingeteilt. Psychologische Faktoren, die die Kooperation erhöhen, umfassen laut Kirchler (2007) das subjektive Wissen über Steuern, positive Einstellungen zu Steuern, persönliche und soziale Normen Steuern zu bezahlen sowie die empfundene Gerechtigkeit des Steuersystems. Es wird angenommen, dass durch psychologische Faktoren das Vertrauen der BürgerInnen in die Autoritäten gestärkt wird. Vertraut wird weil die SteuerzahlerInnen annehmen, dass die Autoritäten wohlwollend sind und das gemeinsame Gut fördern. Ökonomische Faktoren dahingegen beziehen sich auf das ökonomische Standardmodell (Allingham & Sandmo, 1972; Srinivasan, 1973). Dieses geht davon aus, dass SteuerzahlerInnen bei der Entscheidung zu kooperieren die Steuerrate, die Kontrollwahrscheinlichkeit und die Höhe der Strafe bei entdeckter Hinterziehung berücksichtigen. Demnach kooperieren SteuerzahlerInnen nur dann, wenn sie erwarten, dass dies für sie am lukrativsten ist. Die ökonomischen Faktoren werden von Kirchler (2007), als die wahrgenommene Macht der Autoritäten zu kontrollieren und Fehlverhalten zu bestrafen, verstanden. Aus der bestehenden Literatur leitete Kirchler (2007) ab, dass sowohl Vertrauen in die Autoritäten (d. h. überwiegend psychologische Faktoren) als auch die Macht der Autoritäten (d. h. überwiegend ökonomische Faktoren) Kooperation hervorrufen. Er nimmt jedoch an, dass dem Kooperationsverhalten unterschiedliche Intentionen zu Grunde liegen (Kirchler, 2007).

Kirchler (2007) geht davon aus, dass SteuerzahlerInnen, die den Autoritäten vertrauen, ihre Steuern spontan bezahlen und freiwillig kooperieren. Dahingegen wird angenommen, dass die Macht der Autoritäten SteuerzahlerInnen zu rationalen Kalkulationen anregt und diese nur durch zahlreiche Kontrollen und hohe Strafen bei entdeckter Steuerhinterziehung zur Kooperation gezwungen werden können. Diese Annahmen zu Vertrauen und freiwilliger Kooperation sowie zu Macht und erzwungener Kooperation fasste Kirchler (2007) graphisch zum „Slippery Slope Modell“ zusammen.

Ziel der vorliegenden Dissertation war das von Kirchler (2007) entwickelte „Slippery Slope Modell“ genauer zu beschreiben und um die Annahme von dynamischen Effekten zu erweitern. Dann sollte ein Frageninventar entwickelt werden, welches die unterschiedlichen Intentionen zu kooperieren, die im Modell beschrieben werden, erhebt. Abschließend sollten Annahmen des Modells an verschiedenen sozialen Dilemmata untersucht werden.

2. Vorstellung der Beträge

Im ersten Beitrag „Enforced versus voluntary compliance: The ‚slippery slope‘ framework“ wurde das von Kirchler (2007) formulierte „Slippery Slope Modell“ der Steuerpsychologie näher beleuchtet und erweitert. Dabei wurde auf die Wirkung der beiden Dimensionen Vertrauen in die Autoritäten und Macht der Autoritäten auf freiwillige und erzwungene Kooperation (d. h. Steuerehrlichkeit) eingegangen. Auch mögliche dynamische Effekte der Dimensionen Vertrauen und Macht wurden in diesem Zusammenhang beschrieben. Einerseits wird angenommen, dass hohes Vertrauen in die Autoritäten zur Wahrnehmung hoher legitimer Macht führt während Misstrauen legitime Macht reduziert. Andererseits wird vermutet, dass je nachdem wie das Verhalten der Autoritäten interpretiert wird wahrgenommene Bestrafungsmacht sowohl Misstrauen als auch Vertrauen hervorrufen kann. In einem weiteren Schritt wurde die bestehende Steuerliteratur anhand des „Slippery Slope Modells“ theoretisch eingeteilt. Dabei wurden Untersuchungen psychologischer Faktoren, die Steuerehrlichkeit hervorrufen, auf der Vertrauensdimension verankert während ökonomische Faktoren, die ebenfalls Steuerehrlichkeit bewirken, der Machtseite des Modells zugeschrieben wurden. Ausgehend von den Überlegungen zu Vertrauen und Macht sowie zu freiwilliger und erzwungener Kooperation wurden praktische vertrauenfördernde Ansätze zur Erhöhung der Kooperation im sozialen Dilemma der

Steuerehrlichkeit vorgeschlagen. Die in diesem Artikel aufgestellten Annahmen zu freiwilliger und erzwungener Kooperation bilden das Grundgerüst für die Studien der Dissertation. Dieser Beitrag ist in Zusammenarbeit mit Erich Kirchler und Erik Hölzl entstanden [Kirchler, E., Hoelzl, E. & Wahl, I. (2008). Enforced versus voluntary tax compliance: The “slippery slope framework”. *Journal of Economic Psychology*, 29, 210–225.].

Im zweiten Beitrag „Tax compliance inventory TAX-I: Designing an inventory for surveys of tax compliance“ wurde ausgehend von der bestehenden Steuerliteratur ein Frageninventar entwickelt. Neben Steuervermeidung und Steuerhinterziehung wurde auch zwischen den Intentionen freiwillig und erzwungen zu kooperieren, unterschieden. Die aus der Steuerliteratur entnommenen und neu formulierten Fragen wurden zuerst bezüglich ihrer Faktorenstruktur, Reliabilität und Konstruktvalidität überprüft. Anhand von Motivmustern zur Steuerehrlichkeit und In einem Laborexperiment wurden die Skalen des Inventars kriteriumsvalidiert. Dieser Artikel entstand in Zusammenarbeit mit Erich Kirchler [Kirchler, E. & Wahl, I. (akzeptiert). Tax compliance inventory TAX-I: Designing an inventory for surveys of tax compliance. *Journal of Economic Psychology*.].

Im dritten Beitrag „Trust in authorities and power to enforce tax compliance: An empirical analysis of the ‘slippery slope framework’“ wurden die Annahmen, dass Vertrauen zu freiwilliger Kooperation und Macht zu erzwungener Kooperation im sozialen Dilemma der Steuerehrlichkeit führt, erforscht. Dazu wurden die Dimensionen Vertrauen in die Autoritäten und Macht der Autoritäten in einem Laborexperiment und in einer Online-Studie manipuliert und die resultierende Kooperation (d. h. Steuerehrlichkeit) erhoben. In beiden Studien zeigte sich, dass sowohl Vertrauen als auch Macht Kooperation erhöhen. Jedoch konnte festgestellt werden, dass Vertrauen freiwillige Kooperation fördert während Macht erzwungene Kooperation erhöht. Im Online-Experiment dieses Beitrags konnte demonstriert werden, dass Personen, die den Autoritäten misstrauen und viel Macht der Autoritäten wahrnehmen, öfter Steuern hinterziehen wenn sie davon ausgehen nicht kontrolliert zu werden (d. h. sich strategisch verhalten) als Personen die vertrauen und hohe Macht wahrnehmen. Dieses Ergebnis wurde als Hinweis für die unterschiedliche Qualität freiwilliger und erzwungener Kooperation interpretiert. Dieses Manuskript wurde gemeinsam mit Barbara Kastlunger und Erich Kirchler verfasst [Wahl, I., Kastlunger, B., & Kirchler, E. (eingereicht). Trust in authorities and power to enforce tax compliance: An empirical analysis of the “slippery slope framework”. *Law & Policy*.].

Im vierten Beitrag „Freiwillige und erzwungene Kooperation in sozialen Dilemmata: Das Slippery Slope Modell im öffentlichen Verkehr“ wurden die Annahmen, dass Vertrauen zu freiwilliger Kooperation und Macht zu erzwungener Kooperation führt auf das soziale Dilemma der Kooperation beim Fahrscheinkauf übertragen. Dazu wurden unter anderem die im zweiten Beitrag dieser Dissertation erstellten Skalen zur Intention zur freiwilligen und erzwungenen Kooperation neu formuliert und mittels Online-Fragebogens FahrgästInnen der Wiener Verkehrsbetriebe vorgegeben. Auch in diesem Beitrag zeigte sich, dass Vertrauen positiv mit freiwilliger Kooperation und Macht positiv mit erzwungener Kooperation zusammenhängt. Weiters deuten die Ergebnisse darauf hin, dass bei Vertrauen und freiwilliger Kooperation auch dann ein Fahrschein gekauft wird, wenn eine Kontrolle unwahrscheinlich ist. Das heißt, dass in diesem Fall weniger strategisches Verhalten auftritt. Bei hoher wahrgenommener Macht hingegen zeigte sich vermehrtes strategisches Verhalten. Dies verdeutlicht, wie schon im dritten Beitrag der Dissertation, den qualitativen Unterschied freiwilliger und erzwungener Kooperation. Der Beitrag wurde in Zusammenarbeit mit Miriam Endres, Erich Kirchler und Barbara Böck verfasst [Wahl, I., Endres, M., Kirchler, E. & Böck, B. (eingereicht). Freiwillige und erzwungene Kooperation in sozialen Dilemmata: Das Slippery Slope Modell im öffentlichen Verkehr. *Wirtschaftspsychologie*.].

Im fünften Beitrag „The impact of voting on tax payments“ wurde der positive Einfluss von prozeduraler Gerechtigkeit auf die Kooperationsbereitschaft im sozialen Dilemma der Steuerehrlichkeit untersucht. Prozedurale Gerechtigkeit wird im „Slippery Slope Modell“ als ein psychologischer Faktor, der freiwillige Kooperation hervorruft, diskutiert. In zwei Experimenten steigerte die Möglichkeit zwischen zwei gleichwertigen Alternativen zu wählen die Kooperationshöhe. Weiters zeigte sich, dass durch wählen mehr prozedurale Gerechtigkeit wahrgenommen wurde und dass Vertrauen in die Autoritäten den Zusammenhang zwischen prozeduraler Gerechtigkeit und Kooperation bei der Steuerzahlung mediiert. Dieser Artikel entstand als Gemeinschaftsarbeit mit Stephan Mühlbacher und Erich Kirchler [Wahl, I., Muehlbacher, S. & Kirchler, E. (in Druck). The impact of voting on tax payments. *Kyklos*.].

3. Diskussion der Arbeit

Ziel der Dissertation war es die von Kirchler (2007) aufgestellten Annahmen zu freiwilliger und erzwungener Kooperation näher zu beleuchten, zu erweitern und anhand verschiedener sozialer

Dilemmata zu überprüfen. Dazu wurde in einem theoretischen Artikel das Modell ausführlich im Bereich des sozialen Dilemmas der Steuerehrlichkeit dargestellt. Außerdem wurden mögliche dynamische Effekte der Dimensionen Vertrauen in die Autoritäten und Macht der Autoritäten diskutiert (erster Beitrag). Ausgehend von den Annahmen, dass es Unterschiede zwischen der Intention freiwillig zu kooperieren und der Intention erzwungen zu kooperieren gibt, wurde ein Frageninventar entwickelt, das unter anderem freiwillige und erzwungene Kooperation erhebt (zweiter Beitrag). In drei empirischen Artikeln wurden unterschiedliche Annahmen des „Slippery Slope Modells“ in verschiedenen sozialen Dilemmata untersucht (dritter Beitrag, vierter Beitrag und fünfter Beitrag).

Die Annahme des „Slippery Slope Modells“ (Kirchler, 2007 und erster Beitrag), dass freiwillige und erzwungene Kooperation unterschiedliche Intentionen für Kooperation im Steuerbereich darstellen, konnte durch die Entwicklung der unabhängigen Skalen freiwillige Kooperation und erzwungene Kooperation bekräftigt werden (zweiter Beitrag). Demnach, gibt es unterschiedliche Motivmuster die einerseits zu freiwilliger Kooperation und andererseits zu erzwungenen Kooperation in sozialen Dilemmata führen. Außerdem wird durch dieses Ergebnis nahe gelegt, dass es qualitative Unterschiede zwischen freiwilliger und erzwungener Kooperation gibt, die durch unterschiedliche Rahmenbedingungen hervorgerufen werden.

Die Annahme (Kirchler, 2007; erster Beitrag), dass Vertrauen zu freiwilliger Kooperation und Macht zu erzwungener Kooperation führt, konnten in zwei Experimenten und einer Korrelationsstudie (dritter Beitrag und vierter Beitrag) belegt werden. Es zeigte sich in zwei unterschiedlichen sozialen Dilemmata, dass Vertrauen zu freiwilliger und Macht zu erzwungener Kooperation führt. Weiters konnte durch die Variable strategisches Verhalten (d. h. unkooperatives Handeln, wenn dieses nicht bestraft wird) die qualitativen Unterschiede zwischen freiwilliger und erzwungener Kooperation dargestellt werden. Demnach kooperieren Personen die Vertrauen und intendieren freiwillig zu kooperieren auch dann, wenn die Möglichkeit besteht für unkooperatives Handeln nicht bestraft zu werden. Bei Macht und erzwungener Kooperation zeigte sich, dass eine solche Situation ausgenutzt wird und sich Personen unkooperativ verhalten.

In einem weiteren empirischen Artikel (fünfter Beitrag) wurde der Einfluss des psychologischen Faktors prozedurale Gerechtigkeit auf die Kooperationsbereitschaft untersucht. Dabei wurde

festgestellt, dass Vertrauen den Einfluss von prozeduraler Gerechtigkeit auf die Kooperationsbereitschaft mediiert. Diese Ergebnisse stimmen mit den Annahmen des „Slippery Slope Modells“ (Kirchler, 2007 und erster Beitrag) überein, dass sich psychologische Faktoren positiv auf das Vertrauen in die Autoritäten auswirkt und dass Vertrauen wiederum positiv auf die Kooperationsbereitschaft wirkt.

Weiters ist kritisch anzumerken, dass die beschriebenen dynamischen Effekte des „Slippery Slope Modells“ (erster Beitrag) zwischen Vertrauen in die Autoritäten und der wahrgenommenen Macht der Autoritäten nicht in den experimentellen Untersuchungen berücksichtigt wurden (dritter Beitrag, vierter Beitrag und fünfter Beitrag). Die Untersuchungen konzentrierten sich vornehmlich auf die positive Wirkung der Bestrafungsmacht auf die Intention erzwungen zu kooperieren (dritter Beitrag und vierter Beitrag). Jedoch wurde zum Beispiel die mögliche positive Wirkung von Vertrauen auf die Wahrnehmung von Macht als legitime Macht außer Acht gelassen. Auch dass die Interpretation des Machtverhaltens der Autoritäten zu Vertrauen oder Misstrauen führen kann, wurde nicht untersucht.

Aus den Ergebnissen der vorliegenden Dissertation kann geschlossen werden, dass Autoritäten versuchen sollten, freiwillige Kooperation zu erreichen. Erzwungene Kooperation scheint nur solange zu wirken, wie zahlreiche Kontrollen durchgeführt werden können und entdecktes unkooperatives Verhalten bestraft werden kann. Nachdem freiwillige Kooperation durch Vertrauen in die Autoritäten entsteht, sollten Autoritäten darauf bedacht sein, vorhandenes Vertrauen zu stärken und weiter zu bilden. Zum Beispiel könnte Vertrauen durch die Auffassung von Autoritäten, dass sie eine Serviceeinrichtung für ihre KundInnen sind, gesteigert werden. Weiters könnte die Einführung von transparenten und gerechten Entscheidungsprozessen Vertrauen vermehren.

Da Autoritäten oft vertraut wird und ihnen auch Macht zugeschrieben wird, sollten in zukünftigen Studien zu freiwilliger und erzwungener Kooperation die dynamischen Effekte von Vertrauen in die Autoritäten und Macht der Autoritäten berücksichtigt werden. Wenn die gegenseitige Beeinflussung von Vertrauen und Macht bekannt wäre, könnten Autoritäten diese Erkenntnisse dazu benutzen freiwillige Kooperation zu fördern und somit strategischem Verhalten entgegenwirken.

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6. Erster Beitrag: Enforced versus voluntary tax compliance: The “slippery slope framework”

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Enforced versus voluntary tax compliance: The “slippery slope” framework

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Abstract

A framework for tax compliance is suggested in which both the power of tax authorities and trust in the tax authorities are relevant dimensions for understanding enforced and voluntary compliance. Dynamic interactions between power and trust are considered. Using the framework as a conceptual tool, factors studied in previous research, such as fines, audit probabilities, tax rate, knowledge, attitudes, norms and fairness are reviewed and discussed with reference to the power and trust dimensions. Using the framework as an operational tool, approaches of responsive regulation to increase tax compliance are discussed.

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1. Introduction

Paying taxes is a duty for citizens. The primary interest of the state is that citizens follow this duty and behave in compliance to the tax rules, regardless of the motives for

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compliance. However, the same behavior can result from different motives: (a) citizens can comply because they calculate the costs for non-compliance as being too high, or (b) citizens can comply because they feel obliged to do so as members of the community. Depending on the motives, a different approach to tax regulation would be required. Purely economic factors such as audit rates and fines have shown inconsistent effects on tax compliance, for various reasons. First, the assumption that taxpayers are trying to avoid taxes whenever it pays must be doubted. Many studies show that a vast majority of citizens are willing to pay taxes. Second, most taxpayers seem to take the legitimacy of the tax system for granted. They believe in the overarching objectives of the government and pay their share without considering possibilities to avoid or to evade taxes. The following paper presents a framework that integrates such perspectives, gives a review of studies on tax compliance, and discusses regulatory strategies.

2. A framework for tax compliance

The framework suggested here starts from the idea that the tax climate in a society can vary on a continuum between an antagonistic climate and a synergistic climate. In an antagonistic climate, taxpayers and tax authorities work against each other; in a synergistic climate, they work together. The antagonistic climate can be characterized by a “cops and robbers” – attitude on both sides: tax authorities perceive the taxpayers as “robbers” who try to evade whenever they can and need to be held in check; taxpayers feel persecuted by the authorities (“cops”) and feel it right to hide (Braithwaite, 2003a). In such a climate, the social distance (Bogardus, 1928) is likely to be large, with little respect and little positive feelings towards the regulatory authorities on behalf of individuals and groups. Voluntary compliance is likely to be negligible, and individuals are likely to resort to “rational” weighing of the costs and benefits of evading. The synergistic climate can be characterized by the idea that tax authorities perform a service for the community, and are a part of the same community the individual taxpayers belong to. The authorities’ approach could be described as a “service and client” – attitude, as it is propagated in New Public Management. Authorities aim for transparent procedures and for respectful and supportive treatment of taxpayers. For example, in Switzerland a friendly and respectful treatment of taxpayers by authorities has been recognized for a long time as an important means to enhance tax compliance (Feld & Frey, 2005). In such a climate, social distance is likely to be low, voluntary compliance is likely to prevail, and individuals are less likely to consider the chances of evading, and more likely to contribute their share out of a sense of obligation.

From that starting point, the framework proceeds with the idea to think about tax compliance along two major dimensions: the power of tax authorities and the trust in tax authorities. These dimensions and their interactions jointly influence the level of tax compliance (Kirchler, 2007). Tyler (2006) follows a similar line of argumentation when, in his conclusion, he distinguishes two different ways of how authorities could gain cooperation from the public. The first way claims that the threat of punishment could encourage compliance. However, incentives for compliance and coercion for non-compliance are not always effective mechanisms for creating and maintaining compliant behavior. The second way claims that perceived competence in managing problems could activate citizens to aid the authorities. Considering authorities as having legitimacy leads to citizens feeling obliged to adhere to decisions, policies, and rules (Tyler, 2006).

By power of authorities, we mean taxpayers' perception of the potential of tax officers to detect illegal tax evasion, for example by conducting frequent and thorough tax audits, and to punish evasion, for example by fining evaders to a noticeable extent. To a large degree, power of authorities is related to tax legislation and the budget allocated to them by a government; to some degree, it is also related to the support from the population, for example by being informed about misconduct. Since we focus on perception of power, this dimension is also related to knowledge and attitudes held by the taxpayers. By trust in authorities, we mean the general opinion of individuals and social groups that the tax authorities are benevolent and work beneficially for the common good. Eberl (2003) describes trust as a special quality of relations, i.e., interacting partners ascribe each other positive aspects and intrinsic motivation to maintain the relationship. Tyler (2003) uses the term "social trust" to distinguish this perspective from calculative trust.

It is assumed here that tax compliance can be achieved through increasing levels of power and trust; however, the resulting compliance is enforced in the former case and voluntary in the latter case. The impact of changes in one dimension is assumed to depend on the level of the other dimension, resulting in the stylized figure shown in Fig. 1. It shows the proposed "slippery slope" framework graphically in a three-dimensional space with the power of authorities, trust in authorities, and tax compliance as dimensions.

We start the description of the characteristics of the framework in the front corner of Fig. 1. In conditions where trust in authorities is low and the power of authorities is weak, it is likely that citizens seek to maximize their individual outcomes by evading taxes, bringing compliance to a minimum. (a) Moving along the left edge, along the power dimension under conditions of low trust, compliance increases with the power of the authorities to raise audit and detection probabilities and to inflict severe fines. Taxpayers have less and less incentives to evade, because the expected outcome of non-compliance falls below the expected outcome of compliance. Increasing power of the authorities is likely to result in enforced compliance. The curvature results from an assumption of diminishing returns:

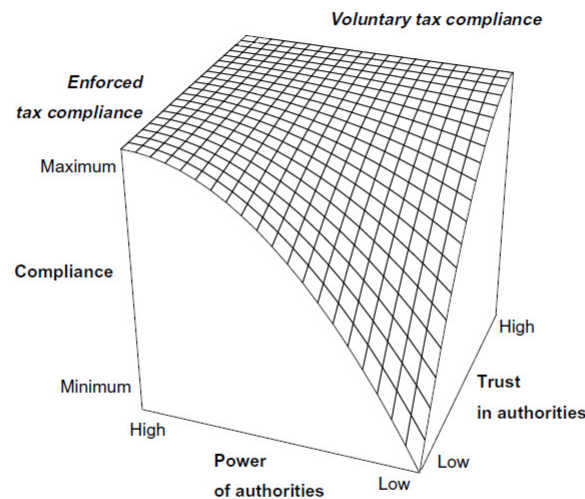


Fig. 1. The "slippery slope" framework: enforced tax compliance and voluntary tax compliance depending on the power of the authorities and trust in the authorities.

similar increases in compliance can be gained only by increasingly high investments in power. (b) Moving from the front corner along the right edge, along the trust dimension under conditions of low power, compliance increases with the degree of trust. Increasing trust is likely to result in voluntary compliance. Again, the assumption is one of diminishing returns. (c) High compliance can result both under conditions of strong power of the authorities as well as under conditions of strong trust in the authorities. However, the reasons for compliance differ, and there is a qualitative difference between enforced and voluntary compliance. (d) The power and trust dimensions moderate each other. Variations in trust matter most when power is low; however, when power is at its maximum, variations in trust are irrelevant because authorities can enforce maximum compliance. Conversely, variations in power matter most when trust is low; however, when trust is at its maximum, variations in power do not matter because citizens contribute their share regardless.

Up to now, the description of the framework presented was rather static; considerations of the interconnectedness of power and trust add a dynamic perspective. While the graphic representation in Fig. 1 depicts power and trust as orthogonal dimensions for analytical reasons, it is important to consider constellations where changes in trust influence the level of power or vice versa.

Changes in trust can influence power. Turner (2005) suggests that power of authorities can emerge in two forms; (a) legitimate power and (b) coercive power. Legitimate power refers to the power of an accepted authority, to which individuals pay voluntary deference. Coercive power of authorities is described as an attempt to direct individuals against their volition and can hence be perceived as enforcing a certain behavior. In the present framework, coercive power is located in the low-trust area, and legitimate power in the high-trust area. On the one hand, an increase in trust can increase power of authorities because citizens support the tax officers and ease their work. A case in point would be whistleblowing in corporate tax evasion. Conversely, a decrease in trust can reduce power.

Changes in power can influence trust. On the one hand, when tax authorities increase their level of auditing, this could be interpreted as a signal that the authorities hold a “cops and robbers” – attitude and distrust the honesty of taxpayers. Monitoring can be seen as a sign of distrust (Cialdini, 1996; Frey, 2003), which in turn reduces trust in authorities by honest taxpayers. This is particularly likely when audits occur very frequently or in an inquisitorial style. Therefore, an increase in power would reduce trust. On the other hand, when tax authorities make it known that they were more efficient in detecting tax fraud and in bringing justice, the trust honest taxpayers put in the authorities will rise. The concept of retributive justice (Wenzel, 2003) highlights these considerations. Accordingly, a comparison of the Chilean and Argentine tax system showed that credible sanctions under legitimate power are an effective tool for achieving higher trust levels and consequently higher compliance rates (Bergman, 2003). Therefore, an increase in power would increase trust. These considerations highlight the importance of the taxpayers’ perspective on and interpretation of the actions of the tax authorities. The way power of authorities is perceived by citizens can determine tax compliance (Bergman, 2003).

Taken together, such considerations suggest a dynamic aspect conveyed also by our naming it the “slippery slope” framework.¹ As illustrated in Fig. 1, stable areas of high

¹ The term “slippery slope” was introduced by Henk Elffers at a conference in Leiden, The Netherlands, on “Managing and maintaining compliance” (10–11 April 2006), where some aspects of the framework were presented.

compliance are only found at the extremes of maximum power or maximum trust, which in reality are unattainable. In other areas, a certain downward pull seeks to reduce compliance. This pull results from the reciprocal influences of power and trust described above, and from asymmetries between gaining and losing of trust and power. A downward spiral is easily conceivable: if trust in the tax authorities decreases, any action on their behalf will be interpreted as less legitimate than before. A regular audit would be interpreted as a deliberate action and a sign of mistrust, which in turn makes it legitimate to seek opportunities to reduce payments and to reduce support for the authorities. Tax authorities would react by conducting a more thorough audit to ferret out the hidden reserves. This would be considered proof that they treat the individual taxpayer different, i.e., unfairly from the individual's view, and which again reduces trust and cooperation. An upward spiral is possible, but seems much harder to obtain because obtaining trust is more difficult than losing it. When achieved, however, an increase in trust could contribute to power of authorities by honest taxpayers supporting the authorities, and by needing fewer resources for monitoring. Seeing dishonest taxpayers punished would increase trust on behalf of the honest taxpayers.

Quite obviously, an antagonistic or a synergistic climate is related to the dimensions of the framework presented here. It would be difficult to identify a clear causal relationship between them, and it is more likely that they form a reciprocal relationship. For example, a synergistic climate with a “service and clients” – approach can increase both trust in and power of the authorities; at the same time, measures that increase trust can contribute to a synergistic climate.

The framework presented in Fig. 1 can be used as a conceptual tool and as an operational tool. As a conceptual tool it may serve to understand the importance of determinants of tax behavior and the ambiguous effects reported in empirical research. As an operational tool it can be used to develop strategies of effectual interaction between tax authorities and taxpayers; for example, authorities should aim at increasing trust by communicating a “service and clients” – attitude (e.g., locating the reason for non-compliance by phoning taxpayers, Feld & Frey, 2005). The next section will consult the “slippery slope” framework as a conceptual tool to review previous research on factors influencing tax compliance. The final section will consult the “slippery slope” framework as an operational tool and explore regulatory strategies that tax authorities can adopt.

3. The slippery slope framework as a conceptual tool to organize previous research

In the tradition of tax compliance research, a number of factors have been considered important for explaining compliance. We present a review on existing findings and discuss them with regard to the dimensions of power and trust in the “slippery slope” framework.

3.1. *Audit probabilities*

Studies on the impact of audit probabilities on tax compliance found rather weak effects. Fischer, Wartick, and Mark's (1992) review summarizes inconsistent findings on audit probabilities and tax compliance. For example, threatening taxpayers in a field experiment (Slemrod, Blumenthal, & Christian, 2001) with “close examination” of their upcoming returns increased tax compliance just for low and middle-income taxpayers, but decreased it for high-income taxpayers. Furthermore, laboratory experiments varying

audit probabilities found low negative effects of audit rates on evasion, especially for precise percentage information on audit probabilities instead of indicating high, middle, and low probabilities (Spicer & Thomas, 1982). In contrast, other experiments report that imprecise information increases tax compliance (Friedland, 1982). Different survey studies found significant and non-significant low positive relations between audit probabilities and tax compliance (e.g., Mason & Calvin, 1978; Song & Yarbrough, 1978; Spicer & Lundstedt, 1976; Wärneryd & Walerud, 1982).

Within the current framework, it would be argued that not the objective audit probability is important, but the subjectively perceived probability and its interpretation. A review on tax compliance and audit probabilities (Andreoni, Erard, & Feinstein, 1998) showed that objective audit probabilities have little effect on compliance, and concluded that subjectively perceived probabilities may be mediated via psychological variables. Prior audits, i.e., direct experience, also have a weak impact on tax compliance. An explanation is that prior audits may not turn out as badly as taxpayers initially feared (Andreoni et al., 1998). The subjective probability of being audited would be an indicator for the power of authorities; however, the same level would be interpreted differently depending on the trust in the authorities. An individual's risk aversion, according to our framework, would be of relevance primarily under conditions of low-trust; with high-trust in the authorities, it would become irrelevant because the tendency to calculate probabilities and payoffs is replaced by following a common norm.

3.2. *Fines*

Empirical studies on the impact of fines on tax compliance did not find the clear picture theoretical analyses provide. In sum, the relation of fines and tax compliance also shows inconsistent findings (Fischer et al., 1992). Some experiments showed that fines are slightly higher related to tax compliance than audit probabilities are (e.g., Park & Hyun, 2003). Keeping constant the expected value of a tax-like game, but changing audit probabilities and fines for non-compliance, showed that compliance increased significantly with higher fines, but not with higher audit probabilities (Friedland, Maital, & Rutenberg, 1978). Other experiments, on the contrary, showed that fines and tax compliance are not related, but audit probabilities and tax compliance are (Friedland, 1982; Webley, Robben, Elffers, & Hessing, 1991).

In the current framework, it would be argued that the interpretation of fines matters. In an antagonistic climate, fines can be a part of the game of “cops and robbers”; in a synergistic climate, they can be perceived as an adequate retribution for behavior that harms the community. Fines are therefore connected to trust and power. Fines that are too low could be perceived as indicator that the authorities are weak and unable to control the wrongdoers, undermining trust among honest taxpayers. Fines that are inappropriate because a taxpayer involuntarily made a mistake resulting from ambiguous tax laws, or fines that are exorbitantly high, would undermine the perception of retributive justice and induce tax evaders to try even harder to regain their “losses” incurred by those fines.

3.3. *Tax rate*

Economic models of rational compliance decisions provide either mixed predictions of the effect of the marginal tax rate on compliance, or predict that increased tax rates would

increase compliance (Allingham & Sandmo, 1972). On the contrary, most empirical research finds that higher tax rates decrease compliance or provides mixed results. Some studies (Pommerehne & Weck-Hannemann, 1996; Weck-Hannemann & Pommerehne, 1989) demonstrate that evasion increases with increasing marginal tax rates. Also Clotfelter (1983) and Slemrod (1985) found that the marginal tax rate has a significant effect on underreporting. In Porcano's (1988) study, the tax rate had no effect on evasion and underreporting. Laboratory experiments with varying tax rates frequently found tax rate increases leading to higher evasion (Alm, Jackson, & McKee, 1992; Collins & Plumlee, 1991; Friedland et al., 1978; Park & Hyun, 2003). However, Alm, Sanchez, and deJuan (1995) found the opposite in a Spanish sample, and Baldry (1987) did not find a significant effect at all.

Within the current framework, the impact of the tax rate would depend on the degree of trust. When trust is low, a high tax rate could be seen as an unfair treatment of taxpayers, as an attempt at taking from the taxpayers what is rightly theirs. When trust is high, the same level of tax rate would be interpreted as contribution to the community, which in turn again profits each individual. In the first case, the tax rate would be interpreted as the wielding of power by some remote office; in the second case, as a joint agreement within the community.

3.4. Subjective tax knowledge and participation

Tax knowledge is positively related to tax compliance. Schmölders (1960) found that agreement with governmental activities and fiscal policy was higher in highly educated groups. Also other authors accepted that longer education increases the knowledge about taxation, but without considering the content of education (Kinsey & Grasmick, 1993; Song & Yarbrough, 1978; Spicer & Lundstedt, 1976; Vogel, 1974). An Australian survey (Niemirowski, Wearing, Baldwin, Leonard, & Mobbs, 2002) found that subjective evaluation of tax knowledge was significantly linked to tax-related values, attitudes towards tax compliance, and behavior intentions. Several studies found that reduced complexity and higher knowledge increased tax compliance (Clotfelter, 1983; Groenland & van Veldhoven, 1983; Kirchler & Maciejovsky, 2001; Park & Hyun, 2003; Wahlund, 1992; Wärneryd & Walerud, 1982). A study manipulating tax knowledge of students (Eriksen & Fallan, 1996) found that with acquiring additional knowledge on tax rules in a class, tax compliance increased and tax evasion decreased.

A related topic is the degree of participation in decision processes concerning taxes. Direct democracy has a positive effect on tax compliance. The more influence citizens have on the budgeting process, the more they will try to get information about the tax system and consider consequences in the long run (Frey & Kirchgässner, 2002). For example, in Swiss cantons in which citizens can influence the budgetary policy in direct legislation, tax compliance is higher than in cantons in which citizens have no influence (Pommerehne & Weck-Hannemann, 1996). Feld and Kirchgässner (2000) reported a different type of communication among citizens who are directly involved in political decisions, and between citizens and their representatives. Informed citizens will accept tax increases when the expenditures of the government are justified (Frey & Kirchgässner, 2002). Overall, tax evasion is lower in direct than in representative democratic systems (Kirchgässner, Feld, & Savioz, 1999).

In the current framework, it is argued that subjective tax knowledge and participation in the use of taxes is positively correlated with trust, whereas poor understanding and

misunderstanding are positively correlated with distrust. Thus, higher knowledge concerning taxes leads to higher compliance and poor knowledge concerning taxes leads to higher non-compliance. Because tax laws are often criticized to be too complex to be fully understood, increasing taxpayers' literacy by simplification of the tax laws, by training and education, and by increased taxpayer service will increase trust in authorities and will therefore lead to increased voluntary tax compliance. Knowledge about taxation practices can also contribute to the perceived power of authorities; for example, knowing that tax officers have conducted a large number of tax audits and detected several cases of fraud can make them appear effective and powerful. Perception of ineffectiveness, on the other hand, can reduce perceived power, pointing to the importance of information policy on part of tax authorities.

3.5. *Attitudes toward taxes*

Studies on tax psychology often focus on attitudes and tax compliance. The theory of reasoned action (Fishbein & Ajzen, 1975) and the theory of planned behavior (Ajzen, 1991) incorporate attitudes as one of the determinants predicting behavior. Attitudes represent the positive and negative evaluations that an individual holds of objects. It is assumed that attitudes encourage individuals to act according to them. Thus, a taxpayer with positive attitudes toward tax evasion is expected to be less compliant than a taxpayer with negative attitudes. Attitudes towards tax evasion are often found to be quite positive. Surveys conducted in Germany (Schmolders, 1960, 1964) found that about half of the responders compared deliberate tax evaders with cunning business men, whereas only about one-third referred to tax evaders as thieves and deceivers. Many studies on tax evasion found significant, but weak relationships between attitudes and self-reported tax evasion (e.g., Orviska & Hudson, 2002; Trivedi, Shehata, & Mestelman, 2004). A model of tax evasion behavior developed by Weigel, Hessing, and Elffers (1987) considers social and psychological conditions, including attitudes and moral beliefs about tax evasion's propriety, as antecedents of tax compliance. Data collected from fined tax evaders and honest taxpayers showed that attitudes explain in part self-reported tax evasion, but are insignificant predictors of actual behavior. However, the correlations between self-reported tax non-compliance and attitudes are significant but fairly weak. These findings suggest a rather complicated relationship between tax evasion and attitudes, nevertheless "we can be confident in our general prediction that if tax attitudes become worse, tax evasion will increase" (Lewis, 1982, p. 177).

In the current framework, attitudes are important for both the power and the trust dimension. On the one hand, favorable attitudes will contribute to trust in authorities and consequently will enhance voluntary tax compliance. On the other hand, attitudes towards the authorities will be relevant for the interpretation of the use of power as benevolent or malicious. Tax attitudes in general also depend on the perceived use of the money collected, and therefore are connected to knowledge.

3.6. *Personal, social, and national norms*

Besides attitudes, norms are important determinants of tax compliance. Behavioral intentions are determined also by subjective norms (Ajzen, 1991; Fishbein & Ajzen, 1975). Norms are behavioral standards on three different levels: (a) the individual level,

(b) the social level, and (c) the national level. On the individual level, norms define internalized standards on how to behave. Individual norms are related to moral reasoning, authoritarianism and Machiavellianism, egoism, norm dependency, and values. There is considerable overlap between individual norms, values, and tax ethics: the more developed the moral reasoning or tax ethics, the more likely is voluntary compliance (Baldry, 1987; Jackson & Milliron, 1986; Trivedi, Shehata, & Lynn, 2003). For example, finance officers and self-employed taxpayers with a very strong orientation towards self-interest reported low tax ethics and high non-compliance (Kirchler & Berger, 1998).

On the social level, norms are usually defined as prevalence or acceptance of tax evasion among a reference group (Wenzel, 2005). Social norms are related to the behavior of reference groups, e.g., friends, acquaintances, or vocational group. If taxpayers believe that non-compliance is widespread and approved behavior in their reference group, they are likely to be non-compliant as well. For example, in a semi-structured interview study in Great Britain, social norms were found among the most important factors related to tax compliance (Sigala, Burgoyne, & Webley, 1999). The relationship between social norms and tax compliance is complex. Wenzel (2004) argues that social norms should elicit concurring behavior only when taxpayers identify with the group to whom the norms are ascribed. Taxpayers then internalize the social norms and act accordingly. Several studies showed that emphasizing social norms of reference groups increases tax compliance (Cullis & Lewis, 1997; Sigala et al., 1999; Wärneryd & Walerud, 1982; Webley, Robben, & Morris, 1988). Allowing participants to discuss in a tax experiment increased tax compliance, whereas without discussion tax compliance decreased (Alm, McClelland, & Schulze, 1999). Moreover, some authors (Taylor, 2003; Wenzel, 2005) argue that communicating social norms on the collective level will increase voluntary tax compliance.

On the level of national norms, norms become cultural standards, often mirrored in the actual law. Several authors suggest that trust in political leadership and administration will lead to voluntary tax compliance when favorable national norms are established (e.g., Fjeldstad, 2004; Frey, 1992; Pommerehne & Frey, 1992; Torgler, 2005; Tyler, 2001a, 2001b). In general, if the norms held by taxpayers favor tax compliance, voluntary tax compliance will result.

In the current framework, norms encompass both power and trust. First, national norms find their expression in tax laws and the role given to tax authorities, having a direct influence on their power. Second, social norms such as the belief that tax evasion is a petty crime and widespread hinder the work of tax authorities, in particular when there is no countervailing norm of community. A norm where all citizens are perceived as contributing their fair share would certainly help to increase trust in the authorities.

3.7. *Perceived fairness*

When asked what they think about the tax system, citizens most often communicate fairness concerns (e.g., Braithwaite, 2003c; Rawlings, 2003; Taylor, 2003). In a similar vein, Andreoni et al. (1998) claim that incorporating morals and social dynamics in economic theory is essential. A conceptual framework for fairness considerations (Wenzel, 2003) suggests to differentiate three areas of fairness, as in social psychology:

(a) distributive justice, which refers to the exchange of resources, both benefits and cost, (b) procedural justice, which refers to the process of resource distribution, and (c) retributive justice, which refers to the perceived appropriateness of sanctions in the case of norm-breaking.

With regard to distributive justice, comparisons are made on the individual, the group, and the societal level. On the individual level, taxpayers are concerned about the fairness of their outcomes, and they want to be treated relative to their merits, efforts, and needs. If an individual's tax burden is heavier than that of comparable other individuals, tax compliance is likely to decrease. On the group level, taxpayers are concerned about the fairness of outcomes of the group and want a fair treatment of their group relative to other (income) groups (e.g., Spicer & Lundstedt, 1976). If a specific group perceives its tax burden as heavier than that of another group, tax non-compliance is likely to increase within this group (e.g., Juan, Lasheras, & Mayo, 1994; Spicer & Becker, 1980). On the societal level, taxpayers are concerned about the fairness of the outcomes of the whole nation. If the tax system is perceived as unfair, tax non-compliance is likely to increase (e.g., Baldry, 1987; Cowell, 1992), whereas a system experienced as fair might increase trust and consequently increase voluntary compliance.

With regard to procedural justice, the components essential for perceived fairness are neutrality of the procedure, trustworthiness of the tax authorities, and polite, dignified, and respectful treatment (Tyler & Lind, 1992). Comparisons again are made on the individual, group, and societal level. On the individual level, taxpayers consider the treatment by the tax authorities, information provided, costs regarding compliance and administration, and the dynamics of allocation of revenues. It is argued that increased information related to tax law and explanations for changes can increase fairness perceptions (Carnes & Cuccia, 1996; Wartick, 1994). Perceived procedural justice on the individual level and a culture of interaction are important for building up trust (Job, Stout, & Smith, 2007). On the group and societal level, taxpayers consider the neutrality of tax officers regarding subgroups, such as vocational groups, income groups, or cohorts. If tax authorities and officers treat taxpayers equally, in a respectful and responsible way, trust in the government and thus voluntary tax compliance is likely to increase on the individual, group, and societal level.

With regard to retributive justice, unreasonable and intrusive audits and unfair penalties lead to negative attitudes toward the tax office and taxes in general (e.g., Spicer & Lundstedt, 1976; Strümpel, 1969; Wenzel & Thielmann, 2006). Thus, unfavorable retributive justice perceptions could lead to increased distrust and consequently to increased tax non-compliance. Although justice research has not always yielded consistent evidence for the impact of justice perceptions on tax compliance, perceived justice might increase voluntary tax compliance.

In the current framework, perceived fairness is connected to the trust dimension because a just treatment of taxpayers (i.e., distributive and procedural fairness) helps to build and maintain trust. Retributive justice is connected to the power dimension as well, because it depends also on detecting and fining wrongdoers. In turn, an inconsiderate exertion of power that is perceived as intrusive can reduce trust.

To summarize, some of the major factors discussed in previous research on tax compliance would gain from considering them within the “slippery slope” framework and its interaction of the power and trust dimension. In Section 4 we discuss the contribution of the framework for regulatory strategies.

4. The slippery slope framework as an operational tool to consider regulatory strategies

The “slippery slope” framework suggests that the position the authorities adopt towards taxpayers is important for compliance. In an antagonistic tax climate, when tax authorities communicate a “cops and robbers” – attitude, taxpayers will try to maximize their individual expected utility and only comply when forced to do so. In a synergistic climate, when authorities communicate a “service and clients” – attitude, taxpayers will act on the basis of the perceived fairness of the system and comply voluntarily.

It could be argued that for the authorities, the only important outcome is the level of compliance, irrespectively of whether such compliance is voluntary or enforced. However, because audits are relevant cost factors in the administration of the tax system, it seems useful to consider alternative ways. The “cops and robbers” – approach is costly and of doubtful effect, and it also raises the question of how to “guard the guards”. Moreover, this approach might be effective in limiting the illegal tax evasion, but it is surely not adequate in limiting the legal tax avoidance, which is by far a greater problem. Monitoring and surveillance may communicate distrust to the taxpayers and may even breed more distrust and resentment (Cialdini, 1996; Frey, 2003). Audits and fines may encourage taxpayers to resist when they believe that monitoring is imperfect and that they can get away with evasion. It may be assumed that taxpayers in an antagonistic climate try to make a “rational” decision, weighing probabilities of detection and outcomes, and evade whenever possible. This emphasizes the importance of building trust in the tax authorities. The “service and client” – approach motivates taxpayers by means of trust to comply voluntarily, with a decreased need for cost-intensive audits. It might be assumed that taxpayers in a synergistic climate consider their tax share as a fair contribution to the public good. Factors that contribute to trust are subjective tax knowledge, participation, positive attitudes towards taxes, favorable norms on the personal, social, and national level, perceived fairness in distributional, procedural, and retributive terms, and a considerate use of power. If tax authorities have legitimate power and treat taxpayers as equal partners, when they develop a role of advisors for the complex tax law, taxpayers perceive treatment as fair and consequently respond with reciprocity and compliance. Severe sanctions in the case of unintentional filing errors would violate retributive fairness concerns; educating taxpayers to file correctly would be a more effective strategy. Such a “service and client” – approach states that education and support of taxpayers are more promising than control and unreasonable severity in persuading taxpayers to comply. However, such an approach does not suggest a lax tax policy, in which taxpayers can do whatever they please without sanctions for non-compliance.

The responsive regulation approach (Ayres & Braithwaite, 1992; Braithwaite, 2007) fits well with the current framework. It proposes regulatory rules and suggests that the authorities should act responding to the beliefs and attitudes of the taxpayers. These are captured in the concept of “motivational postures”, defined as “an interconnected set of beliefs and attitudes that are consciously held and openly shared with others” (Braithwaite, 2003a, p. 18). Built on the Australian Taxation Office Compliance Model, the responsive regulation approach proposes cooperative strategies of self-regulation for compliant behavior and severe sanctions and incapacitating of wrongdoing in order to persuade taxpayers to use more cooperative strategies in the future (Braithwaite & Job, 2003). The approach recognizes that legal sanctions alone are not sufficient. It rather focuses on education, persuasion, and dialogue as strategies to gain and maintain compli-

ance of most taxpayers. However, in the case of repeated non-cooperation, severe economic and legal sanctions come into operation. Hence, taxpayers should realize that costs of non-cooperation are growing over time and should therefore be prepared to engage in less costly and more cooperative tactics.

The responsive regulation model takes the form of a pyramid in which motivational postures, regulatory strategies, and enforcement strategies are stacked up with increasing severity. The lowest level of regulation, arranged at the bottom of the pyramid, recommends education and advice about tax regulations and record keeping, whereas the top level suggests prosecution and imprisonment in the case of non-compliance. Hence, authorities should engage in different enforcement methods when taxpayers move up the pyramid's levels, i.e., to non-cooperation, and try to move them down to the base of the pyramid, i.e., to cooperation. The first level is applicable to most taxpayers and proposes education and service for taxpayers willing to comply as a regulatory strategy. Furthermore, taxpayers are perceived as trustworthy and are treated with respect. Taxpayers on this level of regulation are willing to report their income correctly, and are likely to display the motivational posture of "commitment" (Braithwaite, 2003a, 2003b). With increasing social distance between the tax authorities and the taxpayers also the demands on the tax authorities increase. When taxpayers are angry with authorities, their motivational postures shift from "commitment" to "capitulation", i.e., giving in because of authorities' legal power to call for taxes. Without the presence of authorities, compliance would disappear, thus enforced self-regulation is required. On this level, examinations of businesses become necessary and records should be reviewed, with the focus on education. Even more social distance leads to the motivational posture of "resistance", for which the model suggests responding with command regulation. On this level, taxpayers are not willing to cooperate, or they resist the tax law, and there are discrepancies between the tax declaration and records. The responsive regulation model suggests audits without punishment or with discretionary punishment. Non-discretionary command regulations are suggested for the group on top of the pyramid-like model. Those taxpayers have a motivational posture called "disengagement". On this level, persuasion to make taxpayers compliant does not work because they condemn the tax system. Tax authorities have to prosecute, imprison, and take away the license in order to increase their compliance (Braithwaite, 2003b).

Within the framework proposed here, the responsive regulation approach suggests strategies and methods to counteract the downward pull illustrated in the "slippery slope" framework. Responsive regulation suggests that both power and trust are necessary, as is a careful use of both elements. In a dynamic perspective, educating taxpayers, correcting unintentional filing errors and providing service are strategies that increase trust and contribute to a motivational posture of commitment. For taxpayers with motivational postures of capitulation or resistance, the education and a well-dosed use of power are strategies that keep up compliance and could prevent a move towards a posture of disengagement. At the same time, communicating such strategies contributes to trust among committed taxpayers. The interactions between power and trust that contribute to the dynamics of the "slippery slope" framework are paralleled in the considerations necessary for a dynamic approach to regulation. In addition, the framework presented here suggests that exertion of power can be regarded as a reaction of tax authorities to unfavorable motivational postures, whereas trust can be regarded as a proactive action to create more favorable postures.

To conclude, the “slippery slope” framework promises a better understanding of tax-paying behavior and of regulatory practices by highlighting the necessity to consider the power of authorities, the trust in authorities, and their dynamic interaction. Considering distinctions between enforced and voluntary compliance calls for rethinking the role of tax authorities and suggests that taxpaying can be perceived not exclusively as an onerous duty, but also as a well-accepted duty.

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7. Zweiter Beitrag: Tax compliance inventory TAX-I: Designing an inventory for surveys of tax compliance

Abstract

Surveys on tax compliance and non-compliance often rely on ad-hoc formulated items which lack standardization, theoretical background, and empirical validation. We present an inventory to assess different intentions of compliance and non-compliance: voluntary versus enforced compliance, tax avoidance, and tax evasion. First, items eligible to differentiate between the intentions of compliance and non-compliance were collected from past research and newly developed, and tested empirically with the aim of producing four validated scales with a clear factorial structure. Second, findings from the first analyses were replicated and validated on the basis of motives of compliance and non-compliance, and on the basis of behaviour in a tax experiment. A standardized inventory is provided which can be used in surveys in order to collect data which are comparable across research focusing on self-reports. The inventory can be used in either of two ways: either in its entirety, or by applying the single scales independently, allowing an economical and fast assessment of different intentions underlying tax behaviour.

PsycINFO Code: 4270 (Crime Prevention), 2960 (Political Processes & Political Issues), 2223 Personality Scales & Inventories

APA Keywords: Taxation; Voluntary Compliance; Enforced compliance, Tax avoidance, Evasion, Inventory;

JEL CODE: H26 (Tax Evasion)

1. Introduction

Following publications of the tax evasion models by Allingham and Sandmo (1972) and Srinivasan (1973), based on Becker's (1968) theory of crime, there was significant movement in the research on tax evasion. Research has continued to grow to the present day. Andreoni, Erard, and Feinstein (1998) observed that it was particularly the effects of audit probabilities and fines that were studied in the context of rational choice theory. Despite Schmolders' (1959) early emphasis on

the relevance of citizens' opinions about the government in general, and fiscal policy in particular, sociological and social psychological studies addressing tax compliance are still rare. Moreover, the approach taken in social psychology has tended not so much towards forming a clearly expressed theory, as, for instance, the economic model, but has rather focused on unsystematically addressing specific and often isolated questions (Kirchler, 2007). Hence, future research on taxes should follow a clear conceptualisation of tax behaviour and commensurate measurement.

In the following we discuss different intentions of tax behaviour, derived from research on tax compliance and non-compliance. Subsequently, we present conceptual clarifications and definitions of different behavioural intentions of compliance and non-compliance. Further, an inventory for the assessment of intentions of compliance and non-compliance according to our definitions is presented. First, items on voluntary and enforced compliance, tax avoidance and evasion are collected from previous research and newly formulated, and their factor structure is analysed. Second, the inventory is cross validated, and the validity of the scales is additionally assessed by means of reference to motivational postures (Braithwaite, 2003; 2009) and behavioural data collected in a tax experiment.

1.1 Research methods

There are several methodological problems to be solved in order to integrate research findings into a coherent theoretical framework able to describe tax behaviour and to inform policy. Kirchler (2007) and Torgler (2002) discuss the arsenal of methods, sampling techniques, operationalisation of variables as well as the inconsistent use of self-reports and observed tax behaviour, and come to the conclusion that different research methods often lead to contradictory results. Similar conclusions were drawn in a workshop on measuring the indirect effects of services and enforcement on taxpayer compliance, conducted by the US Internal Revenue Service (IRS, 2008).

Methods vary from aggregate econometric modelling to micro econometric modelling, field experiments and quasi naturalistic experiments, to laboratory experiments, agent based modelling and network analyses, to surveys. Aggregate econometric modelling uses panel data on observations of tax reporting and filing behaviour, aiming at providing reliable estimates of the effects of tax policy for the entire population (e.g., Dubin, 2007; Dubin, Graetz, & Wilde, 1990; Plumley, 1996). One challenge of aggregate econometric modelling, which may account for

controversial results, concerns confounding influences. Micro-econometric approaches predominantly examine the impact of audit probability, fines in cases of evasion, tax rate, and income and develop highly stylised mathematical models, which, however, fail to incorporate many facets of taxpayers' realities. Field experiments are valuable methods of providing reliable estimates for compliance determinants. Here the challenge is to find comparable treatment and control groups in the population and to control for treatment and confounding variables. In contrast, laboratory experiments (e.g., Alm, Jackson, & McKee, 1992; Friedland, Maital, & Rutenberg, 1978; Kastlunger, Kirchler, Mittone, & Pitters, 2009) are conducted in highly controlled environments and are most appropriate for validating theoretical assumptions. They suffer, however, from external validity and generalisability. Although "hard" empirical data would provide a better understanding of tax compliance, the difficulty of obtaining this data has led researchers to generate their own data via surveys (Baldry, 1987).

Studies in economic psychology in particular rely on survey data in which taxpayers are asked to report their intended tax behaviour. This way of collecting data is usually convenient; however, generalisability of findings is problematic (e.g., Wilson & Sheffrin, 2005). Generalisability suffers from memory lapse and social desirability biases, and reliability and (construct) validity in particular are to be questioned. If answers in surveys can be trusted as accurately reflecting tax compliance, honesty and perfect recall are required. Hessing, Elffers, and Weigel (1988) examined whether self-reports can be used as substitutes for direct observations of tax evasion behaviour, and found serious limitations. The concordance between participants' self-reports of tax evasion and officially found evasion behaviour was negligible. Although participants knew that their self-reports could be compared with the results of their audited tax records, the correlations between self-reports and observed behaviour were weak. Hessing et al. (1988) found that different explanatory variables were either linked with self-reports or with observed evasion behaviour: Attitudes toward tax evasion and subjective norms were found to correlate with self-reported compliance but not with observed compliance. Personality dispositions, in contrast (e.g., tolerance of illegal behaviour; competitiveness) correlated with observed data but not with self-reports. While the studies conducted by Hessing et al. (1988) do give grounds for serious concern, Hite (1988) found positive relationships between data obtained from self-reports and compliance observed by tax authorities.

The questionable relation between observed and self-reported behaviour may be due to a series of methodological shortcomings: Besides the existence of differences in authorities' and taxpayers' interpretations of tax law and legal and illegal acts, authorities may not always detect subtle tax evasion, whereas taxpayers are aware of it and report their behaviour in surveys. Moreover, sometimes taxpayers may unintentionally make mistakes which are interpreted as evasion by authorities.

Direct observations of tax behaviour may reflect tax behaviour best. However, combining direct observations with results from laboratory studies and surveys further broaden our understanding of tax behaviour. Especially, when information on motives or intentions regarding a particular behaviour should be investigated, surveys are a necessary tool.

In addition to concerns regarding research methods, there is a lack of clear definitions of compliance and non-compliance. A particular problem is the absence of a validated inventory assessing behavioural intentions of compliance and non-compliance. Surveys often make use of one or more items developed in an ad-hoc manner, asking respondents to indicate their willingness to comply, their filing habits or their readiness to evade taxes without considering previous items on tax behaviour and theoretical or statistical foundations. The source of the serious limitations of self-reports and the difficulties experienced when trying to compare data from different research lie in insufficient reflection of different intentions of tax behaviour and often vague definitions of compliance and non-compliance. Moreover, the lack of a validated scale on behavioural intentions of compliance and non-compliance usable across various research programmes makes it difficult if not impossible to compare findings across different studies.

1.2 Voluntary and enforced tax compliance, avoidance, and evasion

From the perspective of tax law, a clear definition of compliance and non-compliance is lacking. Also, research is far from providing well established clear concepts which allow unequivocal operationalisation and measurement. Tax compliance represents the most inclusive and neutral term for taxpayers' willingness to pay taxes. Although tax compliance leads to the honest payment of taxes, the underlying intentions of this behaviour can either be voluntary or enforced by authorities. Non-compliance refers to the behavioural outcome of paying less tax than obligated to.

Underlying intentions of this behaviour could be minimizing tax payments by legal tax avoidance or by the violation of tax law.

The intention to pay taxes according to the law can be seen as a continuum (James & Alley, 2002), ranging from commitment to society's and government's objectives on the one hand, to law enforcement on the other hand. On the compliance side, McBarnet (2001) differentiates between (a) committed compliance, referring to taxpayers' willingness to pay taxes without complaining, (b) capitulative compliance, describing taxpayers who give in and pay taxes, and (c) creative compliance, which covers activities addressed to reducing taxes within the brackets of the law. Translating McBarnet's (2001) characterisations of compliance to James and Alley's (2002) continuum concept, one extreme would reflect committed compliance or the intention to comply voluntarily, and the other extreme would describe capitulative compliance or the intention to comply due to efficient audits and fines. Similarly, Kirchler (2007; Kirchler, Hoelzl, & Wahl, 2008) developed a concept – the “slippery slope framework” – which differentiates between taxpayers who intend to voluntarily comply with the law, versus taxpayers who intend to comply as a result of enforcement activities. The intentions to comply voluntarily or enforced as well as the intention to avoid or evade taxes are described as resulting from the interaction between taxpayers' trust in authorities and authorities' power to monitor taxpayers. When trust in the authorities is high, taxpayers will intend to pay their taxes voluntarily. In contrast, when trust in the authorities is low, taxpayers are assumed to intend to withhold their contributions. When trust is low, but authorities' power to effectively audit and sanction wrong behaviour is strong, taxpayers' compliance is enforced; however, it is assumed that taxpayers intend to reduce their taxes within the legal range of the law and engage in tax avoidance, but are deterred from illegal reductions. If trust in the authorities and also if the power of the authorities is low, taxpayers are expected to break the law and evade taxes.

Regarding non-compliance, tax avoidance is legal. Taxes are intentionally reduced by legal means through taking advantage of loopholes in the law. Tax evasion, on the other hand, is illegal, as taxpayers break the law deliberately through understating income (e.g., failing to report assets) and/or through exaggerating deductions (e.g., falsely reporting personal expenses as business expenses, Webley, 2004). Elffers, Weigel, and Hessian (1987) characterise “tax evasion behaviour” or “tax cheating” similarly as an intentional act of non-compliance that leads to payment of less tax than is actually owed. Memory lapses, unintentional calculation errors or errors due to inadequate

knowledge of the tax law are excluded from the concept of tax evasion. Sandmo (2003) likewise regards tax evasion as intentionally breaking the law.

Gassner (1983) states that taxpayers are not deterred from “creatively” describing their income in order to pay minimum taxes. Tax avoidance refers to taxpayers’ freedom to present their income in such a form that they pay the minimum in tax by respecting the “letter of the law”. Taxpayers’ freedom of income presentation ends and tax evasion begins where “the letter of law” is not respected. Although legality distinguishes between tax avoidance and tax evasion, in practice this distinction is rather ambiguous. The reasons for the unclear distinction lie in the over-complexity and equivocality of tax law, lack of expertise on the part of taxpayers, and sometimes practices by tax administrators to effectively ignore a particular transaction or activity even where the law is unequivocal (Slemrod, Blumenthal, & Christian, 2001).

Compliance and non-compliance are the actual behaviours of paying taxes or reducing existing tax liabilities, respectively. However, as reviewed above, previous literature suggests that the same behavioural outcomes can originate from different intentions. Therefore, we differentiate between these intentions and define voluntary compliance and enforced compliance as behavioural intentions of compliance behaviour and avoidance and evasion as intentions of non-compliant behaviour. According to the reviewed literature, scales measuring voluntary compliance, enforced compliance, avoidance, and evasion will be developed and validated.

1.3 Validation with motives for compliance or non-compliance

Behavioural intentions are bound to motives to perform an actual behaviour (Ajzen, 1991; Fishbein & Ajzen, 1975). To validate the assumption that tax behaviour can be assigned to the four suggested intentions, we investigate the relations between motives of tax behaviour and the intentions of voluntary compliance, enforced compliance, avoidance, and evasion. It is assumed that voluntarily compliant taxpayers are motivated to cooperate, and tax cheating is out of the question. In contrast, taxpayers whose compliance is enforced are motivated to be compliant as long as they fear being monitored and consider fines more costly than cooperation. If the opportunities to avoid or to evade taxes are perceived as high, and audit probability as well as fines as low, cheating pays.

Braithwaite (2003) distinguishes five motives underlying compliance and non-compliance and coined them motivational postures (see Table 1). Her scales will be used as an external criterion to validate the scales on behavioural intentions of compliance and non-compliance. Motivational postures originate from the perceived “social distance” (Borgardus, 1928) between taxpayers and authorities. Motivational postures that result where social distance is close and the stance towards the authorities is positive are summarized as deference motives, termed commitment and capitulation. Committed taxpayers regard contributions to the public welfare as a moral law, and see the tax law and tax collection as fair. Capitulated taxpayers are willing to cooperate because they accept the authorities as a legitimate power set up to pursue the collective’s goals. Although tax authorities may have the formal power and legal legitimacy to constrain taxpayers to fulfil their duties, it is necessary for taxpayers to ascribe expert authority to them, perceive them as engaging in accepted behaviour, and psychologically legitimise them to exert power.

The motivational postures that result where social distance is great and the stance towards the authorities is negative are summarized as defiance motives, termed resistance, disengagement, and game playing. Resistant taxpayers are suspicious when authorities engage in citizen-friendly activities and assume that they lack willingness to cooperate. Resistant taxpayers doubt the authority of tax officials and perceive them as dominating and controlling rather than being supportive. Disengaged taxpayers keep the greatest distance from the authorities and do not care about doing the right thing. Disengagement is an extreme motivational posture which leads taxpayers to oppose the authorities and the law. Game playing taxpayers compete with the tax law and seek to exploit possibilities to increase their own profit. Game playing refers to “cops and robbers” games, with taxpayers detecting possibilities to increase their own income and with authorities trying to increase the public revenue. Table 1 represents definitions of the five postures accompanied by statements representing them.

Insert Table 1 about here

1.4 Relations between voluntary compliance, enforced compliance, tax avoidance, tax evasion, and motivational postures

Although both voluntary compliance and enforced compliance result in the payment of one’s tax share, a positive correlation between voluntary and enforced compliance is not expected. Voluntary

and enforced tax compliance represent two different intentions of tax behaviour with different underlying motives. Voluntary compliance should not be correlated with enforced compliance, and it should be negatively related to tax avoidance and tax evasion. Since enforced compliance originates from the authorities' power to constrain citizens to cooperate, it fosters extensive decisions about whether to pay taxes honestly or to evade them at the risk of being audited and fined, should evasion be detected. We expect enforced compliance to be positively linked to searching for loopholes in the tax law, and therefore to see a positive correlation to tax avoidance. A positive correlation with evasion is less likely, due to perceived constraints.

The relationship between tax avoidance and evasion is less clear: While both forms of non-compliance are directed towards reducing tax payments, legality and illegality are the crucial differences. Taxpayers avoiding taxes might consider the possibilities of evasion; however, they are deterred from actual cheating on account of audits and fines.

Braithwaite (2003; 2009) found that the motives subsumed under deference are negatively related to actual avoidance and evasion behaviour, whereas motives linked to defiance are positively related. We expect that the intentions of compliance and non-compliance will be correlated in the same manner. Voluntary tax compliance will be positively linked to deference, that is, commitment and capitulation, and negatively linked to defiance, that is, resistance, disengagement, and game-playing. Enforced tax compliance, tax avoidance, and tax evasion will be negatively linked to deference and positively linked to defiance. Taxpayers whose compliance is enforced have little perception of the authorities as a legal power and are therefore unlikely to show motives like commitment or capitulation; instead they show resistance. Taxpayers who engage in legal or illegal tax reductions lack insight into the necessity of the tax system and may perceive tax collection as unfair. Therefore, we expect to find tax avoidance and evasion to be negatively correlated with deference and positively with defiance. While tax avoidance is expected to be positively related to game playing, due to the interest in seeking legal ways to reduce taxes, tax evasion should be highly correlated with resistance and disengagement.

We present below a study in which a representative sample of Austrian self-employed taxpayers completed a survey consisting of items on voluntary compliance, enforced compliance, tax avoidance, and evasion as well as motivational postures. The sample was randomly split into

two subsamples (Jöreskog & Sörbom, 1993). In the first part of the analysis, the focus is on item quality and item structure. These were assessed in order to obtain scales to assess different intentions of compliance and non-compliance. In the second part of the analysis, findings from the first part were cross-validated and findings extended with the aim of testing the relationship between the intentions of compliance and non-compliance and their underlying motives. In other words, the first step was to develop a reliable inventory consisting of four scales; in the second step the validity was checked on the basis of correlations with motivational postures. Additionally, we conducted a laboratory experiment on tax behaviour and validated the scales with actual tax behaviour shown by participants. The construction of scales and analyses followed test construction suggestions by Bühner (2006).

2. Method

2.1 Participants and procedure

In early 2009, an internationally operating market research institute was engaged to collect data via an online questionnaire in Austria. The web link to the online questionnaire was sent out to a representative pool of self-employed taxpayers with an invitation to complete the survey and the incentive of credits for participation. Austrian self-employed file their income themselves, whereas white-collar and blue-collar workers' taxes are retained and transferred by their employers to the tax office. Self-employed taxpayers are a particularly interesting group of taxpayers due to their higher opportunities to evade taxes (Kirchler, 2007). The total sample consisted of 98 females and 212 males, aging between 20 and 70 years ($M=43.13$, $SD=10.58$, $Md=43.00$). A high percentage (32.20%) of participants held a university degree; 35.40% held a secondary education qualification, 24.20% a primary education qualification, and 8.10% indicated other education; 63.50% reported a yearly income lower than or equal to Euro 30,000, and 36.50% reported that they earned more than Euro 30,000.

2.2 Material

First, past research (Holler, Hoelzl, Kirchler, Leder, & Mannetti, 2008; Rechberger, Hartner, & Kirchler, 2009; Roberts, 1994; Strümpel, 1966; Tyler, 2003) was scanned for items measuring avoidance and evasion. The intention to avoid taxes differs from the intention to evade taxes on a

concrete behavioural level. However, the intention to comply voluntarily can hardly be differentiated from the intention to comply by enforcement to the concrete behavioural level, as the behavioural outcome in both cases is compliance. Therefore, in order to achieve clarity in the explanation of non-compliant behaviour we formulated items representing concrete intentions of tax avoidance and tax evasion. To address the two intentions of compliance, items on voluntary and enforced compliance were formulated in a more abstract way. The formulated items were discussed within a group of economic psychologists. The resulting final set used in the survey comprised 35 items, with answering formats ranging from complete disagreement (1) to complete agreement (9), or very unlikely (1) to very likely (9). Furthermore, Braithwaite's (2003) scales to measure motivational postures and two items directly addressing past tax cheating behaviour were included in the survey. The items on different intentions of compliance and non-compliance were presented block-wise to ease the understanding of the concepts. According to Mummendey and Grau (2008), blocks of items minimise confounding effects between different concepts. Further, this presentation facilitates the development of scales for independent use.

Voluntary tax compliance (VTC): Ten items were formulated to assess the intention to comply voluntarily, especially by referring to taxpayers' perceived obligation to cooperate with the nation state. In addition, we alluded to items measuring organisational commitment (Tyler, 2003) and reformulated them accordingly. All items are presented in the Appendix, in German and English (e.g., "When I pay my taxes as required by the regulations, I do so because I like to contribute to everyone's good.").

Enforced tax compliance (ETC): Eight items were formulated to investigate enforced tax compliance (e.g., "When I pay my taxes as required by the regulations, I do so because I know that I will be audited.").

Tax avoidance (TA): To measure the intention to reduce taxes legally, 8 items were formulated. Each item used a fictitious case scenario to state a concrete legal tax reduction. Participants were asked how likely they would be to engage in the behaviour concerned (e.g., "You could deduct against tax the training costs you incurred for your employees as an allowable deduction for education and training. How likely is it that you would use the allowable deduction for education and training?"). As tax laws of different countries differ, loopholes to avoid taxes differ as well. Some of

the stated case scenarios only apply to legal tax reductions in Austria. In countries with a similar tax law these items can be easily applied, however, also in countries with a different tax law the item structure can be used with a country-specific modified content.

Tax evasion (TE): Scanning of past research on evasion yielded 4 items measuring the intention to reduce taxes illegally; 5 items were newly formulated. Each item used a fictitious case scenario to state a concrete way of evading taxes. Participants were asked how likely they would be to engage in the behaviour (e.g., “You could intentionally declare restaurant bills for meals you had with your friends as business meals. How likely would you be to declare those restaurant bills as business meals?”).

Motivational postures were measured using Braithwaite’s (2003; 2009) scales on commitment, capitulation, resistance, disengagement, and game playing. Items were translated into German (Rechberger, et al., 2009).

Direct questions on tax cheating: Two items directly asked about cheating activities in the past. The items were used to estimate the criterion validity of the inventory. Questions were: “Have you ever thought about evading taxes or about cheating on your income tax return?” and “Have you ever evaded taxes or cheated on your income tax return?”

3. Results

The sample of 310 participants was randomly divided into two subsamples of N = 155 each. No significant differences were found between the samples with regard to sex, age, education, and yearly income, indicating that randomisation was successful.

3.1 Part I: Construction of the inventory with the first subsample

First, descriptive statistics were computed for each item and normal distribution was checked. Second, items on voluntary compliance, enforced compliance, avoidance, and evasion were factor analysed by principal component factor analysis with varimax rotation to examine the factor structure. Third, for each concept, the five items with the highest factor loadings were selected and confirmatory factor analyses were run to check for the best fitting factor structure of the inventory. Fourth, construct validity of the four scales was assessed.

Item selection: Table 2 shows means, standard deviations, medians, and skewness of all items included in the survey, as well as the inter-item correlations and reliability of each scale. Items which were skewed (skewness < -1.00 or skewness > 1.00) and items with floor and ceiling effects (medians \leq 2.00 or medians \geq 8.00) were excluded from further analyses. Accordingly, items VTC10, ETC1, ETC8, TA7, and TE8 were disqualified for further analyses.

Insert Table 2 about here

A principal component factor analysis with varimax rotation was conducted with the normally distributed items to examine whether the factor structure suggests a differentiation into four scales. The analysis with an unconstrained number of factors yielded eigenvalues = 6.34, 3.98, 3.06, 2.14, 1.34, 1.18, 1.07, and 1.00. The fact that more than one general factor is suggested to explain the covariance in the data, can be interpreted as hint proposing no common measurement bias (cf. Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). When constraining for four factors, 51.72% of variance were explained. Items on voluntary compliance, enforced compliance, avoidance, and evasion loaded highest on the respective factor.

To determine whether the items on voluntary compliance and on enforced compliance measure different intentions of compliance, the respective items were analysed by an exploratory factor analysis with varimax rotation. When extracting an unconstrained number of factors the analysis yielded eigenvalues = 4.69, 3.24, 1.11, 1.06, 0.91, 0.76, 0.66, and 0.55. A constrained two factor solution analysis explained 52.89% of variance and revealed that all but two items loaded above .40. Items VTC2 and VTC9 with lower loadings were excluded from further analyses. Also item ETC3 was excluded as it also showed a high loading on the second factor (-.31). Recalculation of the factor analysis with a two factor solution showed that 61.44% are explained with all items having factor loadings above .40, either on the voluntary compliance scale or on the enforced compliance scale.

In order to obtain short and reliable scales, the highest loading five items of each scale were selected: items VTC3, VTC5, VTC6, VTC7, and VTC8 forming the scale of voluntary compliance, and items ETC2, ETC4, ETC5, ETC6, and ETC7 representing the scale of enforced compliance.

Also, items on tax avoidance and tax evasion were factor analysed. The solution of the exploratory factor analysis after varimax rotation showed eigenvalues = 4.84, 2.40, 1.12, 0.98, 0.84, 0.79, 0.72, and 0.70. A further analysis, constrained to a two factor solution, revealed that the two factors explain 48.21% of variance, and all items reach loadings above .40 either on the factor tax avoidance or tax evasion. No item loaded on the lower loading factor above .25. While one factor represents items on illegal tax reductions, the other factor encompasses items on legal tax reductions.

Again, the highest loading five items of each scale were selected, with the scale tax avoidance consisting of items TA1, TA2, TA3, TA5, and TA6; and the scale tax evasion consisting of items TE3, TE4, TE5, TE7, and TE9.

Answers to the five selected items of each scale were averaged to produce indices of voluntary compliance, enforced compliance, avoidance, and evasion. Table 3 shows means, standard deviations, medians, and Cronbach alpha of the four scales, as well as inter-scale correlations. All items are presented in the Appendix, with selected items marked by an asterisk.

Finally, the 5 items of each scale were analysed by confirmatory factor analyses to test the fit indices of different factor structures. When the 20 chosen items of the inventory were restricted to one general factor the fit indices were not sufficient ($\chi^2(170)=1113.74$, $p<.01$, $RmSEA=.19$, $CFI=.30$; cut-off values indicating a good model fit are a non-significant chi-square-test with $\chi^2/df < 2.00$; $RmSEA < .06$ and $CFI > .90$). Also a two factor solution with the items on voluntary compliance and enforced compliance as well as the items on avoidance and evasion being constrained to one factor each did not reveal adequate fit indices ($\chi^2(169)=749.25$, $p<.01$, $RmSEA=.15$, $CFI=.56$). The four factor solution with the five items belonging to one scale loading on one underlying factor suggests better model fits than the other solutions ($\chi^2(164)=334.39$, $p<.01$, $RmSEA=.08$, $CFI=.87$). However allowing for correlations between the error terms of items which address the same concept further improved the fit to the data ($\chi^2(160)=221.97$, $p<.01$, $RmSEA=.05$, $CFI=.95$)¹. Figure 1 depicts the structure of the inventory as well as regression coefficients and correlations between factors.

¹ To account for a bias stemming from the use of similar measures, we included to the four factor model with correlating error terms a latent method factor (cf. Podsakoff et al., 2003). Despite of a significantly increasing model fit ($\chi^2(140)=154.70$, $p=.19$, $RmSEA=.03$, $CFI=.99$) all loadings of the

Insert Table 3 and Figure 1 about here

Construct validity of the inventory was assessed by analysing the correlations between the scales. If voluntary tax compliance represents a different concept than enforced compliance, then the scales should not be correlated. Moreover, voluntary compliance should be negatively related to tax avoidance and evasion, whereas enforced compliance should be positively related. Tax avoidance and tax evasion should be either marginally positively related or not correlated. As shown in Table 3, these expectations are largely met by the data: voluntary tax compliance and enforced tax compliance are not correlated ($r=-.03$, $p=.72$). However, voluntary tax compliance is positively related to tax avoidance ($r=.16$, $p<.05$). Nevertheless, the correlation is small with the explained variance = 2.56%. Voluntary compliance is negatively related to tax evasion ($r=-.26$, $p<.01$). Enforced tax compliance is positively related to tax avoidance ($r=.18$, $p<.05$), but not to evasion ($r=.12$, $p=.14$). No relation was found between tax avoidance and tax evasion ($r=.11$, $p=.17$).

In sum, an inventory to differentiate between intentions of tax compliance (i.e., voluntary compliance and enforced compliance) and non-compliance (i.e., tax avoidance and tax evasion) was derived. The four standardised scales – each containing 5 items – show high reliability and good construct validity. In part two, the inventory is assessed and confirmed. Additionally, validity of scales is assessed on the basis of motives which underly behavioural intentions.

3.2 Part II: Replication of the inventory and validity assessment with the second subsample

Model test: Confirmatory factor analyses with different factor structures were conducted on the base of the second sample. The one factor solution and the two factor solution did not reveal sufficient fit ($\chi^2(170)=1024.45$, $p<.01$, $RmSEA=.18$, $CFI=.36$ and ($\chi^2(169)=778.57$, $p<.01$, $RmSEA=.15$, $CFI=.55$, respectively). The four factor solution without correlations between error terms yielded acceptable model fits ($\chi^2(164)=361.36$, $p<.01$, $RmSEA=.09$, $CFI=.85$). However, the four factor structure found in part I which allowed for correlations between error terms of items which address similar concepts provided the most satisfactory fit without further refinements

four factors on the respective items remain significant. Furthermore, the mean explained method factor variance only accounts for 7.88 % of the total variance, compared to 25 % explained method factor variance reported by Williams, Cote, and Buckley (1989). These results suggest that participants differentiated between the variables and that a common method bias is not an eminent problem in the present study.

($\chi^2(160)=232.16$, $p<.01$, $RmSEA=.05$, $CFI=.95$). There is a negligible weakness in the tax avoidance scale, with item TA5 showing only a weak relation with the overall scale index ($\beta=.13$, $p=.20$). Regression coefficients and correlations between factors are shown in Figure 1.

Validity of the inventory: As in part I, the correlations between the scales were used as indicators of construct validity. Table 3 shows the indices and Cronbach alphas of the four scales as well as inter-scale correlations. Voluntary tax compliance and enforced tax compliance are negatively related ($r=-.16$, $p<.05$); however, the explained variance of 2.56% is small. Voluntary compliance is not correlated with tax avoidance ($r=-.06$, $p=.43$). As expected, voluntary tax compliance and tax evasion are negatively related ($r=-.34$, $p<.01$). No relation was found between enforced tax compliance and tax avoidance ($r=.15$, $p=.07$), between enforced tax compliance and tax evasion ($r=.15$, $p=.06$), and between tax avoidance and tax evasion ($r=.14$, $p=.08$). The pattern of results suggests satisfactory construct validity.

Additional estimates of the scales' construct validity were obtained by correlating scale indices with motivational postures. Voluntary tax compliance is expected to be positively linked to deference postures and negatively related to defiance postures. For enforced tax compliance, tax avoidance, and tax evasion the opposite patterns are expected. First, indices of motivational postures were calculated as well as Cronbach alphas. Second, correlations between tax compliance and non-compliance scales and motivational postures were computed (Table 3). Results confirm that voluntary tax compliance is positively correlated with commitment ($r=.77$, $p<.01$) and capitulation ($r=.32$, $p<.01$) and negatively with resistance ($r=-.34$, $p<.01$), disengagement ($r=-.28$, $p<.01$), and game playing ($r=-.19$, $p<.01$). Enforced tax compliance shows a positive relation with resistance ($r=.36$, $p<.01$). Tax avoidance is positively linked with game playing ($r=.27$, $p<.01$). As expected, tax evasion is negatively linked to commitment ($r=-.34$, $p<.01$) and positively to resistance ($r=.26$, $p<.01$), disengagement ($r=.37$, $p<.01$), and game playing ($r=.16$, $p<.05$). Correlations with motivational postures confirm satisfactory construct validity.

In order to examine the criterion validity of the inventory we calculated the relations between the scales and the direct questions on tax cheating. We would expect to find that voluntary compliance is negatively related to self-reported cheating, whereas enforced tax compliance and avoidance are positively related to the thought of cheating but not to reports of actual cheating.

Furthermore, evasion should be positively correlated with both questions on tax cheating. Table 3 shows the average answers to the direct questions on tax cheating, inter-item correlations, and correlations between the four scales. Non-parametric correlations indicate that voluntary tax compliance is negatively linked to both direct questions on tax cheating ($r=-.46$, $p<.01$ and $r=-.31$, $p<.01$). No relation was found between enforced tax compliance and the direct questions on cheating ($r=.05$, $p=.58$ and $r=-.02$, $p=.83$). A positive link between tax avoidance and the question about the thought of cheating was found ($r=.16$, $p<.01$), however, no link was found between tax avoidance and the blunt question on tax cheating ($r=-.02$, $p=.85$). Tax evasion was positively related to both direct cheating questions ($r=.51$, $p<.01$ and $r=.39$, $p<.01$). The results confirm satisfactory criterion validity.

In sum, results in part II confirm the findings in part I and yield support for construct and criterion validity of the inventory. In the next section we assess external validity on the base of actual behaviour in a tax experiment.

3.3 Validation of the inventory on the base of behavioural data

As intentions to perform a particular behaviour are supposed to be predictors of actual behaviour (Ajzen, 1991; Fishbein & Ajzen, 1975), we assume that the intentions to comply voluntarily and by enforcement are positively related to tax payments and negatively related to actual evasion. With regard to tax avoidance and tax evasion we expect a reversed pattern: negative relations with tax payments and positive relations with non-payments. We compared answers to items on intended compliant and non-compliant behaviour (i.e., voluntary compliance, enforced compliance, tax avoidance, and tax evasion) with data collected in a laboratory tax experiment. Although it can be doubted that data from laboratory tax experiments reflect tax behaviour in natural settings, experimental data serve as a first external validation of our inventory.

Participants

In total, 38 female and 22 male students enrolled in social sciences (mean age = 23.70, $SD=2.75$, $Md=23.00$; median income = Euro 501 – 1,000) filled in the questionnaire developed in the previous sections and participated in a tax experiment.

Material and procedure

Participants imagined to be self-employed with the need to pay taxes on their income. First, they answered the 20 items on voluntary compliance, enforced compliance, avoidance, and evasion, developed in the previous sections of this paper. The answering format ranged from 1 (“fully disagree”) to 7 (“fully agree”) and from 1 (“very unlikely”) to 7 (“very likely”), respectively. Second, participants read instructions for the tax experiment. They were informed that they would earn ECU 1,000 (experimental currency units) in each of 20 tax filing rounds, and that they had to file their taxes in each round. Taxes amounted to 20% of their income (= ECU 200), probability of tax audits was 15% and fines in case of detected evasion amounted to three times the evaded amount. Audits were randomly chosen before the experiment and occurred after periods 7, 11, and 20. The experimental software used to programme the experiment was Z-Tree (Fischbacher, 2007).

Participants’ profit in each period consisted either of their income minus filed taxes when no audit occurred. In case of an audit and detection of evasion, the profit consisted of their income minus filed taxes, minus three times the evaded amount. Further, participants were informed that at the end of the experiment they will receive their average gain paid in Euro (ECU 150 = Euro 1). To ensure understanding of instructions, participants were advised to compute their profit in an example task. Overall, 7 participants were detected to have problems in understanding the instructions and in solving the computational task; therefore they were excluded from further analyses. At the end of the experiment, participants were paid a show-up fee of Euro 3 plus their average profit in the 20 rounds (average payments amounted to Euro 8.70; SD=0.19):

Results

Table 4 shows means, standard deviations, medians, and reliabilities of the scales on voluntary compliance, enforced compliance, avoidance, and evasion. In order to assess external validity of these scales, participants’ average filed taxes during the 20 experimental periods served as indices of compliant behaviour (taxes paid in ECU amounted on the average to $M=112.48$, $SD=62.32$, $Md=121.00$, which indicates that evasion amounted to approximately 40%). Frequency of filing no taxes during the 20 periods was used as second indicator of tax (non)-compliance ($Md=1.00$).

Scales on intended voluntary and intended enforced compliance are expected to be positively related to compliant behaviour and negatively linked to non-compliant behaviour. On the other hand, intended tax avoidance and intended tax evasion should be negatively related to compliant

behaviour and positively to non-compliant behaviour. As shown in Table 4, these expectations are met. One-sided Pearson product-moment correlations show a positive relation for voluntary compliance with taxes paid ($r=.27$, $p<.05$); one-sided tested Spearman's Rho revealed a negative link between voluntary compliance and frequency of total evasion ($r=-.23$, $p<.05$). For avoidance and evasion negative relations with paid taxes were found (one-sided Pearson product moment correlations; $r=-.28$, $p<.05$ and $r=-.31$, $p<.05$, respectively). Furthermore, the one-sided Spearman's Rho showed positive links between avoidance and frequency of total evasion ($r=.25$, $p<.05$) as well as between evasion and frequency of total evasion ($r=.37$, $p<.01$). Between enforced compliance and taxes paid and frequency of total evasion no significant relations were found ($r=-.15$, $p=.14$ and $r=.15$, $p=.14$, respectively). Altogether, these results indicate satisfactory external validity.

Insert Table 4 about here

In sum, the scales voluntary compliance, avoidance, and evasion show good external validity. The non-significant correlations between enforced compliance and behavioural data could be due to the manipulation of enforcement power in the tax simulation experiment. An audit probability of 15% and fines amounting to three times the evaded amount might hardly be perceived by the participants as powerful enforcement strategies. Therefore, results on enforced tax compliance could be due to the missing perception of authorities' enforcement power in the experiment.

5. Discussion

The aim was to develop a standardised inventory to measure different intentions of tax compliance and non-compliance. A study was conducted on a sample drawn from a representative pool of self-employed taxpayers. Overall, 20 items were found sufficient to measure voluntary compliance, enforced compliance, tax avoidance, and tax evasion. The four scales of the inventory which was detected in part I of the present study and supported in part II as well as in a tax simulation experiment, represents a reliable and valid instrument. The advantage is not only that it is a standardised inventory for research on tax behaviour, but also that each scale provides researchers with a tool to distinguish between and measure single intentions of compliance and non-compliance and each can be applied independently. Furthermore, since each standardised scale consists of only 5 items, the inventory's application is economically convenient and time-saving.

Major problems of self-reported data result from imperfect recall of prior behaviour. The use of fictitious actions in the present items keeps problems of recalling past behaviour to a minimum. Since all participants receive the same information, the answers are comparable (Suhling, Löbmann & Greve, 2005). The use of fictitious case scenarios is also likely to overcome the problem of socially desirable answers, because the question format is only indirectly addressing deviant behaviour (Suhling et al., 2005). Similar positive effects can be obtained when asking about behavioural intentions rather than querying actual behaviour. Because participants do not have to reveal their own (deviant) behaviour, the answers are likely to produce more accurate and reliable reports about non-compliance intentions. Although, the inventory presented in this paper cannot substitute data directly obtained from self-filed tax returns, it can be used to investigate and differentiate between different intentions of compliant and non-compliant behaviour.

In contrast to previous research which often used ad-hoc items on compliance and non-compliance, the inventory follows clear definitions derived from the literature on tax behaviour. Consequently, the scales on voluntary and enforced compliance proposed in this paper are addressing different intentions of compliance. Voluntary compliance originates from spontaneous willingness to cooperate, emanating from taxpayers' moral obligation to contribute to the public welfare. Enforced compliance states that tax payments according to the law arise from taxpayers' concern of being audited and fined (James & Alley, 2002; Kirchler, 2007; Kirchler et al., 2008; McBarnet, 2001). Tax avoidance is defined as the intention to minimising tax liabilities within the legal range of the law (Gassner, 1983; Sandmo, 2003), whereas evasion refers to intentionally breaking the law (Elffers, et al., 1987; Sandmo, 2003; Webley, 2004). It is important in tax behaviour research to differentiate between these intentions of compliance and non-compliance in order to deepen the understanding of tax behaviour and obtain comparable results across studies.

If we are to broaden the understanding of tax behaviour, findings of different studies need to be comparable. However, previous studies on self-reports focus on different definitions and operationalisations of tax behaviour and apply items that address different intentions of compliance and non-compliance. Thus, comparison of findings is difficult if not impossible. Previous research comparing tax behaviour across countries also often relies on a very small number of survey items (e.g., Alm & Torgler, 2006; Torgler, 2003, 2005; Wenzel, 2004a, 2004b, 2007). Validity and reliability are rarely questioned (e.g., Wilson & Shefrin, 2005).

To conduct comparable cross-national or cross-cultural studies on tax compliance and non-compliance, the inventory's scales need to be translated. Translating items on voluntary compliance and enforced compliance should be rather uncomplicated, since these items address the underlying behavioural intentions in an abstract way. Furthermore, although items on evasion state intentions to perform concrete tax reduction behaviours, these tax reductions are illegal in almost all countries. Therefore, also translating items on tax evasion should be an easy task. However, three of the five concrete actions stated in the items on tax avoidance reflect possibilities to avoid taxes according to the Austrian tax law. When using these items in other countries they require adaptations to country-specific tax laws. Reformulations only concern the particular content, whereas the basic structure of the items does not need to be changed. The inventory's scales provide the possibility of national and cultural comparisons of behavioural intentions with a standardised instrument for people who have to file their own income tax returns.

In the present paper we not only provide scales to measure different intentions of compliance but also examine the relations between them. The finding that voluntary compliance and enforced compliance are not correlated, suggests that the two concepts do indeed address different intentions of honest tax behaviour which have not been taken into account in previous research. Disregard of differences between voluntary and enforced compliance may explain why research has yielded contradictory results, and may also explain why some studies find a strong effect of audits and fines on compliance, whereas others find either no relationship or the opposite effect to that expected. We assume that voluntary compliance leads taxpayers not to engage in extensive decision making over whether it pays to evade or not, but rather to cooperate spontaneously, independently of audit probabilities and fines. In a climate of cooperation between taxpayers and authorities, audits and fines might communicate distrust by authorities and lead to the opposite effects to those theoretically expected. On the other hand, if taxpayers need enforcement if they are to comply, then audits and fines are likely to exert deterrent effects (Kirchler, 2007). Voluntary compliance originates from taxpayers' trust in authorities, whereas enforced compliance is fostered through the power of authorities to effectively carry out audits and impose fines (Forest, 2000; Kirchler, 2007).

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Table 1

Motivational postures and statements representing them in English (Braithwaite, 2003, p. 20) and German (Rechberger, et al., 2009)

Motivational posture	Description	Statements representing motivational postures	German translations of motivational postures
Commitment	<p>Commitment combines a positive orientation towards tax authorities and deference. The tax system is perceived as desirable, tax law and tax collection are perceived as fair. Committed taxpayers feel a moral obligation to pay their share and to act in the interest of the collective.</p>	<ul style="list-style-type: none"> • Paying tax is the right thing to do. • Paying tax is a responsibility that should be willingly accepted by all Australians. • I feel a moral obligation to pay my tax. • Paying my tax ultimately advantages everyone. • I think of tax paying as helping the government do worthwhile things. • Overall, I pay my tax with good will. • I resent paying tax. (reversed) • I accept responsibility for paying my fair share of tax. 	<ul style="list-style-type: none"> • Es gehört sich, seine Steuern zu bezahlen. • Steuern zu bezahlen ist eine Verantwortung, die von allen BürgerInnen gerne akzeptiert werden sollte. • Ich fühle mich moralisch verpflichtet, meine Steuern zu bezahlen. • Wenn ich meine Steuern bezahle, nützt das letztendlich Allen. • Steuern zahlen hilft der Regierung sinnvolle Dinge zu tun. • Alles in allem zahle ich gerne meine Steuern. • Ich ärgere mich, meine Steuern zahlen zu müssen. (reversed) • Ich sehe es als meine Verantwortung, meinen Steueranteil zu bezahlen.
Capitulation	<p>Capitulation reflects a positive orientation in terms of acceptance of the tax authorities which hold legitimate power to pursue the collective's goals. As long as citizens act according to the law, authorities are perceived to act in a supportive way.</p>	<ul style="list-style-type: none"> • If you cooperate with the Tax Office, they are likely to be cooperative with you. • Even if the Tax Office finds that I am doing something wrong, they will respect me in the long run as long as I admit my mistakes. • The Tax Office is encouraging to those who have difficulty meeting their obligations through no fault of their own. • The tax system may not be perfect, but it works well enough for most of us. • No matter how cooperative or uncooperative the Tax Office is, the best policy is to always be cooperative with them. 	<ul style="list-style-type: none"> • Wenn ich mit der Steuerbehörde kooperiere, wird sie auch bereit sein, mir zu helfen. • Auch wenn die Steuerbehörde herausfindet, dass ich etwas falsch gemacht habe, wird sie mich respektieren, solange ich meinen Fehler eingesteh. • Die Steuerbehörde hilft jenen, die ohne Absicht ihre Steuererklärung falsch abgeben. • Das Steuersystem mag nicht perfekt sein, aber für die Meisten erfüllt es seinen Zweck gut genug. • Die beste Strategie ist immer mit der Steuerbehörde zu kooperieren, egal ob diese kooperativ ist oder nicht.

Resistance	<p>Resistance reflects a negative orientation and defiance. The authority of tax officers may be doubted and their acts may be perceived as controlling and dominating rather than as supportive.</p>	<ul style="list-style-type: none"> • If you don't cooperate with the Tax Office, they will get tough with you. • The Tax Office is more interested in catching you for doing the wrong thing, than helping you do the right thing. • It's important not to let the Tax Office push you around. • It's impossible to satisfy the Tax Office completely. • Once the Tax Office has you branded as a non-compliant taxpayer, they will never change their mind. • As a society, we need more people willing to take a stand against the Tax Office. 	<ul style="list-style-type: none"> • Wenn ich nicht mit der Steuerbehörde kooperiere, wird sie härter mit mir umgehen. • Steuerbehörde ist eher daran interessiert, mich zu enttappen, wenn ich etwas falsch gemacht habe, als mich dabei zu unterstützen, alles richtig zu machen. • Es ist wichtig, sich nicht von der Steuerbehörde herumzuschubsen zu lassen. • Es ist unmöglich, die Steuerbehörde vollkommen zufrieden zu stellen. • Wenn mich die Steuerbehörde einmal als SteuersünderIn eingestuft hat, wird sie ihre Meinung nicht mehr ändern. • Als Gesellschaft brauchen wir mehr Menschen die sich gegen die Steuerbehörde zur Wehr setzen.
Disengagement	<p>Disengagement also reflects a negative orientation and correlates with resistance. Individuals and groups keep socially distant and blocked from view and have moved beyond seeing any point in challenging tax authorities.</p>	<ul style="list-style-type: none"> • If I find out that I am not doing what the Tax Office wants, I'm not going to lose any sleep over it. • I personally don't think that there is much the Tax Office can do to me to make me pay tax if I don't want to. • I don't care if I am not doing the right thing by the Tax Office. • If the Tax Office gets tough with me, I will become uncooperative with them. • I don't really know what the Tax Office expects of me and I'm not about to ask. 	<ul style="list-style-type: none"> • Wenn ich bemerke, dass ich nicht exakt das tue, was die Steuerbehörde von mir erwartet, bereitet mir das keine schlaflosen Nächte. • Ich persönlich glaube nicht, dass die Steuerbehörde viel dagegen tun kann, wenn ich meine Steuern nicht bezahlen möchte. • Mir ist es egal, wenn ich nicht das mache, was die Steuerbehörde von mir verlangt. • Wenn die Steuerbehörde härter mit mir umgeht, werde ich weniger kooperieren. • Ich weiß nicht wirklich, was die Steuerbehörde von mir erwartet und ich werde auch nicht nachfragen.

Game playing	<p>Game playing expresses a view of law as something that can be moulded to suit one's purposes rather than as a set of regulations that should be respected as guideline of one's actions. In the field of tax behaviour, game playing refers to "cops-and-robbers" games with taxpayers detecting loopholes for their advantages and perceiving tax officers as cops which engage in catching cunning taxpayers.</p> <ul style="list-style-type: none"> • I enjoy spending time working out how changes in the tax system will affect me. • I enjoy talking to friends about loopholes in the tax system. • I like the game of finding the grey area of tax law. • I enjoy the challenge of minimising the tax I have to pay. • The Tax Office respects taxpayers who can give them a run for the money. <ul style="list-style-type: none"> • Ich überlege gerne welche Auswirkungen Veränderungen der Steuergesetzgebung auf mich haben könnten. • Ich spreche gerne mit FreundInnen über die Lücken und Schlupflöcher im Steuersystem. • Es macht mir Spaß, die Lücken und Grauzonen des Steuerrechts herauszufinden. • Ich finde Vergnügen daran, einen Weg zu finden, wie ich meine Steuerzahlungen minimieren kann. • Die Steuerbehörde respektiert SteuerzahlerInnen, die sich nicht so leicht unterkriegen lassen.
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Table 2

Descriptives, Cronbach's alpha, and inter-item-correlations of the items on voluntary tax compliance, enforced tax compliance, tax avoidance, and tax evasion (part I)

Item	M	SD	Md	Skewness	Inter-item correlations										Alpha
					VTC1	VTC2	VTC3	VTC4	VTC5	VTC6	VTC7	VTC8	VTC9	VTC10	
Voluntary tax compliance															
VTC1	5.12	2.82	5.00	-0.15	1.00										
VTC2	3.32	2.39	3.00	0.69	.24	1.00									
* VTC3	6.17	2.57	7.00	-0.76	.50	.34	1.00								
VTC4	5.87	2.80	7.00	-0.55	.51	.08	.61	1.00							
* VTC5	4.92	2.74	5.00	-0.18	.42	.21	.44	.45	1.00						
* VTC6	4.46	2.70	5.00	0.07	.44	.24	.41	.39	.82	1.00					
* VTC7	5.67	2.70	6.00	-0.52	.45	.19	.71	.67	.61	.52	1.00				
* VTC8	5.73	2.61	6.00	-0.58	.52	.20	.60	.57	.70	.66	.72	1.00			
VTC9	6.36	2.66	7.00	-0.78	.05	.05	.21	.27	.23	.21	.36	.32	1.00		
VTC10	6.56	2.56	7.00	-1.00	.43	.11	.58	.70	.54	.47	.72	.71	.37	1.00	.89
Enforced tax compliance															
ETC1	7.23	2.34	9.00	-1.24	1.00										
* ETC2	5.50	2.68	5.00	-0.25	.38	1.00									
ETC3	6.74	2.61	8.00	-0.82	.30	.24	1.00								
* ETC4	5.10	2.55	5.00	-0.16	.29	.81	.35	1.00							
* ETC5	5.28	2.67	5.00	-0.21	.22	.60	.27	.65	1.00						
* ETC6	6.45	2.69	7.00	-0.77	.26	.51	.25	.50	.54	1.00					
* ETC7	4.13	2.89	4.00	0.35	.14	.24	.22	.29	.32	.21	1.00				
ETC8	6.93	2.45	8.00	-0.95	.10	.07	.17	.08	.02	.05	.29	1.00			.78

Table 3
 Descriptives, Cronbach's alphas, inter-scale correlations of voluntary tax compliance, enforced tax compliance, tax avoidance, tax evasion, motivational postures, and direct questions on evasion behaviour (part I and II)

Scale	Part I				Part II			
	M	SD	MD	Alpha	VTC	ETC	TA	TE
Voluntary tax compliance (VTC)	5.39	2.22	5.80	.89	1.00			
Enforced tax compliance (ETC)	5.29	2.03	5.40	.81	-.03	1.00		
Tax avoidance (TA)	5.75	1.94	6.00	.68	.16 *	.18 *	1.00	
Tax evasion (TE)	4.29	2.42	4.20	.86	-.26 **	.12	.11	1.00
	M	SD	MD	Alpha	VTC	ETC	TA	TE
Voluntary tax compliance (VTC)	5.71	2.10	6.00	.88	1.00			
Enforced tax compliance (ETC)	5.10	2.10	5.40	.83	-.16 *	1.00		
Tax avoidance (TA)	5.66	1.74	6.00	.55	-.06	.15	1.00	
Tax evasion (TE)	4.07	2.30	4.00	.84	-.34 ***	.15	.14	1.00
Commitment	5.80	1.75	6.00	.88	.77 ***	-.15	.01	-.34 ***
Capitulation	5.53	1.72	5.60	.78	.32 ***	-.12	-.07	-.14
Resistance	5.56	1.80	5.50	.81	-.34 ***	.36 ***	.24 **	.26 **
Disengagement	4.51	1.29	4.60	.49	-.28 **	.04	-.05	.37 ***
Game playing	5.30	1.65	5.20	.69	-.19 *	.07	.27 **	.16 *
Have you ever thought about evading taxes or about cheating on your income tax return? (DQC1, Spearman's Rho)	3.99	2.71	4.00		-.46 ***	.05	.16 *	.51 ***
Have you ever evaded taxes or cheated on your income tax return? (DQC2, Spearman's Rho)	2.68	2.29	2.00		-.31 ***	-.02	-.02	.39 ***
								.69 ***
								1.00

Note: *** p < .001; ** p < .01; * p < .05

Table 4

Descriptives, Cronbach's alphas of voluntary tax compliance, enforced tax compliance, tax avoidance, tax evasion as well as correlations of the scales with average filed taxes during 20 periods and frequencies of filing no taxes during the 20 periods in the tax experiment

Scale	M	SD	MD	Alpha	Average taxes filed		Frequency of filing no taxes	
Voluntary tax compliance (VTC)	4.94	0.99	5.00	.60	.27	*	-.23	*
Enforced tax compliance (ETC)	4.18	1.59	4.20	.86	-.15		.15	
Tax avoidance (TA)	4.75	1.04	4.80	.61	-.28	*	.25	*
Tax evasion (TE)	4.19	1.44	3.80	.79	-.31	*	.37	**

Note: ** p < .01; * p < .05; one-sided;

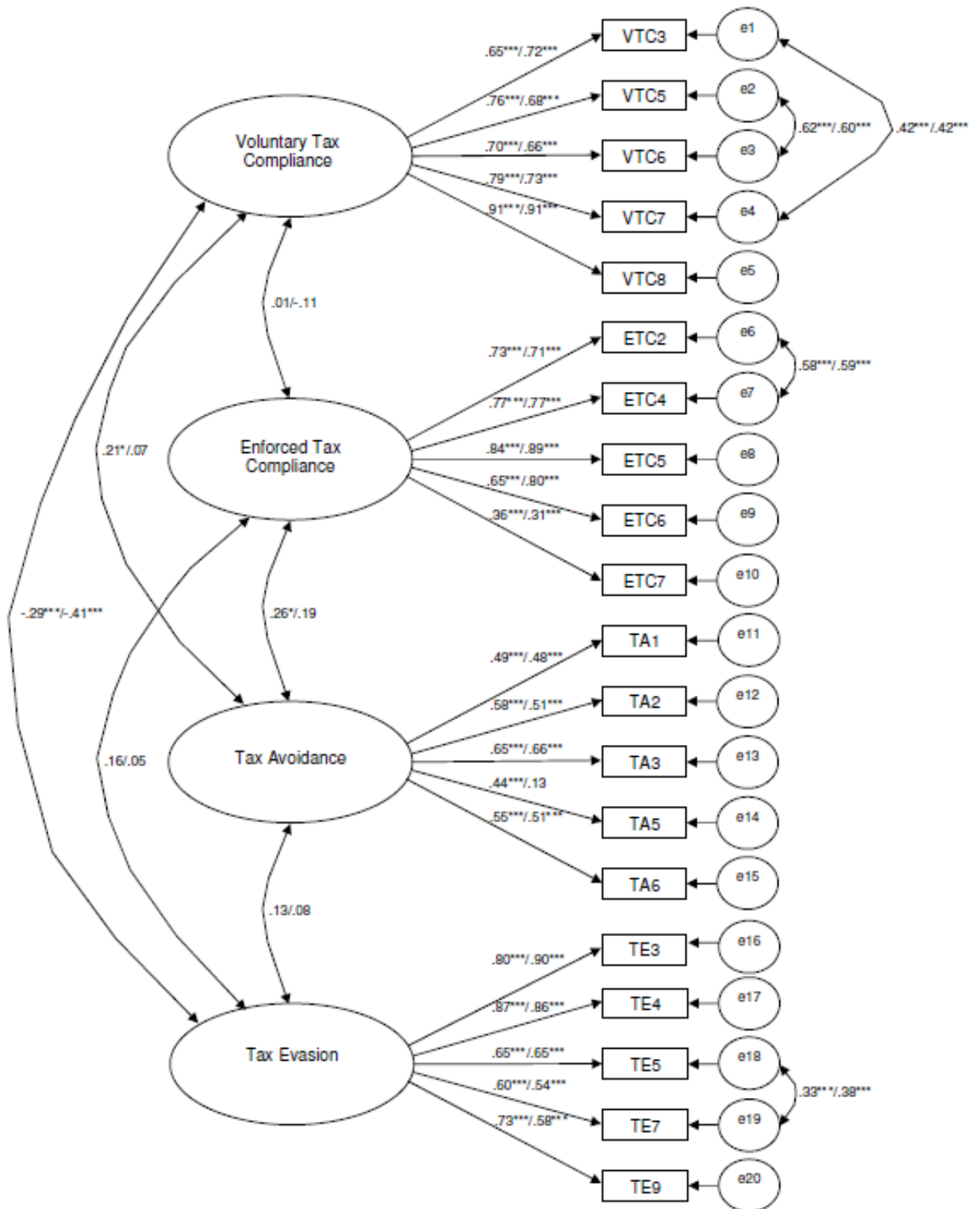


Figure 1
 Factor structure found in part I replicated with data of part II.
 Note: the first numbers indicate results of part I and following numbers show results of part II; VTC = Voluntary Tax Compliance; ETC = Enforced Tax Compliance; TA = Tax Avoidance; TE = Tax Evasion. *** p<.001, * p<.05;

Appendix

Items on voluntary tax compliance, enforced tax compliance, tax avoidance, and tax evasion in the original/German version and the translated English version

ID	German	English
	Freiwillige Steuerrehrlichkeit	Voluntary tax compliance
	Wenn ich meine Steuern vorschriftsmäßig zahle, dann tue ich das, ...	When I pay my taxes as required by the regulations, I do so ...
	... weil ich freiwillig meine Steuern bezahle.	... because I pay my taxes voluntarily.
VTC1	... ohne lange darüber nachzudenken, wie ich sie reduzieren könnte.	... without spending a long time thinking how I could reduce them.
VTC2	... weil es für mich selbstverständlich ist.	... because to me it's obvious that this is what you do.
VTC3	... auch dann, wenn es keine Steuerprüfungen gäbe.	... even if tax audits did not exist
VTC4	... um den Staat und andere BürgerInnen zu unterstützen.	... to support the state and other citizens.
VTC5	... weil ich gerne zum Wohl Aller beitrage.	... because I like to contribute to everyone's good.
VTC6	... weil es für mich ganz natürlich ist	... because for me it's the natural thing to do.
VTC7	... weil ich es als meine Pflicht als BürgerIn ansehe.	... because I regard it as my duty as citizen.
VTC8	... obwohl ich weiß, dass Andere das nicht tun.	... even though I know that others do not do that.
VTC9	... weil ich überzeuge bin, das Richtige zu tun.	... because I am sure I am doing the right thing.
VTC10
	Erzwungene Steuerrehrlichkeit	Enforced tax compliance
	Wenn ich meine Steuern vorschriftsmäßig zahle, dann tue ich das, ...	When I pay my taxes as required by the regulations, I do so ...
	... weil ich mich gezwungen fühle, meine Steuern zu zahlen.	... because I feel forced to pay my taxes.
ETC1	... weil viele Steuerprüfungen stattfinden.	... because a great many tax audits are carried out.
ETC2	... obwohl ich am liebsten gar keine Steuern zahlen würde.	... although I would really prefer not to pay any taxes.
ETC3	... weil die Steuerbehörde häufig kontrolliert.	... because the tax office often carries out audits.
ETC4	... weil ich weiß, dass ich kontrolliert werde.	... because I know that I will be audited.
ETC5	... weil Hinterziehung sehr streng bestraft wird.	... because the punishments for tax evasion are very severe.
ETC6 because I do not know exactly how to evade taxes without attracting attention.
ETC7	... weil ich nicht genau weiß, wie ich Steuern unauffällig hinterziehen kann.	... after putting a lot of thought into how I could legally save taxes.
ETC8	... nach langem Hin- und Herüberlegen, wie ich legal Steuern sparen könnte.	...

ID	German	English
	Steuervermeldung	Tax avoidance
	Sie könnten sich selbst genau mit dem Steuergesetz auseinandersetzen, um nach Einsparungsmöglichkeiten zu suchen. Wie wahrscheinlich würden Sie sich genau mit dem Steuergesetz auseinandersetzen?	You could take a detailed look at the tax regulations yourself to search for potential savings. How likely would you be to take this detailed look at the tax regulations?
• TA1	Sie könnten in Ihrer Privatwohnung noch Lärmschutzfenster einbauen lassen und die entstandenen Kosten als Wohnraumsanierung in Ihrer Steuererklärung geltend machen. Damit würde sich Ihre Steuerlast reduzieren. Wie wahrscheinlich würden Sie die Wohnraumsanierung vornehmen?	You could install soundproof windows in your private dwelling and claim the resulting cost as housing space reconstruction on your income tax return. This would have the effect of reducing your tax burden. How likely would you be to carry out the housing space reconstruction?
• TA2	Sie könnten einen Kurs besuchen, der Sie über derzeitige steuerliche Absetzmöglichkeiten informiert. Wie wahrscheinlich würden Sie einen solchen Kurs besuchen?	You could attend a course which informs you about the current possibilities for making claims against tax. How likely would you be to attend such a course?
• TA3	Sie könnten im nächsten Jahr weniger arbeiten, damit Sie in eine geringere Einkommensklasse fallen und dadurch weniger Steuern zahlen müssen. Wie wahrscheinlich ist es, dass Sie im nächsten Jahr weniger arbeiten?	You could work less next year, so as to fall into a lower income group and consequently pay less in tax. How likely is it that you would work less next year?
TA4	Sie könnten geringwertige Wirtschaftsgüter (z.B.: PC, Scanner, und andere Anschaffungen unter € 400,-), die Sie jedoch zur Zeit nicht benötigen, für Ihr Unternehmen anschaffen, um Ihre Bemessungsgrundlage zu verringern. Wie wahrscheinlich würden Sie solche Güter anschaffen?	You could buy low-value assets (e.g., PC, scanner, and other purchased equipment with a value below € 400,-) which you do not currently need for your company, so as to decrease the figure on which your tax calculation is based. How likely would you be to purchase such assets?
• TA5	Sie könnten Bildungsausgaben, die Sie für Ihre MitarbeiterInnen hatten, als Bildungsfreibetrag von Ihrer Steuer absetzen. Wie wahrscheinlich ist es, dass Sie den Bildungsfreibetrag nutzen?	You could deduct against tax the training costs you incurred for your employees as an allowable deduction for education and training. How likely is it that you would use the allowable deduction for education and training?
TA6	Sie könnten Ihre Steuererklärung mit einem Steuerberater bzw. einer Steuerberaterin besprechen. Er bzw. sie könnte Ihnen noch ein paar Tipps geben, wie Sie mehr Steuern sparen könnten. Wie wahrscheinlich ist es, dass Sie mit einem bzw. einer SteuerberaterIn sprechen?	You could discuss your income tax return with a tax accountant. He or she could give you some hints as to how you could save more in tax. How likely is it that you would talk to a tax accountant?
TA7	Sie könnten eine Lebensversicherung abschließen und diese als Sonderausgabe, die Ihre Bemessungsgrundlage verringert, von der Steuer absetzen. Wie wahrscheinlich ist es, dass Sie eine Lebensversicherung abschließen?	You could contract a life insurance policy and deduct it as a special expense against your taxable income. How likely is it that you would contract the life insurance?
TA8		

ID	German	English
	Steuerhinterziehung	Tax evasion
	Sie könnten Ihr Auto als Geschäftswagen deklarieren, obwohl Sie es nur zu 30 % für geschäftliche Zwecke nutzen und die Nutzung eines Geschäftswagens mindestens 50 % geschäftlich sein muss. Wie wahrscheinlich würden Sie Ihr Auto als Geschäftswagen deklarieren?	You could declare your car as a company car, although your use of it is only 30% for business purposes, and at least 50 % business use is required for it to be assessed as a company car. How likely is it that you would declare your car as company car?
TE1	Sie könnten in Ihrem Fahrtenbuch auch private Fahrten als geschäftliche Fahrten angeben. Wie wahrscheinlich würden Sie private Fahrten als geschäftliche Fahrten angeben?	You could enter private journeys as company journeys in your driver's logbook. How likely is it that you would enter private journeys as company ones?
TE2	Eine Kundin hat bar bezahlt und keine Rechnung verlangt. Sie könnten diese Einnahme in Ihrer Steuererklärung absichtlich weglassen. Wie wahrscheinlich würden Sie diese Einnahme weglassen?	A customer paid in cash and did not require an invoice. You could intentionally omit this income on your income tax return. How likely is it that you would omit this income?
TE3	Sie haben einen Teil Ihrer Ware privat eingekauft. Sie könnten diese Ware später an Stammkunden weiterverkaufen und den dabei erzielten Gewinn in Ihrer Steuererklärung verschweigen. Wie wahrscheinlich würden Sie den erzielten Gewinn in Ihrer Steuererklärung verschweigen?	You bought some of your goods privately. You could resell those goods later to established customers and omit the profit from this sale on your income tax return. How likely would you be to omit the profit from this sale on your income tax return?
TE4	Sie könnten Rechnungen von Abendessen mit Ihren Freundinnen absichtlich als Geschäftsessen deklarieren. Wie wahrscheinlich würden Sie diese Rechnungen als Geschäftsessen deklarieren?	You could intentionally declare restaurant bills for meals you had with your friends as business meals. How likely would you be to declare those restaurant bills as business meals?
TE5	Sie waren geschäftlich im Ausland. Der Flug wurde von Ihren Geschäftspartnerinnen bezahlt, jedoch haben Sie die Flugtickets noch. Sie könnten diese Flugtickets in Ihrer Steuererklärung geltend machen. Wie wahrscheinlich würden Sie die Flugtickets geltend machen?	You have been abroad on business. The flight was paid for by your business partners; however, you still have the plane tickets. You could claim those plane tickets on your income tax return. How likely would you be to claim the plane tickets?
TE6	Sie waren im Ausland, um Verwandte zu treffen und eine kurze Unterredung mit einer Ihrer Leiharbeiterinnen zu führen. Trotzdem könnten Sie die Hotelkosten und das Essen, auf das Sie Ihre Verwandten eingeladen haben, als Geschäftsausgaben bzw. -essen deklarieren. Wie wahrscheinlich würden Sie diese Ausgaben als Geschäftsreise bzw. -essen deklarieren?	You have been abroad to meet relatives and to have a short meeting with one of your suppliers. Regardless of this you could declare your expenses for the hotel and for the meals you invited your relatives to, as business travel and a business meal. How likely would you be to declare your expenses as business travel or a business meal?
TE7	Um Ihre Steuerlast zu verringern, könnten Sie eine befreundete Studentin bitten, Ihnen eine Honorarnote auszustellen, obwohl Sie keine Dienstleistungen in Anspruch genommen bzw. bezahlt haben. Wie wahrscheinlich würden Sie die Studentin bitten, Ihnen eine Honorarnote auszustellen?	To decrease your tax burden, you could ask a friend who is a student to issue an invoice for services, although you did not in fact request or pay for any such services. How likely would you ask the student to issue an invoice?
TE8	Vor kurzem haben Sie im Unternehmen einer Bekannten an einem Projekt mitgearbeitet. Nun können Sie diesen steuerpflichtigen Zusatzverdienst in Ihrer Steuererklärung verschweigen. Wie wahrscheinlich ist es, dass Sie diesen Zusatzverdienst verschweigen?	Recently you took part in a project in an acquaintance's company. Now you could conceal this taxable additional income on your income tax return. How likely is it that you would conceal this additional income?
TE9		

Note: * items included in the scales to assess voluntary tax compliance, enforced tax compliance, tax avoidance, and tax evasion

8. Dritter Beitrag: Trust in authorities and power to enforce tax compliance: An empirical analysis of the “slippery slope framework”

Abstract

Tax compliance is enhanced by taxpayers' trust in authorities or by authorities' power leading to voluntary or enforced tax compliance, respectively. A laboratory experiment and an online-experiment examined these assumptions, manipulating trust in, and power of authorities. In Experiment 1, participants paid taxes in 20 periods. Results showed that trust and power positively influence tax compliance. Trust increases and power decreases voluntary compliance, whereas power increases and trust decreases enforced compliance. Experiment 2 replicated these findings, expanding them with strategic behavior; strategic behavior was higher in case of low trust and high power compared to high trust and high power.

Keywords: tax evasion, trust, power, “slippery slope framework”

PsycINFO classification: 2900, 4200

JEL-classification: H26, C91

Introduction

Paying taxes is a relevant civic duty that allows governments to provide public goods and to distribute wealth. Taxpayers take their taxpaying responsibilities, often with a pinch of salt. In order to reduce personal expenses and to maximize own profits, it is assumed that taxpayers evade or avoid paying taxes, especially if the threat of detection and punishment allows it. The problem of tax evasion is predominantly dealt with as an economic issue, conceived as a rational decision under uncertainty (Allingham & Sandmo 1972; Srinivasan 1973). In this regard, relevant exogenous factors, which determine tax compliance, are audit probabilities and fine rates. However, in most countries, the rational model predicts lower tax compliance than the actual observed level (Alm 1991; Andreoni, Erard & Feinstein 1998). Furthermore, the economic model fails to explain differences in tax compliance across countries with comparable enforcement policies (Alm, Sanchez & deJuan 1995; Alm & Torgler 2006; Cummings, Martinez-Vazquez, McKee & Torgler 2005). As Alm and colleagues (1995: 17) point out:

...a government compliance strategy based only on detection and punishment may well be a reasonable starting point but not a good ending point. Instead what is needed is a multi-faceted approach that emphasizes enforcement, but that also emphasizes such things as positive rewards from greater tax compliance, the wise use of taxpayer dollars, and the social obligation of paying one's taxes.

Accordingly, sociologists and psychologists concentrate on a number of issues including: taxpayers' attitudes (e.g., Hessing, Elffers & Weigel 1988; Kirchler 1999; Vogel 1974); on social representations of taxes, tax evasion, and avoidance (e.g., Kirchler, Maciejovsky & Schneider 2003); on feelings of reactance (e.g., Kirchler 1999); on taxpayers' social identity and fairness perceptions (e.g., Wenzel 2002); on social norms and personality characteristics (e.g., Hessing, et al. 1988); and on motivational postures (e.g., Braithwaite 2003). A recent attempt to integrate different approaches of tax compliance was presented by the "Slippery Slope framework" by Kirchler (2007) and Kirchler, Hoelzl, and Wahl (2008). Beside exogenous factors, such as income, tax rate, audit probability, and fine rate, individual and social variables also expand into the framework, fostering the two main framework-dimensions "trust in authorities" and "power of authorities". According to the framework, tax compliance can be increased using two paths: (i) by

increasing trust in tax authorities, and/or (ii) by increasing deterrence power of tax authorities. Although the behavioral outcome is compliance in both cases, the quality of tax compliance differs, and is either voluntary or enforced.

The present study provides an empirical analysis of the main hypotheses of the “slippery slope framework”. A laboratory and an online experiment were conducted to investigate the influence of trust in authorities and the perceived power of authorities on voluntary and enforced tax compliance. Voluntary tax compliance was operationalized as motivational posture “commitment”, whereas enforced tax compliance was operationalized as “resistance” (Braithwaite 2003). Two different samples were used; students and self-employed taxpayers, allowing us to resolve well-known shortcomings of student sample laboratory experiments.

1. Related literature

1.1 The slippery slope framework

The slippery slope framework (Kirchler 2007; Kirchler et. al 2008) consists of three dimensions: (i) trust in tax authorities, (ii) power of tax authorities, and (iii) tax compliance. Tax compliance is assumed to be influenced by trust and power of authorities: if both trust and power are at a minimum level, tax compliance is assumed to be low; taxpayers are acting egoistically through maximizing their profit by evading taxes. However, if trust in authorities increases, taxpayers’ compliance is also assumed to increase. Furthermore, if the power of authorities increases, tax compliance is expected to increase as well.

1.2 Trust in authorities

Kirchler et al. (2008: 212) define trust as “... a general opinion of individuals and social groups that the tax authorities are benevolent and work beneficially for the common good”. They refer to relational aspects of trust (Eberl 2003), and the concept of “social trust”, distinguishing it from calculative trust (Tyler 2003).

Findings from prior research on national and international survey data show that trust in tax authorities is positively related to tax compliance (e.g., Torgler 2003a; Torgler & Schneider 2005). As a noteworthy example, Murphy (2004) analyzed survey data from 2,292 Australian tax avoiders

and found that high trust resulted in low resistance to tax authorities and emphasized the key role of trust in enhancing tax compliance. Fjeldstad (2004) found that trust in the government, as well as perceived procedural fairness, affect compliance of paying service charges in South Africa. Results from Swedish survey data highlight the importance of politicians' trustworthiness for maintaining tax compliance (Hammar, Jagers & Nordblom 2009). Furthermore, comparisons between 47 different countries revealed a negative relation between trust in governments and tax evasion (Richardson 2008). In Argentina and Chile, commitment and willingness to comply was found to be related to satisfaction with public services (Bergman 2002). Differences between tax compliance in Botswana and South Africa were found to be due to differences in perceived tax administration and taxpayers' attitudes towards the government (Cummings et al. 2005). Also, experimental research found that trust in the state has a positive impact on social representations about taxes (e.g., Pitters, Hinterhofer & Kirchler 2007). In a recent review of tax compliance studies, Lavoie (2008) emphasizes the important role of trust in authorities (as well as trust in other taxpayers' willingness to cooperate) to foster tax compliance. Similarly, Feld and Frey (2007) highlight the importance of how taxpayers feel they are treated by tax authorities, and refer to a "psychological" contract and a relationship of mutual respect that leads taxpayers to behave loyally and to pay taxes honestly.

1.3 Power of authorities

Power of authorities is defined as taxpayers' perception of tax authorities' capacity to detect and punish tax crimes (Kirchler et al. 2008). Rational models of tax evasion can be allocated on this dimension of the framework. Empirical findings regarding power of authorities include findings on the effect of income, tax rates, audit probabilities, fines, repeated audits, as well as on the withholding phenomenon and the related framing effects (for an overview see Kirchler 2007). However, the deterrent effects of these enforcing factors appear to be inconclusive in the literature, with some studies confirming their positive effect, while others report contrary results (Andreoni et al. 1998; Fischer, Wartick & Mark 1992; Frey 2003). In line with the definition of power given by Kirchler et al. (2008), Fischer and her colleagues (1992) emphasized the importance of taking into account the subjective rather than the objective probability of detection. Therefore, authorities' power might not have an objective deterrent effect on tax compliance but it is moderated by taxpayers' perceptions and subjective evaluations of authorities' abilities to detect tax frauds and to deter evasion (Fischer et al. 1992).

1.4 *Dynamic effects of trust and power*

Trust and power not only determine compliance but are also interrelated insofar as a change of one parameter can affect the second parameter (Kirchler 2007; Kirchler et al. 2008). Let us assume that through a change of government policies, fines for tax evasion are amplified. Taxpayers may perceive this change as an increase in severity and as a signal of distrust. As trust is inherently reciprocal in its nature, taxpayers might lose trust in authorities accordingly, and a downward pull of tax compliance might result. Therefore, it is necessary to distinguish between coercive power and legitimate power (Turner 2005). While coercive power describes tax authorities' abilities to detect tax crimes and to provide severe punishment, legitimate power can be seen as a positive evaluation of authorities' power that is connected with positive attitudes towards tax authorities. Legitimacy of authorities' actions is deeply connected with procedural fairness (Tyler 1990a, 1990b). For example, in Switzerland, if taxpayers are called to participate in decision-making processes through referenda, authorities' power is likely to be perceived as legitimate and actions against evasion serve the maintenance of law and order (Bohnet & Frey 1994). On the other hand, if citizens have no voice, authorities' power may be perceived as illegitimate and actions to control citizens are likely to be judged as "cops fighting robbers". Accordingly, Sheffrin and Triest (1992) found that taxpayers' attitudes towards authorities and social norms shape the effect of increased audit probabilities on tax compliance. Falk and Kosfeld (2004) found that being controlled and therefore, feeling distrusted reduces trust and consequently cooperation. However, an opposing effect is possible as governments lacking power are hardly trusted by citizens. Authorities need to exert power in an appropriate way in order to be judged as acting fairly and serving the community by enforcing cooperation from evading taxpayers (Lavoie 2008).

1.5 *Enforced versus voluntary compliance*

Based on the assumptions of the slippery slope framework, tax compliance is assumed to be at a high level in cases of trustworthy authorities, as well as in cases of draconic deterrence and fines. However, the resulting quality and motivation to comply differs (Kirchler 2007; Kirchler et al. 2008). In cases of high trust in authorities, taxpayers feel morally motivated to contribute to the community and pay their taxes spontaneously, abstaining from extensive decision-making and aiming to optimize their individual profit. Therefore, tax compliance originating from trust,

compromises a more voluntary character and taxpayers fulfill their duties because they are committed to the law (Forest 2000; James & Alley 2002). If power of authorities increase and authorities are perceived as acting in an untrustworthy manner, taxpayers are likely to weigh up gains against the costs of evasion and act compliantly (if costs of detection and fines for evasion exceed the gains). In this case, tax compliance is enforced through authorities' power to efficiently control and fine non-compliance (see also Forest 2000; James & Alley 2002). This constraint is likely to motivate taxpayers to compete against tax authorities and to provoke strategic taxpaying behavior and exploitation of loopholes in the surveillance system to minimize taxes. Taxpayers who behave strategically are calculative decision makers that comply when the probability of an audit is high and fines for evasion are severe.

The difference between voluntary and enforced tax compliance is mirrored in the underlying motivation to comply. In the present experiments, we used Braithwaite's (2003) motivational postures commitment and resistance to operationalize the underlying motivational structure of voluntary and enforced compliance. In the case of high trust and resulting voluntary tax compliance, the motivational orientation is explained by the motivational posture "commitment" (Braithwaite 2003). Committed taxpayers feel a moral obligation to contribute to the community and pay their tax share with good will. We assume that commitment is higher if taxpayers trust their authorities, in particular, when the deterrent power of authorities is low. In the case of low trust and high power with resulting enforced tax compliance, the motivational posture is "resistance" (Braithwaite 2003). Resistant taxpayers distrust tax authorities' intentions of benevolent and cooperative behavior towards them. Also, French and Raven (1959) state in their seminal work on social power that coercive power leads to resistance. We expect that resistance is higher if taxpayers are enforced through high (coercive) power, especially if they do not trust tax authorities. As a consequence, we assume that taxpayers experiencing powerful authorities evade more when detection is unlikely (i.e., strategic taxpaying behavior) than taxpayers, who trust the authorities. Two experiments were conducted to test these hypotheses. First, a computer-aided laboratory experiment (Experiment 1) was designed to analyze the influence of trust and power on tax compliance at the behavioral level and to differentiate between voluntary and enforced tax compliance at the motivational level. Experiment 2 constitutes an online-experiment using a sample of self-employed taxpayers, aiming to replicate findings of the first experiment and extending them by also focusing on strategic taxpaying behavior.

2. Experiment 1

2.1 *Method*

2.1.1 *Participants*

Overall, 124 students participated in the laboratory experiment. Four participants failed to complete the example-task described below and were therefore, excluded of further analyses. The final data set included 120 participants (64 females, 56 males, aged between 18 and 49, $M = 23.66$ years, $SD = 3.96$, $Md = 23.00$). A net income equal or below 500 € was indicated by 39.20% of the participants. Most participants reported a net income between 501 and 1,000 € per month (50.80%), and 9.10% stated an income above 1,001 € and 0.80% of the participants did not indicate their monthly salary.

2.1.2 *Material and experimental procedures*

The experiment was computer-aided, and programmed with z-Tree (Fischbacher 2007). Instructions were given on the computer and provided in printed form. Participants were told that they should imagine living and working in a country called Varosia, and paying taxes over several filing periods. They were told to imagine being self-employed, earning their income in Varosia, and paying taxes.

Participants were informed about (a) their income in each tax-filing period (3,500 ECU), (b) their tax liability in each period (1,400 ECU = 40%), (c) the audit probability (10%), and (d) fines in case of detected evasion (one times the evaded amount). In each period, participants decided how much tax to pay, from 0 ECU to 1,400 ECU. In each period in which no audit occurred, participants' profit was their income minus taxes paid. In each period in which an audit did occur, participants' profit consisted of their income minus taxes due and minus one times the evaded amount (as a fine).

To ensure that all participants understood the instructions, they had to solve an example-task. When they faced problems in solving the task, further explanations were provided by the experimenter. Data from participants who had problems understanding the task were excluded from the analyses.

After solving the example-task, participants read the description of the fictitious country, Varosia, and imagined, as vividly as possible, living there and paying their taxes to authorities that were either trusted, or not, and powerful, or not (see Appendix A; cf., vignettes; Alexander & Becker 1978). Participants were randomly assigned to one of the four experimental conditions (low versus high trust in authorities, and low versus high power of authorities).

In the *low trust* condition, the text stated that Varosia's tax authorities are highly untrustworthy. One statement was that the corruption index is very high and that many politicians embezzle tax money. The text of the *high trust* condition stated that Varosia's tax authorities are highly trustworthy, that few politicians embezzle tax money, and commented on a very low corruption index. In the *low power* condition, tax authorities were described as highly ineffective in detecting tax evasion. For example, they were told that due to the prevailing tax law, auditing taxpayers is difficult and not very effective, and that the audit rate is low. In the *high power* condition, tax authorities were described as working efficiently. Participants read that the tax law supports the application of audits, that audits are effective, and that the audit rate is high.

Participants were asked to read the description of Varosia and to imagine living there before the tax-filing periods, after 10-filing periods, and after 20-filing periods. After every reading of the description, manipulation check items were presented on perceived trust in Varosia's authorities ($MC1_{trust}$, $MC2_{trust}$, $MC3_{trust}$), and on power of authorities ($MC1_{power}$, $MC2_{power}$, $MC3_{power}$; answering format 1 = strongly disagree to 7 = strongly agree), combined with three distraction items. Audits were randomly set over the 20 filing periods before the experiment and were fixed for all participants after period 3 and 15.

After filing taxes, motivational postures were assessed: participants answered eight items on commitment (e.g., "Paying tax is the right thing to do" or "I feel a moral obligation to pay my tax"; 1 = strongly disagree to 7 = strongly agree; Braithwaite 2003) and six items on resistance (e.g., "If you don't cooperate with the tax office, they will get tough with you" or "The tax office is more interested in catching you for doing the wrong thing, than helping you do the right thing"; 1 = strongly disagree to 7 = strongly agree; Braithwaite 2003). Finally, participants were paid their average profit (conversion rate 1 € = 700 ECU; $M = 3.70$ euro, $SD = 0.54$) and were dismissed.

2.2 Results

2.2.1 Manipulation check

Manipulation of trust in Varosia's authorities and power was checked at the beginning of the filing periods, after period 10 and at the end. A two-way MANOVA was calculated, with trust and power as independent factors along with answers on trust and power as dependent variables. The three items on trust, as well as the three items on power were highly reliable ($\alpha = .90$ and $\alpha = .85$, respectively). As expected, the multivariate analysis reveal no interaction effect, $F(2,115) = 0.11$, $p = .90$, but a main effect for trust, $F(2,115) = 388.50$, $p < .01$, $\eta^2 = .87$, and for power, $F(2,115) = 122.28$, $p < .01$, $\eta^2 = .68$.

For the question of trust, the univariate results show that participants who were told that Varosia's politicians are trustworthy trust the authorities more than the participants who were told that the politicians are untrustworthy, ($F(1,116) = 762.91$, $p < .01$, $\eta^2 = .87$; low trust: $M = 1.78$, $SD = 0.76$; high trust: $M = 5.81$, $SD = 0.82$). The power manipulation does not affect the reported trust in the authorities ($F(1,116) = 0.15$, $p = .70$; low power: $M = 3.82$, $SD = 2.21$; high power: $M = 3.70$, $SD = 2.14$). Similarly, for the power items, univariate results show that participants who were told that authorities are powerful perceive Varosia's authorities as more powerful than participants who were told that authorities' power is weak ($F(1,116) = 239.45$, $p < .01$, $\eta^2 = .67$; low power: $M = 1.75$, $SD = 0.75$; high power: $M = 4.99$, $SD = 1.42$). The trust manipulation does not affect the reported power of Varosia, ($F(1,116) = 0.21$, $p = .65$; low trust: $M = 3.44$, $SD = 1.93$, high trust: $M = 3.29$, $SD = 2.05$). According to these results, the manipulation of trust and power proves to be successful.

2.2.2 Tax compliance

In the following, analyses of tax compliance by trust and power are presented. Table 1 shows the estimated means and standard errors of mean tax contributions over 20 taxpaying periods, per condition. A repeated ANCOVA was measured (with trust and power as independent factors; tax contributions as dependent variables; and gender, age, and income as covariates), and reveals no interaction effect between trust and power, $F(1,112) = 1.32$, $p = .25$; but it does reveal two significant main effects: Participants contribute more if authorities are described as trustworthy rather than untrustworthy, $F(1,112) = 3.71$, $p = .06$, $\eta^2 = .03$. Contributions are also high if authorities

are described as powerful rather than weak, $F(1,112) = 8.10, p < .01, \eta^2 = .07$. As expected, tax payments are highest when trust and power are high (*estimated mean* = 1,042.58; *SE* = 80.60) and lowest when trust and power are low (*estimated mean* = 655.83; *SE* = 80.87). Tax payments are equal in the latter condition, in the case of high trust and low power (*estimated mean* = 718.74; *SE* = 81.20) and in the case of low trust and high power (*estimated mean* = 795.97; *SE* = 78.22). The covariate gender significantly affects mean tax contributions, $F(1,112) = 16.18, p < .01, \eta^2 = .13$; women contribute more taxes than men. Age and income have no influence on tax contributions, $F(1,112) = 1.02, p = .31$ and $F(1,112) = 0.14, p = .71$, respectively.

[Insert Table 1 about here]

2.2.3 Voluntary tax compliance versus enforced tax compliance

In order to test the influence of trust and power on voluntary and enforced tax compliance, a two-way MANCOVA was calculated with trust and power as independent factors and voluntary tax compliance and enforced tax compliance as dependent variables and gender, age, and income as covariates. Table 1 contains the estimated means and standard errors of the scales for voluntary tax compliance (i.e., commitment; $\alpha = .92$) and enforced tax compliance (i.e., resistance; $\alpha = .61$). Multivariate results reveal a significant interaction effect of trust and power, $F(2,111) = 3.47, p = .04, \eta^2 = .06$, as well as a significant main effect for trust, $F(2,111) = 63.41, p < .01, \eta^2 = .53$, and for power, $F(2,111) = 11.37, p < .01, \eta^2 = .17$.

For voluntary tax compliance, the univariate results reveal a significant interaction of trust and power, $F(1,112) = 4.49, p = .04; \eta^2 = .04$. This indicates that voluntary compliance is highest when authorities are trustworthy and powerful (*estimated mean* = 5.21; *SE* = 0.22) compared to when authorities are trustworthy and powerless (*estimated mean* = 4.49; *SE* = 0.22), untrustworthy and powerless (*estimated mean* = 2.81; *SE* = 0.22), or untrustworthy and powerful (*estimated mean* = 2.59; *SE* = 0.22). For trust, a significant main effect was found, $F(1,112) = 94.17, p < .01, \eta^2 = .46$, showing that participants are generally more voluntary compliant to trustworthy authorities than to untrustworthy authorities. Furthermore, no significant main effect of power was revealed when controlling for gender, age, and income, $F(1,112) = 1.28, p = .26$. Also for the covariates gender, age, and income, no significant effects were found, $F(1,112) = 0.41, p = .52$; $F(1,112) = 0.35, p = .55$, and $F(1,112) = 0.01, p = .91$, respectively.

For enforced tax compliance, the univariate results reveal an interaction tendency between trust and power when controlling for gender, age, and income, $F(1,112) = 3.45$, $p = .07$, $\eta^2 = .03$. This indicates that enforced tax compliance is lowest when authorities are trustworthy and powerless (*estimated mean* = 2.93; $SE = 0.16$) and when authorities are trustworthy and powerful (*estimated mean* = 3.37; $SE = 0.16$). Enforced compliance is equally high in cases of trustworthy and powerful authorities and untrustworthy and powerless authorities (*estimated mean* = 3.78; $SE = 0.16$); however, when authorities are untrustworthy and powerful (*estimated mean* = 4.81; $SE = 0.16$) the highest enforced compliance overall results. The significant main effect of trust indicates that participants who encounter untrustworthy authorities generally feel more enforced than participants who are told that the authorities are trustworthy, $F(1,112) = 50.02$, $p < .01$, $\eta^2 = .31$. The significant main effect of power shows that powerful authorities provoke more enforced compliance than powerless authorities, $F(1,112) = 19.87$, $p < .01$, $\eta^2 = .15$. The covariates gender and income are not significant, $F(1,112) = 1.93$, $p = .17$ and $F(1,112) = 0.16$, $p = .69$, respectively, whereas age approaches significance $F(1,112) = 3.59$, $p = .06$, $\eta^2 = .03$.

The overall results of Experiment 1 support the assumptions of the slippery slope framework, which indicates that both high trust and high power lead to increased tax compliance. Furthermore, motivational orientations of tax compliance differ, suggesting that high trust and low power foster voluntary tax compliance, whereas, low trust and high power foster enforced tax compliance.

Experiment 1 suffers from two shortcomings: (i) Participants were students who are not familiar with paying taxes. (ii) Albeit repeated-measure laboratory experiments are well established in tax-compliance research, the artificiality of the setting might be criticized. Therefore, a further experiment was conducted to replicate the above presented results with self-employed taxpayers reporting their behavior in an online study. Furthermore, Experiment 2 distinguishes between voluntary and enforced tax compliance by taking into account strategic tax paying behavior.

3. Experiment 2

3.1 *Method*

3.1.1 *Participants*

In the present experiment only self-employed taxpayers ($N = 186$) participated since self-employed people have more opportunities to evade taxes and occupy therefore, a unique position compared with white-collar and blue-collar workers (Kirchler 2007). Furthermore, self-employed taxpayers have more experience of declaring taxes and of the tax law. After data had been collected, 59 participants were excluded of all further analyses due to incompleteness ($n = 3$), unrealistic duration to complete the questionnaire (< 5 minutes; > 30 minutes; $n = 13$), and failure of manipulation (see section – exclusions of participants due to failed manipulation; $n = 43$). The remaining sample consisted of 127 participants (41 females, and 86 males; ages ranging between 22 and 69 years, $M = 38.54$, $SD = 10.50$, $Md = 36.00$). A monthly average net income below 1,000 € was indicated by 16.50%. An income between 1,001 and 2,000 € was indicated by 26.00% of the participants. Most participants reported an income between 2,001 and 3,000 € (26.80%). Only 15.70% reported an income between 3,001 and 4,000 € and 15.00% above 4,000 €. One third of the participants (32.30%) had experienced at least one tax audit during their business life.

3.1.2 *Material and experimental procedures*

Experiment 2 was conducted using an online-questionnaire. Self-employed taxpayers received an e-mail in which they were asked to complete the questionnaire and send the e-mail to acquainted self-employed taxpayers (i.e., snowball sampling). Furthermore, the questionnaire link was posted in an online forum for local, self-employed taxpayers on a business platform (www.xing.com). No incentives were provided for participation.

When participants began the questionnaire, they had to indicate their type of employment. Those who indicated they were self-employed continued to answer the questionnaire, whereas, those who only indicated other types of employment were thanked and dismissed from participation because they had no present experience with tax declarations. To prevent participants from retrying to fill in the questionnaire, their IP-address was saved and they were denied further access to the

questionnaire. Participants who declared themselves as self-employed were randomly assigned one of the four descriptions representing the four conditions of the between subjects' factorial design (low trust vs. high trust) by 2 (low power vs. high power) which were used in Experiment 1. They were asked to read the descriptions of Varosia and to imagine they lived, worked, and paid taxes in this country. After reading the description, they answered three items on their general tax compliance in Varosia (e.g., "How likely will you pay your taxes completely honestly?"; 1 = very unlikely to 7 = very likely). Furthermore, participants answered the same items regarding voluntary and enforced tax compliance as in Experiment 1 (1 = strongly disagree to 7 = strongly agree; Braithwaite 2003). To assess strategic taxpaying behavior, participants were asked to indicate how they would behave in situations in which they had the possibility to evade taxes with an extremely low detection probability (e.g., "Several times you had dinner with friends. Now you think about claiming those restaurant bills as business meals in your income tax return. How likely would you be to declare those restaurant bills as business meals in your income tax return?"; 1 = very unlikely to 7 = very likely). These five short items represent tax evasion, which are obviously illegal. It was assumed that strategic taxpaying behavior is highest when taxpayers do not trust their authorities and when they feel enforced by authorities' coercive power. Finally, participants answered one manipulation check item on their trust in Varosia (i.e., "I trust the state of Varosia."; 1 = strongly disagree to 7 = strongly agree), two manipulation check items on legitimate power (e.g., "I perceive the power that Varosia exerts on taxpayers as legitimate." and "The strictness by which Varosia's tax authorities take action against tax dodgers is appropriate."; 1 = strongly agree to 7 = strongly disagree), and two manipulation check items on coercive power (e.g., "As a citizen of Varosia I feel like being at the state's mercy." and "The power that Varosia's tax authorities exert on its citizens is not traceably."; 1 = strongly disagree to 7 = strongly agree). On average, completion of the questionnaire lasted 14 minutes ($SD = 4.81$; $Md = 13.00$).

3.1.3 Exclusion of participants due to failed manipulation

In order to ensure that participants read the descriptions carefully and understood the given instructions, all participants whose answers greatly contradicted the descriptions were excluded¹. Participants who read about powerless and untrustworthy authorities were excluded if they indicated they had extensive trust or if they perceived high legitimate or coercive power (scores of 6 or 7). Participants who read about trustworthy and powerless authorities were excluded if they

reported having low trust in tax authorities (scores of 2 or 1), or if they perceived higher coercive power than legitimate power (coercive power > legitimate power). Participants who read about untrustworthy and powerful authorities were excluded if they indicated high trust in tax authorities (scores of 6 or 7), or if they perceived higher legitimate power than coercive power (legitimate power > coercive power). Participants who read about powerful and trustworthy authorities were excluded if they indicated low trust in tax authorities, or if they perceived low legitimate power (scores 2 or 1). Furthermore, participants were excluded in this condition if they perceived higher coercive power than legitimate power (coercive power > legitimate power). In total, 43 participants were excluded from the analyses.

3.2 Results

3.2.1 Tax compliance

As in Experiment 1, in all analyses we controlled for gender, age, and income. Table 2 shows the estimated means and standard errors of the scale measuring tax compliance ($\alpha = .84$). We calculated a two-way ANCOVA with trust and power as independent factors and tax compliance as a dependent variable and controlled for gender, age, and income. No interaction between trust and power was found, $F(1,120) = 0.00$, $p = .96$. However, the main effects of trust and power were significant. Participants who were instructed that authorities are untrustworthy also reported less tax compliance than participants who were told that authorities are trustworthy, $F(1,120) = 7.96$, $p < .01$, $\eta^2 = .06$. Furthermore, participants who read about powerless authorities indicated less tax compliance than participants who read about powerful authorities, $F(1,120) = 9.38$, $p < .01$, $\eta^2 = .07$. As in Experiment 1, the highest tax compliance was observed for trustworthy and powerful authorities (*estimated mean* = 5.84; *SE* = 0.30) and the lowest tax compliance was found when authorities were described as untrustworthy and powerless (*estimated mean* = 4.16; *SE* = 0.28). In cases of high trust and low power of authorities (*estimated mean* = 4.96; *SE* = 0.27) and low trust and high power of authorities (*estimated mean* = 5.02; *SE* = 0.29), tax compliance did not differ. The covariate age had a significant influence on tax compliance, $F(1,120) = 7.32$, $p < .01$, $\eta^2 = .06$; older taxpayers indicated a higher tax compliance than younger taxpayers. Gender and income did not influence tax compliance significantly, $F(1,120) = 2.03$, $p = .16$ and $F(1,120) = 0.00$, $p = 1.00$, respectively.

[Insert Table 2 about here]

3.2.2. Voluntary versus enforced tax compliance

To test if trust and power influence voluntary and enforced tax compliance, a two-way MANCOVA was conducted with trust and power as independent factors; voluntary tax compliance and enforced tax compliance as dependent variables; and gender, age, and income as covariates. Table 2 contains the estimated means and standard errors for the scales of voluntary tax compliance (i.e., commitment; $\alpha = .93$) and enforced tax compliance (i.e., resistance; $\alpha = .63$). Multivariate results revealed a slightly significant interaction effect of trust and power, $F(2,199) = 2.86$, $p = .06$, $\eta^2 = .05$, as well as significant main effects for trust, $F(2,119) = 44.72$, $p < .01$, $\eta^2 = .42$, and for power, $F(2,119) = 9.25$, $p < .01$, $\eta^2 = .14$.

Univariate results of voluntary compliance revealed a tendency of an interaction between trust and power, $F(1,120) = 2.86$, $p = .09$, $\eta^2 = .02$. This suggests lowest voluntary compliance when authorities are untrustworthy and powerful (*estimated mean* = 3.60; *SE* = 0.20) compared to when authorities are untrustworthy and powerless (*estimated mean* = 4.29; *SE* = 0.20), trustworthy and powerless (*estimated mean* = 5.45; *SE* = 0.19), or trustworthy and powerful (*estimated mean* = 5.43; *SE* = 0.21). A significant main effect of trust, $F(1,120) = 54.97$, $p < .01$, $\eta^2 = .31$, indicates that participants are more voluntary compliant when authorities are trustworthy than when authorities are untrustworthy. Furthermore, participants who perceived authorities as powerless tended to report slightly more voluntary tax compliance than participants who perceived the authorities as powerful, $F(1,120) = 3.12$, $p = .08$, $\eta^2 = .03$. Again, age significantly influences voluntary tax compliance, $F(1,120) = 14.83$, $p < .01$, $\eta^2 = .11$, whereas, gender and income do not, $F(1,120) = 0.70$, $p = .41$ and $F(1,120) = 1.17$, $p = .28$, respectively.

For enforced tax compliance, a significant interaction between trust and power was found when controlling for gender, age, and income, $F(1,120) = 4.14$, $p = .04$, $\eta^2 = .03$. This result suggests that enforced tax compliance is highest when authorities are untrustworthy but powerful (*estimated mean* = 5.26; *SE* = 0.14) compared to when authorities are untrustworthy and powerless (*estimated mean* = 4.39; *SE* = 0.14), trustworthy and powerless (*estimated mean* = 3.64; *SE* = 0.13), or trustworthy and powerful (*estimated mean* = 3.94; *SE* = 0.15). The significant main effect of trust indicates that participants feel less enforcement and less resistance when facing trustworthy

(compared to untrustworthy) authorities, $F(1,120) = 54.71, p < .01, \eta^2 = .31$. Furthermore, the significant main effect of power indicates that participants are more enforced when they are told about powerful authorities than when they are told about powerless authorities, $F(1,120) = 17.89, p < .01, \eta^2 = .13$. The covariates, gender, age, and income were not significant, $F(1,120) = 0.00, p = .98; F(1,120) = 0.20, p = .65$, and $F(1,120) = 0.25, p = .62$, respectively.

3.2.3. *Strategic taxpaying behavior*

One aim of this second study was to test whether strategic taxpaying behavior is especially pronounced in cases of low trust in authorities and high tax authorities' power. In this case a "cops-and-robbers" attitude is assumed and taxpayers should evade as soon as they perceive a possibility to do so. Therefore, a two-way ANCOVA was calculated with trust and power as independent factors; strategic behavior as a dependent variable; and gender, age, and income as covariates. Table 2 shows the estimated means and standard errors of the scale measuring strategic taxpaying behavior ($\alpha = .83$).

According to our assumptions, we found a significant interaction between trust and power on strategic taxpaying behavior, $F(1,120) = 4.86, p = .03, \eta^2 = .04$, indicating that strategic behavior is highest when authorities are untrustworthy but powerful (*estimated mean* = 4.70; SE = 0.30). Strategic behavior is lowest when authorities are trustworthy and powerful (*estimated mean* = 3.58; SE = 0.32). If tax authorities are trustworthy but powerless (*estimated mean* = 4.31; SE = 0.28), or if they are perceived as untrustworthy and powerless (*estimated mean* = 4.12; SE = 0.30), strategic behavior does not differ. The interaction effect of power and trust on strategic taxpaying behavior is depicted in Figure 1. No significant main effects for trust and power were found, $F(1,120) = 2.37, p = .13$ and $F(1,120) = 0.06, p = .81$, respectively. Again, the covariate age significantly influences strategic behavior, $F(1,120) = 23.23, p < .01, \eta^2 = .16$, whereas, gender and income do not influence strategic behavior significantly, $F(1,120) = 1.41, p = .24$ and $F(1,120) = 0.20, p < .65$, respectively.

[Insert Figure 1 about here]

Experiment 2 replicated the findings of Experiment 1 with self-employed taxpayers and found that trust and power influence tax compliance and that voluntary and enforced tax compliance differ

regarding trust in authorities and power of authorities. Furthermore, participants indicated that they wanted to evade taxes strategically, in particular when authorities are untrustworthy and powerful.

4. General Discussion

The aim of the present paper was to analyze whether trust in authorities and power of authorities increase tax compliance. First, both experiments evidence the positive effects of trust and power on taxpayers' compliance. Second, it was found that trust in authorities and power of authorities differently affects the motivation to comply on a voluntary or an enforced basis. Additionally, Experiment 2 shows that taxpayers exploit loopholes in the tax surveillance system, preferably when authorities act in an untrustworthy way and exert much power over them. Strategic behavior is instead, significantly lower when tax authorities are perceived as trustworthy and powerful.

The experimental results of both studies support the positive effect of trust on tax compliance, found previously in survey data and in experimental research (Bergman 2002; Murphy 2004; Pitters et al. 2007; Torgler 2003a; Torgler & Schneider 2005). Furthermore, both studies show that audits and fines foster tax compliance, which is also consistent with prior empirical and theoretical findings (Allingham & Sandmo 1972; Andreoni et al. 1998; Fischer et al. 1992). Although, the effects of trust and power were examined previously, this is the first paper to integrate trust in authorities and power of authorities into one, experimental design and investigate possible differences in tax compliance resulting from trust and power, as stated by the slippery slope framework (Kirchler 2007; Kirchler et al. 2008).

Results of both experiments reflect the basic assumptions of the slippery slope framework (Kirchler 2007; Kirchler et al. 2008) suggesting that tax authorities can achieve tax compliance through shedding taxpayers' trust in them and through demonstrating their power to monitor and fine tax cheaters. In Experiment 1, a combination of high trust and high power yielded the highest voluntary compliance, whereas, in the case of low trust, voluntary compliance was lowest – independent of power. In Experiment 2, high trust resulted in the highest voluntary compliance, independent of power, whereas, a combination of low trust and high power revealed the lowest voluntary compliance. Though, trust in authorities had a positive effect on voluntary compliance in both experiments. Also, enforced tax compliance is influenced most by a combination of power and

trust. Both experiments show that high power of authorities and low trust encourages the highest enforced compliance. Furthermore, the finding that taxpayers' strategic taxpaying behavior was highest in a punishing environment in which taxpayers distrusted the authorities and lowest when taxpayers trusted the punishing authorities, reveals the important role that trust plays in the decision to pay taxes. This result resembles the differing consequences and therewith the differing qualities of voluntary and enforced tax compliance. In line with the slippery slope framework, we conclude that voluntary compliant taxpayers contribute their fair share to the common good, without hesitation. However, enforced compliant taxpayers comply only as long as they are audited and fined and act strategically, as soon as they find a way to evade taxes undetected.

According to the slippery slope framework, tax compliance is at 100% when trust is at its maximum, when power is at its maximum, and when both trust and power are at a maximum; whereas tax compliance is at 0% when both trust and power are at a minimum. However, in the manipulation of both experiments, trust and power did not reach their extremes but ranged in the high and low areas of the concepts. Therefore, we did not expect to find the above stated interaction effect of trust and power on tax compliance but the two obtained main effects. Thus, although the assumptions of the slippery slope framework suggest highest tax compliance for maximum trust and/or power, the found main effects still support the stated assumptions of the framework. However, future research should also examine the extreme areas of trust and power and their effect on tax compliance.

The positive effects of trust and power concerning (voluntary and enforced) tax compliance were tested on two different samples using different measuring methods. Experiment 1 generated behavioral data from students filing taxes in a laboratory simulation and Experiment 2 gained data from self-employed people, who reported their reactions to a hypothetical situation in an online experiment. As both experiments prove that trust, as well as power, increase tax compliance these effects seem to be quite robust. Also the impact of trust and power on voluntary and enforced tax compliance was found to be quite similar in both experiments and might therefore be generalized.

However, to assess voluntary and enforced tax compliance, Braithwaite's (2003) motivational postures were used. Although the posture commitment reflects voluntary compliance and the posture resistance resembles enforced compliance quite well, they do not totally correspond with

the underlying motivations of voluntary and enforced tax compliance. Therefore, future research should develop and apply new methods, especially aiming to measure and differentiate between voluntary and enforced tax compliance.

An assumption of the slippery slope framework, which was neglected in the present paper, is the dynamic effect of power on trust. As long as power of authorities is perceived as fair, it is not necessarily regarded as negative but instead is perceived as having positive effects on citizens' trust (Lavoie 2008). Therefore, authorities, who exert their power in a fair way, could also boost voluntary tax compliance. Accordingly, Richardson (2008) found that trust and legal enforcement strategies were connected with lower tax evasion in different countries. Future research could investigate the dynamic effects that fair and unfair power have on trust and therewith, on voluntary tax compliance.

The present results suggest that governments should emphasize citizen-friendly procedures to ensure citizens' trust. In return, the trusting citizens will be voluntarily compliant and abstain from evasion when detection is unlikely; whereas, they would evade in the case of distrust. Therefore, boosting citizens' trust in authorities would maximize tax compliance and therefore, the public revenue.

Endnotes:

¹ Note that 38 participants did not indicate their level of trust in authorities, thus the rule of exclusion due to extensive or narrow trust was not applied on them.

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Table 1

Estimated means and standard errors of mean contribution during the experiment, enforced tax compliance, and voluntary tax compliance as a function of trust and power when controlling for gender, age, and income

Dependent Variables	Low trust		High trust	
	Low power <i>n</i> = 30	High power <i>n</i> = 31	Low power <i>n</i> = 30	High power <i>n</i> = 29
mean contributions	655.83 (80.87) ^a	795.97 (78.22) ^a	718.74 (81.20) ^a	1,042.58 (80.60) ^b
voluntary tax compliance (i.e., commitment; Braithwaite, 2003)	2.81 (0.22) ^a	2.59 (0.22) ^a	4.49 (0.22) ^b	5.21 (0.22) ^c
enforced tax compliance (i.e., resistance; Braithwaite, 2003)	3.78 (0.16) ^a	4.81 (0.16) ^b	2.93 (0.16) ^c	3.37 (0.16) ^{ac}

Note: Higher scores indicate higher contributions and higher acceptance of the items. Means are corrected for covariates gender = 0.54, age = 23.68, and income = 1.71. Standard errors are given in parentheses. Estimated means with differing superscripts differ at $p < .05$.

Table 2

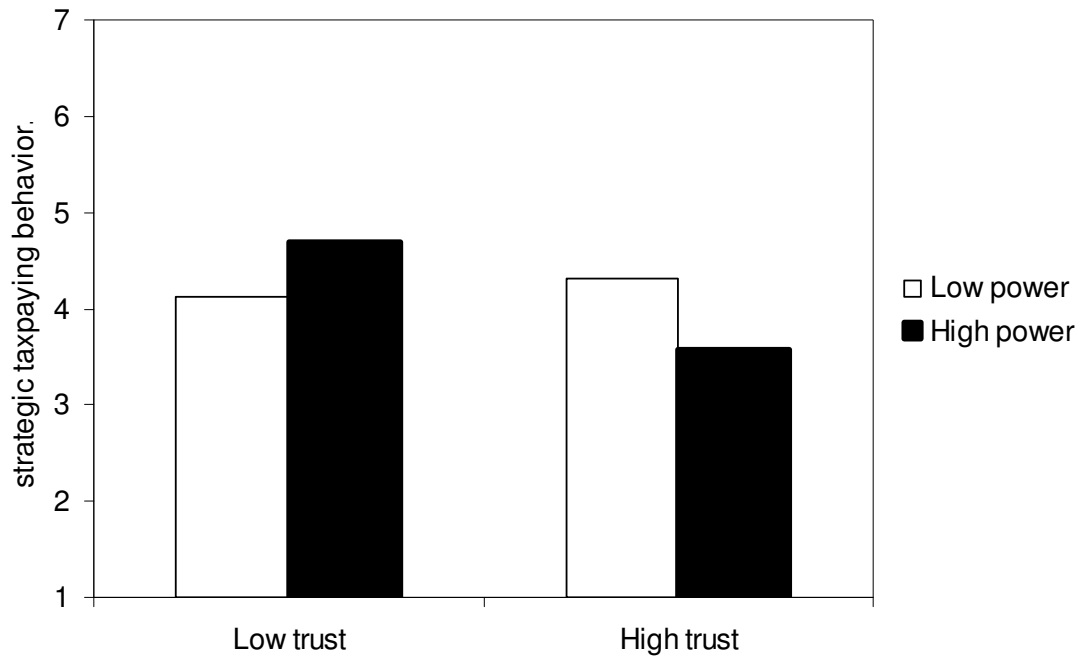
Estimated means and standard errors of tax compliance, voluntary tax compliance, enforced tax compliance, and strategic taxpaying behavior as a function of trust and power when controlling for gender, age, and income

Dependent Variables	Low trust		High trust	
	Low power <i>n</i> = 32	High power <i>n</i> = 31	Low power <i>n</i> = 36	High power <i>n</i> = 28
tax compliance	4.16 (0.28) ^a	5.02 (0.29) ^b	4.96 (0.27) ^b	5.84 (0.30) ^c
voluntary tax compliance (i.e., commitment; Braithwaite, 2003)	4.29 (0.20) ^a	3.60 (0.20) ^b	5.45 (0.19) ^c	5.43 (0.21) ^c
enforced tax compliance (i.e., resistance; Braithwaite, 2003)	4.39 (0.14) ^a	5.26 (0.14) ^b	3.64 (0.13) ^c	3.94 (0.15) ^c
strategic taxpaying behavior	4.12 (0.30) ^{ab}	4.70 (0.30) ^a	4.31 (0.28) ^{ab}	3.58 (0.32) ^b

Note: Higher scores indicate higher acceptance of the items. Means are corrected for covariates gender = 0.32, age = 38.54, and income = 2.87. Standard errors are given in parenthesis. Estimated means with differing superscripts differ at $p < .05$.

Figure 1

Extent of strategic taxpaying behavior as a function of trust and power when controlling for gender, age, and income



APPENDIX A:

English Version:

All descriptions began as follows:

Please read the following description of a country:

Varosia is located in Europe and the territory of Varosia occupies 83,871 km². The official language is German.

In the last census of population in August 2007 Varosia had 16,336,000 inhabitants. The unemployment rate is at an average. Between the citizens of Varosia no large differences of income exist.

Afterwards relevant information for the manipulation of trust ([low] high) was varied between conditions:

*Since Varosia's autonomy in 1949 it has been marked with a **[low] high** political stability and **[an oligarchic (authority of few)] a democratic** government. **[Seldom] Regularly** referenda are held, in which the citizens of Varosia can co-decide in the legislation.*

*The government enjoys a **[bad] good** reputation in the population. It can be concluded from opinion polls that 70% of the citizens are **[not]** satisfied with the current government.*

*The tax load is **[not]** equitably distributed among the different occupational groups and income groups. Varosia's citizens do **[not]** have the opinion that everyone has to contribute her/his share on taxes.*

*Varosia's legislation is **[not]** transparent and the government offers **[no] the** opportunity of free counselling on judicial subjects and tax issues in information centers. Furthermore, Varosia's public authorities are **[little] very** service-oriented and **[not]** interested in supporting Varosia's citizens.*

The budget expenditures of the state are **[not]** traceable for Varosia's citizens, because they are **[not] regularly informed by means of a clear official gazette** about the use of tax money. In an opinion poll in October 2007 78% of Varosia's citizens indicated to have the impression that their tax money is **[not]** used reasonable.

Besides **[a lot of] little** tax money is embezzled by politicians. According to an international corruption index (CPI) Varosia is one of the European countries with the **[highest] lowest** perceived corruption.

All these factors cause that the citizens of Varosia trust their country **a [little] lot**.

Furthermore the descriptions were adapted to the manipulation of tax authorities' power ([low] high):

The prosecution of tax evaders is **[not]** very effective. Because of the tax legislation it is **[difficult] easy** for the government to conduct audits on its citizens and therewith to chase tax evaders.

The government assigns a **[low] high** budget to the tax office to punish tax evasion. With the means at hand it is **[not]** possible for the tax office to employ qualified tax inspectors. In addition the members of the tax office of Varosia are perceived as **[little] very** present.

The chance to be audited for self-employed people is very **[low] high**. This is to say that self-employed are **not** audited **very** often. Therefore, **[not]** very many of the committed tax offences can be detected. Moreover, the fines for tax evasion are **[not]** very severe in Varosia. When tax evaders are detected, they do **[not]** have to anticipate severe fines. The tax office does **[not]** exercise benignity.

All these factors cause that the citizens of Variosia assess their government as **[little] very** powerful.

German Version:

All descriptions began as follows:

Bitte lesen sie folgende Länderbeschreibung durch:

Varosien liegt in Europa und hat eine Fläche von 83.871 km². Die Amtssprache ist Deutsch.

Bei der Volkszählung im August 2007 hatte Varosien 16.336.000 Einwohner. Die Arbeitslosenrate ist durchschnittlich hoch. In Varosien gibt es keine großen Einkommensunterschiede zwischen den Bürgern.

Afterwards relevant information for the manipulation of trust ([low] high) was varied between conditions:

*Seit der Unabhängigkeit im Jahre 1949 ist das Land von **[geringer] großer** politischer Stabilität geprägt und besitzt eine **[oligarchische (Herrschaft von Wenigen)] demokratische** Regierungsform. Es werden **[selten] regelmäßig** Volksbefragungen durchgeführt, um die Bürger Varosiens bei der Gesetzgebung mitentscheiden zu lassen.*

*Die Regierung genießt ein **[schlechtes] gutes** Ansehen bei der Bevölkerung. Aus Meinungsumfragen kann geschlossen werden, dass 70% der Bürger mit der aktuellen Regierung **[nicht]** zufrieden sind.*

*Innerhalb des Landes ist die Steuerlast **[nicht]** gerecht über die verschiedenen Berufsgruppen und Einkommensklassen verteilt. Unter Varosiens Bürgern herrscht **[nicht]** die Meinung vor, dass jeder seinen Beitrag an Steuern leisten muss.*

*Die Gesetzgebung in Varosien ist **[nicht]** transparent und die Regierung bietet **[keine] die** Möglichkeit, sich bei Rechts- und Steuerfragen an kostenlose Informationsstellen zu wenden. Außerdem sind die Behörden in Varosien **[wenig] sehr** service-orientiert und **[nicht]** daran interessiert, die Bürger Varosiens zu unterstützen.*

Die Budgetausgaben des Staates sind für die Bürger Varosiens **[nicht]** nachvollziehbar, denn sie werden **[nicht] regelmäßig durch ein übersichtliches Amtsblatt** über die Verwendung der Steuergelder informiert. Bei einer Meinungsumfrage im Oktober 2007 gaben 78% der Bürger Varosiens an, den Eindruck zu haben, ihre Steuergelder würden **[nicht]** sinnvoll genutzt.

Außerdem werden sehr **[viele] wenige** Steuergelder von den Politikern veruntreut. Entsprechend einem internationalen Korruptions-Index (CPI) ist Varosien eines der europäischen Länder mit der **[höchsten] geringsten** wahrgenommenen Korruptionsrate.

All diese Faktoren führen dazu, dass die Bürger dem Staat Varosien **[wenig] sehr** vertrauen.

Furthermore the descriptions were adapted to the manipulation of tax authorities' power ([low high]):

Die Verfolgung von Steuersündern ist **[nicht]** sehr effektiv. Aufgrund der Steuergesetzgebung ist es für den Staat **[schwierig] einfach**, Steuerkontrollen bei seinen Bürgern durchzuführen und somit Steuerhinterzieher zu verfolgen.

Seitens der Regierung wird der Steuerbehörde ein **[geringes] hohes** Budget zur Verfügung gestellt, um Steuerhinterziehung zu ahnden. Durch die vorhandenen Mittel ist es den Steuerbehörden Varosiens **[nicht]** möglich, qualifizierte Finanzbeamte anzustellen. Zudem werden die Mitarbeiter der Steuerbehörden von Varosiens Bürgern als **[wenig] sehr** präsent wahrgenommen.

Die Steuerprüfwahrscheinlichkeit für Selbständige ist in Varosien sehr **[gering] hoch**, das heißt Selbständige werden **nicht sehr** häufig überprüft. Deshalb können auch **[nicht]** sehr viele der begangenen Steuerdelikte aufgedeckt werden. Zudem sind die Strafen für Steuerhinterziehung in Varosien **[nicht]** sehr streng. Werden Steuerhinterzieher aufgedeckt, müssen sie **[nicht]** mit empfindlichen Strafen rechnen. Die Steuerbehörde lässt bei Steuerhinterziehung **[..] keine** Milde walten.

Aus diesen Gründen, wird der Staat Varosien von seinen Bürgern als **[wenig] sehr** mächtig beurteilt.

9. Vierter Beitrag: Freiwillige und erzwungene Kooperation in sozialen Dilemmata: Das Slippery Slope Modell im öffentlichen Verkehr

Zusammenfassung

In sozialen Dilemmata (z. B. Steuern bezahlen vs. Steuern hinterziehen, Fahrschein kaufen vs. Schwarzfahren) könnte Kooperation freiwillig oder erzwungen sein. Laut dem Slippery Slope Modell aus der Steuerpsychologie entsteht freiwillige Kooperation durch Vertrauen in die Autoritäten und erzwungene Kooperation durch die Macht der Autoritäten, zu kontrollieren und zu bestrafen. Der Intention freiwillig oder erzwungen zu kooperieren liegen demnach unterschiedliche Motive zu Grunde. In der vorliegenden Studie wurde versucht, die Annahmen des Slippery Slope Modells aus der Steuerpsychologie auf ein anderes soziales Dilemma zu übertragen: Jenes des Fahrscheinkaufs beziehungsweise des Schwarzfahrens. Die Untersuchung wurde mittels Online-Fragebogen (N = 110) durchgeführt. Die Ergebnisse zeigen, dass FahrgästInnen der Wiener Verkehrsbetriebe, bei hohem Vertrauen in die Autoritäten freiwillig kooperieren, während sie bei hoher wahrgenommener Macht der Autoritäten kooperieren, wenn sie dazu gezwungen werden. Es zeigte sich, dass Personen, die vertrauen und freiwillig kooperieren, auch dann Fahrscheine kaufen, wenn sie glauben, ungestraft schwarzfahren zu können. Personen, welche die Autoritäten als mächtig wahrnehmen, verhalten sich in dieser Situation hingegen strategisch und fahren schwarz. Die Ergebnisse belegen, dass freiwilliger und erzwungener Kooperation gegensätzliche Motive zu Grunde liegen.

Schlüsselwörter: Kooperation – soziale Dilemmata – Slippery Slope Modell – Schwarzfahren – Macht – Vertrauen – Steuern

Summary

In social dilemmas (e. g. paying taxes vs. evading taxes, buying tickets for public transport vs. dodging fares) cooperation could be voluntary or enforced. According to the Slippery Slope Framework – established in tax psychology – voluntary cooperation results from trust in authorities, whereas enforced cooperation originates from authorities' power to monitor and punish. Thus, the intentions to cooperate voluntarily or enforced have different underlying motives. In the present study we applied the Slippery Slope Framework to another social dilemma: The dilemma of buying a ticket for public transport or of dodging fares. An online-questionnaire (N = 110) was conducted. Results show that trusting passengers cooperate voluntarily while, in the case of perceived power of authorities, passengers cooperate if they are enforced to do so. It has been shown that passengers who trust and cooperate voluntarily even buy tickets when they believe that they could dodge fares without punishment. However, passengers who perceive authorities as powerful behave strategically in such situations and dodge fares. Results indicate that voluntary and enforced cooperation base on different motives.

Key words: cooperation – social dilemmas – slippery slope Framework – fare evasion – fare dodging – power – trust – taxes

Einleitung

Im Jahr 2008 wurden von den Wiener Linien insgesamt 138,053 SchwarzfahrerInnen bei Kontrollen aufgedeckt (heute.at, 2009). Dabei transportieren die Wiener Linien 2005 täglich mehr als zwei Millionen FahrgästInnen, wobei sich der Jahresgesamtwert auf rund 746.8 Millionen FahrgästInnen belief (Wiener Stadtwerke, 2007). Jedoch durchliefen nur 3.34 Millionen KundInnen der Wiener Linien zwischen Januar und Oktober 2009 eine Fahrscheinkontrolle (heute.at, 2009). Schon 1998 schätzten die Wiener Verkehrsbetriebe, dass 15 Prozent der FahrgästInnen ohne ordnungsgemäß gelösten Fahrschein die Verkehrsmittel benutzten (Hubmayr, 2000). Der jährliche Verlust durch Schwarzfahren wurde damals auf über sieben Millionen Euro geschätzt (Hubmayr, 2000).

Nicht nur in Wien, sondern auch international, verlieren die Betreiber öffentlicher Verkehrsmittel durch Schwarzfahren Einnahmen. In Amsterdam wurde 1991 angenommen, dass 13 – 33 Prozent der FahrgästInnen schwarzfahren (Nahuis, 2009). Eine Broschüre zur gezielten Erfassung von SchwarzfahrerInnen berichtet, dass deutschen Nahverkehrsbetreibern jährlich mehr als 250 Millionen Euro an Einnahmen durch Schwarzfahren entgehen (IRR Deutschland, 2005). In Großbritannien belief sich der jährliche Verlust durch SchwarzfahrerInnen auf über 200 Millionen Pfund (Department for Transport, 2005). Allein für die Londoner U-Bahn wurde, vor Einführung der automatischen Schranken, der jährliche Verlust durch Schwarzfahren auf beinahe 40 Millionen Pfund geschätzt (Cubic Transportation Systems, 2005). In Anbetracht der wenigen Kontrollen und geringen Strafen (z. B. Wien: 67.80 Euro plus 2.20 Euro für einen gültigen Fahrschein, London: 70 Pfund; Wiener Linien, 2009; Transport for London, 2009) sind diese Zahlen dennoch als niedrig einzustufen und legen nahe, dass viele FahrgästInnen Fahrscheine erwerben.

Bei der Entscheidung einen Fahrschein zu kaufen oder schwarz zu fahren, wägen FahrgästInnen den kollektiven Nutzen des Fahrscheinkaufs mit ihrem individuellen Nutzen durch Schwarzfahren ab. Kooperieren die FahrgästInnen und bezahlen sie ihren Fahrschein, dann kann das öffentliche Verkehrsnetz finanziert werden. Dies stellt den höchsten gemeinschaftlichen Gewinn aller FahrgästInnen dar. Entscheiden sich die FahrgästInnen hingegen dafür, nicht zu kooperieren und schwarz zu fahren, dann entsteht der höchste persönliche Gewinn. Jedoch kann das gemeinschaftliche Gut nicht auf Dauer zur Verfügung gestellt werden, wenn zu viele Personen

egoistisch handeln. In der Literatur werden solche Situationen (z. B. Fahrscheinkauf vs. Schwarzfahren, Steuern bezahlen vs. Steuerhinterziehung) als soziale Dilemmata bezeichnet (Dawes, 1980; Dawes & Messick, 2000).

Bisherige Untersuchungen zu sozialen Dilemmata erforschten vornehmlich den Einfluss einzelner Variablen. Dabei zeigte sich, dass sowohl psychologische (z. B. soziale Norm zu kooperieren, Partizipation, Vertrauen; Cialdini, Reno & Kallgren, 1990; Fehr & Fischbacher, 2004; Wahl, Muehlbacher & Kirchler, in Druck) als auch ökonomische Variablen (z. B. Strafen für unkooperatives Verhalten; Cinyabuguma, Page & Putterman, 2005; Fehr & Gächter, 2000; Güerker, Irlenbusch & Rockenbach, 2006) die Kooperationsrate erhöhen. Während die untersuchten psychologischen Faktoren Kooperation durch Vertrauen in die Gruppe steigern, scheinen ökonomische Faktoren Kooperation durch Strafen und Kontrollen herzustellen. Durch die unterschiedliche Ausrichtung psychologischer und ökonomischer Faktoren, kann angenommen werden, dass sich qualitativ unterschiedliche Formen der Kooperation ergeben.

Ziel der vorliegenden Studie ist es, den unterschiedlichen Einfluss von vertrauenfördernder (d. h. vorwiegend psychologischer) und maßregelnder (d. h. vorwiegend ökonomischer) Variablen auf die Kooperationsbereitschaft in sozialen Dilemmata zu untersuchen. Dazu wird ein Modell aus der Steuerpsychologie, das verschiedene Qualitäten von Kooperation annimmt, auf das soziale Dilemma einen Fahrschein zu kaufen beziehungsweise schwarz zu fahren übertragen.

Kooperation beim Fahrscheinkauf

Warum manche FahrgästInnen einen Fahrschein lösen und andere schwarzfahren wurde ebenfalls durch psychologische und ökonomische Theorien erklärt. Aus psychologischer Sicht wird zum Beispiel angenommen, dass die soziale Norm, einen Fahrschein zu kaufen, FahrgästInnen dazu motiviert kooperativ zu handeln und sie tendenziell freiwillig kooperieren (Hubmayr, 2000; Nahuis, 2005, 2009). Als weitere psychologische Erklärung für den Kauf eines Fahrscheins wird eine gute Serviceorientierung der Verkehrsbetriebe genannt, die FahrgästInnen dazu motiviert, sich ihrerseits kooperativ zu verhalten (Nahuis, 2005, 2009; Wiener Zeitung, 2008). Ökonomische Erklärungsansätze nehmen an, dass hohe Kooperation beim Fahrscheinkauf durch hohe wahrgenommene und tatsächliche Kontrollwahrscheinlichkeiten sowie durch hohe Strafen erreicht wird (Boyd, Martini, Rickard & Russell, 1989; Kooreman, 1993). Jedoch sind die

Kontrollwahrscheinlichkeiten und Strafen für Schwarzfahren in allen Europäischen Ländern gering und können die hohe Kooperationsrate beim Fahrscheinkauf nicht ausreichend erklären. Daher kann geschlossen werden, dass es neben den ökonomischen Faktoren, die Kooperation erzwingen, auch andere Faktoren gibt, die die Kooperationswahrscheinlichkeit erhöhen.

Das Slippery Slope Modell der Steuerpsychologie

Bis auf ein Modell aus der Steuerpsychologie berücksichtigte die bisherige Forschung zu sozialen Dilemmata den Unterschied zwischen psychologischen und ökonomischen Variablen, die Kooperation beeinflussen, kaum. Das Slippery Slope Modell aus der Steuerpsychologie schlägt vor, dass sowohl psychologische als auch ökonomische Faktoren die Ehrlichkeit bei Steuerzahlungen (d. h. die Kooperation der SteuerzahlerInnen) erhöhen (Kirchler, 2007; Kirchler, Hoelzl & Wahl, 2008). Dabei wird angenommen, dass psychologische Variablen, wie subjektives Wissen über Steuern, positive Einstellungen zu Steuern, die Norm zu kooperieren und wahrgenommene Gerechtigkeit des Steuersystems, das Vertrauen in die Autoritäten erhöht. Vertrauen in die Autoritäten ist durch die allgemeine Annahme der SteuerzahlerInnen gekennzeichnet, dass die Autoritäten wohlwollend sind und das gemeinsame Gut fördern (Kirchler et al., 2008). Im Gegensatz dazu werden ökonomische Variablen – hohe Kontrollwahrscheinlichkeit, hohe Steuerrate und hohe Strafen (Allingham & Sandmo, 1972; Srinivasan, 1973) – mit Macht der Autoritäten assoziiert. Dabei wird die Macht der Autoritäten als wahrgenommene Bestrafungsmacht (French & Raven, 1959) definiert. Somit umfasst Macht die durch die SteuerzahlerInnen wahrgenommenen Möglichkeiten der Autoritäten, unkooperative Personen zu entdecken und zu bestrafen. Generell beinhaltet das Modell drei Dimensionen: (a) Vertrauen in die Autoritäten (d. h. psychologische Variablen), (b) Macht der Autoritäten (d. h. ökonomische Variablen) und (c) Kooperationsintention. Die Dimension Kooperationsintention wird laut Modell sowohl durch Vertrauen in die Autoritäten als auch durch die Macht der Autoritäten beeinflusst.

Wenn minimales Vertrauen und minimale Macht vorherrschen, ist auch die resultierende Kooperationsintention minimal. Wenn jedoch Vertrauen in die Autoritäten oder die Macht der Autoritäten steigt, steigt auch die Wahrscheinlichkeit der Kooperation. Obwohl Vertrauen und Macht Kooperation fördern, nimmt das Slippery Slope Modell verschiedene Qualitäten dieser Kooperation an. Vertrauen die BürgerInnen den Autoritäten, resultiert freiwillige Kooperation. Spielen aber die

Autoritäten ihre Macht aus und werden die Autoritäten auch als mächtig wahrgenommen, kommt es zu erzwungener Kooperation. Abbildung 1 zeigt die Interaktion der drei Dimensionen des Slippery Slope Modells.

[Abbildung 1 hier einfügen]

Auf der Vertrauensseite des Slippery Slope Modells wird angenommen, dass SteuerzahlerInnen, die den Autoritäten vertrauen, dazu tendieren, spontan und freiwillig zu kooperieren (Kirchler, 2007; Kirchler et al., 2008). Durch ein serviceorientiertes Klima (Braithwaite, 2003b; Kirchler, 2007) und die geringe soziale Distanz zwischen BürgerInnen und Autoritäten (Bogardus, 1928) fühlen sich die SteuerzahlerInnen moralisch verpflichtet, ihren Beitrag zur Gesellschaft zu leisten und befolgen das Gesetz (Forest, 2000; James & Alley, 2002). Dementsprechend gilt Vertrauen in die Regierung als eines der zentralen Konzepte, die für die hohe Kooperation bei Steuerzahlungen in den meisten westlichen Demokratien verantwortlich sind (Lavoie, 2008). Auch Analysen europäischer und weltweiter Umfragen belegen den Zusammenhang zwischen Vertrauen und freiwilliger Kooperation mit den Steuerbehörden (Torgler, 2003; Torgler & Schneider, 2005).

Auf der Machtdimension des Slippery Slope Modells wird angenommen, dass Kontrollen und Strafen, SteuerzahlerInnen dazu anregen rational über ihre Kooperation zu entscheiden (Kirchler, 2007; Kirchler et al., 2008). Bei rationalen Entscheidungen werden mögliche Gewinne und Verluste gegeneinander abgewogen. So berechnen SteuerzahlerInnen einerseits ihre möglichen Gewinne durch Kooperation, und andererseits ihre möglichen Gewinne und Verluste durch Hinterziehung. SteuerzahlerInnen entscheiden sich für Kooperation oder Hinterziehung je nachdem welches Verhalten für sie lukrativer ist. Wenn die Macht der Autoritäten, effektiv zu kontrollieren und im Falle von Fehlverhalten hohe Strafen zu verhängen, hoch ist, lohnt sich Hinterziehung nicht und Kooperation wird mehr oder minder erzwungen (Forest, 2000; James & Alley, 2002).

Obwohl angenommen wird, dass Vertrauen und Macht in qualitativ unterschiedliche Formen von Kooperation resultieren, nimmt das Slippery Slope Modell an, dass Vertrauen und Macht zusammenhängen und sich gegenseitig beeinflussen (Kirchler, 2007; Kirchler et al., 2008). So zeigte sich einerseits, dass zu geringe Strafen und zu wenige Kontrollen Vertrauen verringern. Um das vorhandene Vertrauen nicht zu untergraben, sollten Autoritäten darauf achten, dass ihre

Maßregelungen als fair wahrgenommen werden. Jedoch sollte darauf geachtet werden, dass die Kooperation jener erzwungen wird, die nicht freiwillig kooperieren wollen (Lavoie, 2008). Andererseits jedoch können auch vermehrte Kontrollen Misstrauen signalisieren und damit Vertrauen und in Folge Kooperation bei Steuerzahlungen vermindern (Falk & Kosfeld, 2004). Es zeigte sich zum Beispiel, dass strengere Vorgangsweisen bei der Einhebung von Strafen für Schwarzfahren weniger effektiv sind als moderatere Methoden (Bijleveld, 2007). Die gegenseitige Beeinflussung von Vertrauen und Macht könnte die widersprüchlichen Befunde (Andreoni, Erard & Feinstein, 1998; Fischer, Wartick & Mark, 1992; Frey, 2003) zu Strafen und Kontrollen im Steuerbereich erklären. Auch Mittone (2006) berichtet, dass bei Steuerexperimenten direkt nach einer Kontrolle die Kooperation abnimmt und dass erst im weiteren Verlauf der Experimente die Kooperation langsam wieder zunimmt. Diese Reaktion deutet auf strategisches Verhalten hin, bei dem die SteuerzahlerInnen annehmen, dass nach einer Kontrolle die Kontrollwahrscheinlichkeit für einige Zeit abnimmt (Kastlunger, Kirchler, Mittone & Pitters, 2009). Im Gegensatz zu erzwungener Kooperation, wird angenommen, dass sich bei freiwilliger Kooperation weniger strategisches Verhalten zeigt, weil sich SteuerzahlerInnen verpflichtet fühlen, ihre Steuerschuld zu begleichen. Dies spiegelt die unterschiedliche Qualität freiwilliger und erzwungener Kooperation wider und lässt darauf schließen, dass diese beiden Formen der Kooperation unterschiedlich motiviert sind (Wahl, Kastlunger & Kirchler, eingereicht).

Motive für Kooperation im Steuerkontext

Frühere Untersuchungen zu Kooperation im Steuerbereich argumentierten, dass der Intention freiwillig oder erzwungen zu kooperieren verschiedene Motive zu Grunde liegen (Kirchler & Wahl, eingereicht). Braithwaite (2003a; 2009) nimmt an, dass Kooperation im Steuerkontext auf fünf Motivmustern beruht. Dabei werden positive und negative Motive Steuern abzuführen unterschieden. Die beiden positiven Motive, Verbindlichkeit und Kapitulation, werden unter Ehrerbietung (d. h. deference) zusammengefasst, während die drei negativen Motive Widerstand, Loslösung und Spielen Missachtung (d. h. defiance) darstellen. Handeln SteuerzahlerInnen nach dem Motiv Verbindlichkeit (d. h. commitment), dann bezahlen sie ihre Steuern ehrlich, weil sie an die Funktionalität des Steuersystems glauben und weil sie eine moralische Verpflichtung verspüren, im Interesse der Gesellschaft zu handeln. Werden Steuern auf Grund der Akzeptanz der Autoritäten als freundliche Macht ehrlich abgeführt, kommt das Motiv Kapitulation (d. h.

capitulation) zum Tragen. Widerstand (d. h. resistance) stellt eine negative Haltung dar, bei der SteuerzahlerInnen die Kooperationswilligkeit und Freundlichkeit der Autoritäten bezweifeln und versuchen, deren Macht zu untergraben. Das Motiv Loslösung (d. h. disengagement) beschreibt widerständige SteuerzahlerInnen, die in der Auflehnung keinen Sinn mehr sehen. Werden Gesetze zum eigenen Vorteil ausgelegt, zeigen SteuerzahlerInnen das Motiv Spielen (d. h. game playing).

Frühere Studien (Kirchler & Wahl, eingereicht) zeigten einerseits, dass freiwillige Kooperation positiv mit den Motiven, die unter Ehrerbietung zusammengefasst sind, korreliert. Andererseits wurde ein negativer Zusammenhang zwischen freiwilliger Kooperation und den Motiven zu Missachtung gefunden. Ein gegenteiliges Bild wurde für erzwungene Kooperation angenommen: Eine negative Korrelation mit den Motiven zu Ehrerbietung und eine positive Korrelation mit den Motiven zu Missachtung (Kirchler & Wahl, eingereicht).

Anhand des sozialen Dilemmas des Fahrscheinkaufs wird in dieser Studie untersucht, ob die Annahmen des Slippery Slope Modells aus der Steuerpsychologie auf andere soziale Dilemmata übertragen werden können. Es wird ein positiver Zusammenhang zwischen Vertrauen in die Autoritäten und freiwilliger Kooperation und zwischen Macht der Autoritäten und erzwungener Kooperation angenommen. Weiters wird erwartet, dass sowohl Vertrauen als auch freiwillige Kooperation strategisches Verhalten vermindert, während Macht und erzwungene Kooperation strategisches Verhalten fördern. Schließlich werden Motive, die hinter der Intention freiwillig oder erzwungen zu kooperieren stehen, analysiert.

Methode

Durchführung und TeilnehmerInnen

Die AutorInnen schickten im Februar 2009 ein E-Mail mit einem Link zum Online-Fragebogen an Studierende, die in Wien wohnen und dort die öffentlichen Verkehrsmittel benutzen. Die EmpfängerInnen wurden gebeten den Fragebogen zu beantworten und das E-Mail weiterzuleiten (vgl. Schneeballsystem; Etter & Perneger, 2000).

Insgesamt begannen 147 Personen, den Online-Fragebogen auszufüllen. Jene Personen, die weniger als die Hälfte des Fragebogens beantworteten, wurden aus der Analyse ausgeschlossen (n = 24). Da sich der Erhebungszeitraum auf Februar und der Untersuchungsort auf Wien

begrenzte, wurden Personen, die sich im Februar nicht in Wien aufhielten aus der Analyse ausgeschlossen (n = 13).

Schließlich wurden Daten von 110 Personen (29 Männer, 73 Frauen, 8 Personen gaben keine Auskunft über ihr Geschlecht; mittleres Alter = 27.49 Jahre, SD = 8.78, Md = 25.00) analysiert.

Material

Eine Liste der im Online-Fragebogen verwendeten Fragen ist im Appendix abgebildet. Der Online-Fragebogen enthielt acht Items zum Vertrauen in die Wiener Linien (z. B. „Die Fahrgäste der Wiener Linien fühlen sich mit den Wiener Linien verbunden.“) und acht Items zur Macht der Wiener Linien (z. B. „Die KontrolleurlInnen der Wiener Linien sind sehr streng.“). Weiters wurden jeweils fünf Fragen der von Kirchler und Wahl (eingereicht) gebildeten Skalen zur Intention freiwillig zu kooperieren und erzwungen zu kooperieren² aus der Steuerliteratur entnommen und hinsichtlich Schwarzfahren neu formuliert und in den Fragebogen aufgenommen (z. B. freiwillige Kooperation: „Wenn ich meinen Fahrschein vorschriftsmäßig kaufe, dann tue ich das auch dann, wenn es keine Kontrollen gäbe.“; erzwungene Kooperation: „Wenn ich meinen Fahrschein vorschriftsmäßig kaufe, dann tue ich das, weil Schwarzfahren sehr streng bestraft wird.“). Um das strategische Verhalten der FahrgästInnen zu erfassen, gaben die TeilnehmerInnen für fünf verschiedene Situationen, in denen kaum eine Kontrolle stattfinden wird, an, wie wahrscheinlich sie einen Fahrschein kaufen würden (z. B. „Sie haben vor, die Linie, auf der gestern kontrolliert wurde, zu benutzen. Wie wahrscheinlich würden Sie sich für die nächste Fahrt einen Fahrschein kaufen?“). Anschließend beantworteten die TeilnehmerInnen Fragen zu den Motiven ihres Verhaltens (vgl. Braithwaite, 2003a, 2009), die aus der Steuerpsychologie übernommen und entsprechend neuformuliert wurden. Das Antwortformat der Items war 7stufig (1 – „stimme gar nicht zu“ bis 7 – „stimme völlig zu“ bzw. von 1 – „sehr wahrscheinlich“ bis 7 – „sehr unwahrscheinlich“). Abschließend wurden soziodemographische Daten erhoben. Die durchschnittliche Bearbeitungsdauer des Online-Fragebogens betrug 11.43 Minuten (SD = 5.58). Skalenmittelwerte, Standardabweichungen, Mediane und Cronbach's α der einzelnen Skalen sind in Tabelle 1 abgebildet.

[Tabelle 1 hier einfügen]

² Da eine Frage zu erzwungener Kooperation aus der Kurzversion des Fragebogens nicht auf den öffentlichen Verkehr übertragen werden konnte, wurde ein Item der Vorversion von Kirchler und Wahl (eingereicht) verwendet.

Ergebnisse

Es wurden Korrelationen zwischen den einzelnen Skalen berechnet, da durch die hohe Korrelation zwischen den Regressoren Vertrauen und Macht ($r = -.49$) und Multikollinearitätsprobleme keine multiple Regressionsanalyse durchgeführt werden konnte (vgl.: Multikollinearität; Backhaus, Erichson, Plinke & Weiber, 2006; Leech, Barrett & Morgan, 2005). In Tabelle 2 sind die Pearson-Korrelationen der Skalen Vertrauen, Macht, freiwillige Kooperation, erzwungene Kooperation, strategisches Verhalten, Verbindlichkeit, Kapitulation, Widerstand, Loslösung und Spielen enthalten.

[Tabelle 2 hier einfügen]

Wie angenommen, zeigt sich, dass mit zunehmenden Vertrauen in die Wiener Linien freiwillige Kooperation steigt ($r = .39$; $p < .01$), während mit zunehmender wahrgenommener Macht der Wiener Linien erzwungene Kooperation steigt ($r = .36$; $p < .01$).

Auch die Ergebnisse zu strategischem Verhalten sind größtenteils modellkonform und spiegeln frühere Ergebnisse aus der Steuerpsychologie wider (Kirchler & Wahl, eingereicht). So zeigt sich, dass sich Personen mit hohem Vertrauen in die Wiener Linien tendenziell weniger strategisch verhalten ($r = -.16$; $p = .09$). Auch wenn freiwillig kooperiert wird, tritt weniger strategisches Verhalten auf ($r = -.59$; $p < .01$). Bei steigender Macht steigt das strategische Verhalten ($r = .27$; $p < .01$). Erzwungene Kooperation und strategisches Verhalten korrelieren nicht signifikant ($r = .12$; $p = .23$).

Für die Intention freiwillig zu kooperieren zeigte sich das erwartete Motivmuster, wonach freiwillige Kooperation positiv mit den Motiven zu Ehrerbietung und negativ mit den Motiven zu Missachtung zusammenhängt. Das angenommene gegensätzliche Muster für intendierte erzwungene Kooperation wurde größtenteils in den Daten wiedergefunden. Freiwillige Kooperation hängt positiv mit den Motiven Verbindlichkeit ($r = .77$; $p < .01$) und Kapitulation ($r = .28$; $p < .01$) zusammen. Ein negativer Zusammenhang ergibt sich zwischen freiwilliger Kooperationsintention und den Motiven Widerstand ($r = -.32$; $p < .01$), Loslösung ($r = -.28$; $p < .01$) und Spielen ($r = -.44$; $p < .01$). Dahingegen korreliert erzwungene Kooperation negativ mit Verbindlichkeit ($r = -.26$; $p < .01$). Zwischen erzwungener Kooperation und Kapitulation ergab sich kein signifikanter Zusammenhang

($r = .08$; $p = .45$). Während erzwungene Kooperation und Widerstand ($r = .33$; $p < .01$) signifikant positiv korrelieren, wurde zwischen erzwungener Kooperation und Loslösung nur eine Tendenz einer positiven Korrelation gefunden ($r = .17$; $p < .10$). Schließlich hängen erzwungene Kooperation und das Motiv zu Spielen positiv zusammen ($r = .24$; $p < .05$). Die nicht signifikanten Korrelationen mit den Skalen zu Kapitulation und Loslösung könnten auf die geringen Reliabilitäten dieser Skalen zurückgeführt werden.

Diskussion

In der vorliegenden Studie wurden die Annahmen des Slippery Slope Modells der Steuerpsychologie auf das soziale Dilemma der Kooperation beim Fahrscheinkauf übertragen. Die Ergebnisse stimmen größtenteils mit den Annahmen des Slippery Slope Modells überein. So zeigte sich, dass Vertrauen mit der Intention freiwillig zu kooperieren, und Macht mit der Intention erzwungen zu kooperieren zusammenhängt. Außerdem wurde gezeigt, dass freiwilliger Kooperation eher Motive der Ehrerbietung und weniger Motive der Missachtung zu Grunde liegen, während erzwungene Kooperation weniger mit Motiven der Ehrerbietung und eher mit Motiven der Missachtung assoziiert ist.

Wie aus der Literatur zur Steuerehrlichkeit abgeleitet, zeigt sich in dieser Studie einerseits der positive Zusammenhang zwischen Vertrauen in die Autoritäten und freiwilliger Kooperation (Forest, 2000; James & Alley, 2002; Lavoie, 2008; Torgler, 2003; Torgler & Schneider, 2005). Demnach steigern Freundlichkeit, gute Dienstleistungen und Vertrauenswürdigkeit die Kooperationsrate. Andererseits wird die positive Beziehung zwischen wahrgenommener Macht der Behörden und erzwungener Kooperation bekräftigt (Forest, 2000; James & Alley, 2002). So kann angenommen werden, dass viele und effiziente Kontrollen und hohe Strafen im Falle eines Vergehens die Kooperation erhöhen. Das heißt, dass die Ergebnisse dieser Studie mit früheren Ergebnissen zu psychologischen (d. h.: vertrauenfördernden; Cialdini et al., 1990; Fehr & Fischbacher, 2004; Wahl et al., in Druck) und ökonomischen Faktoren im Steuerkontext (d. h.: maßregelnden; Cinyabuguma et al., 2005; Fehr & Gächter, 2000; Güerker et al., 2006) übereinstimmen. Nachdem auch das Slippery Slope Modell (Kirchler, 2007; Kirchler et al., 2008) von diesen psychologischen und ökonomischen Faktoren ausgeht, kann angenommen werden, dass das Modell auf die Kooperation im öffentlichen Verkehr übertragen werden kann.

Die in der vorliegenden Studie gefundenen Zusammenhänge zwischen Vertrauen, freiwilliger Kooperation, Macht und erzwungener Kooperation mit strategischem Verhalten stimmen mit früheren Studien zu Steuern (Mittone, 2006; Wahl et al., eingereicht) überein. Wenn Personen den Autoritäten vertrauen sowie wenn sie freiwillig kooperieren, dann kaufen sie auch dann einen Fahrschein, wenn sie unkontrolliert schwarzfahren könnten. Demnach ist durch Vertrauen geförderte freiwillige Kooperation auch in Situationen effektiv, in denen ohne Bestrafung Trittbrett gefahren werden könnte. Strafen und Kontrollen können jedoch TrittbrettfahrerInnen nicht abschrecken, sondern erhöhen unkooperatives Verhalten, wenn dies schwer zu ahnden ist. Diese Ergebnisse sind im Einklang mit den Annahmen des Slippery Slope Modells (Kirchler, 2007; Kirchler et al., 2008), wonach Vertrauen die Intention zu spontaner freiwilliger Kooperation verstärkt, während durch Macht nur dann Kooperation erzwungen werden kann, wenn Kooperation die rational gesehen günstigste Alternative ist.

Die Analyse freiwilliger und erzwungener Kooperation beim Erwerb eines Fahrscheins ergab die angenommen Zusammenhänge (Kirchler & Wahl, eingereicht) mit den zu Grunde liegenden Motiven (Braithwaite, 2003a, 2009). Es zeigte sich, dass FahrgästInnen die freiwillig kooperieren eine moralische Verpflichtung verspüren, im Interesse Aller zu handeln und die Wiener Linien als wohlwollende Autorität wahrnehmen. Sie bezweifeln die guten Absichten der Verantwortlichen der Wiener Linien nicht und versuchen auch nicht Bestimmungen zu ihrem eigenen Vorteil auszulegen. Im Gegensatz dazu, sehen erzwungen kooperierende FahrgästInnen es nicht als ihre moralische Pflicht einen Fahrschein zu lösen und nehmen die Wiener Linien als unkooperativ und unfreundlich wahr. Außerdem versuchen erzwungen kooperierende FahrgästInnen Bestimmungen gemäß ihrer eigenen Interessen zu gestalten. Diese unterschiedlichen Motive zu kooperieren, spiegeln die qualitativen Unterschiede zwischen freiwilliger und erzwungener Kooperation wider, die das Slippery Slope Modell berichtet (Kirchler, 2007; Kirchler et al., 2008).

Aus den Ergebnissen dieser Studie kann abgeleitet werden, dass Autoritäten (z. B. Wiener Linien), die auf Kooperation ihrer KundInnen angewiesen sind, darauf achten sollten, dass sie als vertrauenswürdig wahrgenommen werden. Im Speziellen bedeutet dies für die Wiener Linien, dass sie nicht alle SchwarzfahrerInnen hart bestrafen sollten. Jene SchwarzfahrerInnen, die unabsichtlich keinen Fahrschein gelöst haben, könnten anfänglich verwahrt werden und erst bei wiederholtem Schwarzfahren eine entsprechende Strafe erhalten. Dies könnte dazu führen, dass

die Wiener Linien als vertrauenswürdige Autorität gesehen werden, mit der freiwillig kooperiert wird. Besonders wichtig in diesem Zusammenhang ist, dass die Wiener Linien ein vertrauenförderndes Image vermitteln (z. B. gute Service-KundInnen Orientierung), welches ebenfalls die freiwillige Kooperation fördert. Aktuell gelingt dies den Wiener Linien durch verbilligte Fahrscheinpreise für Bedürftige (Die Presse, 2007). Außerdem berichten Betroffene von einem fairen Umgang der KontrolleurlInnen bei der Einhebung von Strafen (z. B. Hinweis, dass Raten für die Strafe vereinbart werden können). Bei diesem fairen Umgang sollte aber nicht außer acht gelassen werden, dass SchwarzfahrerInnen, die rational ihren Gewinn maximieren wollen, streng bestraft werden, um so deren Kooperation zu erzwingen. Eine zu lasche Bestrafungs- und Kontrollkultur könnte sich auf das Vertrauen der freiwillig kooperierenden FahrgästInnen auswirken und deren Kooperation vermindern, weil die soziale Norm der Kooperation von manchen unterlaufen wird. Der Vorschlag ein Image aufzubauen, das als vertrauenfördernd, jedoch nicht als übermäßig gutherzig wahrgenommen wird, könnte generell auf Autoritäten und Organisationen angewandt werden, bei denen Kooperation für den Erfolg wichtig ist (z. B. Kleinbetriebe; vgl. Kirchler, Hoelzl & Wahl, 2009).

Obwohl das Slippery Slope Modell sowohl auf das soziale Dilemma der Kooperation mit den Steuerbehörden als auch auf die Kooperation beim Fahrscheinkauf angewandt werden kann, ist dies nicht bei allen sozialen Dilemmata der Fall. Zum Beispiel werden Güter, wie Weideflächen und Fischgründe von Gemeinschaften verwendet und gemeinsam verwaltet. Die Verwaltung dieser gemeinsamen Güter erfolgt, ohne dass eine eigene Autorität dahinter steht sondern durch die Mitglieder der Gemeinschaft. Wenn keine Autorität vorhanden ist, kann diese auch keine vertrauenfördernden und maßregelnden Handlungen setzen. In einem solchen Fall müssten einzelne Mitglieder der Gemeinschaft oder die Gemeinschaft im Kollektiv das Vertrauen in die Gemeinschaft aufbauen beziehungsweise die einzelnen Mitglieder kontrollieren und bei unkooperativem Verhalten bestrafen.

Außerdem ist kritisch anzumerken, dass in der vorliegenden Studie Verhaltensintentionen erhoben wurden. Daher ist ein Rückschluss auf tatsächliches Kooperationsverhalten nur eingeschränkt möglich. Jedoch nehmen Ajzen und seine MitarbeiterInnen (Ajzen, 1991, 1985; Fishbein & Ajzen, 1975) an, dass von Intentionen ein Verhalten auszuführen auf reales Verhalten geschlossen werden kann. So konnte gezeigt werden, dass die berichtete Intention, sich sozial

unerwünscht zu verhalten (z. B. lügen, schummeln, Ladendiebstahl), dieses Verhalten vorhersagen konnte (Beck & Ajzen, 1991).

Zusammenfassend lassen die Ergebnisse dieser Studie zum Schwarzfahren darauf schließen, dass die Annahmen des Slippery Slope Modells (Kirchler, 2007; Kirchler et al., 2008) auch auf andere soziale Dilemmata (z. B. Zahlen der Rundfunkgebühr, Umweltschutz) übertragen werden können. Um jedoch die Annahmen des Slippery Slope Modells generalisieren zu können, sollten weitere Studien zu Kooperation in verschiedenen Themenbereichen, sowohl im Feld als auch unter kontrollierten Bedingungen im Labor durchgeführt werden.

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Tabelle 1

Mittelwerte, Standardabweichungen, Mediane und Cronbach's α der Skalen Vertrauen, Macht, freiwillige Kooperation, erzwungene Kooperation, strategisches Verhalten, Verbindlichkeit, Kapitulation, Widerstand, Loslösung und Spielen (vgl. Braithwaite, 2003a, 2009)

	M	SD	Md	Cronbach's α
Vertrauen	3.79	1.08	4.00	.85
Macht	3.54	1.35	3.50	.84
freiwillige Kooperation	4.02	1.60	4.00	.91
erzwungene Kooperation	4.22	1.24	4.27	.65
strategisches Verhalten	2.90	1.90	2.30	.90
Verbindlichkeit	4.44	1.13	4.63	.73
Kapitulation	4.42	1.21	4.50	.32
Widerstand	3.59	1.14	3.60	.64
Loslösung	4.24	1.20	4.25	.43
Spielen	3.20	1.49	3.25	.75

Tabelle 2
 Korrelationen nach Pearson der Skalen Vertrauen, Macht, freiwillige Kooperation, erzwungene Kooperation, strategisches Verhalten, Verbindlichkeit, Kapitulation, Widerstand, Loslösung und Spielen (vgl. Braithwaite, 2003a, 2009)

	Vertrauen	Macht	freiwillige Kooperation	erzwungene Kooperation	strategisches Verhalten	Verbindlichkeit	Kapitulation	Widerstand	Loslösung	Spielen
Vertrauen	1,00									
Macht	-.49	1,00								
freiwillige Kooperation	.39	-.25	1,00							
erzwungene Kooperation	-.17	.36	-.35	1,00						
strategisches Verhalten	-.16	.27	-.59	.12	1,00					
Verbindlichkeit	.42	-.27	.77	-.26	-.48	1,00				
Kapitulation	.43	-.16	.28	.08	-.20	.38	1,00			
Widerstand	-.41	.60	-.32	.33	.21	-.31	-.23	1,00		
Loslösung	-.37	.30	-.28	.17	.33	-.34	-.17	.32	1,00	
Spielen	-.25	.46	-.44	.24	.44	-.41	-.15	.50	.30	1,00

Anmerkungen. Korrelationen gleich oder höher als .16 sind auf einem Niveau von $p < .10$ signifikant, Korrelationen gleich oder höher .20 sind auf einem Niveau von $p < .05$ signifikant und Korrelationen gleich oder höher .25 sind auf einem Niveau von $p < .01$ signifikant.

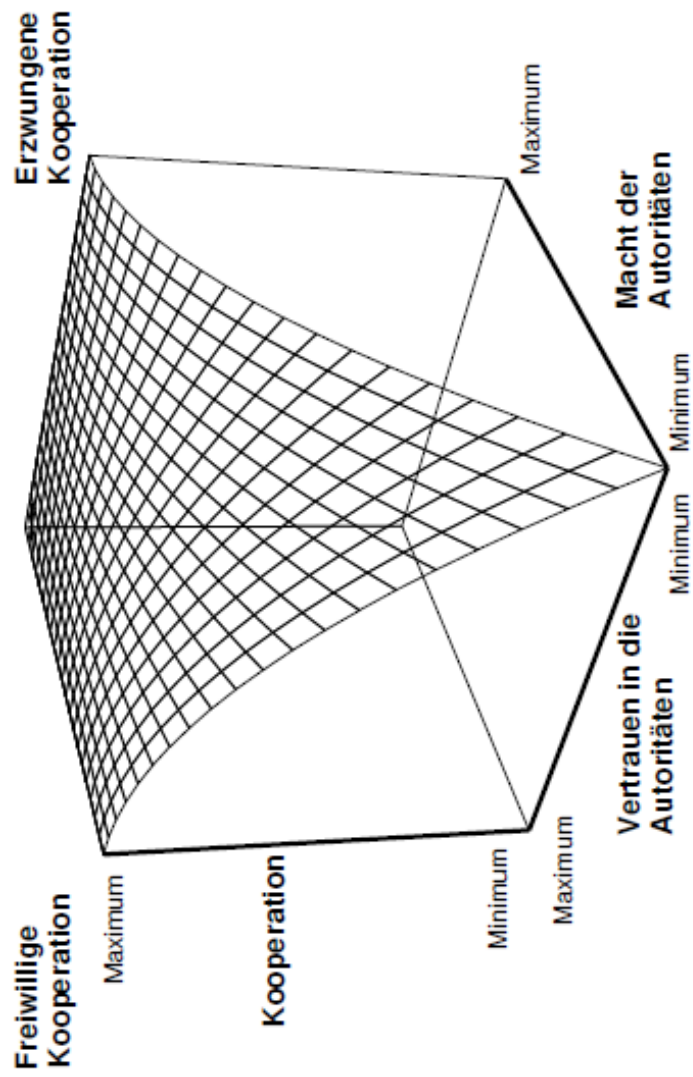


Abbildung 1
Slippery Slope Modell (Kirchler, 2007; Kirchler et al., 2008)

Appendix

Items zu Vertrauen, Macht, freiwilliger Kooperation, erzwungener Kooperation, strategischem Verhalten, Verbindlichkeit, Kapitulation, Widerstand, Loslösung und Spielen (vgl. Braithwaite, 2003a, 2009)

Vertrauen

- Die Fahrgäste der Wiener Linien fühlen sich mit den Wiener Linien verbunden.
- Die Wiener Linien verhalten sich fair gegenüber ihren Fahrgästen.
- Die Wiener Linien sind bei der Einforderung der Strafgebühren fair.
- Die Wiener Linien behandeln ihre Fahrgäste respektvoll.
- Die Fahrgäste vertrauen den Wiener Linien.
- Die Wiener Linien sind vertrauenswürdig.
- Die Wiener Linien handeln im Interesse ihrer Fahrgäste.
- Die Wiener Linien kommen den Wünschen und Anregungen ihrer Fahrgäste nach.

Macht

- Die Wiener Linien sind vor allem darauf aus mich zu bestrafen.
- Die KontrolleureInnen der Wiener Linien suchen so lange, bis sie eine(n) SchwarzfahrerIn gefunden haben.
- Die Wiener Linien greifen zu hart durch.
- Die Wiener Linien gehen stur nach den Vorschriften vor.
- Die Wiener Linien sind mir feindlich gesonnen.
- Die Wiener Linien nutzen ihre Macht zu ihrem Vorteil aus.
- Die Wiener Linien bestrafen mich, egal ob ich absichtlich oder unabsichtlich schwarzgefahren bin.
- Die KontrolleureInnen der Wiener Linien sind sehr streng.

freiwillige Kooperation

- Wenn ich meinen Fahrschein vorschriftsmäßig kaufe, dann tue ich das auch dann, wenn es keine Kontrollen gäbe.
 - Wenn ich meinen Fahrschein vorschriftsmäßig kaufe, dann tue ich das, weil ich gerne zum Wohl Aller beitrage.
 - Wenn ich meinen Fahrschein vorschriftsmäßig kaufe, dann tue ich das, weil es für mich ganz natürlich ist.
 - Wenn ich meinen Fahrschein vorschriftsmäßig kaufe, dann tue ich das, weil ich es als meine Pflicht als Fahrgast ansehe.
 - Wenn ich meinen Fahrschein vorschriftsmäßig kaufe, dann tue ich das, obwohl ich weiß, dass andere das nicht tun.
-

erzwungene Kooperation

- Wenn ich meinen Fahrschein vorschriftsmäßig kaufe, dann tue ich das, obwohl ich am liebsten gar keinen Fahrschein kaufen würde.*
 - Wenn ich meinen Fahrschein vorschriftsmäßig kaufe, dann tue ich das, weil ich nicht genau weiß, wie ich unentdeckt Schwarzfahren kann.
 - Wenn ich meinen Fahrschein vorschriftsmäßig kaufe, dann tue ich das, weil Schwarzfahren sehr streng bestraft wird.
 - Wenn ich meinen Fahrschein vorschriftsmäßig kaufe, dann tue ich das, weil ich annehme, dass ich kontrolliert werde.
 - Wenn ich meinen Fahrschein vorschriftsmäßig kaufe, dann tue ich das nach langem Hin- und Herüberlegen, welche Ticketvariante für mich am günstigsten ist (Umweltkarte, 24Std-Ticket etc.).
-

strategisches Verhalten

- Sie haben vor die Linie, auf der gestern kontrolliert wurde, zu benutzen. Wie wahrscheinlich würden Sie sich für die nächste Fahrt ein Ticket kaufen?
 - Sie haben im Radio gehört, dass auf verschiedenen Linien kontrolliert wird. Die Linie, die sie vorhaben zu benutzen, ist NICHT dabei. Wie wahrscheinlich würden Sie sich für die nächste Fahrt ein Ticket kaufen?
 - Sie haben gerade gesehen, dass Kontrolleure aus der Linie, die Sie benutzen wollen, aussteigen. Wie wahrscheinlich würden Sie sich für die nächste Fahrt ein Ticket kaufen?
 - Sie sind heute bereits beim Schwarzfahren erwischt worden. Wie wahrscheinlich würden Sie sich für die nächste Fahrt ein Ticket kaufen?
 - Sie sind heute bereits kontrolliert worden und hatten einen gültigen Fahrschein. Wie wahrscheinlich würden Sie sich für die nächste Fahrt ein Ticket kaufen?
-

Verbindlichkeit

- Wenn ich meinen Fahrschein bezahle, nützt das letztendlich allen.
 - Seinen Fahrschein zu bezahlen ist eine Verantwortung, die von allen Fahrgästen gerne akzeptiert werden sollte.
 - Ich sehe es als meine Verantwortung, meinen Fahrschein zu bezahlen.
 - Seinen Fahrschein zu bezahlen hilft den Wiener Linien sinnvolle Dinge zu tun.
 - Es gehört sich, einen Fahrschein zu kaufen.
 - Ich fühle mich moralisch verpflichtet, meinen Fahrschein zu bezahlen.
 - Alles in allem bezahle ich gerne meinen Fahrschein.
 - Ich ärgere mich, meinen Fahrschein bezahlen zu müssen.
-

Kapitulation

- Das Konzept der Wiener Linien mag nicht perfekt sein, aber für die meisten Fahrgäste erfüllt es seinen Zweck gut genug.
 - Die beste Strategie ist immer mit den Wiener Linien zu kooperieren, egal ob diese kooperativ sind oder nicht.
-

Widerstand

-
- Unter den Fahrgästen der Wiener Linien sollte es mehr Menschen geben, die sich gegen die Wiener Linien zur Wehr setzen.
 - Wenn mich die Wiener Linien einmal als SchwarzfahrerIn eingestuft haben, werden sie ihre Meinung nicht mehr ändern.
 - Es ist wichtig, sich von den Wiener Linien nicht herumschubsen zu lassen.
 - Die Wiener Linien sind eher daran interessiert, mich zu ertappen, wenn ich etwas falsch gemacht habe, als mich dabei zu unterstützen, alles richtig zu machen.
 - Wenn ich nicht mit den Wiener Linien kooperiere, werden sie härter mit mir umgehen.
-

Loslösung

- Wenn die Wiener Linien härter mit mir umgehen, werde ich weniger kooperieren.
 - Ich persönlich glaube nicht, dass die Wiener Linien viel dagegen tun können, wenn ich meinen Fahrschein nicht bezahlen möchte.
 - Wenn ich bemerke, dass ich nicht exakt das tue, was die Wiener Linien von mir erwarten, bereitet mir das keine schlaflosen Nächte.
 - Mir ist es egal, wenn ich nicht das mache, was die Wiener Linien von mir verlangen.
-

Spielen

- Ich überlege gerne, welche Auswirkungen Veränderungen der Tarifbestimmungen auf mich haben könnten.
 - Ich spreche gerne mit FreundInnen über die Lücken und Schlupflöcher des Kontrollsystems der Wiener Linien.
 - Es macht mir Spaß, die Lücken im Kontrollsystem der Wiener Linien herauszufinden.
 - Ich finde Vergnügen daran, einen Weg zu finden, wie ich meinen Fahrschein nicht oder nur teilweise bezahlen muss.
-

Anmerkungen. * Bezeichnet Items, welche in der Vorversion der Skala erzwungene Ehrlichkeit Kirchler und Wahl (eingereicht), jedoch nicht in der Kurzversion enthalten waren.

10. Fünfter Beitrag: The impact of voting on tax payments

SUMMARY

It is hypothesized that allowing taxpayers to participate in governmental decisions on the use of tax money would increase their cooperation and willingness to pay the tax due. In experiment 1 (N = 97), participants voted between different rules for a public good game and cooperated with their group by contributing to the group account. Cooperation in experiment 2 (N = 119) was defined as the participants' tax payments. The participants were allowed to vote on the use of their tax money. Additionally to the voting manipulation, the participants learned that either they themselves or others would benefit from tax-financed projects. The results from both experiments suggest that voting, i.e., participation, increases cooperation. Whether participants benefited themselves from tax-financed projects or whether others benefited from the projects did matter for participants' tax compliance. Furthermore, the results indicate that more procedural fairness was perceived when allowing for voting and that participants' trust in the governmental system mediates the relation of procedural fairness and tax payments.

ABSTRACT

This study examines whether participating in governmental decisions influences taxpayers' cooperation. The results of experiment 1 show that participants tend to contribute more when they can vote on different rules for a public good game. Experiment 2 reveals that tax payments are lowest in a tax simulation when participants benefit from tax payments and can not vote. However, when the participants did not benefit from tax payments, voting had no impact and cooperation was about the same as when participants benefited and could vote. Furthermore, voting increases procedural fairness and trust mediates the effect of procedural fairness on tax payments.

JEL CODE: H26 (Tax Evasion)

I. INTRODUCTION

Switzerland is often considered as being the country with the highest tax morale within Europe (Alm and Torgler 2006, Muehlbacher et al. 2008). Perhaps the most obvious difference from other nations is that Switzerland's political system is a direct democracy, whereas most countries in the European Union are representative democracies. Therefore, one explanation for Switzerland's high degree of tax morale might be that the opportunity to participate in political decisions enhances the cooperativeness of Swiss citizens. By proposing topics for the government's agenda and by placing their vote in referenda the Swiss are more involved in the development of (tax) laws than citizens in representative democracies. Consequently, citizens feel that the government seriously considers their preferences in a fair decision process (Frey, Benz and Stutzer 2004, Stutzer and Frey 2006). With increasing perceived procedural fairness of the political system, an increase of trust in the government is also likely (Kirchler 2007, Kirchler, Hoelzl and Wahl 2008). The paper at hand studies the effect of voting as the most basic form of political participation on cooperation (experiment 1) and the effect of voting on perceived procedural fairness as well as the mediating effect that trust in the government has on the relation between perceived procedural fairness and tax payments (experiment 2).

II. VOTING AND COOPERATION

Several studies in social dilemma research have varied whether participants were able to vote for or against specific modifications of the experiments' rules. For instance, in a common-pool resource experiment, it was manipulated whether participants could decide by majority vote if the members of their coalition or all the present participants would benefit from payoffs. When voting was possible, cooperation was higher than when voting was not possible (Walker, Gardner, Herr and Ostrom 2000). Cinyabuguma, Page, and Putterman (2005) conducted a public good game and varied whether a majority vote could expel uncooperative group members. Almost full cooperation was achieved when participants could vote.

Similar results are reported by experimental research on tax behavior. Feld and Tyran (2002) manipulated in a tax simulation experiment whether participants decided by majority vote on implementing a penalty for uncooperative behavior or whether the penalty was exogenously

imposed. Participants who could vote contributed more taxes. It is interesting to note that even the mere possibility to vote seems to increase the level of cooperation, regardless of the congruence between one's preference and the majority's decision (Feld and Tyran 2002). When the participants were allowed to discuss prior to voting for harsher enforcement in a tax simulation experiment, tax compliance was higher than before voting (Alm, McClelland and Schulze 1999). Increased tax compliance was also observed when participants were allowed to vote on which public sector expenditure program would be supported by their tax money in a tax simulation experiment than when the support of the same program was imposed on them (Alm, Jackson and McKee 1993). Furthermore, tax compliance was also higher when participants were aware that the chosen program had a considerably higher level of approval than the rejected program (Alm, Jackson and McKee 1993).

A critique on previous experiments, however, concerns the offered alternatives being subject to the voting. Though the alternatives were meant to be equally attractive, one option was often considerably preferred to the others. Hence, the increase in compliance can also be attributed to the attractiveness of the chosen alternative and might not be a consequence of the voting process itself. Therefore, in experiment 1, we try to replicate previous findings on the impact of voting on cooperation by offering our participants two equally attractive alternatives.

III. EXPERIMENT 1

1. Method and data

Participants

A total of 78 women and 24 men (average age = 24.28 years, SD = 4.14; median income = 501 to 1000 euro) participated in the experiment. Of the participants, 5 failed to complete the example tasks described below and were therefore omitted from all further data analysis.

Material

The experimental software z-Tree (Fischbacher 2007) was used to program a public good game. In public good games, participants have to divide an endowment into a private and a group

account. The sum of the contributions to the group account is multiplied by an efficiency factor and redistributed to the members in equal shares.

In the present experiment, the efficiency factor was drawn from one of two different probability distributions. Probability distribution A yielded an efficiency factor of 6 by a chance of 20% and an efficiency factor of 1 by a chance of 80%. Probability distribution B offered a 50:50 chance that the efficiency factor was either 3 or 1. Note that both distributions have equal expected values (i.e., 2.00) and should therefore be equally attractive.

Procedure

A show-up fee of 3.00 euro was provided and the participants were informed that they could increase this amount depending on their performance in the experiment. In each session, 6 to 12 participants played a public good game in groups of 3. The instructions for the public good game were given on computers and the participants were told that their endowment was 100 Experimental Currency Units (ECU; 100 ECU = 3.30 euro) in each period.

From which probability distribution (i.e., A or B) the efficiency factor was drawn was either determined by majority vote in a ballot (voting condition) or by the experimenter (no voting condition). The probability distribution was chosen at the beginning of the experiment; the actual efficiency factor was drawn in each period after the participants had indicated their contributions to the group account.

To ensure that the participants understood the instructions, two example tasks had to be completed before the start of the experiment. For this purpose, the participants had to calculate their own and others' profit for given contributions and efficiency factors. If they were unable to solve these problems by themselves, the experimenter explained the examples orally and in private. Five participants facing such problems proceeded to the next stage of the experiment, but were excluded from the data analysis.

Afterwards, the participants played a public good game for 10 periods. However, they were not informed about the exact number of periods. Each period closed with feedback on the drawn efficiency factor, the sum of contributions to the group account, and the individual profit in the actual period.

After the experiment, the participants were debriefed and received their average profit over all 10 periods ($M = 5.01$ euro, $SD = 1.02$) plus the show-up fee.

IV. RESULTS

1. Attractiveness of alternatives

As expected, the two probability distributions for the efficiency factor were chosen equally often by the 49 participants in the voting condition: 20 participants voted for distribution A and 29 participants voted for distribution B, $\chi^2(1) = 1.65$, $p = .20$. Therefore, both alternatives that participants voted on seem to be equally attractive.

2. Cooperation

Previous experiments have revealed that participants' gender, age, and income affect cooperation (Andreoni, Erard and Feinstein 1998, Kopelman, Weber and Messick 2002). Therefore, in the first step of our analysis, we checked whether gender, age, and income are correlated with participants' average contribution over all periods. Only gender was related to participants' cooperation (Spearman's $Rho = .30$, $p < .01$). Age and income, which varied little, have no effect on cooperation (Spearman's $Rho = -.16$, $p = .13$ and Spearman's $Rho = .03$, $p = .79$, respectively). Based on these results, we control for gender effects in our main analysis.

A repeated measures analysis of covariance confirmed the effect of gender on contributions to the group account, $F(1,94) = 9.71$, $p < .01$; $\eta^2 = .09$. The estimated marginal means of participants' contributions in each period and for both experimental conditions are depicted in Figure 1. Contributions were slightly higher in the voting condition (estimated marginal mean = 51.85, $SE = 2.85$) than in the no voting condition (estimated marginal mean = 45.10, $SE = 2.88$), though the main effect of the experimental conditions was only marginally significant, $F(1,94) = 2.77$, $p = .10$; $\eta^2 = .03$. No interaction between gender and the experimental conditions and no interaction between gender and periods was observed, $F(5.99,563.20) = 0.58$, $p = .75$ and $F(5.99, 563.20) = 1.58$, $p = .15$, respectively; however, contributions decreased over the 10 experimental periods, $F(5.99, 563.20) = 5.86$, $p < .01$; $\eta^2 = .06$.

Insert Figure 1 about here

V. DISCUSSION

In experiment 1, a tendency for stronger cooperation was observed if participants had the chance to vote for one of two alternative rules in a game they played. Although the effect of the experimental manipulation was in the expected direction, the difference was statistically only marginally significant.

One explanation for this finding could lie in the operationalization of voting. The voting procedure was quite complex to follow. To choose one of the two different probability distributions for drawing the efficiency factor might have been too abstract a task to simulate participation in the decision-making process. Therefore, we decided to repeat the experiment in a more realistic setting. Cooperation in experiment 2 is defined as tax compliance and the degree of participation is operationalized as the opportunity to vote for the use of collected tax money.

The idea of studying whether tax compliance depends on how democratically a political system is organized is not entirely new. Several field studies compared cantons in Switzerland with different rights of participation for their citizens (Pommerehne and Weck-Hannemann 1996, Weck-Hannemann and Pommerehne 1989). We aim to replicate these previous findings in a laboratory setting and extend this line of research by two aspects.

First, in addition to manipulating whether participants can vote on different alternatives for the use of their taxes, we introduced as the second independent variable whether participants are beneficiaries from the outcome of the vote or not. We expect that voting upon different public goods or other projects that should be financed by one's taxes has only positive effects on tax compliance if one profits from the outcome of this decision. For instance, for taxpayers living in the countryside, it may be of little importance whether the capital's subway will be extended or the city's bus system will be improved. Offering these taxpayers the choice between these two alternatives should have a smaller effect on their tax compliance than for taxpayers who live in the city, where the public transport system will be improved by their tax money.

Second, in experiment 2, we will explore the underlying mechanisms of the relation between voting and cooperation. Explanations for the positive effect of voting on cooperation could be that voting can be regarded as a form of mutual communication that could increase cooperation

(Kopelman et al. 2002). Also, increasing subjective responsibility for one's community was proposed as an explanation for the positive effects direct democracy has on compliance (Kirchgässner, Feld and Savioz 1999). A different approach suggests that voting improves the relationship between citizens and authorities, because the quality of this relationship depends on the perceived trade-off between rights and duties (Feld and Kirchgässner 2000). The importance of the interaction between taxpayers and authorities was also emphasized by several other authors, who argue that fair and respectful treatment of taxpayers is necessary to maintain compliance (e.g., Braithwaite 2007, Frey, Benz and Stutzer 2004, Feld and Frey 2002, Wenzel 2003). One major determinant of how taxpayers feel treated by authorities concerns perceived procedural fairness when tax laws are enacted. Voting increases perceived procedural fairness and with it also tax morale (Feld and Tyran 2002).

Procedures are perceived as fair if they are consistent over time and people, unbiased, accurate, correctable, representative, and ethical (Leventhal 1980). Furthermore, procedures are perceived as fair if one has the possibility to influence the outcomes of decisions (Leventhal 1976). Even the mere possibility of commenting on decisions' outcomes and other forms of communicating with each other seem to have positive effects on perceived procedural fairness and, in the long run, on cooperation (Bohnet and Frey 1994, Dawes, van de Kragt and Orbell 1990, De Cremer 2007, De Cremer and van Knippenberg 2003, De Cremer and Van Vugt 2002, Frey and Bohnet 1997). Hence, in a first step, we will analyze whether voting increases perceived procedural fairness.

When considering tax compliance, taxpayers cooperate with each other; however, they also cooperate with tax authorities and the government. Additionally to perceiving decision procedures as fair, taxpayers have to trust that authorities will correctly execute and administrate what has been decided (Hammar, Jagers and Nordblom 2009). According to the 'slippery slope framework' for tax compliance (Kirchler 2007, Kirchler et al. 2008), trust in authorities depends on the perceived fairness of the tax system. Hence, in a second step, we will examine whether trust mediates the effect of perceived procedural fairness on cooperation (in terms of tax compliance). Charting this mediation hypothesis results in the model depicted in Figure 3. The following hypotheses can be derived from this model: (i) perceived procedural fairness increases tax payments; (ii) higher perceived procedural fairness increases trust; (iii) higher trust increases tax payments; (iv) trust mediates the effect of perceived procedural fairness on tax payments.

VI. EXPERIMENT 2

1. Method and data

Participants

A total of 77 women and 42 men (average age = 22.72 years, SD = 3.89; median income = 0 to 500 euro) participated in the experiment.

Material

A tax simulation experiment was programmed with the software z-Tree (Fischbacher 2007). In tax simulation experiments, participants learn about their income, their tax due, and the probability that their tax file will be audited. Participants are also told that it is up to them whether to pay the full tax liability. In the case of an audit, however, they would have to pay the missing tax due plus they would be charged a fine.

In the present experiment, a scenario described tax payments being used to finance different projects. In total, a decision had to be made three times between two projects, which supported similar issues (e.g., installation of soundproof windows in the city vs. installation of sound-absorbing asphalt in the city). Which projects would be supported had yet to be decided.

Furthermore, a post-experimental questionnaire was used to measure the procedural fairness of the decision process in five items (e.g., 'Everyone was treated the same, when it came to the decision between the projects,' 1 – strongly disagree to 5 – strongly agree; Cronbach's $\alpha = .93$), and trust in the political system in three items (e.g., 'I trust in the political system of my new country,' 1 – strongly disagree to 5 – strongly agree; Cronbach's $\alpha = .93$).

Procedure

The participants were informed that they were attending a tax simulation experiment, and that they were able to earn money depending on their performance in the experiment (700 ECU = 1.00 euro). To ensure clear decisions by a majority vote in the voting condition, each session consisted of an uneven number of participants, i.e., 3, 5, 7, or 9. The participants were asked to imagine that they had moved to a new country, where from now on they would live, work, and pay taxes.

Instructions for the tax simulation experiment were given on computer screens. The participants learned that they would earn 3,500 ECU in each period and that the tax rate is 40% (1,400 ECU) of their income. The audit probability was 10%³ and the fine in the case of evasion was one time the evaded amount. Furthermore, the participants learned about the decision that should be made between the different tax financed projects.

In the voting condition, the country's political system was described as a direct democracy. Consequently, the participants themselves voted three times between two projects. Majority rule decided which of the projects would be realized in each session. The participants received feedback on the chosen projects and about the percentage of participants supporting the chosen alternative. By contrast, in the no voting condition, the country's political system was described as a monarchy. Therefore, the participants had no choices to make, but received feedback on the authority's decision upon the projects financed by tax money.

Before the three projects were chosen, however, the participants in the self-benefit condition were told they themselves would profit from the tax-financed projects (e.g., because they live in the city and therefore they would profit from the soundproof windows as well as from the sound-absorbing asphalt). By contrast, participants in the others benefit condition learned that the tax-financed projects would serve none of their purposes (e.g., because they live in the countryside and therefore both the soundproof windows and the sound-absorbing asphalt are useless to them).

After reading the scenarios, the participants completed example tasks on calculating the consequences of different tax compliance decisions. For this purpose, they should calculate the outcomes of a given amount of evasion in the case that the respective tax file would be audited and in the case that tax evasion would remain undetected because no audit occurred. The experimenter explained the correct solution to participants with problems in solving these tasks.

After the choices between the projects had been made and the example task had been successfully completed, the participants indicated how much tax they pay in the respective period. At the end of each period, the participants learned whether an audit had occurred, whether a fine had to be paid, and how much individual profit they had made in this period. This stage of the

¹. In fact, to balance the effect of audits on tax compliance in consecutive periods (cf., Kastlunger, Kirchler, Mittone and Pitters 2009), audits were randomly chosen before the experiment and occurred in the fourth and in the sixteenth periods in all the experimental conditions.

experiment lasted for 20 periods; however, the participants were not informed for how many periods the experiment would last.

Afterwards, the participants answered the post-experimental questionnaire measuring the procedural fairness of the decision process and trust in the political system. At the end of the experiment, the participants were debriefed and received their average profit over the 20 periods ($M = 3.71$ euro, $SD = 0.47$).

VII. RESULTS

1. Attractiveness of alternatives

In two out of the three decisions on tax-financed projects, the 60 participants in the voting condition found the projects to be equally attractive. Regarding the projects of the first decision, 24 participants chose to build parking garages and 36 participants chose to reduce parking charges, $\chi^2(1) = 2.40$, $p = .12$. Concerning the second decision, 30 participants chose to install soundproof windows in the city and 30 participants chose to install sound-absorbing asphalt in the city, $\chi^2(1) = 0.00$, $p = 1.00$. For the third pair of projects, however, one option was significantly preferred to the other. Only 18 participants chose to build an information center for start-up entrepreneurs whereas 42 participants chose to finance job training for start-up entrepreneurs, $\chi^2(1) = 9.60$, $p < .01$.

2. Tax payments

The first step of our analysis was again to check for potential covariates of cooperation in terms of tax payments. As in experiment 1, the average tax payments over all the periods were correlated with gender, although the correlation is only marginally significant (Spearman's $Rho = -.17$, $p = .07$). Age and income were not correlated with mean tax payments (Spearman's $Rho = .11$, $p = .22$ and Spearman's $Rho = -.08$, $p = .40$, respectively). Thus, we control for gender in our further analyses.

A repeated measures analysis of covariance could not confirm the effect of gender as a covariate on tax payments in the 20 periods, $F(1,114) = 1.14$, $p = .29$. The estimated marginal means for tax payments in each period are shown in Figure 2.

Both the main effects of the experimental conditions were significant (voting vs. no voting: $F(1,114) = 9.80$, $p < .01$; $\eta^2 = .08$; self benefit vs. others benefit: $F(1,114) = 4.60$, $p < .05$; $\eta^2 = .04$).

However, these main effects should not be interpreted because of the observed significant interaction of the experimental conditions, $F(1,114) = 6.37, p < .05; \eta^2 = .05$. A simple contrast analysis (cf., Page, Braver and MacKinnon 2003) revealed that, compared with the three other conditions, tax payments were lower when the participants themselves were the beneficiaries of the projects, but the country's authority had chosen for them which project will be financed by their taxes (estimated marginal mean = 513.10, SE = 73.68; voting and self-benefit condition contrast estimate = 392.20, $p < .01$; no voting and others benefit condition contrast estimate = 326.65, $p < .01$; voting and others benefit condition contrast estimate = 366.24, $p < .01$). Surprisingly, the remaining experimental conditions seem not to differ (cf., Figure 2). Tax payments were about the same, regardless of whether the participants benefited from the projects themselves and had the chance to vote between different alternatives (estimated marginal mean = 905.29, SE = 69.60), whether others were the beneficiaries of the tax-financed projects and an authority decided between the options (estimated marginal mean = 839.74, SE = 67.00), or whether others were the beneficiaries, but the participants voted upon the options (estimated marginal mean = 879.34, SE = 67.35).

The development of tax payments over time differed between the self-benefit condition and the others benefit condition, $F(11.96,1362.90) = 1.77, p < .05; \eta^2 = .02$. As shown in Figure 2, tax payments decreased more strongly over the 20 periods of the experiment when the participants did not benefit from their tax money themselves than when they were the beneficiaries of collected taxes.

An interaction of the voting condition and the periods of the experiments as well as between the voting condition, the benefit condition, and the periods could not be observed, $F(11.96,1362.90) = 1.46, p = .13$ and $F(11.96,1362.90) = 1.53, p = .11$, respectively.

Insert Figure 2 about here

3. Procedural fairness

The previous analysis revealed that voting only has an effect when people themselves benefit from the taxes contributed; therefore, all further analysis will solely use the data of the self-benefit condition ($n = 56$).

It was proposed that voting increases perceived procedural fairness. Accordingly, in the voting condition ($M = 5.11$, $SD = 1.25$), higher perceived procedural fairness was reported than in the no voting condition ($M = 2.10$, $SD = 1.17$), $t(54) = 9.30$, $p < .01$.

4. Mediating effect of trust

It was suggested that the relation of perceived procedural fairness and tax payments is mediated by trust in the system. This mediation effect is depicted in Figure 3 and will be analyzed as suggested by Baron and Kenny (1986). When the mediator variable trust is excluded from the analysis, procedural fairness is related to tax payments, $\beta = .41$, $p < .01$. Furthermore, the relation of procedural fairness and trust is significant, $\beta = .71$, $p < .01$. Also, trust and tax payments are positively related, $\beta = .39$, $p = .02$. However, when the mediator is included in the analysis, the relation between procedural fairness and tax payments is no longer significant, $\beta = .13$, $p = .44$. Also, a calculation of the Sobel test supports the assumption that trust mediates the relation between procedural fairness and tax payments, $z = 2.22$, $p = .03$.

Insert Figure 3 about here

VIII. GENERAL DISCUSSION

The findings from both our studies are quite consistent. In experiment 1, we observed a strong tendency for higher cooperation when participants had the opportunity to vote, and in experiment 2, a similar and even more pronounced effect was observed. We attribute the clearer results in the latter study to the fact that we provided participants with an enriched, more realistic context of the social dilemma situation. Presumably, the tax compliance scenarios were understood more easily and were less complex than the abstract decision tasks in experiment 1. Our observations are in line with previous research on the impact of voting or other forms of participation on cooperation and tax compliance (Alm et al. 1993, Cinyabuguma et al. 2005, Feld and Frey 2002, Pommerehne and Weck-Hannemann 1996, Torgler 2005, Weck-Hannemann and Pommerehne 1989).

Based on the aforementioned findings, it seems quite reasonable to expect higher cooperation among citizens in direct democracies than in other, less participative political systems. However, the results from our second experiment suggest that it is important to take into account who benefits from the outcomes of a referendum or a vote. Differences in tax payments arose from

voting only if the offered alternatives were relevant to the voters. Unexpected was the direction of the effect voting had on tax compliance when the participants were the beneficiaries of the tax money. It seems that denying citizens the opportunity to participate in decisions has negative effects rather than the opposite – a positive effect of participation rights on cooperation. An explanation for the interaction we observed is provided by reactance theory (Brehm 1966). If subjectively important agendas are decided by someone else, citizens may experience a constraint of freedom and engage in reactance. Higher tax evasion could be a reaction to one's 'oppression' by the authorities. The behavioral consequence should be especially pronounced if the outcomes of the decision are of high personal relevance.

The mediating effect of trust is in accordance with theory in the tax literature (Kirchler 2007, Kirchler et al. 2008) and with more general organizational theory (Likert 1961). Trust in tax authorities seems to be an important precondition for voluntary tax compliance, and partly depends on the perceived fairness of the tax system. Since trust cannot be directly influenced, tax policy would be well advised to aim at improving fairness for taxpayers. (Procedural) fairness can be enhanced by increasing taxpayers' participation, but merely making tax authorities' decision procedures more transparent might help, too.

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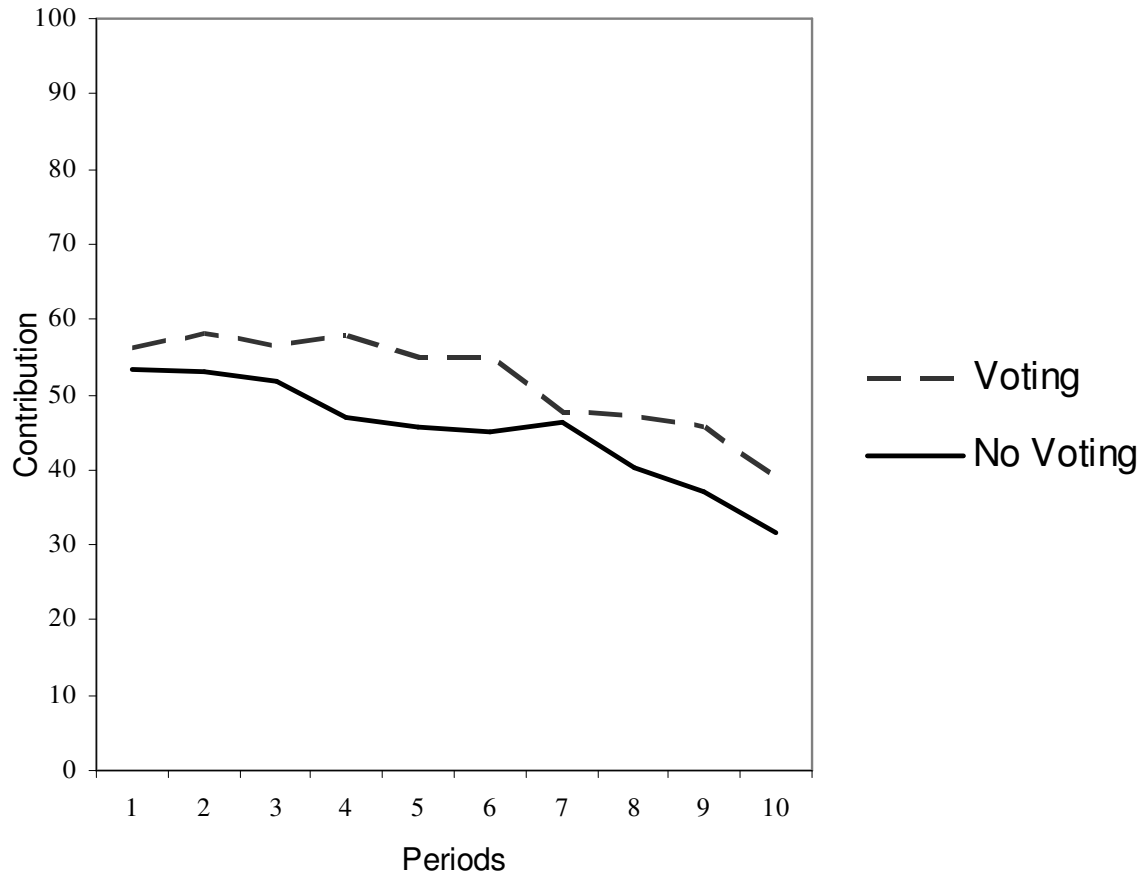
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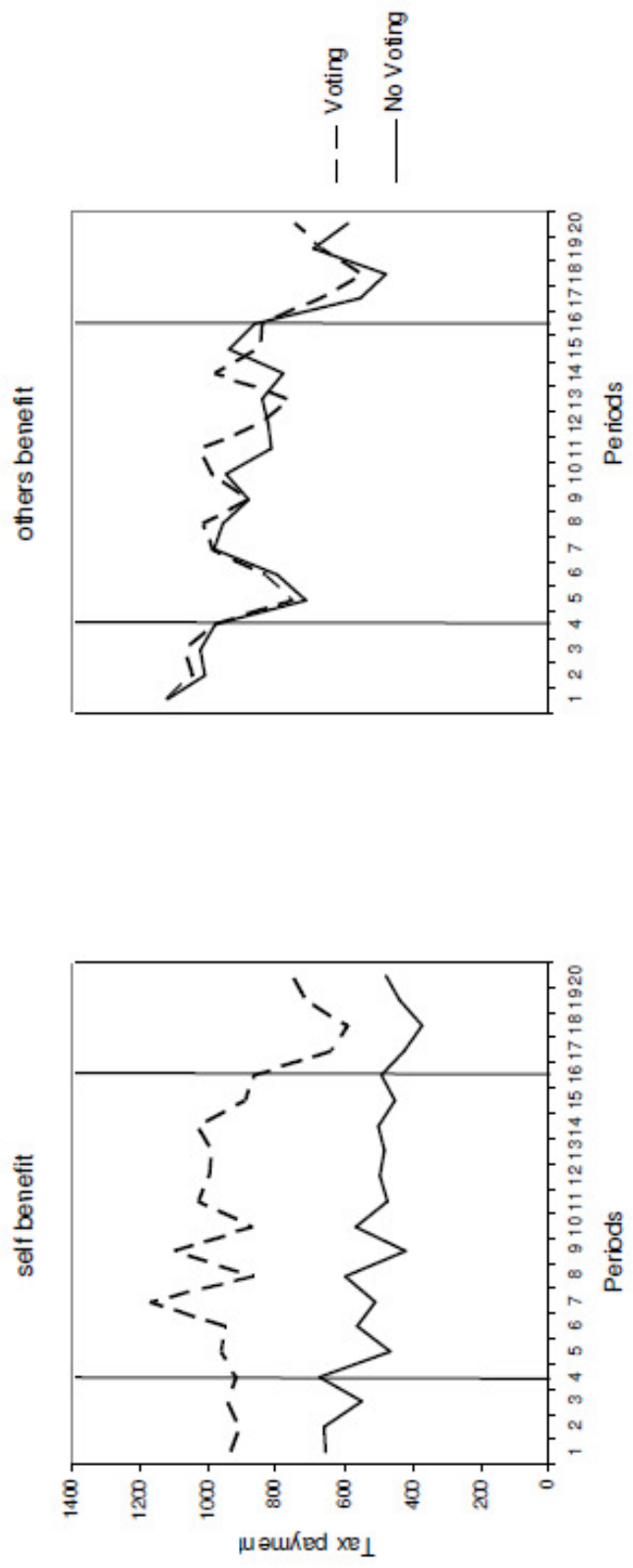
Figure 1

Contributions in 10 periods as a function of voting



Note: Means are controlled for gender.

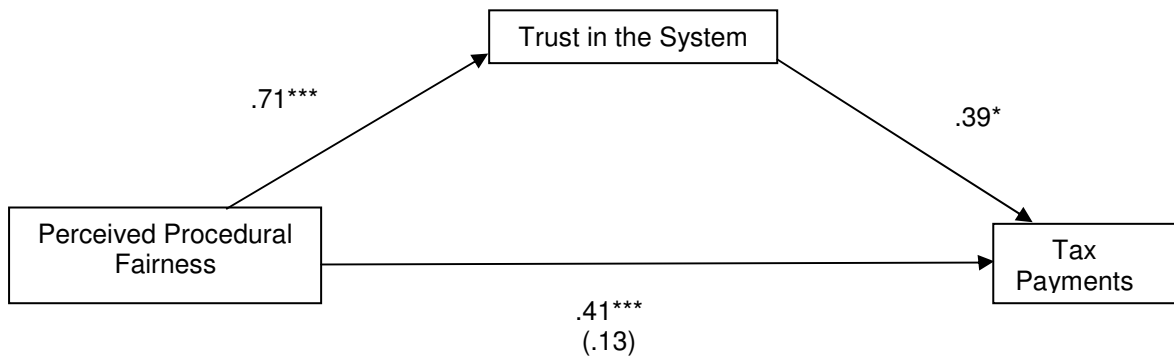
Figure 2
 Tax payments in 20 periods as a function of voting and of who benefits (i.e., self or others) from tax payments



Note: The vertical lines indicate periods after which an audit occurred (period 4 and period 16). Means are controlled for gender.

Figure 3

Relation between perceived procedural fairness and tax payments mediated by trust



Note: *** $p < .001$, * $p < .05$; the number in parentheses indicates the regression coefficient when the mediating variable is included in the analysis.

11. Lebenslauf



Lebenslauf

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Wissenschaftliche Auslandsaufenthalte

2008	2008 EAESP summer school; (17. – 31. August 2008), Cardiff
2007	SoDoc2007; (29. Juni – 1. Juli 2007), Köln
2006	Mannheim Empirical Research Summer School (MERSS); (26. Juni – 7. Juli 2006), Mannheim

Mitgliedschaft in Berufsorganisationen

Seit 2007	Society for Judgement and Decision Making (SJDM)
Seit 2007	European Association of Experimental Social Psychology (EAESP)
Seit 2007	Deutsche Gesellschaft für Psychologie (DGPs)
Seit 2006	International Association for Research in Economic Psychology (IAREP)

Wissenschaftliche Preise und Stipendien

2007	ÖFG – Österreichische Forschungsgemeinschaft
2007	Förderstipendium der Universität Wien
2006	Anerkennungspreis der Dr. Maria Schaumayer Stiftung
2006	Förderstipendium der Universität Wien

Lehre

2007 - 2009	Mitarbeit im „Projektstudium“ und „Forschungsseminar für Fortgeschrittene“ von Prof. Erich Kirchler
2007 - 2009	„Demonstrationen zur Wirtschaftspsychologie“ (Seminar) in Zusammenarbeit mit KollegInnen

Sonstige praktische Kenntnisse

Sprachkenntnisse:	Englisch (in Wort und Schrift) Französisch (Schulkenntnisse) Finnisch (Anfänger)
Computerkenntnisse:	gängige Microsoft Programme (Word, Excel, Frontpage, Powerpoint, Access) HTML, PHP SPSS, AMOS z-Tree
Führerschein:	A, B und F

Hobbies

Reisen
Radfahren
Klettern