unibz
Fakultät für Wirtschaftswissenschaften
Facoltà di Economia
Faculty of Economics and Management

BEMPS –
Bozen Economics & Management
Paper Series

NO 114/ 2025

Culture and Tax Compliance: a lab-in-the-field experiment in South Tyrol

Matthias Cologna, Robin Scheuch

Culture and Tax Compliance: a lab-in-the-field experiment in South Tyrol

Matthias Cologna* Robin Scheuch§

May 2025

Abstract

Cross-cultural research on tax compliance provides two competing explanations for differences in tax paying behavior. The institutional explanation focuses on differences in institutions (e.g., fines, frequency of audits), while the cultural explanation emphasizes differences in culture as an important driver. Contrary to most other studies analyzing differences across countries, we take not only a within-country but a within-region perspective, specifically the Northern Italian region of South Tyrol. Here, two main linguistic - and cultural - groups, German and Italian, co-exist within the same institutional environment. We use a lab-in-the-field experiment with a non-student pool of 190 participants recruited in Bolzano/Bozen, the largest city in South Tyrol. We document that, while the overall level of evasion is similar, there is a difference in tax compliance between the two groups when differentiating between the intensive and extensive margin: Italian speakers evade larger amounts whereas German speakers tend to evade more often. Our experiment is completed by a belief elicitation task and a dice truth-telling game. For both groups perceived tax compliance is lower than actual tax compliance and German speaking taxpayers are perceived to be more compliant. In the dice game, Italian speakers report higher numbers than would be expected from a fair die.

Keywords: Tax Evasion, Culture, Beliefs, Honesty

Jel Classification: H26, D91, C91, C93, R10

*Corresponding Author. Free University of Bozen-Bolzano, mcologna@unibz.it
§Max Planck Institute for Research on Collective Goods & University of Cologne

1 Introduction

Tax evasion is a widespread phenomenon that causes substantial revenue loss for governments. Nonetheless, people generally pay more taxes than classic economics of crime theories would predict (Alingham and Sandmo, 1972). In order to explain experimental findings and real-world data, other ingredients, besides the threat of audits and sanctions, are necessary. Alm (2019) provides an overview of variables affecting tax compliance, such as social norms, institutions, trust and many more.

A topic that gained interest more recently in the literature is cross-cultural research on tax compliance exploring the differences in tax evasion across countries and regions. Most of the results indicate that different institutional settings lead to differences in tax compliance (Guerra and Harrington, 2023; Ottone et al., 2018; Zhang et al., 2016), others regard also cultural differences as the drivers of different levels of tax compliance across countries (Bastani et al., 2020; Torgler and Schneider, 2007).

The goal of this project is to add a piece of evidence to this discussion by analyzing the effect of culture on tax evasion. Whereas many authors analyze cross-country differences (Andrighetto et al. 2016, Alm et al. 2017, Guerra and Harrington 2018, Ottone et al. 2018, Zhang et al. 2016), our study observes not only within-country (D'Attoma 2019, Guerra and Harrington 2023, Macintyre et al. 2023, Malézieux and Torgler 2021) but within-region differences experimentally. More specifically, we are interested if the language group of South Tyrolean citizens influences their tax paying behavior. In order to approach this research question, we exploit the special cultural situation of the Northern Italian region of South Tyrol. Before becoming part of Italy in 1919, South Tyrol was part of the Austro-Hungarian Empire and inhabited predominantly by a German speaking population. After annexation, a major influx of Italian speakers was registered. Nowadays, the population is made of 69% German and 27% Italian speakers (ASTAT, 2024b)[1]. This allows us to observe people from different language groups and with different cultural backgrounds living together in one region under the same institutional environment. Given that institutions like fines and frequency of audits are the same for both language groups, behavioral differences cannot be attributed to them. This allows us to isolate the effect of the language - and cultural - group.

In line with Guiso et al. (2006), we define culture as a relatively stable set of values and beliefs that are transmitted throughout generations within a certain social or ethnic group[2]. Following, among others, Eugster et al. (2011) and Falk et al. (2018) we use language as a proxy for culture. We are aware that language is only one part of culture. As Sutter et al. (2018) point out, unobserved characteristics might confound the interpretation of language as culture. However, language is a part of culture that is measurable objectively and, therefore, can be used to approach a cultural interpretation as close as possible. In addition, with our recruitment strategy explained in depth in chapter 4, we try to minimize potential confounding factors such as the tendency of German speakers to live in rural and of Italian speakers to live in urban areas.

For our experimental approach we use an artefactual field experiment (List and Harrison, 2004), or in other words, a lab-in-the-field experiment. Our sample consists of 190 South Tyrolean taxpayers living in the biggest city of the region, Bolzano/Bozen, who participate in an online experiment. The main explanatory variable, the language group, is determined in three ways. First, the participants choose in which language they wish to conduct the experiment. Second, participants are asked directly with which

[1] Besides the Italian and German language group, there is also the Ladin one which constitutes 4.41% of the population of South Tyrol. Ladins are present mainly in some specific valleys.

[2] "[…] we define culture as those customary beliefs and values that ethnic, religious,
and social groups transmit fairly unchanged from generation to generation." (Guiso et al., 2006, p. 23)

language group they affiliate the most. Third, we combine all the information about the language collected during the experiment in one language index. The experiment consists of four parts. The first part is a voluntary income reporting game (Engel et al., 2020). Participants perform a real-effort task, counting the number of zeros in a matrix with ones and zeros (Abeler et al., 2011), and have to report the gained income in order to pay 30% of taxes. There are no audits and fines in place, only voluntary tax compliance is measured. The second part is an incentivized belief elicitation task. We elicit the equilibrium belief of what participants think about the compliance of German and Italian speaking taxpayers in South Tyrol. In the third part, honesty outside of a taxpaying context is measured with a dice game (Fischbacher and Föllmi-Heusi, 2013). Participants roll a die in private and report the result. The higher their reported result, the higher their payoff[3]. In the fourth part, we ask participants about their knowledge of the tax system, information about their cultural background and other standard demographic questions.

In our sample of 190 participants, 105 are Italian speaking and 85 are German speaking[4]. 67 participants (35%) decide to evade some or all of the taxes. This is a remarkable low number and clearly contradicts predictions from expected utility theory. The overall evasion rate, calculated as the reported income divided by income before taxes, is 20.3%. We do not find significant differences when comparing the overall evasion rate across language groups. When distinguishing between the extensive margin, becoming an evader or not, and the intensive margin, how much taxes are evaded conditional on evading, a pattern emerges. We find that Italian evaders evade significantly more. We also find some evidence that German speakers are more likely to evade. Regarding the beliefs about tax compliance, the perceived share of evaders (85%) and perceived evasion ratio (30%) in the belief elicitation task are higher than in the income reporting game. German taxpayers are perceived, by both language groups, to report higher amounts of income, therefore being more compliant. This result is not fully in line with the previous finding since we do not find a difference of overall evasion rates across groups in the income reporting game. In the dice game, Italian speakers report significantly higher numbers than would be expected from a fair die, while German speakers do not diverge from the expected distribution. Therefore, Italian speakers are more dishonest in reporting the results of their die throw.

We contribute to the literature on tax evasion by providing evidence about the relevance of cultural differences leveraging on an ideal setting, where different well-identified cultural groups co-exist in the same region. Moreover, within the experimental literature on tax evasion, this is one of the few papers that uses a non-student sample of participants, thus enhancing the external validity of the study. Finally, we contribute to the field of research about belief–action consistency in tax compliance by eliciting both actual tax compliance and beliefs about tax compliance.

The remainder of this paper is structured as follows. In section 2 we provide an extensive overview of the related literature. In section 3, we present the research questions and describe the institutional setting of South Tyrol. In section 4 we present our methodology comprising the details of our experiment and identification strategy. In section 5, we present the results, including robustness checks. Section 6 discusses the results and concludes the paper.

[3] payoff scheme slightly modified with respect to the original specification in Fischbacher and Föllmi-Heusi (2013)
[4] information about the language without further explanation in the text uses the direct question about the affiliation to one of the language groups as measure of language

2 Related Literature

2.1 Cross-Cultural Studies

At the most general level, our study is linked to research on the effect of culture on economic decision making. Guiso et al. (2009) provide a meta-study with various survey-based and experimental evidence on the effect of culture on preferences and its translation into behavior. In a survey comprising 76 countries, Falk et al. (2018) find significant cross-country and within-country differences in preferences. In addition, they establish a correlation between those differences in preferences and differences in economic outcomes and behavior. Henrich et al. (2001) conduct experiments using dictator, ultimatum and public goods games in 15 small-scale societies throughout the word. They find substantial differences across societies with all of them deviating from the model of rational self-interested individuals.

We build especially upon the strand of literature that analyzes within-country differences. Many researchers exploit the special setting at the German-French or German-Italian language border in Switzerland. This border runs within cantons which means that the only significant difference is the language, institutions do not differ systematically. Various economic outcomes are analyzed: the demand for social insurance (Eugster et al., 2011), attitudes towards work (Eugster et al. 2017, Eugster et al. 2011), firms' provision of training positions (Aepli et al., 2021), financial literacy (Brown et al., 2018), labor supply of male workers before retirement (Cottier, 2018), time preferences (Herz et al., 2021) and preferences related to fertility and mortality (Faessler et al. 2023). All studies find significant differences between language groups using survey-based approaches or administrative data. A particularly important line of research for us looks at differences between the German and Italian language group in South Tyrol. Within this region, Cantarella et al. (2022) and Bedendo et al. (2023) analyze if the cultural background of managers affects corporate decision making. They find significant differences between Italian and German led South Tyrolean firms. The perspective on individual decision-making is adopted by Angerer et al. (2016) and Sutter et al. (2018). From a methodological standpoint, these are the two papers most closely related to our project. They conduct field experiments with primary school children in Merano/Meran. Angerer et al. (2016) observe cooperative and discriminatory behavior in a prisoner's dilemma game. They find that cooperation is more pronounced among the own language group explainable by in-group favoritism and language group discrimination. Sutter et al. (2018) use an intertemporal choice game to shed light on differences in time preferences. They find that German-speaking school children are more patient than Italian-speaking school children. It is our task in this paper to find out if those differences between the language groups are valid beyond the group of primary school children and translatable to other economic decision settings.

Due to the particular situation in South Tyrol where Italian speakers migrated from other parts of Italy into the historically German-speaking region, the so-called epidemiological approach (Fernandez, 2011) is of interest. It is a way to identify the cultural effect between people living in the same institutional setting but coming from diverse backgrounds. Consequently, it is often applied to study variations in behavior between natives and immigrants who live together in one country. Fernandez and Fogli (2006) try to disentangle the cultural effect on fertility. To do that, they observe women born in the US coming from different ethnic backgrounds. Fisman and Miguel (2007) look at the parking behavior of a very restricted group of people, UN diplomats in New York protected by diplomatic immunity. They establish a cultural effect finding that diplomats coming from high-corruption countries commit more parking violations in New York. In an analogous manner, Miguel et al. (2008) find that those soccer players in the European professional leagues who come from a region with civil conflicts show more violent behavior in soccer games.

With the exception of Sutter et al. (2018) and Angerer et al. (2016), the studies that analyze cross-cultural differences in economic decision making and preferences apply empirical strategies using administrative data. We build on their results and on the idea which is behind the epidemiological approach but diverge in the empirical approach. Since data on tax evasion is hard to obtain, we address our research question by applying experimental methods. This is a common approach in research on tax compliance that is reviewed in the following paragraphs.

2.2 Tax Compliance and Tax Morale

In the following, we narrow down our perspective and review the literature on tax compliance. Cross-cultural research in tax compliance has become an active field in the last years. The underlying question is if differences in tax compliance are due to differences in institutions (e.g., probability of audits, magnitudes of fines) or cultural differences. Experiments allow controlling for the institutional environment and make it possible to single out a potential cultural effect. But not only experimental approaches are used, surveys and other empirical strategies are applied as well. Whereas surveys are mainly used to study tax morale, experiments are suitable to study tax compliance. The following paragraph provides a structured overview of the literature combining tax compliance with cross-cultural research.

2.2.1 Surveys

We begin with cross-country survey research. Alm and Torgler (2006) use the World Values Survey to shed light on the differences between the United States and 14 European countries. They find significant differences, with the United States showing the highest tax morale. Interesting for our research to note is that Austria shows higher tax morale than Italy which in turn shows higher tax morale than Germany. Lewis et al. (2009) use their own questionnaire in Italy and the UK. They analyze tax compliance using hypothetical tax paying situations. Tax compliance in Italy is significantly lower than in the UK. This is a hint that there are some cultural factors at play.

Studies address tax morale also with survey-based within-country research. Torgler (2002) compares tax morale between people in East and West Germany after the reunification using the World Values Survey. The results indicates that East Germany shows a higher tax morale than West Germany. Torgler and Schneider (2007) analyze three countries, Belgium, Spain and Switzerland. Switzerland is divided into three language groups, German, French and Italian. They find a significant difference in tax morale between those language groups. Taking German speakers as the reference, French speakers have lower and Italian speakers have higher tax morale. In Belgium where French and Flemish speaking people live together, no significant difference between the two groups is found. In Spain, regions with their own cultural identity (Basque country, Navarre, Catalonia and Galicia) are tested against a Spanish reference group consisting of all other regions. Navarre and Basque countries show a lower tax morale. Martinez-Vasquez and Torgler (2009) analyze the effect of institutional change in Spain on tax morale over a period of 19 years. They find that tax morale is affected by the changes in the political and fiscal system. A similar endeavor is made by Alm and Martinez-Vasquez (2006) who observe the effect of the transition from a socialist to a market-based economy on tax morale in Russia. They find that in the early years of the transition tax morale decreased and only slightly increased in the later years. Differences between the regions are significant but mostly due to different demographics and institutions rather than cultural factors. Bastani et al. (2020) apply to tax compliance the so-called epidemiological approach that we introduced earlier. They observe differences in tax filing between natives and immigrants in Sweden:

the longer immigrants stay in the country, the more they file surpassing even natives. Since they live under the same institutional settings coming from diverse cultural backgrounds, any differences in behavior are most likely to be traced back to cultural factors.

2.2.2 Experiments

Now we move from survey-based research to experimental research that is related more closely to our study. Whereas in survey-based research the object of interest is usually tax morale, experimental research focuses on tax compliance. Again, we start with a review of the cross-country studies. Alm et al. (1995) detect differences in tax compliance between the United States and Spain. They find a significantly higher tax compliance of American subjects compared to Spanish subjects. Andrighetto et al. (2016) conduct experiments in Italy and Sweden. Average compliance is similar between Italian and Swedish participants. Swedish participants are dishonest less often but, in case they are, they evade completely. Italians are dishonest more often but evade only partly. Similarly, Ottone et al. (2018) find that there is no difference in average compliance between Italian and Swedish participants. Also, the reaction to changes of the tax burden is similar between both groups. However, Italians are more likely to evade lesser amounts which reduces the probability of being audited compared to complete evasion. Swedish participants are more prosocial and expect compliance from others. Zhang et al. (2016) conduct laboratory experiments in Italy and the UK to find out if real-life differences in tax compliance can be traced back to cultural differences by measuring tax compliance in a controlled setting where institutions are identical for both groups. Whereas tax compliance in real life is higher among British citizens, in the experiments Italian participants show higher tax compliance. Consequently, they conclude that differences in real-life tax compliance can be traced back to the institutional setting and not to the culture of the taxpayer. Guerra and Harrington (2018) analyze in laboratory experiments differences in tax compliance between Italy and Denmark, as well as the alignment of beliefs about tax compliance with actual tax compliance. The first finding is that on average Italians are more compliant than Danes which goes against the stereotypical culturalist hypothesis that Italians are more likely to cheat. The second finding is that Danes show a higher tax morale than Italians. Alm et al. (2017) compare the reaction to different confidentiality treatments between the US and Italy. Whereas the reaction to the different treatments is similar across countries, overall full compliance is higher in the US.

Turning to within-country experimental research, again with tax compliance as the object of interest, D'Attoma (2019) conducts experiments across four cities in Italy, two in the North and two in the central part. He does not find any significant differences in tax compliance or prosociality. This finding hints at the explanation that differences in tax compliance are driven by institutional rather than cultural differences. The epidemiological approach is applied also in the experimental literature, namely by Malezieux and Torgler (2021) in their meta-study. They find that immigrants are significantly less compliant than natives. By adding data from the World Values Survey, they, in addition, find that tax morale is significantly and positively correlated with actual tax compliance. Guerra and Harrington (2023) conduct several experiments in the North and the South of Italy. Neither differences in average compliance rates nor differences in reaction to changes in the tax rules can be found. In line with other experimental evidence above, this hints at an institutional explanation rather than a culturalist view. Macintyre et al. (2023) give a more psychological touch to the topic. They manipulate the feeling of national pride in a laboratory experiment in Australia. They find that Australian citizens react with a higher tax compliance to the treatment with respect to non-Australians. In the control group without national pride framing there is no significant difference in tax compliance. What is missing in this group of within-country research is the analysis of within-region differences. We want to bring a new focus to this line of research by observing tax paying behavior within South Tyrol.

Whereas all experiments on tax compliance presented here use a student pool of participants and thus can be criticized for using a population without much experience in terms of tax declaration, Cummings et al. (2009) are the only ones who use an artefactual field experiment in South Africa and Botswana with not exclusively students. They find a significantly higher compliance rate in South Africa. We follow this approach by inviting mainly non-student participants to our experiment with the goal of obtaining more external validity with respect to the other studies.

2.2.3 Belief-action consistency

Furthermore, we are interested if beliefs about tax compliance are aligned with actual tax compliance. Papers answering exactly this question are hard to find. However, there are papers analyzing the consistency between tax morale and tax compliance. Most of the studies agree that tax morale can explain tax compliance. Malezieux and Torgler (2021) find that tax morale is positively and significantly correlated with tax compliance. Also, Cummings et al. (2009) find that the attitude towards paying taxes elicited in a survey is aligned with the tax compliance in the artefactual field experiment. Halla (2012) uses an instrumental variable approach and finds a causal effect of tax morale on tax compliance. Evidence against this view is provided by Guerra and Harrington (2018). They find that attitudes towards tax compliance have no significant effect on tax compliance in their experiment.

3 Hypotheses and Institutional Context

We analyze three main research questions. The first question is if culture, defined as the language group of South Tyrolean citizens, affects tax compliance. The second research question concerns beliefs and asks if people believe that the language group of the taxpayer affects tax compliance, considering if the taxpayer is of the same language group or not (in-group vs out-group dynamics). In this regard, we evaluate if the beliefs about tax compliance are aligned with actual tax compliance behavior.

We develop the following preregistered hypotheses[5]. The first four hypotheses regard the tax compliance in the income reporting game and its interaction with the perceived detection probability, regional identification and knowledge about the tax system.

H1: German speaking citizens in South Tyrol are more compliant than Italian speaking citizens in South Tyrol

H2: The higher the perception about the detection probability, the more taxes participants pay

H3(a): Higher identification with South Tyrol leads to more compliance for German speakers

H3(b): Knowledge that taxes remain in South Tyrol leads to more compliance for German speakers

H4(a): Higher identification with Italy leads to more compliance for Italian speakers

H4(b): Knowledge that taxes remain in South Tyrol leads to less compliance for Italian speakers

[5] preregistered osf-registrations-tmz4r-v1 (https://archive.org/details/osf-registrations-tmz4r-v1)

The last two hypotheses analyze the belief elicitation task with emphasis on in-group and out-group dynamics.

H5: Due to stereotypes, Italian speakers are perceived to be less compliant

H6: The own language group is perceived to be more compliant relative to the other group

Besides those preregistered hypotheses, we explore two additional questions in our experiment. First, we want to know if honesty in a tax paying situation is aligned with honesty in an abstract truth-telling game. Second, we check if the timing of the language question affects behavior. The cultural affiliation and language group are more salient when asked at the beginning of the experiment and might affect behavior in a stronger way.

In order to answer our research questions, we observe two groups coming from different cultural backgrounds now living together in the same environment[6]. Since the validity of our research relies on this setting, it is important to understand the historical developments in the area. Before becoming a part of Italy in 1919, South Tyrol was part of the Austro-Hungarian Empire and inhabited by almost exclusively German and Ladin speaking citizens with a minority of around 3% Italian speaking citizens (ASTAT, 2021). Only afterwards Italian speaking persons from other parts of Italy moved massively to South Tyrol. The Italian group reached its maximum in the census of 1961 where it made up 34% of the population and since then declined slowly and steadily. With the adoption of the second autonomous statute in 1972, all language groups got equal rights and access to the public sector and the province gained broad fiscal and legislative independence from Rome. In the last census of 2024 Italian speakers constitute 27% of the population in the region (ASTAT, 2024b). Italian speakers are concentrated in urban areas and especially in the cities of Bolzano/Bozen and Merano/Meran.

This historical situation allows us to observe two distinct cultural groups living in the same environment with identical formal institutions. It provides us with a setting where we can *"[…] identify the effect of culture through the variation in economic outcomes of individuals who share the same economic and institutional environment, but whose social beliefs are potentially different"*[7]. In this way we can compare the behavior of South Tyrolean citizens that differ in their affiliation to one of the two language groups but are living in the same institutional environment. Institutional differences as drivers of behavioral differences can be neglected, cultural drivers remain the most important explanation.

4 Methodology

4.1 Recruitment Procedure

Participants are recruited on the streets of Bolzano/Bozen, the largest city of South Tyrol with a population of 106,357 inhabitants in 2023 (ASTAT, 2023). 75% of the residents declared in the 2024 census to belong to the Italian language group, 25% to the German language group (ASTAT, 2024b). Due to the high absolute numbers of inhabitants of both groups, we find an adequate population of

[6] The epidemiological approach studies a similar setting (see Fernandez, 2011). In our case, there is no native/migrant divide, as members of the two cultural groups are both citizens of Italy.
[7] Fernandez (2011), p. 489

German and Italian speakers in the city. In fact, compared to all other municipalities, in Bolzano/Bozen we can find the largest population of both language groups.

We provide a flyer with a link to the experiment and a personalized token to ensure that everyone participates only once. In addition, potential participants receive a die for the truth-telling game. For qualifying as potential participants, three conditions must be met. Participants must be at least 18 years of age, must be resident in the city of Bolzano/Bozen and have been living in South Tyrol for at least two years. With the focus on Bolzano/Bozen, we want to ensure that we include only participants from an urban area. Recruiting in other parts of South Tyrol would add the confounding factor of German speakers living more in rural areas versus Italian speakers living predominantly in urban centers. With the two-year residency condition, we want to make sure that participants paid taxes at least once in South Tyrol in order to be familiar with the basic rules of the tax system.

4.2 Experimental Approach

Our approach is experimental. The main reason is that data regarding individual tax evasion is not publicly available due to its sensitive nature. In addition, surveys to understand real-life tax evasion behavior are not feasible since participants would not answer truthfully on their tax evasion behavior. Experimental research is a widely used method to study tax compliance. Most of the experiments in cross-cultural research take place in the lab. The downside of laboratory experiments with a student pool of participants is the reduced external validity. Students rarely are confronted with tax payment situations in real life. It is, therefore, questionable if they are adequate participants for such an experiment[8]. We follow an approach which is called artefactual field-experiment according to the taxonomy of List and Harrison (2004)[9]. Another name for this approach is lab-in-the-field experiment. It uses laboratory methods but with a non-student pool of participants. In our case the experiment is not conducted in the lab but hosted on an online survey platform[10]. The paper by Cummings et al. (2009) is most closely related in this regard. They use an artefactual field experiment with mostly non-student participants. However, around 30% are students and, generally, the average age is very low. We aimed for a more representative sample and ended up with only around 5% of students. Our experiment does not require interaction between the participants and, thus, participants were not required to answer simultaneously. A period of one month[11] was given for completing the survey, once started it must be completed in one take. Survey answers and personal data were stored separately, the latter was only used for paying the participants.

4.3 Experimental Design

Before the experiment starts, participants must choose the language in which they want to continue. The options are Italian and German. This is standard practice for surveys or interactions with public authorities in the province. We can therefore see in which language they feel more comfortable, a first hint at their language group. The point of time of the direct question about their language group is randomized. One part of the participants is asked at the beginning, the other part at the end. The rest of the experiment is divided into four parts, an income reporting game with a preceding real effort task, a

[8] see chapter 6.2
[9] "[…] an artefactual field experiment is the same as a conventional lab experiment but with a nonstandard subject pool" (List and Harrison, 2004, p. 1014).
[10] LimeSurvey
[11] from 06/05/2024 to 07/06/2024

belief elicitation task, a dice truth-telling game and survey questions at the end[12]. Whereas the first three parts are incentivized, the last part is not. Participants do not interact directly in the experiment and the payoff, for most parts, depends only on their own decision. An exception is the belief elicitation task where the payoff depends on the choices of the other participants as well.

In the first part, participants take the role of a taxpayer. In a real-effort task, income is earned. Participants must count the number of zeros in a matrix. If they count all 69 zeros, 100 points are earned[13]. To ensure a secure income and let all people arrive at subsequent stages, the minimum earning is 15 points. From this income, taxes need to be paid in a classic income reporting game. Participants are asked to report their income. They can report everything, parts of it or nothing. There is no audit mechanism or deterrence in place, only voluntary tax compliance is measured. Paid taxes are not redistributed among the participants. It is stated that they are used for financing a public good, i.e., further academic experiments[14]. There is a flat tax set at 30%, the average rate in the Italian tax system[15], to avoid heterogeneous effects due to the differences in tax rates.

The second part consists of a belief elicitation task. It is designed as a mixture of the equilibrium belief elicitation by Krupka and Weber (2013) and a version of the beauty contest. The original form of the Krupka and Weber method is used to elicit social norms. According to Charness et al. (2021) it is suitable for eliciting beliefs as well. In our experiment, participants are confronted with a hypothetical situation. A taxpayer with 100 points of income needs to pay 30% of taxes. In one question the taxpayer is a German speaking citizen, in the other question it is an Italian speaking citizen. All participants are confronted with both questions. They must indicate, for both situations, how much income the hypothetical taxpayer reports. The modal answer is incentivized[16]. The closer the participant gets to the modal answer, the higher is the payoff.

In the third part, we measure overall honesty of the two language groups with a truth telling game using die throws. This game is played privately with a real die. Participants can roll a die as many times as they want but must indicate their first throw's result. For the payoff the result is multiplied by ten. We cannot observe if someone lies in the individual case. But we can check which group is more honest by comparing the distribution of die throw results with the expected uniform distribution of a fair die.

The fourth part is unincentivized and comprises a set of survey questions. The first group of questions contains language group related information. We ask with which language group they identify most[17], what language they are using in the private and work context, the identification with South Tyrol and Italy. The second group of questions relates to the South Tyrolean tax system. We ask if participants know how many percent of taxes paid in South Tyrol remain in South Tyrol[18] and what they think is their perceived detection risk when paying taxes. In the last group of questions, we ask standard demographic information about gender, age, nationality, residence, occupation, education and self-declared income measured in quartiles.

[12] a translated version of the instructions can be found in the appendix

[13] the payoff is calculated using the formula $100 - \left(\frac{(|69 - counted\ zeros|)}{69} \cdot 100\right)$ rounded to the nearest integer

[14] "The paid taxes are used to finance further academic studies." is stated in the instructions

[15] http://data-explorer.oecd.org/s/18w

[16] the payoff is calculated using the formula $50 - \frac{|difference\ between\ own\ and\ modal\ answer|}{2}$

[17] for those not already asked at the beginning

[18] with 90% as the correct answer, due to the autonomous statue

The payoff is calculated as the sum of the show-up payment, the income after taxes, the payment resulting from the answer in the belief elicitation task and the result of the die throw. It can range from 60 points (6€) to 250 points (25€)[19].

4.4 Measures of Language

In order to classify the participants into one of the two language groups, German or Italian, we use three different measures. The main measure is the answer to the question with which language group participants identify the most, similar to the one in the official language group census of the province. This is a binary variable that takes 0 for the Italian language group and 1 for the German language group. This is the measure that is used for all of the results in the descriptive analysis. For robustness we estimate the regression using two different measures of language as well. The second measure of language is the language in which participants filled out the survey. At the beginning they can choose the language of the online survey platform. It is likely that they choose the language they are more confident in and, therefore, identify the most. This variable follows the same binary structure as before. Besides that, in the experiment we have two additional questions regarding language. On a scale from 1 to 5 (1 being mostly Italian, 5 mostly German) participants answer which language they use in private life and in the work context. In order to exploit all the information we have, our third measure is a language index:

$$Language\ Index\ =\ \frac{Language\ +\ Startlanguage\ +\ Language\ Private\ +\ Language\ Work}{4}$$

with $Language\ Private$ and $Language\ Work$ being normalized to a 0 to 1 scale.

4.5 Econometric Strategy

To understand which factors are driving the decision to evade taxes we use a double hurdle model as our regression approach. It allows us to incorporate both the extensive and intensive margin of tax evasion in our analysis. The first hurdle captures the extensive margin, the decision to become evader or not. The second hurdle captures the intensive margin, the amount of evaded taxes conditional on being evader. We follow closely the model developed by Engel and Moffatt (2014).

The observed evasion rate is defined as

$$ER_i\ =\ d_i ER_i^*$$

with ER_i as the observed evasion rate of subject i , d_i the first hurdle and ER_i^* the second hurdle.

The evasion rate is calculated as $1 - \frac{ReportedIncome}{IncomeBeforeTaxes}$.

The first hurdle can be interpreted as a Probit model that takes the value 0 in case of full compliance and 1 in case of evasion. It is defined as

$$d_i = \begin{cases} 1\ if\ d_i^* > 0 \\ 0\ otherwise \end{cases}$$

[19] show-up payment 5€ plus experimental payoff (exchange rate 10 points = 1€)

with $d_i^* = x_i\gamma_1 + y_i\gamma_2 + z_i\gamma_3 + \varepsilon_{1i}$.

x_i contains one of the three measures of language group affiliation, y_i is a vector containing basic demographic information about the participants and z_i is a vector containing additional controls elicited in the experiment. Which covariates are included is explained at a later point.

The second hurdle interpretable as a Tobit model considers only those who decided to evade in the first stage and is defined as

$$ER_i^* = \max\{ER_i^{**}, 0\}$$

with $ER_i^{**} = x_i\beta_1 + z_i\beta_2 + \varepsilon_{2i}$.

The covariates in x_i and z_i are identical to those of the first hurdle.

4.6 Subject Pool

We recruited 599 participants of whom 206 completed the experiment. After cleaning the dataset and excluding people not living in Bolzano/Bozen and people living in South Tyrol for less than two years, we end up with a sample of 190 suitable responses. The average age is 44 with around 5% of students. This tells us that we reached the goal of recruiting a mostly non-student sample with people who have experience of paying taxes.

Since Bolzano/Bozen is populated mainly by Italian speaking people, we have slightly more Italian than German speaking participants in the sample. However, the difference is small. The other individual characteristics are balanced as well. Only culture-related characteristics are significantly different in the two language groups. Those differences were expected and show that the different language groups are associated with different cultural characteristics. This observation makes it easier for us to interpret language as a part of culture. German speakers have lived in South Tyrol for a longer time and are more likely to be born in South Tyrol. The distribution of language groups in the districts of Bolzano/Bozen is different as well. Don Bosco, Europa-Novacella/Europa-Neustift and Oltrisarco-Aslago/Oberau-Haslach are districts with more Italian speakers in our sample, whereas Centro-Piani-Rencio/Zentrum-Bozner Boden-Rentsch is more German speaking. In the district of Gries-San Quirino/Gries-Quirein we observe nearly the same number of both language groups. There is no official data about the language proportion for each district but there are certainly some districts populated more by German speakers and others more by Italian speakers. This is due to historical reasons, as the expansion of the city was connected to Italian migration waves and the necessity of housing for the Italian workers of the newly created industrial sector. It can be also seen in the different voting behavior throughout the city, with Italian districts voting more for national parties and German ones for locals. The language distribution of the mandatory waste bills per district[20] confirms the language distribution per district in our sample.

[20] data provided by SEAB – Servizi Energia Ambiente Bolzano – S.p.A.

Table 1
Sample Characteristics

		Italian	German	p-value
		N=105	**N=85**	
age		43	45	0.3
years of residence		34	43	0.028
gender	female	54 (51.4%)	43 (50.6%)	
	male	50 (47.6%)	42 (49.4%)	0.65
	diverse	1 (1.0%)	0 (0.0%)	
place of birth	outside of S. Tyrol	30 (28.6%)	10 (11.8%)	0.005
	South Tyrol	75 (71.4%)	75 (88.2%)	
nationality	Italian	102 (97.1%)	78 (91.8%)	0.099
	other	3 (2.9%)	7 (8.2%)	
district	Zentrum	19 (18.1%)	39 (45.9%)	
	Don Bosco	15 (14.3%)	3 (3.5%)	
	Europa	18 (17.1%)	6 (7.1%)	<0.001
	Gries	38 (36.2%)	31 (36.5%)	
	Oberau	15 (14.3%)	6 (7.1%)	
family	single	27 (25.7%)	14 (16.5%)	
	living together	16 (15.2%)	21 (24.7%)	0.25
	married	56 (53.3%)	46 (54.1%)	
	separated	6 (5.7%)	4 (4.7%)	
education	school	44 (41.9%)	28 (32.9%)	0.21
	university	61 (58.1%)	57 (67.1%)	
work	unemployed	11 (10.5%)	17 (20.0%)	
	student	6 (5.7%)	3 (3.5%)	0.17
	employed	73 (69.5%)	49 (57.6%)	
	self-employed	15 (14.3%)	16 (18.8%)	
self-declared	not disclosed	10 (9.5%)	3 (3.5%)	
income	less than 6000	6 (5.7%)	6 (7.1%)	
	6000-19999	17 (16.2%)	7 (8.2%)	0.14
	20000-35000	38 (36.2%)	31 (36.5%)	
	more than 35000	34 (32.4%)	38 (44.7%)	

5 Results

5.1 Tax Compliance, Beliefs and Dice Game

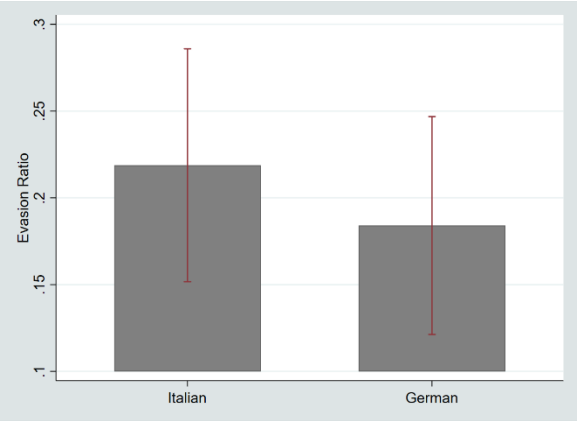

Fig. 1. Overall Evasion Ratio

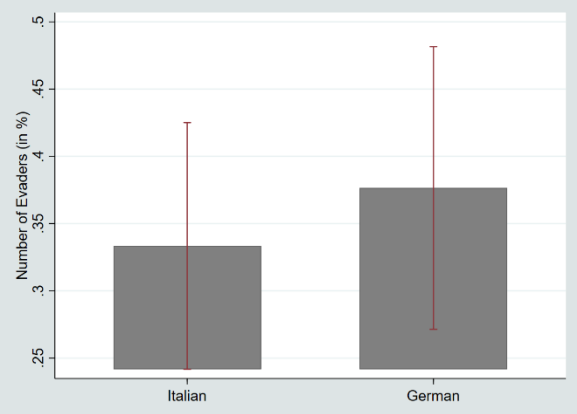

Fig. 2. Evaders (Extensive Margin)

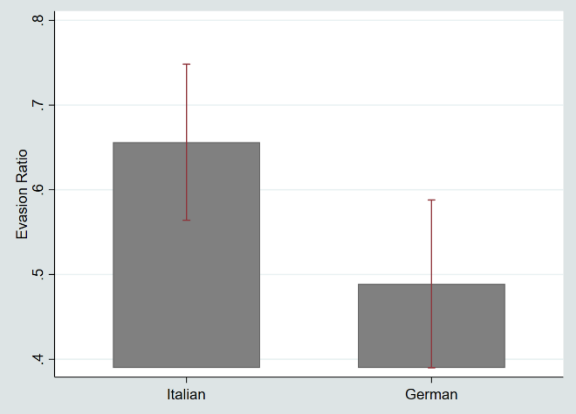

Fig. 3. Evasion Ratio (Intensive Margin)

In our experiment, 67 participants (35%) decided to evade taxes. Those participants who decided to evade failed to report 57.6% of their income. Taking together evaders and non-evaders, the total evasion rate is 20.3%. Such a low level of tax evasion clearly contradicts the results predicted by expected utility theory. Even among experiments where evasion is much less common than expected by theoretical considerations, our results can be found on the lower end[21]. Italian speakers evade slightly more (21.9%) compared to German speaker (18.4%) as seen in figure 1. On the extensive margin German speakers are the ones deciding to evade more often. 37.6% of German speakers evade some or all the taxes whereas only 33.3% of Italian speakers evade some or all the taxes (figure 2). However, those differences on the extensive margin are not significant. If we look at the evasion rate conditional on being evader, the intensive margin, we get an evasion rate of 65.6% for Italian speakers and 48.9% for German speakers

[21] In Dwenger et al. (2016) 21% of participants pay church taxes without enforcement mechanisms in place. Engel et al. (2021) find an average compliance rate of 50% in their uniform tax treatment without enforcement. In their cross-country analysis, Andrighetto et al. (2016) observe an average compliance rate of 65%.

as seen in figure 3. This difference is statistically significant (rank-sum test, p-value = 0.018). Thus, on the intensive margin Italians evade significantly more taxes.

Regarding the perceived tax compliance, 86% of Italian speakers and 83% of German speakers are expected to evade some or all of the taxes. German speakers are perceived to be more compliant with an expected reported income of 71 points out of 100. Italian speakers are perceived as slightly less compliant with an expected reported income of 69 points. The difference is marginally significant (paired t-test, p-value = 0.052). When we look at the answers of the two language groups, an interesting pattern comes up. Italian speakers believe that the Italian speaking taxpayer reports more income. The difference is not significant. Germans perceive that the German speaking taxpayer reports more income. This difference is more pronounced and statistically significant (paired t-test, p-value = 0.000).

For evaluating the results of the die throws, we compare each group's throws with the uniform distribution of a fair die. In the German speaking group, no difference can be found to the throws of a fair die. German speakers report on average a result of 3.8. In the Italian speaking group, a significant difference can be detected (χ^2-test, p-value = 0.001). Italian speakers report significantly higher numbers (4.2) than expected to be resulting from a fair die. Thus, the Italian language group is cheating in the truth game. Interestingly, participants who evaded in the income reporting game report their die throw more truthfully than those who did not evade in the income reporting game. Participants who decided not to evade in the income reporting game, are clearly cheating in the dice game (χ^2-test, p-value = 0.007 with an average of 4.0). This effect is driven by the Italian language group. Italian speaking non-evaders report significantly higher numbers (χ^2-test, p-value = 0.003 with average 4.3) than would be expected from a fair die. In contrast, the distribution of die throws of Italian evaders (4.1) is not significantly different from the distribution of a fair die. In the German speaking group both evaders (3.9) and non-evaders (3.7) report their results of the die throw truthfully.

5.2 Knowledge and Culture

Concerning the knowledge about the tax system, no significant differences between the groups are observed. German speakers believe that 66% of the taxes collected in South Tyrol remain in South Tyrol, Italian speakers believe that 62% remain in the region. Although those numbers a far away from the correct percentage (90%), both groups are aware that the main part of taxes remain in South Tyrol due to the special provision of the autonomy statue of this province. The perceived detection risk is at around 5.5 on a scale from 1 equal to no risk to 10 meaning sure detection. Detection is neither perceived as impossible nor as very likely.

The culture-related questions about the personal identification with South Tyrol and Italy, measured on a scale from 1 (low) to 5 (high), reveal an interesting pattern. The identification with the region of South Tyrol is significantly higher among the group of German speaking participants (4.4 for German speakers vs 3.9 for Italian speakers with p-value = 0.002 of rank-sum test). Accordingly, the identification with Italy is significantly higher among the group of Italian speaking participants (4.0 for Italian speakers vs 3.4 for German speakers with p-value = 0.000 of rank-sum test). Overall, participants identify significantly more with the autonomous province of South Tyrol than with the central government in Rome (4.1 vs 3.7 with p-value = 0.000 of rank-sum test).

These differences, however, do not lead to differences in tax evasion. The same applies to the perceived detection risk. In none of the language groups, the perceived risk of being detected influences tax evasion in a significant way. The only significant results emerge in the context of knowing how much of the taxes remain in South Tyrol. Participants who think that more than 80% of taxes remain in South Tyrol

evade significantly less (rank-sum test, p-value = 0.010). Dividing the result by language groups, this result turns out to be significant among the German speakers (rank-sum test, p-value = 0.032) but not among the Italian speakers.

5.3 Regression Analysis

Our main interest lies in the question if culture, as captured in our setting by language, has an effect on the decision to evade taxes. Descriptive analysis showed that the language group is significant mainly on the intensive margin. In order to further explore this result, we use regression analysis to analyze the role of language while controlling for other variables. More specifically, we use different specifications of the double hurdle model introduced in chapter 4.1. For each specification, we provide three estimates using our three different language measures. Our approach starts with the simplest specification and adds complexity step by step. We exclude one observation (gender = diverse) to avoid having a dummy variable with a single observation.

Looking at the most basic specification regressing the *evasion_ratio* only on language, results from the descriptive analysis are confirmed. Language is significant above the hurdle (speaking Italian leads to higher evasion rates) but does not turn out to be significant below the hurdle (see Table 2 (I)). The salience of the own language group, being asked at the beginning or at the end, does not impact the effect. When using the survey language and the *language_index* variable, the results point in the same direction, in the latter case with an even stronger significance (see Table 2 (III)).

Table 2
Simple Language Model

DV: evasion_ratio	**(I) Language Group**		**(II) Survey Language**		**(III) Language Index**	
	1st H	**2nd H**	**1st H**	**2nd H**	**1st H**	**2nd H**
language	0.165	-0.193*	0.153	-0.188*	0.295	-0.249**
	(0.195)	(0.077)	(0.197)	(0.078)	(0.240)	(0.092)
constant	-0.419**	0.647***	-0.410**	0.638***	-0.473***	0.672***
	(0.128)	(0.051)	(0.125)	(0.050)	(0.138)	(0.055)
sigma		0.288***		0.289***		0.285***
		(0.031)		(0.031)		(0.031)
N		189		189		189

Standard errors in parentheses
+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001

We build upon this simple model by adding other information elicited in the experiment as covariates. However, not all variables are adequate to be included in the regression to answer our research question. The objective of this study is to analyze the effect of culture on tax evasion where culture is measured by the affiliation to one of the two language groups. Due to this wider definition of language as culture, we exclude covariates that predict language in order to capture all the cultural effects in the language variable. Being born in South Tyrol, the years of residence, the identification with Italy and South Tyrol and the district dummies are the significant variables predicting the language measure (Table A1). Consequently, we do not include those variables in the subsequent regressions. Now, we extend our

model by adding the remaining individual characteristics. Besides basic demographic information, we add the gained points after the real effort task, the perceived detection rate and the percentage of what participants think how many taxes remain in South Tyrol (see Table 3). The effect of language is positive and weakly significant (at 10% significance level) on the extensive margin and negative and significant on the intensive margin (at the 5% significance level). Using the survey language, results are fully confirmed. Using the language index, besides the known significant effect on the intensive margin, the extensive margin turns out to be significant at the 5% level as well. This leads us to the robust conclusion that Italian speakers evade significantly higher amounts of taxes and to the statistically weaker conclusion that German speakers tend to evade more often. Besides the language group, there are other variables that result in significant effects. A higher belief of the share of taxes remaining in South Tyrol has a significant negative effect on the evasion ratio on the extensive margin (at 5% significance level). However, the effect size is negligible. On the intensive margin, being of Italian nationality (large effect size) and the experimental income (negligible effect size) have both a significant negative effect on the 5% level. All other included variables are significant only at the 10% level or not significant at all.

Table 3
Full Model

DV: evasion_ratio	**(I) Language**		**(II) Survey Language**		**(III) Language Index**	
	1st H	**2nd H**	**1st H**	**2nd H**	**1st H**	**2nd H**
language	0.373+	-0.196*	0.377+	-0.184*	0.572*	-0.243*
	(0.221)	(0.081)	(0.227)	(0.081)	(0.272)	(0.095)
gender	0.339	-0.009	0.354	-0.021	0.361	-0.019
	(0.221)	(0.079)	(0.223)	(0.081)	(0.222)	(0.079)
age	-0.005	-0.007	-0.005	-0.007	-0.006	-0.007
	(0.012)	(0.005)	(0.012)	(0.005)	(0.012)	(0.005)
together	-0.003	0.136	-0.052	0.167	-0.054	0.151
	(0.349)	(0.123)	(0.357)	(0.129)	(0.352)	(0.124)
married	-0.045	0.066	-0.075	0.095	-0.070	0.081
	(0.300)	(0.102)	(0.302)	(0.103)	(0.300)	(0.100)
separated	-0.199	0.150	-0.243	0.200	-0.170	0.129
	(0.566)	(0.242)	(0.563)	(0.236)	(0.569)	(0.247)
education	-0.081	-0.009	-0.065	-0.044	-0.087	-0.023
	(0.240)	(0.100)	(0.241)	(0.098)	(0.239)	(0.096)
unemployed	-0.136	0.078	-0.128	0.106	-0.119	0.061
	(0.393)	(0.177)	(0.391)	(0.178)	(0.389)	(0.173)
selfemployed	0.168	-0.085	0.188	-0.088	0.185	-0.112
	(0.299)	(0.106)	(0.301)	(0.108)	(0.300)	(0.108)
student	0.711	-0.070	0.671	-0.019	0.690	-0.071
	(0.623)	(0.166)	(0.624)	(0.171)	(0.626)	(0.166)
nationality	0.656	-0.431*	0.676	-0.439*	0.655	-0.383+
	(0.490)	(0.214)	(0.493)	(0.217)	(0.487)	(0.211)
real-life income	-0.205+	-0.035	-0.215+	-0.023	-0.212+	-0.034
	(0.113)	(0.044)	(0.116)	(0.045)	(0.113)	(0.043)
experimental income	-0.004	-0.003**	-0.004	-0.003**	-0.004	-0.003**
	(0.003)	(0.001)	(0.003)	(0.001)	(0.003)	(0.001)
taxes remaining in ST	-0.008*	0.001	-0.008*	0.001	-0.008*	0.001
	(0.004)	(0.001)	(0.004)	(0.001)	(0.004)	(0.001)
perceived detection risk	0.009	-0.006	0.012	-0.009	0.011	-0.008
	(0.043)	(0.014)	(0.044)	(0.015)	(0.044)	(0.014)
constant	0.464	1.690***	0.459	1.717***	0.474	1.668***
	(0.995)	(0.372)	(1.000)	(0.381)	(0.995)	(0.370)
sigma		0.252***		0.254***		0.250
		(0.026)		(0.026)		(0.026)
N	189		189		189	

Standard errors in parentheses
+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001

5.4 Summary of Results

Given the presented evidence, we can provide answers to our research questions and hypotheses. Regarding the tax compliance, there is no overall difference in tax evasion between German and Italian speakers. However, conditional on being evader, Italian speakers evade higher amounts. German speakers tend to evade more often. This second result must be treated with caution due to the lower statistical significance.

Result H1: German speakers, overall, are not more compliant. They evade lesser amounts but seem to evade more often.

Result H2: The detection probability has no effect on the tax compliance.

Result H3 and **Result H4:** The identification with the region South Tyrol and the country Italy has no effect on tax compliance. Knowing that most of the taxes remain in South Tyrol leads to less evasion. This result is driven by German speakers.

Regarding the beliefs, one result emerges. German taxpayers are perceived to report more income (71 reported points out of 100) than their Italian counterparts (69 reported points out of 100). Both in the case of German and Italian speaking taxpayers, nearly everyone is perceived to be an evader (68 German speaking evaders, 74 Italian speaking evaders). German participants perceive their in-group (German speaking taxpayers) as more compliant. For Italians, such an in-group effect does not exist.

Result H5: Italian speakers are perceived to be less compliant.

Result H6: For German speakers, the own language group is perceived to be more compliant.

Regarding the belief-action consistency, the perceived number of evaders and the perceived evasion ratio is much higher than observed in the income reporting game, where we obtain an average evasion ratio of 0.2 with 67 participants being evaders. The perceived evasion ratio amounts to 0.3 with 71 perceived evaders on average. In this regard, beliefs and actions are not fully aligned. Additionally, the difference in overall evasion between language groups is more pronounced in the belief elicitation.

Interesting to see, besides our main hypotheses, is the divergence between the income reporting game and the dice game. Whereas in the income reporting game there is no overall difference between the language groups, the dice game clearly shows that Italian speakers are less honest. We come back to this point in the discussion.

5.5 Robustness Checks

We add several robustness checks to our analysis[22]. First, we use alternative econometric models for estimating the effects. The double hurdle regression above is not the only method for capturing both the extensive and intensive margin of a taxpaying situation. The Cragg hurdle and the estimation of a probit and OLS regression separately are alternatives. By applying those additional models, our results are confirmed.

Second, we restrict the sample only to the participants who inserted their payment details. In our sample, around 25% of participants did not insert their payment details and, consequently, were not paid. However, the insertion of payment details takes place at the end of the experiment and therefore, potential problems with the payment procedure cannot have spillover effects on our experiment. Our

[22] see table A2 in the appendix

first hypothesis for the missing payment details is that participants in a higher income bracket are less likely to insert their bank details as for them the payment might seem less important. In contrast to this hypothesis, the income bracket turns out not to be significant for getting paid or not. A second hypothesis is that the age of participants matters, with elder participants having possibly more difficulties to reach and fill out the second form. However, also age is not significant. The third hypothesis is that participants with a low payoff in the experiment do not consider payment as important and refrain from inserting their details. In fact, we find that higher payoffs in the experiment increase the likelihood of getting paid. A fourth explanation could simply be technical problems or problems finding bank details in time. In any case, it might be worthwhile to look only at those who got paid since they might have taken the experiment more seriously, going the extra step to fill out the second form of bank details. It turns out that the restricted sample confirms our results as well.

Third, we construct an additional model where we compare the overall gain of participants with a synthetic honest gain. This is for measuring the combined outcome of a possible evasion in the income declaration after the effort task and the grade of honesty in reporting the outcome of the die throw. The overall gain is calculated adding the after-tax income of a participant and her die throw. On the contrary, the honest gain is an addition of the hypothetical correct income declaration without tax evasion (income gained*0.7, due to the tax rate of 30%) and the average die throw of 3.5. Subtracting the overall gain from the honest gain results in a measure of the difference from the expected honest average reporting of each participant. The lower the difference, the higher the probability of cheating and evading. Italian (difference in gain = -1.2) and German participants (difference in gain = -0.7) differ significantly (rank-sum test, p-value = 0.04). Regressing language on the difference in gain shows that being of German language is associated with a higher difference resulting in less cheating behavior[23]. This confirms the results presented before, where we found that Italians cheat more in the die game and evade more in the intensive margin

6 Discussion

6.1 Results Explained

In synthesis, we find that culture in form of the language group has significant effects on certain aspects of the taxpaying decision. In contrast to D'Attoma (2019) and Guerra and Harrington (2023), we cannot confirm that differences in tax evasion are caused by differences in institutions. Those studies observe tax compliance in laboratories in different locations throughout Italy, but regions with consistent officially recognized language minorities such as South Tyrol are not included. In such a region, we find that the language group, in other words the cultural background, drives certain changes in tax compliance. One possible explanation for the divergence in results might be the fact that we are observing behavior of non-student taxpayers, whereas most other studies rely on pure student samples. Another explanation might be that the cultural differences between Italian speaking citizens in different regions are not strong enough to induce differences in behavior. The cultural distance between a German speaking citizens of South Tyrol and an Italian speaking citizen of South Tyrol might be larger than the difference between a North Italian and South Italian with the same native language. Even when observing school children and different behavioral outcomes, Angerer et al (2016) and Sutter et al (2018) confirm our finding that the cultural gap is substantial in South Tyrol. This is further corroborated when looking at the evasion rate of the TV possession tax ("canone RAI") in South Tyrol. For every

[23] see appendix table A3

municipality the evasion rate and the language distribution of the population is given. We find that evasion is higher in municipalities with a larger share of Italian speaking citizens[24].

Considering only the overall evasion rate, we do not find a significant difference between Italian and German speakers. This finding is in line with the result in Andrighetto (2016) as they find no overall difference between Swedes and Italians. When differentiating between the extensive and intensive margin of paying taxes, Andrighetto (2016) and Ottone (2018) find differences between Italians and Swedes in a laboratory setting. Italians are dishonest more often but when evading they evade small amounts. When comparing Italian speakers with German speakers in South Tyrol, we find a different pattern. Italian speaking evaders evade higher amounts and, at least in one specification our model, German speakers evade more often.

Additionally, we find that German speakers who correctly think that a large part of the taxes paid in South Tyrol remain in South Tyrol, evade less. We also find that German speakers identify more with their region South Tyrol than with the country of Italy in general. If we take those two points together, we conclude that German speakers are willing to pay more taxes because they know that the money remains in their region with which they identify the most.

The consistency between tax morale and tax compliance is mixed in the literature. We can add the finding that beliefs about tax compliance are not fully aligned with actual tax compliance. Interesting to note is that people believe others to be much less compliant than themselves. In the income reporting game, only a small fraction of 35% evaded some or all taxes. When asked about the compliance of a hypothetical taxpayer this percentage rises to over 80%. It seems that tax evasion is perceived as a widespread behavior in both language groups. But when confronted personally with the decision to evade, people become more honest. It might be some kind of internal morality or feeling of duty that makes people pay taxes. However, we cannot state this with certainty.

The same mechanism seems to be involved when comparing tax compliance with the results of the dice game. In the income reporting game, we see a high general honesty with only slight differences across language groups. The die throws show a much clearer picture. German speakers are more honest and report results close to the expected outcome of a fair die, Italian speakers deviate from the results of a fair die by reporting significantly higher numbers. Thielmann et al. (2025) find that dishonest behavior is consistent across structurally comparable contexts with monetary incentives. They use, amongst others, a mind game and coin toss, somehow comparable to our dice game. What distinguishes such honesty games from an income reporting game to cause these behavioral differences? There are two main differences between the situations. First, the income reporting game is framed as a tax paying decision, the dice game does not refer to paying taxes in any way. Second, paying taxes is an activity that is done in real life by almost everyone under a concrete set of rules. Reporting numbers after having thrown a die is a rather abstract situation with no counterpart in everyday life. Participants are more hesitant to evade taxes because it is linked to legal consequences in real life and serves a function that might be appreciated. Paying taxes and financing governmental services might seem the right thing to do for many taxpayers. Another explanation focuses on the different sources of income in the two games: effort vs. luck. While in the first part of the experiment the participants get paid for their effort of counting the zeros in a matrix, in the dice game this money is earned through luck. In the first case the rationale could be that own money is perceived as stolen through tax payments. In the second case participants are stealing money directly from the experimenters. It follows that the motivation for

[24] evasion rate of TV license fee (2014): see appendix table A4

cheating in one sense or another could differ intrinsically. Why such different perceptions hold true only for Italians must be left for further research.

An additional interesting psychological mechanism seems to be at play when differentiating between evaders and non-evaders. We observe that non-evading participants are less honest in the dice game. This effect is especially pronounced in the group of Italian speakers and basically non-existent among German speakers. Are they regretting their evasion decision from the income reporting game and want to be honest in the dice game? Do non-evaders want to take back some of the money they lost because of their honesty?

6.2 External Validity

Most studies that analyze tax compliance across countries make use of laboratory experiments. Although those experiments are regarded as a valid approach (Alm, 2015), we think that a lab-in-the-field approach can enhance the external validity of our results. Most students have never been confronted with paying taxes. It is, therefore, questionable if results found within this group can be generalized in any way to a more general population. For our experiment, we use a non-student pool of participants, assuring that most participants are familiar with paying taxes. The structure of our experiment replicates the mechanism of paying taxes in the real world, with substantial simplifications. People gain income, report their income and need to pay taxes from the reported portion of the income. Still, we do not conduct a natural field experiment but an artefactual field experiment. The situation the participants face during the experiment, although framed as a tax game, remains artificial. We are aware of the drawbacks but, at the same time, find that an experiment is the best way to analyze tax compliance. One the one hand, administrative data regarding tax compliance is hard to obtain. On the other hand, people do not disclose real world evasion behavior in surveys. What remains for meaningful economic research is the experimental approach. With this approach, we exploit the special cultural and institutional situation in South Tyrol and add a piece of evidence to the literature that culture matters.

6.3 Concluding Remarks

This study provides new evidence on the role of within-region differences in tax compliance by focusing on the particular setting of South Tyrol, where Italian and German-speaking populations coexist under the same institutional environment. We use the two language groups in order to capture the effect that the different cultural backgrounds have on tax paying behavior. Through an artefactual field experiment, we find that there is no significant overall difference in tax evasion between the two language groups. But we find that Italian speakers evade larger amounts conditional on being an evader and Germans tend to evade more often. This finding suggests that cultural factors do have an impact on tax compliance behavior beyond the influence of institutional settings. Moreover, our results underline the importance of considering both the extensive (whether to evade) and intensive (how much to evade) margins of tax compliance, as they are affected differently by cultural influences.

Our research contributes to the growing literature on the interplay between culture and economic behavior. Still, it is at the same time interesting and important to understand why the cultural differences exist and how they are shaped. We addressed regional peculiarities by asking participants for their degree of identification with South Tyrol and Italy where German speakers identified more with South Tyrol than Italian speakers. We do not directly measure trust: as an Italian speaker one might feel less represented or have less trust in the local governmental decision making than in the national one. As we

know from Kastlunger (2013) and Wahl (2010), trust and perceived fairness are two of the determinants of tax compliance. However, a recent study (ASTAT, 2024a) shows that Italian speakers have significantly more trust in the South Tyrolean institutions compared to German speakers. Thus, the fact that Italian speakers evade higher amounts in our experiment and identify less with South Tyrol is not likely to be attributed to a lack of trust in institutions. The role of culture seems to be the decisive factor, which goes against the widely accepted institutionalist hypothesis in cross-cultural tax compliance research and puts the cultural hypothesis forward.

Our paper invites to further explore different aspects of tax compliance. On the individual level, it can be worthwhile to understand more about the motivation why people pay taxes. Are there moral concerns at play that make people pay taxes? Is it only the cultural connection to the region that makes people feel obliged or willing to pay taxes? We cannot answer those questions at this stage, but we can dig deeper into it in the future. It can also be interesting to observe the reaction to punishment. In our setting we measure only voluntary tax compliance without the risk of being detected and punished in case of evasion. To add more realism to the setting, a system of audit and fines can be introduced. On the international level, research can be conducted in other regions where different cultural groups live under the same institutional settings. Interesting examples could be Catalonia, parts of Belgium or Switzerland, where different consistent language groups co-exist in the same administrative borders.

References

Abeler, Johannes; Armin Falk; Lorenz Goette; David Huffman (2011): Reference points and effort provision. In *American Economic Review* 101 (2), pp. 470–492.

Aepli, Manuel; Kuhn, Andreas; Schweri, Jürg (2021): Culture, norms, and the provision of training by employers: Evidence from the Swiss language border. In *Labour Economics* 73.

Alm, James; Bernasconi, Michele; Laury, Susan; Lee, Daniel J.; Wallace, Sally (2017): Culture, compliance, and confidentiality: Taxpayer behavior in the United States and Italy. In *Journal of Economic Behavior & Organization* 140, pp. 176–196.

Alm, James; Bloomquist, Kim M.; McKee, Michael (2015): On the external validity of laboratory tax compliance experiments. In *Economic Inquiry* 53 (2), pp. 1170–1186.

Alm, James; Martinez-Vazquez, Jorge (2006): Russian attitudes toward paying taxes - before, during, and after the transition. In *International Journal of Social Economics* 33 (12), pp. 832–857.

Alm, James; Sanchez, Isabel; Juan, Ana de (1995): Economic and noneconomic factors in tax compliance. In *KYKLOS* 48 (1), pp. 1–18.

Alm, James; Torgler, Benno (2006): Culture differences and tax morale in the United States and in Europe. In *Journal of Economic Psychology* 27 (2), pp. 224–246.

Andrighetto, Giulia; Zhang, Nan; Ottone, Stefania; Ponzano, Ferruccio; D'Attoma, John; Steinmo, Sven (2016): Are some countries more honest than others? Evidence from a tax compliance experiment in Sweden and Italy. In *Frontiers Psychology* 7.

Angerer, Silvia; Glätzle-Rützler, Daniela; Lergetporer, Philipp; Sutter, Matthias (2016): Cooperation and discrimination within and across language borders: Evidence from children in a bilingual city. In *European Economic Review* 90, pp. 254–264.

ASTAT (2021), South Tyrol in Figures 2021. https://astat.provinz.bz.it/downloads/Siz_2021-eng(7).pdf. Accessed on 14/02/2025.

ASTAT (2023), Demografia. https://astat.provincia.bz.it/it/popolazione.asp. Accessed on 14/02/2025.

ASTAT (2024a): Soddisfazione delle cittadine e dei cittadini nei confronti dei servizi pubblici 2023. https://astat.provincia.bz.it/it/news-pubblicazioni-info.asp?news_action=4&news_article_id=680745. Accessed on 22/02/2025.

ASTAT (2024b): Risultati censimento linguistico 2024. https://astat.provinz.bz.it/de/aktuelles-publikationen-info.asp?news_action=4&news_article_id=687699. Accessed on 14/02/2025.

Bastani, Spencer; Giebe, Thomas; Miao, Chizheng (2020): Ethnicity and tax filing behavior. In *Journal of Urban Economics* 116.

Bedendo, M., Garcia-Appendini, E., & Siming, L. (2023). Managers' Cultural Origin and Corporate Response to an Economic Shock. *Journal of Corporate Finance* 80.

Brown, Martin; Henchoz, Caroline; Spycher, Thomas (2018): Culture and financial literacy: Evidence from a within-country language border. In *Journal of Economic Behavior & Organization* 150, pp. 62–85.

Cantarella, Michele; Fraccaroli, Nicolò; Volpe, Roberto (2024): Does language prevent policy implementation? Evidence from the Italian Start-up Act. In *Research Policy* 53 (6).

Charness, Gary; Gneezy, Uri, Rasocha, Vlastimil (2021): Experimental methods: Eliciting beliefs. In *Journal of Economic Behavior & Organization* 189 (234-256).

Cottier, Lionel (2018): Culture, financial constraints, and retirement decision. In *Labour Economics* 53, pp. 128–145.

Cummings, Ronald G.; Martinez-Vazquez, Jorge; McKee, Michael; Torgler, Benno (2009): Tax morale affects tax compliance: Evidence from surveys and an artefactual field experiment. In *Journal of Economic Behavior & Organization* 70, pp. 447–457.

D'Attoma, John (2019): What explains the North-South divide in Italian tax compliance? An experimental analysis. In *Acta Politica* 54, pp. 104–123.

Dwenger, Nadja; Kleven, Henrik; Rasul, Imran; Rincke, Johannes (2016): Extrinsic and Intrinsic Motivations for Tax Compliance: Evidence from a Field Experiment in Germany. In *American Economic Journal: Economic Policy* 8 (3), pp. 203–232.

Engel, Christoph; Mittone, Luigi; Morreale, Azzura (2020): Tax Morale and Fairness in Conflict - An Experiment. In *Journal of Economic Psychology* 81.

Engel, Christoph; Moffatt, Peter (2014): dhreg, xtdhreg, and bootdhreg: Commands to implement double-hurdle regression. In *Stata Journal* 14 (4), pp. 778–797.

Eugster, Beatrix; Lalive, Rafael; Steinhauer, Andreas; Zweimüller, Josef (2011): The demand for social insurance: Does culture matter? In *The Economic Journal* 121 (556).

Eugster, Beatrix; Lalive, Rafael; Steinhauer, Andreas; Zweimüller, Josef (2017): Culture, work attitudes, and job search: Evidence from the Swiss language border. In *Journal of the European Economic Association* 15 (5), pp. 1056–1100.

Faessler, Lisa; Lalive, Rafael; Efferson, Charles (2023): How culture shapes choices related to fertility and mortality: Causal evidence at the Swiss language border. In *CESifo Working Paper* (10515).

Falk, Armin; Becker, Anke; Dohmen, Thomas; Enke, Benjamin; Huffman, David; Sunde, Uwe (2018): Global evidence on economic preferences. In *Quartely Journal of Economics* 133 (4), pp. 1645–1692.

Fernandez, Raquel (2011): Does culture matter? In *Handbook of Social Economics* 1A.

Fernandez, Raquel; Fogli, Alessandra (2006): Fertility: The role of culture and family experience. In *The Journal of the European Economic Association* 4 (2-3), pp. 552–561.

Fischbacher, Urs; Föllmi-Heusi, Franziska (2013): Lies in disguise - An experimental study on cheating. In *Journal of the European Economic Association* 11 (3), pp. 525–547.

Fisman, Raymond; Miguel, Edward (2007): Corruption, norms, and legal enforcement: Evidence from diplomatic parking tickets. In *Journal of Political Economy* 115 (6), pp. 1020–1048.

Guerra, Alice; Harrington, Brooke (2018): Attitude–behavior consistency in tax compliance: A cross-national comparison. In *Journal of Economic Behavior & Organization* 156, pp. 184–205.

Guerra, Alice; Harrington, Brooke (2023): Regional variation in tax compliance and the role of culture. In *Economia Politica* 40, pp. 139–152.

Guiso, Luigi; Sapienza, Paola; Zingales, Luigi (2006): Does culture affect economic outcomes? *Journal of Economic Perspectives*, 20 (2): 23–48.DOI: 10.1257/jep.20.2.23

Guiso, Luigi; Sapienza, Paola; Zingales, Luigi (2009): Cultural biases in economic exchange? In *The Quarterly Journal of Economics* 124 (3), pp. 1095–1131.

Halla, Martin (2012): Tax morale and compliance behavior: First evidence on a causal link. In The B.E. *Journal of Economic Analysis & Policy* 12 (1).

Henrich, Joseph; Boyd, Robert; Bowles, Samuel; Camerer, Colin; Fehr, Ernst; Gintis, Herbert; McElreath, Richard (2001): In search of Homo Economicus: Behavioral experiments in 15 small-scale societies. In *The American Economic Review* 91 (2).

Herz, Holger; Huber, Martin; Maillard-Bjedov, Tjasa; Tyahlo, Svitlana (2021): Time preferences across language groups: evidence on intertemporal choice from the Swiss language border. In *The Economic Journal* 131 (639), pp. 2920–2954.

Kastlunger, Barbara; Lozza, Edoardo; Kirchler, Erich; Schabmann, Alfred (2013): Powerful authorities and trusting citizens: the slippery slope framework and tax compliance in Italy. In *Journal of Economic Psychology* 34, pp. 36–45.

Krupka, Erin L.; Weber, Roberto A. (2013): Identifying social norms using coordination games: Why does dictator game sharing vary? In *Journal of the European Economic Association* 11 (3), pp. 495–524.

Lewis, Alan; Carrera, Sonia; Cullis, John; Jones, Philip (2009): Individual, cognitive and cultural differences in tax compliance: UK and Italy compared. In *Journal of Economic Psychology* 30 (3), pp. 431–445.

List, John A.; Harrison, Glenn (2004): Field experiments. In *Journal of Economic Literature* 42 (4), pp. 1009–1055.

Macintyre, Alison; Chan, Ho Fai; Schaffner, Markus; Torgler, Benno (2023): National pride and tax compliance: A laboratory experiment using a physiological marker. In *PLoS ONE* 18 (1).

Malézieux, Antoine; Torgler, Benno (2021): Culture, immigration and tax compliance. In *CREMA Working Paper* (23).

Martinez-Vazquez, Jorge; Torgler, Benno (2009): The evolution of tax morale in modern Spain. In *Journal of Economic Issues* 43 (1).

Miguel, Edward; Saiegh, Sebastian M.; Satyanath, Shanker (2008): National cultures and soccer violence. In *NBER Working Paper* (13968).

Ottone, Stefania; Ponzano, Ferruccio; Andrighetto, Giulia (2018): Tax compliance under different institutional settings in Italy and Sweden: an experimental analysis. In *Economia Politica* 35, pp. 367–402.

Sutter, Matthias; Angerer, Silvia; Glätzle-Rützler, Daniela; Lergetporer, Philipp (2018): Language group differences in time preferences: Evidence from primary school children in a bilingual city. In *European Economic Review* 106, pp. 21–34.

Thielmann, Isabel; Hilbig, Benjamin E.; Schild, Christoph; Heck, Daniel W. (2025): Cheat, cheat, repeat: On the consistency of dishonest behavior in structurally comparable situations. In *Journal of personality and social psychology.*

Torgler, Benno (2002): Does culture matter? Tax morale in an East-West-German comparison. In *FinanzArchiv Public Finance Analysis* 59 (4), pp. 504–528.

Torgler, Benno; Schneider, Friedrich (2007): What shapes attitudes toward paying taxes? Evidence from multicultural European countries. In *Social Science Quarterly* 88 (2), pp. 443–470.

Wahl, Ingrid; Kastlunger, Barbara; Kirchler, Erich (2010): Trust in authorities and power to enforce tax compliance: an empirical analysis of the slippery slope framework. In *Law and Policy* 32 (4), pp. 383–406.

Zhang, Nan; Andrighetto, Giulia; Ottone, Stefania; Ponzano, Ferruccio; Steinmo, Sven (2016): "Willing to pay?" Tax compliance in Britain and Italy: An experimental analysis. In *PLoS ONE* 11 (2).

Appendix: Additional Tables and Figures

Table A1
Cultural language predictors

DV: language	**(I)**	**(II)**	**(III)**	**(IV)**
born in South Tyrol	0.674**			
	(0.239)			
years of residence		0.013**		
		(0.005)		
identification South Tyrol			0.574***	
			(0.121)	
identification Italy			-0.546***	
			(0.114)	
district zentrum				1.012**
				(0.337)
district don bosco				-0.401
				(0.456)
district europa				-0.109
				(0.402)
district gries				0.438
				(0.327)
N	189	189	189	189

Standard errors in parentheses
+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table A2
Alternative hurdle regressions

DV: evasion_ratio	(I) Cragg Hurdle		(II) Manual Two Stage		(III) Restricted Sample	
	1st H	**2nd H**	**Probit**	**OLS**	**1st H**	**2nd H**
language	0.321	-0.194**	0.320	-0.172*	0.441	-0.299**
	(0.209)	(0.070)	(0.209)	(0.076)	(0.284)	(0.093)
gender	0.352+	-0.001	0.342+	-0.012	0.464+	-0.002
	(0.204)	(0.063)	(0.208)	(0.073)	(0.264)	(0.088)
age	-0.006	-0.007+	-0.007	-0.007	-0.003	-0.008
	(0.010)	(0.004)	(0.010)	(0.004)	(0.014)	(0.006)
together	-0.032	0.116	0.035	0.115	-0.062	0.152
	(0.332)	(0.109)	(0.332)	(0.110)	(0.424)	(0.141)
married	-0.037	0.063	-0.033	0.063	-0.031	0.045
	(0.289)	(0.099)	(0.290)	(0.103)	(0.386)	(0.140)
separated	-0.180	0.177	-0.179	0.172	-0.009	-0.025
	(0.549)	(0.139)	(0.548)	(0.154)	(0.848)	(0.366)
education	-0.071	-0.013	-0.080	-0.019	-0.461	0.012
	(0.229)	(0.087)	(0.230)	(0.097)	(0.301)	(0.103)
unemployed	-0.111	0.062	-0.107	0.071	-0.129	0.261
	(0.373)	(0.143)	(0.373)	(0.146)	(0.542)	(0.221)
selfemployed	0.137	-0.085	0.138	-0.069	0.053	-0.042
	(0.274)	(0.116)	(0.274)	(0.112)	(0.364)	(0.122)
student	0.736	-0.064	0.702	-0.063	0.690	-0.032
	(0.539)	(0.163)	(0.548)	(0.165)	(0.655)	(0.174)
nationality	0.593	-0.422*	0.591	-0.391+	0.169	-0.553*
	(0.471)	(0.210)	(0.471)	(0.227)	(0.594)	(0.174)
real-life income	-0.218*	-0.035	-0.211	-0.027	-0.215	-0.035
	(0.101)	(0.055)	(0.102)	(0.059)	(0.138)	(0.047)
experimental income	-0.004	-0.003**	-0.004*	-0.003*	-0.004	-0.003+
	(0.003)	(0.001)	(0.003)	(0.001)	(0.004)	(0.002)
taxes remaining in ST	-0.008*	0.000	-0.008*	0.000	-0.007	0.001
	(0.003)	(0.001)	(0.003)	(0.001)	(0.004)	(0.002)
perceived detection risk	0.007	-0.005	0.006	-0.009	-0.027	-0.013
	(0.044)	(0.013)	(0.044)	(0.013)	(0.055)	(0.018)
constant	0.607	1.664***	0.621	1.601***	1.934***	1.767***
	(0.958)	(0.335)	(0.960)	(0.364)	-1.242	(0.395)
sigma		-1.386***				0.024***
		(0.105)				(0.030)
N	189		189		142	

Standard errors in parentheses
+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table A3
Honest gain robustness check

DV: diff gain	**(I) OLS**
language	0.513*
	(0.256)
constant	-1.194**
	(0.171)
N	190

Standard errors in parentheses
+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table A4
Evasion of TV license fees

DV: TV license fee evasion	**(I) All Municipalities**	**(II) Municipalities with German language > 50%**	**(III) Municipalities with German language > 90%**
Italian	0.157***	-0.245	-0.212
	(0.035)	(0.274)	(1.528)
German	-0.060**	-0.579*	-1.064
	(0.020)	(0.266)	(1.460)
constant	18.39***	69.41*	115.9
	(1.881)	(26.48)	(145.7)
N	116	103	77

Standard errors in parentheses
+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table A5
Summary of main variables

	Italian	**German**	**Scale**
	N=105	**N=85**	
ratio taxes	61.6	66.0	percentage from 1 to 100
perceived detection	5.9	5.4	from 1 (low) to 10 (high)
identification South Tyrol	3.9	4.4	from 1 (weak) to 5 (strong)
identification Italy	4.0	3.4	from 1 (weak) to 5 (strong)
language private	1.4	4.3	from 1 (Italian) to 5 (German)
language work	1.8	3.6	from 1 (Italian) to 5 (German)
language index	0.08	0.86	from 0 (Italian) to 1 (German)

Appendix: Instructions

Welcome Page and Privacy Statement

Welcome and thank you for your interest in our study! The study is being conducted in cooperation with the Free University of Bozen-Bolzano and the Max Planck Institute for Research on Collective Goods in Bonn (Germany). In the following you will participate in an economic experiment. You will receive a guaranteed amount of 5€ if you complete the study. You can earn additional money during the experiment. Depending on your decisions and the decisions of the other participants, the additional earnings will be between €1 and €20. You will find more detailed explanations during the experiment. Within the experiment, we will not talk about euros, but about points. The points you collect during the experiment will be exchanged for euros at the end. The conversion rate is: 10 points = 1€ You can complete the study by 09/06/2024. At the end of this period, you will be paid by bank transfer from us. The experiment will take about 15 minutes. Please complete the experiment in an undisturbed place and do not communicate with other people (on site or via electronic services). Once the experiment starts, there is no chance to save your answers and continue later. You must complete the entire experiment in one go. You are free to cancel the experiment at any time. However, if you cancel, you will lose the right to any compensation, including the guaranteed amount of €5. Participation is voluntary and does not entail any disadvantages for you. Click on Continue to access the data protection provisions.

The data collected as part of this study is stored separately from any personal data. The data will be analyzed in aggregated form by the Max Planck Institute for Research on Collective Goods. The resulting findings will be used for scientific publications and presentations. In order to ensure transparency in science, the anonymized data is made accessible to third parties if necessary. It is not possible to draw conclusions about individual participants. The study has also been authorized by the Ethics Committee of the Max Planck Institute. To ensure your payment, your bank details will be requested in a separate questionnaire at the end of the study. This personal data is collected separately and used exclusively for payment. If you have any questions, please contact Robin Scheuch, PhD student at the Max Planck Institute in Bonn (scheuch@coll.mpg.de) or Matthias Cologna, PhD student at the Free University of Bozen-Bolzano (mcologna@unibz.it). Have fun and good luck with your participation in our study! By clicking on the box below, you agree to the data protection provisions described here. If you agree to participate in this study, please click on Continue.

General Instructions

The experiment consists of three parts. In the first part, you act as a taxpayer in South Tyrol. You earn points by solving a task. The points you earn must then be taxed. The points earned are relevant for your payment. The second part is about assessing the behavior of other people. In this part too, you earn points that are relevant to your payment. The result depends not only on your behavior, but also on the behavior of the other participants. This is why the result is not shown to you directly but is of course considered when you are paid. In the third part, you will be asked questions about the tax system and about yourself. This third part does not affect your payment. Please have the dice we have given you ready. You will be told when to use it during the experiment. If you now click on Continue, you will be taken to the first part of the experiment.

Instructions Tax Game

The first part of the experiment starts now. The first step is to solve the following task: In a matrix consisting of ones and zeros, you are to count the number of zeros. The closer you get to the correct result, the more points you earn. You have 60 seconds to do this. In a second step, you slip into the role of a taxpayer in South Tyrol. You must pay income tax (IRPEF) on your points. To do this, you must declare your points. The tax is only calculated on the part of the declared points. You can choose to declare all your points, some of your points or no points at all. The tax rate for you in this experiment is 30%. The taxes paid will be used to finance further academic studies. Your net earnings in points are calculated as follows: The income you received minus the tax on the portion of points you declared. Net earnings in points = Earned points - (Declared points * 30%) On the following page, you must answer three control questions to ensure that you understand the mechanism of the experiment. You can refer to a summary of the instructions above. You can access the control questions by clicking Next.

Control Questions

You have earned 100 points of income. The tax rate is 30%. You declare your entire income of 100 points. How much tax do you pay?

If you declare no income (i.e. 0 points in this experiment) in your tax return, how much tax do you have to pay?

You have earned 60 points of income. You can decide to declare all points, part of the points or no points at all. What is the minimum amount of income you can declare?

Instructions Belief Elicitation

In this second part, you are no longer in the role of the taxpayer. You will be confronted with two hypothetical situations and asked to give your assessment. The other participants in this study will be asked the same questions. The closer you come to the most frequently mentioned answer of the others, the more points you earn (maximum 50 points). So, we are not asking for your personal opinion, but for your assessment of how the majority respond. Imagine the following scenario for your answer. A taxpayer in South Tyrol has an income of 100 points, of which he or she must pay 30% tax (IRPEF) on the declared income. How much income will he or she declare?

Instructions Dice Game

Now pick up your dice. The first throw determines the payout. So only state the result of the first throw. However, you are welcome to throw the dice a few more times to make sure that it is a normal die.

Language Group Questions

Which language group do you identify with the most?

What language do you speak every day in your private life (with family, friends, etc.)?

What language do you speak in your professional environment?