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Understanding Cross-Cultural Differences in Peer Reporting Practices: Evidence from Tax Evasion Games in Moldova and France

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Understanding Cross-Cultural Differences in Peer Reporting Practices: Evidence from Tax Evasion Games in Moldova and France*

Rustam Romaniuc[†], Dimitri Dubois[‡], Eugen Dimant[§], Adrian Lupusor[¶], Valeriu Prohnitchi^{||}

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Abstract

Authorities rely on reporting from private citizens to detect and enforce more than a trivial portion of effective law breaking. This article is the first to experimentally study the cultural aspect of peer reporting. By collecting data in a post-Soviet country (Moldova), we focus in particular on how the Soviet legacy of using citizens as private informants may have a long-lasting effect on their willingness to cooperate with state authorities in present day; we then contrast these effects with peer reporting behavior in a Western society (France). Our results suggest that participants in Moldova view the act of cooperating with central authorities as less socially acceptable than subjects in France and that participants in Moldova engage less frequently in peer reporting than participants in France. However, we also find that less reporting does not necessarily imply less tax compliance. Participants in both countries share very similar tax compliance rates. We explain the effect of peer reporting on tax compliance in Moldova by the country's past experience during the Soviet era when being reported to central authorities was common and came with serious consequences for the person being denounced, ranging from shaming to expropriation.

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1 Introduction

Law enforcement depends on the actions of police officers and prosecutors as well as on citizen engagement with the state to convey information that would be too costly for central authorities to acquire by themselves (Acemoglu and Jackson [2017]). Because authorities lack the resources to detect and enforce more than a trivial portion of effective law-breaking, they rely on reporting from private citizens (Butler et al. [2019]; Buckenmaier et al. [2020]). Research suggests that states that rely on private cooperation to ensure compliance with laws and regulations have significant advantages over those that do not (Root [1994]; Gehlbach [2008]; Acemoglu and Robinson [2019]). In effect, absent citizen participation, states are forced into more resource-intensive strategies of proactive enforcement and surveillance.

This article aims at studying the cultural differences in attitudes toward peer reporting and in the willingness to cooperate with central authorities. We use laboratory experiments in Moldova and in France to measure attitudes toward peer reporting and people's willingness to incur a cost to report observed misbehavior to a central authority. To introduce misbehavior in the experiment, we give participants the opportunity to engage in tax evasion. We focus on tax evasion since it generates social costs rather than purely individual losses. Tax evasion is particularly difficult to deter (Chalfin and McCrary [2017]). The cooperation of citizens with law enforcement authorities has been shown to play a key role in deterring tax evasion (Breuer [2013]; Luttmer and Singhal [2014]; Masclet et al. [2019]; Antinyan et al. [2020]; Bazart et al. [2020]; Buckenmaier et al. [2020]). Tax games are also easy to implement in the laboratory and they have the advantage that we can accurately identify tax compliance, rates of peer reporting and measure the social acceptability of reporting someone to a central authority (Johnson et al. [2010]). Indeed, a burgeoning literature studies tax evasion using the laboratory (for a meta-study, see Alm and Malézieux [2020]).

Across our three experimental conditions, we collected a total of 308 subjects in France and Moldova combined. To measure the social acceptability of reporting someone to central authorities, we used the Krupka and Weber [2013] procedure. In the *baseline* condition, at the end of a tax game, participants had to indicate the extent to which they thought that members of society would consider it socially acceptable (unacceptable) to report a person to a central authority for various tax declarations as a percentage of that person's earned income. The same procedure of eliciting beliefs has been utilized in Moldova and in France. In the *whistleblowing* condition, we allowed participants to report a tax evader to the central authority. Thus, attitudes and effective decisions to report were elicited in different treatments. Since whistleblowing implies social observation in addition to peer reporting, it is important to disentangle the effect of peer reporting from the effect of merely observing the income declarations of others, which has been shown to influence behav-

ior by itself ([Coricelli et al. \[2014\]](#)). This is why another treatment was implemented without peer reporting, but instead with social observation.

Given the Soviet legacy of using citizens as informants, we hypothesized that participants in Moldova will approve less of reporting a tax evader to a central authority than participants in France. Although peer reporting or what is called “denunciation” is a phenomenon of everyday life that exists in every society, its type, incidence, and visibility (the degree to which the practice is recognized and problematized) has varied across countries. As the historian Sheila Fitzpatrick argues in an article titled “Practices of Denunciation in Modern European History”:

“Denunciation as a social practice was greatly encouraged by the [Soviet] regime’s decision in the late 1920s to expropriate, deport, and otherwise punish whole categories of class enemies, notably kulaks (prosperous peasants) and Nepmen (the private entrepreneurs whose existence had been tolerated under the New Economic Policy of the 1920s). “Bourgeois” (i.e., non-Communist) specialists and “former people” (members of the old privileged classes) also came under fire at this time. Class enemies, who were prone to conceal their identities, had to be “unmasked,” and denunciation was an important part of this process. A few years later, denunciation acquired its official hero and martyr in Pavlik Morozov, a Young Pioneer (or so the story had it) murdered by relatives after denouncing his own father for trying to cheat the Soviet government for hoarding grain. For more than fifty years, until his monuments were (literally) toppled by resentful citizens in the Gorbachev era, Pavlik remained an exemplar of the virtuous Soviet child who put public interests above private and family loyalties” ([Fitzpatrick \[1996\]](#), p.833).

[Fitzpatrick \[1996\]](#)’s quote well illustrates the practice of peer reporting in the Soviet period as well as how this practice became distasteful after Gorbachev’s social reforms. These claims are supported by survey-based studies showing that citizens in post-Soviet countries are less willing to cooperate with law enforcement authorities compared to Western countries. As previous research has shown that peer reporting is a powerful mechanism to deter tax evasion, we expected that lower levels of peer reporting in Moldova would lead to higher tax evasion rates compared to France.

Our results indicate that, as hypothesized, subjects in Moldova view reporting someone to a central authority as less socially acceptable than subjects in France. In accordance with our second original result, the frequency of peer reporting is significantly lower in Moldova than in France. However, contrary to what we initially expected, our next result is that tax compliance rates are similar in the two countries. We explain the effect of peer reporting on tax compliance in Moldova by the country’s past experience during the Soviet era when being reported to central authorities

was common and came with serious consequences for the person being denounced, ranging from shaming to expropriation.

Our experimental study contributes to the extant literature on the interactions between private and public enforcement ([Benson \[1989\]](#); [Josselin and Marciano \[2002\]](#); [Baldassarri and Grossman \[2011\]](#); [Benabou and Tirole \[2011\]](#); [Leeson \[2013\]](#); [Acemoglu and Jackson \[2017\]](#); [Romaniuc et al. \[2016\]](#)) by showing how history affects the interplay between the two mechanisms (for a more general analysis of how history affects the working of institutions, see [Boettke et al. \[2008\]](#)). Despite growing empirical literature dealing with the interactions between private citizens and formal authorities ([Soares \[2004\]](#); [Tyler \[2004\]](#); [Tankebe \[2009\]](#); [Allingham and Sandmo \[2010\]](#); [Buckley et al. \[2016\]](#)), there is no consensus on the particular factors that affect citizens' willingness to cooperate with the state. While some argue that private citizens' cooperation with the state is driven solely by a simple cost-benefit assessment ([Soares \[2004\]](#)), others have sought to complicate the standard discourse by showing how non-monetary considerations may influence citizens' decisions. In particular, it has been shown that specific historical events may have long-lasting consequences in terms of people's attitudes toward whistleblowing and, consequently, their willingness to cooperate with law enforcement agencies ([Buckley et al. \[2016\]](#) offer empirical evidence). [van Kesteren et al. \[2013\]](#) provide suggestive evidence showing that reporting a crime to the police may be less common in post-Soviet countries where the decision to cooperate with the state is fraught with meaning, given the Soviet legacy of using citizens as informants.

While the existing literature provides survey-based evidence, this article aims to experimentally identify whether citizens' willingness to cooperate with a central authority is different in a post-Soviet country such as Moldova compared to a Western country such as France. There are a number of advantages from using controlled experiments compared to surveys to study this question. First, as noted by [Buckley et al. \[2016\]](#), respondents' answers to crime-victim surveys greatly vary for different types of crime. Additionally, with surveys, it is impossible to distinguish between the effect of the Soviet legacy — using citizens as informants — and the respondents' current trust in central authorities (see [Antinyan et al. \[2020\]](#)). Our controlled experiments avoid these pitfalls.

The paper is organized as follows. Section 2 presents our different treatments and the implementation of the experiment in the two countries. Section 3 offers a review of the relevant literature that serves to construct our predictions. Section 4 presents the main results. Section 5 discusses the main results and concludes.

2 Experimental design

2.1 Experimental design

Our experiment consists of three experimental conditions: a *Baseline* that implements a tax evasion game followed by the [Krupka and Weber \[2013\]](#) beliefs elicitation procedure, a *Whistleblowing* treatment that uses the tax evasion game coupled with the possibility for subjects to report observed tax evasion, and a *Social observation* treatment that controls for the mere existence of observability in the whistleblowing treatment.

In each condition, participants played 15 rounds of a tax game similar to [Johnson et al. \[2010\]](#), [Masclet et al. \[2019\]](#) and [Bazart et al. \[2020\]](#). In each round, participants received a real income from the experimenter. The income that each participant received varied in each round, ranging from 20 to 100 Experimental Currency Units (ECU), and was randomly drawn from a uniform distribution. In each round, each member of a group of 4 had to declare the received income to a central authority in the experiment, knowing that there is a 40% tax on the declared income. The tax rate was the same for all declared incomes and for each participant.¹ Participants make the decision to engage in tax evasion in a setup where they interact with the public authority.² To mimic governmental authorities in the laboratory, we made it clear to the participants that they had to declare their incomes to the central authority in the experiment.³ Participants were informed that they are the only ones who have full information about the income they have received. That is, the central authority has no information about their individual incomes. However, the central authority in the experiment can audit the incomes to verify whether the participants declared their total income.

In each condition, the exogenously-determined probability of being audited for each partici-

¹Previous experimental studies have shown that subjects engage in tax evasion to some extent with a 40% tax rate, although an important fraction of individuals voluntarily choose to comply ([Masclet et al. \[2019\]](#)). In addition, such a tax rate is similar to the tax rate for self-employed individuals in some countries (e.g., Denmark; see [Kleven et al. \[2011\]](#)). Note that in all treatments, participants were not informed about how tax revenues are used. Thus, the taxes collected do not finance public goods or services and therefore do not generate any positive externality. This choice was motivated by three factors. First, in the baseline, we wanted to create an environment that strips away any strategic considerations. Therefore, we opted to have no local public goods provided as the result of the collected taxes. Second, we opted not to fund some global public good with the taxes collected (e.g., sending the money to a charity) because participants' behavior may have been influenced differently in the two countries as a consequence of our choice of a charity. Third, [Masclet et al. \[2019\]](#) found that information on how taxes are used (i.e., whether they are "burnt" or used to fund a global environmental public good) has no significant impact on either tax compliance or peer reporting.

²Using real-world framing is a common feature of lab experiments on the topics of corruption, tax evasion, and lying (see, e.g., [Barr and Serra \[2009\]](#); [Buckenmaier et al. \[2020\]](#)).

³Because the legitimacy of the central authority has been shown to play an important role in experimental games studying compliance ([Baldassarri and Grossman \[2011\]](#)), we wished to minimize the possibility that the central authority in our experiment is seen as illegitimate. For this reason, we opted not to exogenously select one participant to play the authority's role. Thus, while some recent experimental studies used a randomly selected participant to act as the authority ([Engel \[2014\]](#); [Espinosa et al. \[2020\]](#)), we elected to use the experimenter that is most likely to be seen as a legitimate authority during the experimental session. Although participants had no further information about the identity of the authority, previous experimental studies suggest that participants defer to the experimenter as the authoritative figure in this type of environment ([Karakostas and Zizzo \[2016\]](#)).

pant was 20%, which was common knowledge among all participants. Thus, each participant had a 20% probability of having his/her income declaration audited in each round as the result of the random auditing process.⁴ If unreported income is detected, the participant is charged 1.5 times the standard tax rate on the income evaded in that audited round: if tax evasion is detected, the participant pays the due taxes plus a penalty that is 50% of what they missed to declare. The penalty was chosen to be non-deterrent. That implies that the penalty should not change the participants' dominant strategy (on non-deterrent sanctions in law and economics, see [Tyran and Feld \[2006\]](#); [Galbiati and Vertova \[2014\]](#); [Engel \[2014\]](#); [Romaniuc \[2016\]](#); [Bicchieri et al. \[2020\]](#)). Thus, if participants resent no moral obligation to pay taxes or guilt from under-reporting, they should declare zero income in each round in order to maximize their monetary gains.

After each round, the participant was informed of whether his/her account was audited and whether s/he had been sanctioned in that round (this information was not made public).

Baseline: In the baseline condition, subjects received no feedback about others' decisions. At the end of the experiment, we elicited norm perceptions using the [Krupka and Weber \[2013\]](#) procedure.⁵ In our questionnaire, participants had to indicate the extent to which they thought that members of society would consider socially acceptable (unacceptable) to report a person to a central authority for various tax declarations as a percentage of that person's earned income.⁶ For various tax declarations, participants had to select one of the following options: "very socially acceptable," "somewhat socially acceptable," "neither acceptable nor unacceptable," "somewhat socially unacceptable," "very socially unacceptable."⁷

Whistleblowing treatment: To study the individual willingness to report a tax evader to the central authority as well as the effect of whistleblowing on tax evasion rates, we introduced the whistleblowing treatment. Existing literature has suggested that the cooperation of citizens with law enforcement agents — via peer reporting — plays a key role in deterring tax evasion ([Breuer \[2013\]](#); [Luttmer and Singhal \[2014\]](#); [Maschke et al. \[2019\]](#); [Antinyan et al. \[2020\]](#); [Bazart et al.](#)

⁴Empirical studies have shown that the probability of audit for self-reported income is generally low, which explains the high evasion rates for this type of revenues ([Andreoni et al. \[1998\]](#); [Kleven et al. \[2011\]](#)). Indeed, tax enforcement authorities have limited resources and can only audit a small number of individual declarations. What is more, in some countries, there may be a gap between the auditing probability and the probability of being punished for deviant behavior because punishment may not be automatic due to the corruptibility of law enforcement agents.

⁵We implemented the norm elicitation questionnaire at the end of the baseline because we needed our participants to understand the tax game without being exposed to the effective implementation of whistleblowing. The elicitation of norms in a treatment with effective whistleblowing during the game would have yielded biased stated opinions since participants' beliefs would have been influenced by their own whistleblowing decisions during the game. Also, we provided no feedback about others' behavior since empirical information can influence normative beliefs.

⁶However, contrary to the original implementation, our elicitation procedure was not incentivized. Supporting evidence from [Vesely \[2015\]](#) shows that people provide virtually the same responses in incentivized and non-incentivized versions of the Krupka-Weber game.

⁷It is worth noting that following [Krupka and Weber \[2013\]](#) and papers that built upon their method (e.g., [Vesely \[2015\]](#)), participants in our experiment were asked to provide what they thought would be the response of a "typical" member of society, rather than their "personal" rating.

[2020]; [Buckenmaier et al. \[2020\]](#)).

In the whistleblowing treatment, two new steps were added compared to the baseline condition. First, after each round, each participant was informed about the percentage of income declared by the three other participants in his/her group. More specifically, each participant observed the income declarations of the same three other participants after each of the 15 rounds of the game. The second additional step compared to the baseline treatment was that after having observed the declared income rates of the others, each participant could anonymously report any observed tax evasion to the central authority. Peer-reporting of tax evasion (i.e., whistleblowing) was costly: each report costed the participant who reported 2 ECU. In this respect, our design choice is akin to the literature on costly third-party punishment (see, e.g., [Fehr and Fischbacher \[2004\]](#)). Peer reporting was designed to be costly in the experiment to better mimic real-life situations where one needs to collect relevant information to be conveyed to the fiscal authority in charge of tax audits. In the experiment, a reported individual was automatically audited. However, s/he did not know whether the audit resulted from a random process or from a group member blowing the whistle (although over time, if audited substantially more than 20% of the time, s/he could infer to be the target of whistleblowers). The instructions made all of this information common knowledge.

Social observation treatment: Since whistleblowing implies social observation in addition to peer reporting, it is important to disentangle the effect of peer reporting from the effect of merely observing the income declarations of others, which has been shown to influence behavior by itself ([Coricelli et al. \[2014\]](#); [Casal and Mittone \[2016\]](#)). This justified another treatment without whistleblowing but with social observation (henceforth called the *social observation treatment*).

To summarize, the main treatment of interest is the one with the whistleblowing option. The proper control group for the whistleblowing treatment constitutes the social observation treatment since the two are identical but for the existence/absence of peer reporting. The baseline described above is used exclusively for its measure of norms regarding whistleblowing in the two countries.

2.2 Procedure

The experiment consists of 12 sessions, of which 6 were conducted at the Laboratory for Experimental Economics in Montpellier, France (LEEM) and 6 were conducted at the Academy of Economic Sciences of Moldova (ASEM), in Chisinau, Moldova. The sessions were conducted by the same team of experimenters between March and September 2019. We obtained a total of 308 participants. All participants were students at one of the universities where the experiment was conducted. None of them had previously participated in a tax evasion game. Table 1 presents a breakdown of observations per treatment in both Moldova and France.

Table 1: Summary of the experimental design

Treatments	Subjects Mold.	Subjects France	Sessions Mold.	Sessions France	Total nr of subjects
Social observation	92	36	2	2	128
Whistleblowing	64	36	2	2	100
Baseline norm elicitation	48	32	2	2	80

Subjects in Moldova and in France interacted through individual computer terminals using the oTree software ([Chen et al. \[2016\]](#)). At the end of the experiment, one of the 15 rounds was randomly selected for payment. The exchange rate from ECU to euros in France was 10 ECU = 3 euros. In Moldova, the exchange rate was 10 ECU = 2 euros. The payment in Moldova was made in local currency, the Moldovan Leu (1 MLD = 0.05 euro on June 26, 2020). It is worth noting that subjects in France earned a show-up fee of 4.5 euros in addition to the bonus earned during the experiment. There was no show-up fee in Moldova as we complied with the standard procedure of our local partner, the Academy of Economic Sciences of Moldova, in running the experimental sessions. The exchange rates in the two countries were calculated so as to achieve, on average, final earnings that are comparable in terms of purchasing power, as recommended by [Roth et al. \[1991\]](#). In effect, the average earnings in France and in Moldova were 12.82 and 8.42 euros respectively, while a meal in the vicinity of the universities where experiments were conducted costs, on average, 5 euros in France and 3.5 euros in Moldova.

3 Theoretical background and predictions

3.1 Standard predictions

We first start with the traditional model that assumes away the impact of social or internalized norms on behavior ([Allingham and Sandmo \[1972\]](#)). Also, monetary punishments are assumed to change behavior only when these are deterrent – that is, when option X is made more attractive relative to option Y in monetary terms. This model predicts that our participants will report no income to the central authority in all our experimental conditions. Because we have three variables of interest, we will detail the predictions for each variable of interest.

The first variable is the stated beliefs regarding the social acceptability of whistleblowing. Specifically, we focus here on the comparison between the beliefs expressed in Moldova compared to France. Assuming away the impact of social or internalized norms of behavior, we expect no differences in the stated beliefs between the two countries. The second variable of interest is the willingness to blow the whistle in the two countries. Under the above stated assumptions, no participant is expected to blow the whistle regardless of the country where the experiment

is conducted because reporting on others is monetarily costly and brings no monetary benefit to the whistleblower. As for our third variable of interest, the standard model predicts that every participant will report zero income since the punishment is non-deterrent.⁸

3.2 Peer-reporting as a private enforcement strategy

Private enforcement can take many forms (on decentralized private and public norm-enforcement, see [Leeson \[2009\]](#) and [Leeson \[2013\]](#)). In this paper, we study a private and decentralized mechanism based on the use of denunciation to a central authority (see [Buckenmaier et al. \[2020\]](#); [Butler et al. \[2019\]](#)). Laboratory experiments have helped to clarify the extent to which peers voluntarily enforce compliance with some social norm when individual actions generate externalities (e.g., [Masclét et al. \[2010\]](#); [Romaniuc et al. \[2016\]](#); [Dimant and Gesche \[2020\]](#); for a review of the literature, see [Guala \[2012\]](#)). What is more, [Fehr and Fischbacher \[2004\]](#) have shown that individuals are willing to pay a cost to enforce compliance with norms even when they are not directly affected by the actions of their peers, while [Masclét et al. \[2019\]](#) have found norm enforcement in the total absence of externalities. Thus, what seems to matter for norm enforcement is whether an individual violated “the right thing” regardless of whether or not this violation resulted in individual or social losses. In our experiment, tax evasion may be viewed as blamable and punishable even if the collected taxes are not used to produce local or global public goods. Based on these results, we expect a subset of our participants in the whistleblowing treatment to incur a cost to enforce the norm of tax compliance. As a result, the number of audits will be higher than in the other conditions, thus deterring some individuals from under-reporting their income. We predict the effect to become especially significant over time.

3.3 The interplay between private and public enforcement

After describing the behavioral mechanisms that may lead participants in our experiment to blow the whistle, we turn to the main focus of this paper: the interplay between private enforcement via whistleblowing and public enforcement via the centralized audits that follow. The interaction between the two has so far received only little attention. Indeed, most of the literature on whistleblowing has focused on the effects of incentives for whistleblowing ([Yaniv \[2001\]](#); [Breuer \[2013\]](#); [Butler et al. \[2019\]](#); [Spagnolo and Nyrerod \[2019\]](#) provide a survey of this literature), on the merits of whistleblowing compared to random audits ([Bazart et al. \[2020\]](#)), or the effects of providing legal immunity to the bribe giver for whistleblowing as a means to deter collusive bribery ([Buckenmaier et al. \[2020\]](#)).

⁸For example, in the extreme case of a participant endowed with 100 ECU who decides to declare 0 income, the expected gain is equal to $(0.8 \times 100) + (0.2 \times 40) = 88$, whereas the certain earning in case of compliant behavior is 60.

The interplay between private citizens who may engage in whistleblowing and public authorities that are in charge of effective punishment remains largely under-explored. [Acemoglu and Jackson \[2017\]](#) is a notable exception. The authors study the enforcement of laws as a function of private cooperation because detection, in their model, depends on whistleblowing. They focus, specifically, on tax evasion and argue that part of the reason for the ineffectiveness of laws against tax evasion is that authorities lack the resources to audit more than a trivial fraction of the population. Central authorities instead rely on private cooperation. Similar to [Acemoglu and Jackson \[2017\]](#)’s paper, we study how formal policies can affect private citizens’ willingness to enforce current laws. However, our work differs from theirs in two aspects. First, we offer experimental evidence rather than a theoretical model. Second, instead of focusing on the interplay between the severity of laws and the private enforcement of laws, we study the long lasting effects of the Soviet tradition of using private citizens as informants on these citizens’ willingness to report on others in the context of a tax game.

Given Moldova’s Soviet legacy, we hypothesize that participants from Moldova will view the act of cooperation with a central authority — in our context, reporting a tax evader — as less socially acceptable than participants in France. Consequently, we expect less whistleblowing in Moldova than in France. As whistleblowing affects the audit probability, we expect that less whistleblowing in Moldova will result in more tax evasion compared to France where the effective audit probability should be higher. To put it differently, less cooperation from private citizens in Moldova should lead to less detection and thus more tax evasion than in France.

4 Results

The presentation of the results is organized as follows. We first present summary statistics in order to check, for instance, that participants received similar incomes across treatments and that they had a similar probability of being audited in the absence of peer reporting. We then discuss the results from the norm elicitation, comparing subjects’ beliefs in the two countries about the social acceptability of reporting a tax evader to central authorities. Our third set of results will focus on the frequency of peer reporting in the two countries. We conclude the presentation of results with an analysis of tax evasion rates in the two countries, to check whether attitudes toward reporting and the frequency of reporting affect tax evasion rates.

4.1 Summary statistics

Table 2 presents the summary statistics for the two treatments of interest, the whistleblowing treatment and the social observation condition. Each treatment is presented separately for each

Table 2: Summary statistics

Treatments	Received income	% declared	Average number of peer reporting	Effective audits
Social obs. Mold	60.49	46.98%	–	19.06%
Social obs. France	61.17	41.85%	–	21.30%
Whistleblowing Mold	59.58	70.10%	0.22	36.25%
Whistleblowing France	58.92	70.20%	0.34	44.63%

country. The table indicates that subjects received a similar income, on average, in all conditions and in both countries. The income received from the experimenter ranges between 58.9 ECU and 61.2 ECU. Tax compliance is quasi-identical in the two countries under the whistleblowing treatment – our subjects declared on average 70% of their received income. The share of declared income is lower under the social observation treatment, regardless of the geographical condition, compared to the whistleblowing treatment. Indeed, subjects in the social observation condition declare, on average, 41.9% of their received income in France and 47% in Moldova. Subjects cannot report on others in the social observation treatment. When peer reporting was not possible, subjects were controlled by the central authority in 2 out of the 10 rounds (1.9 rounds, on average, in Moldova, and 2.1 rounds in France). The frequency of audits is higher in the whistleblowing treatment compared to the social observation condition. In Moldova, subjects' incomes were audited, on average, in 3.6 out of 10 rounds, while in France this happened in 4.4 out of 10 rounds. This difference may be explained by the higher frequency of peer reporting in France vs. Moldova.

4.2 Do normative views regarding peer reporting differ in the two countries?

To answer this question, we compare participants' answers to the social acceptability questionnaire that we included at the end of the baseline condition. As a reminder, participants had to select one of the following options for various tax declarations: "it is very socially acceptable to report this person to the central authority," "it is somewhat socially acceptable to report this person to the central authority," "it is neither acceptable nor unacceptable to report this person to the central authority," "it is somewhat socially unacceptable to report this person to the central authority," "it is very socially unacceptable to report this person to the central authority."

Figure 1 shows the proportion of subjects who view peer reporting as socially unacceptable.⁹ for different levels of tax evasion. The lighter bars correspond to Moldovan subjects' views, while the darker bars correspond to the responses collected in France. The difference in beliefs between

⁹The responses "somewhat socially unacceptable" and "very socially unacceptable" have been pooled together. The results are similar if we consider each response option separately. See Appendix B for a graphical comparison of beliefs in the two countries by each response option.

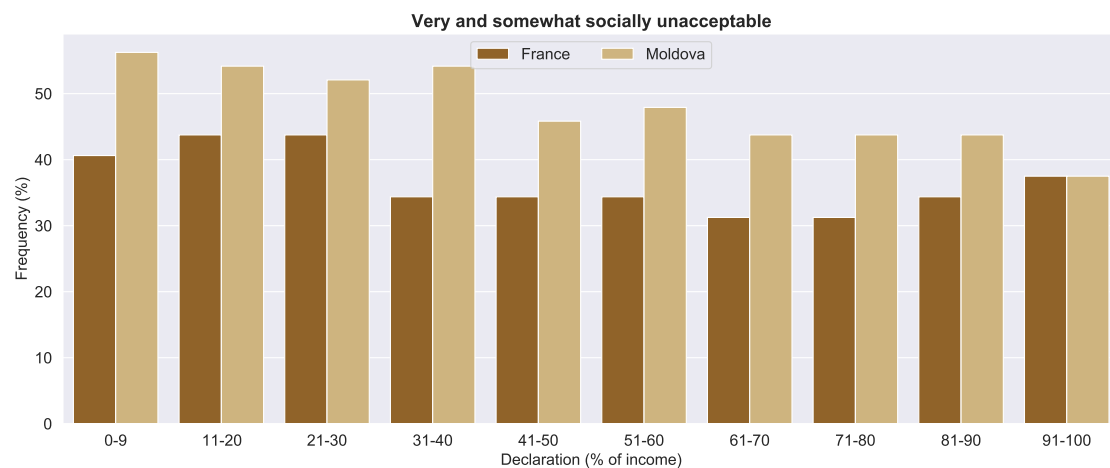


Figure 1: Normative views in Moldova and in France regarding the social acceptability of reporting a tax evader to the central authority

the two countries is obvious for each level of tax evasion. Subjects in Moldova consider, indeed, that it is less socially acceptable to report someone to a central authority in case that person under-reports her/his income, except for the very last case when the individual declares between 90% and 100% of her/his income. The difference in how subjects in the two countries view the act of reporting a tax evader to a central authority is significant according to a Mann-Whitney test ($p < 0.01$). This result raises the question of whether beliefs affect actual behaviors in the game, especially if subjects in Moldova report fewer tax evaders than subjects in France.

4.3 Do normative views regarding peer reporting affect whistleblowing decisions?

In our experiment, reporting someone to the central authority in the experiment costs the whistleblower 2 ECU. To investigate whether whistleblowing decisions are influenced by subjects' normative views regarding the social acceptability of reporting someone to a central authority, we compare the average number of denouncements in the two countries over the 15 rounds.

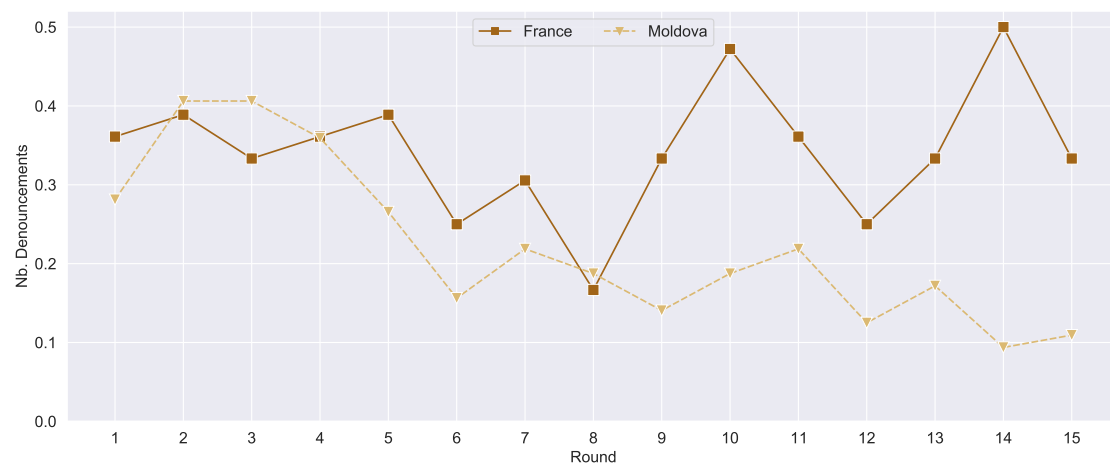


Figure 2: The evolution in the average number of denouncements by subject over the 15 rounds of the tax game

Figure 2 shows a sharp difference between the average number of denouncements in Moldova and in France. The difference in the average number of denouncements in the two countries is visible from the outset, and becomes more pronounced after round 8. The number of denouncements varies greatly from round to round in France (going up and down), while it constantly decreases in Moldova. A Mann-Whitney test confirms that the number of denouncements in the two countries is significantly different from each other ($p < 0.01$). The correlation coefficient between rounds and the number of denouncements is significantly negative in Moldova (Spearman $\rho = -0.854$, p -value < 0.001), while it is not significantly different from 0 in France ($\rho = -0.078$, p -value $= 0.783$).

4.4 Do subjects engage in tax evasion to a greater extent in Moldova vs. France?

Here, we test the behavioral prediction that less support for a private enforcement of tax compliance results in more tax evasion. Figure 3 presents the evolution in tax compliance (i.e., the percentage of income that subjects declared over time on average) in the two countries.

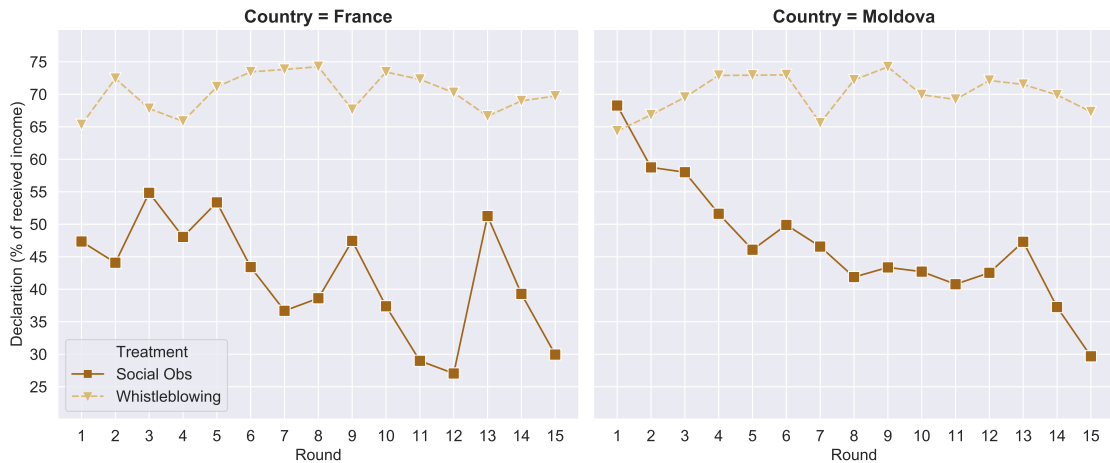


Figure 3: The percentage of income declared on average by subjects in France and in Moldova in the whistleblowing treatment and in the social observation treatment

The level of tax compliance is similar in France to what we observe in Moldova. Tax compliance is significantly higher in the whistleblowing treatment than in the social observation treatment, regardless of the country where the experiment has been conducted. A Mann-Whitney test comparing individual tax declarations as a percentage of income received confirms that tax compliance behaviors statistically differ in the whistleblowing treatment compared to the social observation treatment in France ($p < 0.001$) as well as in Moldova ($p < 0.001$). However, individual tax declaration rates in the whistleblowing treatment are not different in France compared to Moldova ($p = 0.418$) despite differences in the frequency of denunciations.

Tables 3 and 4 show the results of a random effects Tobit regression, with individual declaration in round t (as a percentage of total income received) as the dependent variable and the

following independent variables: income received in round t , whether the individual's declaration was audited in $t-1$ (yes=1), an interaction term to account for the effect of being in the two treatments (social observation and whistleblowing), whether subjects could report on others (social observation treatment=0, whistleblowing treatment=1), the average declaration rate in one's group in $t-1$, and the individual's gender (male=1). The average declaration rate in one's group in the previous round was included as it has been previously shown that individual behavior is highly dependent on the decisions taken by one's peers (on peer effects in the context of tax compliance, see Fortin et al. [2007]; Lefebvre et al. [2015]; for a more general perspective on how peer effects impact social and antisocial behaviors, see Frank [2020]).

The results are presented separately for each country. Table 3 focuses on the results obtained from the experiments conducted in France, while table 4 presents those based on data collected in Moldova.¹⁰ We find that subjects' declaration decisions are influenced by the level of income received (higher income leads to lower declaration rates), whether they were audited or not in the previous round (an audit in the previous round leads to less tax compliance in the next round in the social observation treatment, while the effect is opposite in the whistleblowing treatment), whether there is whistleblowing (the whistleblowing treatment leads to more tax compliance), the behavior of others in one's group (the more others declared in the previous round the higher one's own compliance in the next round), and the participant's gender (male subjects engaged significantly more in tax evasion compared to female subjects). Thus, the results in general when it comes to tax evasion rates and the effect of whistleblowing in particular are similar in both countries.

Table 3: Random effects Tobit regression, declaration rates in t (France)

	Estimates	Std. error	p-value
Income received	-0.261	0.107	0.015
Social obs. Audited in t-1	-42.386	9.092	< 0.001
Whistleblowing Not audited in t-1	40.945	17.319	0.018
Whistleblowing Audited in t-1	50.482	17.400	0.004
Average group in t-1	0.945	0.196	<0.001
Gender (Male)	-26.886	16.607	0.106
Intercept	41.993	16.667	0.012
Total = 1008; Nb. of groups = 18; Left censored = 282; Right censored = 349			
Log Likelihood = -2559.378; Wald $\chi^2(6)$ = 68.61; p-value < 0.001			

¹⁰A separate regression with "country" and "treatment" as independent variables shows that the whistleblowing treatment significantly increases tax compliance compared to the social observation treatment regardless of the country where the experiment has been conducted.

Table 4: Random effects Tobit regression, declaration rates in round t (Moldova)

	Estimates	Std. error	p-value
Income received	-0.298	0.057	< 0.001
Social obs. Audited in t-1	-14.246	4.253	0.001
Whistleblowing Not audited in t-1	38.045	9.914	< 0.001
Whistleblowing Audited in t-1	40.603	10.157	< 0.001
Average group in t-1	0.616	0.104	< 0.001
Gender (Male)	-18.870	9.508	0.047
Intercept	55.693	8.760	< 0.001
Total = 2184; Nb. of groups = 39; Left censored = 490; Right censored = 690			
Log Likelihood = -6320.542; Wald $\chi^2(6) = 103.54$; p-value < 0.001			

5 Conclusion

Using laboratory experiments conducted in Moldova and in France, we examined how cultural factors influence the attitudes toward peer reporting to central authorities as well as effective reporting decisions in an incentivized tax game. Our experiments paint the following picture. First, a subset of subjects in both countries are willing to incur an individual cost to report a tax evader, thus confirming previous results on third-party punishment in the absence of externalities. Second, reporting decisions are influenced by local norms. That is, subjects in Moldova view whistleblowing as less socially acceptable than subjects in France and they report less of the behavior. However, our last set of results show that less reporting does not necessarily imply less tax compliance. In both countries, our participants from the two countries share very similar tax compliance rates.

The first set of results regarding the willingness of some individuals to incur a cost to report a tax evader is not surprising from a behavioral economics standpoint. Indeed, a growing body of research in economics and psychology shows that negative emotions towards individuals who violate some social norm are an important motivation, or even the main motivation, for private enforcement. Private enforcers express anger and disapproval ([Bosman and van Winden \[2002\]](#); [Fehr and Gächter \[2002\]](#); [Hopfensitz and Reuben \[2009\]](#)) and they even derive satisfaction from doing so ([de Quervain et al. \[2014\]](#)).

The second set of results, which show that subjects in Moldova view whistleblowing as less socially acceptable than subjects in France and that they report less of the behavior, are congruent with the rationale put forward by [Fitzpatrick \[1996\]](#). First, that denunciation was actively promoted by the communist party as an instrument allowing the regime to maintain control over the masses. Second, that there was a substantial shift in traditional views regarding denunciation in the early 1980s as the result of a series of social reforms. As [Kozlov \[1996\]](#) noted, “the word ‘denunciation’ took on a negative, even repugnant, connotation.” Although denunciation has am-

biguous connotations in many societies, its instrumental use for decades by the Soviet political apparatus has rendered the institution particularly repugnant in the post-Soviet space.

Our last set of results has to do with the level of tax compliance. We hypothesized that less peer reporting in Moldova would result in more tax evasions. The level of peer reporting does, indeed, affect the audit probability – as we have shown, there are fewer audits with less whistleblowing. But as our results indicate, the mere presence of whistleblowing opportunities may represent a deterrent mechanism by itself. In effect, participants in Moldova appear to be particularly sensible to the presence of whistleblowing. This is explained by the country’s past experience during the Soviet era when being reported to central authorities was common and came with serious consequences for the person being denounced, ranging from shaming (in local newspapers or local *kolkhoz*, a form of collective farm), to expropriation and to deportation.

Our results build on a large collection of literature on the interactions between private and public enforcement that mostly rests on theory ([Acemoglu and Jackson \[2017\]](#)), historical narratives ([Fitzpatrick \[1996\]](#); [Kozlov \[1996\]](#)), observational data ([van Dijk \[2012\]](#); [van Kesteren et al. \[2013\]](#)), or survey experiments ([Buckley et al. \[2016\]](#)) to identify the role of cultural factors in encouraging or undermining private cooperation with state authorities. Our paper is the first to study the long-lasting effects of using citizens as private informants during the Soviet era on attitudes and behaviors when it comes to reporting someone in the present days. By conducting laboratory experiments on whistleblowing, we also contribute to the experimental literature that has mostly focused on the effects of incentives for whistleblowing ([Spagnolo and Nyreod \[2019\]](#)), the merits of whistleblowing compared to random audits ([Bazart et al. \[2020\]](#)), or the effects of providing legal immunity to bribe givers for whistleblowing ([Buckenmaier et al. \[2020\]](#)). Lastly, our laboratory experiments in an inter-cultural context point to the importance of taking into account local norms when designing mechanisms to fight against tax evasion. Our results have shown that whistleblowing may still help maintaining relatively high levels of tax compliance even when the targeted population disapprove of reporting and have relatively low levels of engagement with the state.

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Appendix A – Instructions

Treatment Whistleblowing (Original instructions in French/Romanian)

General Rules

The experiment in which you are going to participate is part of a study on decision-making. Please read the instructions carefully. These instructions are meant to help you understand the experiment. Once all of the participants have read the instructions, the experimenter will then reread the instructions aloud.

Your gains will depend on your decisions as well as the decisions of other participants. All of your responses will be anonymous and will be gathered via a software program. You will indicate your choices on the computer in front of which you are seated, and this computer will calculate the gains you have realized in the course of the experiment. The sum total of money gained during the experiment will be paid to you in cash at the end of the experiment. From this moment on, we ask you to refrain from speaking. If you have a question, please raise your hand and an experimenter will help you in private.

— The experiment is composed of 15 rounds.

Your income: Before each round, the computer will allocate you an income. Your income as well as the income received by the other participants can vary from one period to another. The income that you will receive in a given round will be randomly determined by the computer. In each round, your income will be somewhere between 20 and 100 Experimental Currency Units.

Income declaration: The information about the income that you receive in a given round is private. After you receive your income, you will be asked to make an income declaration to the central authority. You can declare any amount between 0 and 100. The declared income will be taxed. The income tax is equal to 40%. Therefore, your final gain (after the income declaration) will be equal to the income initially received – 40% of the income that you declared.

Audit: In each round, there is a 20% chance that your income declaration will be audited by the central authority. If your income declaration is audited, the income that you initially received will be compared to the income that you effectively declared to the central authority. In case you

declared an amount that is strictly inferior to the amount that you initially received then you will have to pay a penalty that is equal to 1.5 times the tax that you didn't pay.

$$\text{Penalty} = 1.5 \times [(\text{income received} - \text{income declared}) \times 0.4]$$

In case you declared the same amount as the amount that you initially received, the audit will have no consequences.

Information about the decision of other participants: After each round, you will be informed about the declaration rates of 3 other participants in the room. In each round, you will receive this information about the same participants (and they will see your declaration rate). The order according to which this information will be displayed will randomly change after each round. Thus, the declaration rate that you will see first will not always correspond to the same individual.

After you are informed about the declaration rates of 3 other participants, you will have the possibility to report to the central authority any participant that under-declared his/her revenue (declared less than the amount initially received). The income declaration of any reported participant will be automatically audited. Please note that reporting someone will cost you 2 Experimental Currency Units. Reporting someone is anonymous. That is, the individual who is reported is not informed whether his/her income declaration is audited as the result of a report or as the result of a random audit by the central authority.

Earnings in each round: Your earnings in each round are equal to your income initially received – the tax on income declared – the eventual penalty – $2 \times$ the number of participants that you report to the central authority.

Final earnings in this experiment: At the end of the experiment, one of the 15 rounds will be randomly selected by the computer and your final earnings for this experiment will be equal to the amount you earned in that randomly selected round.

The conversion rate from Experimental Currency Units (ECU) to Euros is $100 \text{ ECU} = 1 \text{ Euro}$.

Appendix B – Additional results

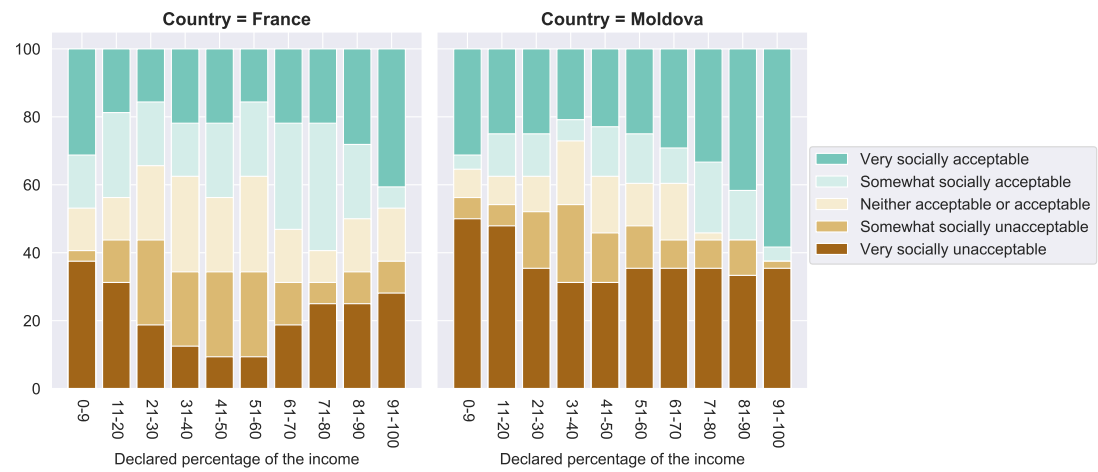


Figure 4: Normative views in Moldova and in France regarding the social acceptability of reporting a tax evader to the central authority

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