Do Appeals to Social Norms Increase Taxpayer Compliance?

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I mproving tax compliance is a main goal of revenue agencies around the world. The standard policy tool has traditionally been increased enforcement efforts (e.g., larger penalties, higher audit rates). However, in recent years other policy tools have been suggested and tested. Several field experiments have found that appeals to certain social norms in the form of letters sent to taxpayers requesting payment of unpaid taxes yields a significant positive response (Hallsworth, List, Metcalfe, and Vlaev (2014), Bott; Cappelen, Sørensen, and Tungodden (2014); Iyer, Reckers, and Sanders, (2010)). However, evidence for social appeals is not clearcut. Other field experiments have found either no or ambiguous effects (Blumenthal, Christian, and Slemrod (2001); Wenzel (2005, 2006); Wenzel and Taylor (2004); Torgler (2004, 2012)).

This paper uses laboratory experiments to test appeals to social norms as a means to improve tax payment compliance. We formulate a model of the ways in which social norms affect an individual's compliance decision. We then test the predictions of this model using data from laboratory experiments in which different appeals to social norms are presented. In our experimental design, student subjects earn income by performing a task, they disclose income, and they face an audit process similar to that in the natural setting. A key feature is that different social norm messages are sent to individuals in different treatments. We test the effects of two main types of social norms: "descriptive norms," or the type of behavior that is typical or most frequently enacted, and "injunctive norms," or the type of behavior that "constitutes morally approved and disapproved conduct." In addition, for injunctive norms we introduce approval-framed and disapproval-framed injunctive norm messages.

Our results suggest that appeals have a modest but statistically significant impact on tax compliance. The magnitude of both approval- and disapproval-framed injunctive norm messages is an increase of around 2 percent in taxes paid.

Experimental Design

We use a laboratory experiment to examine the impact of social norms on tax withholding and reporting decisions. In this experiment, social norms are induced in four treatments in order to observe resulting differences in tax decisions. The experimental design captures the essential features of the voluntary income reporting and tax assessment system used in many countries. Human participants in a controlled laboratory environment perform a task that pays them income, and they also receive a random income component. The participants must choose between several values of income to be withheld prior to observing the realized value of their random income, upon which taxes are automatically withheld, and then they must decide how much of their total income to report to the tax agency. Taxes are paid on reported income only. Any unreported income may be discovered via a random audit, and then the individual must pay the owed taxes plus a fine based on the unpaid taxes. The probability of detection is fixed and known to the individual and is independent of the individual's decisions. Subjects are fully and accurately informed about the various features of the experimental

setting (e.g., tax rates, penalty rates, audit rates, public good payoffs, and the like). This withholding, reporting, audit, and penalty process is repeated over a number of rounds, each representing a tax period. At the completion of the experiment, all participants are paid in cash an amount based upon their laboratory market earnings, converted to U.S. dollars.

Participants are recruited from a pool of undergraduate students at two major universities, one public (Appalachian State University) and one private (Cornell University). Upon arrival at the laboratory, participants are assigned to a computer station, which assures privacy. Basic instructions are provided via a hard copy and also via a series of screen images. The instructions use tax language, rather than more "neutral" terms. After reading the instructions, participants are allowed to ask questions. Decisions are made privately, and participants are not allowed to communicate with one another during the session. Participants are informed (via the consent sheet) that all responses are anonymous and that no individual identification will be collected.

Participants are not told the exact duration of the experimental session, which is predetermined to last for 20 real rounds. Including instructions, practice rounds, and the real rounds, sessions take on average 75 minutes to complete. Participant earnings range from $26 to $32, depending upon subject performance.

Once subjects complete the informed consent and are taken through the detailed instructions, they follow five steps, which are briefly described as follows.

Step 1. Participants perform a task for which they are paid taxable earnings on each round. The task involves estimating the number of gumballs (or marbles) in a jar at the front of the lab. An exact estimate results in the maximum earnings (10,000 lab dollars). Subjects' earnings are reduced from this maximum by a linear function (common knowledge) of 50 lab dollars for each gumball or marble their estimate varies from the actual number in the jar, but participants are guaranteed a minimum fixed income of 5,000 lab dollars in each round. This amount represents the earned component of their income, which is in effect for the duration of the experiment. The subject also receives a random income component in each round, which is added to the fixed income from the earnings task. The random portion of the income follows a uniform distribution that has a lower bound of 5,000 lab dollars and an upper bound of 10,000 lab dollars.

Step 2. After completing the earnings task, the tax withholding and reporting rounds proceed. Each round represents a tax year. The subjects make their withholding decision while knowing only their fixed income for the year; the variable portion of income is revealed in the next round. There is a penalty for underwithholding as applied by the tax agency, and an opportunity cost (forgone consumption or interest) for overwithholding. Participants choose their tax withholding amount from a menu for that round. In the first ten rounds of the experiment, no social norm messages are presented. In the second ten rounds, social norm messages are presented prior to choosing the withholding rate for individuals in one of the three treatment groups. The control group does not receive social norm messages at any point during the experiment. The order of receiving messages is not reversed, because such messages are normally introduced in the field after a period where no such message has been provided.

Step 3. The tax reporting phase of the tax period requires the subjects to claim a deduction which determines their tax liability. Taxable income is reported income minus the deduction. The tax form is filed. Collected taxes fund a public good (implemented as a transfer payment to all participants).

Step 4. After the results have been examined for the round, the computer randomly selects individuals for audit. This random process is independent across subjects, and the probability of being selected is common knowledge. Audits work perfectly (i.e., all unpaid taxes are detected), and a penalty plus any unpaid taxes are collected from the subject. Underwithholding is also penalized at this point. The subjects then get a final summary screen that shows their earnings (including penalty costs and transfer payments) for the round.

Step 5. At the conclusion of the study (20 paid rounds), participants receive their final balance in cash and complete a 5-minute survey that asks questions regarding their experience in the experiment, demographic information, and variables relating to altruistic attitudes and behaviors.

Our objective is to examine the effects of social norms on individual tax reporting decisions. To establish a baseline, we conduct laboratory experiments using student subjects in which no normative messages are given to subjects. We then introduce three different social norm messages that vary in the type of normative information communicated. One hundred twenty experimental participants were recruited for each of the four treatments, including the control treatment. A total of 479 participants completed the experiment. (Treatment 2 had one fewer participant because only 19 of the recruited participants came to the experiment session.)

Two types of norms appear to drive behavior: "descriptive norms," which describe the type of behavior that is typical or most frequently enacted, and "injunctive norms," which describe the type of behavior that "constitutes morally approved and disapproved conduct" (Cialdini *et al.* (1990), p. 1015). Although the two types of norms are distinct constructs (Park and Smith (2007)), their isolated use may yield different results depending on contextual information. In particular, devoid of an injunctive norm, descriptive norms that describe the average behavior of others can have a "boomerang effect." However, when a message couples a descriptive norm with an injunctive norm, this type of undesired effect can be avoided. Indeed, there is evidence that the potential boomerang effect of descriptive norms can be eliminated by the addition of information about the level of social approval or disapproval of a behavior (Cialdini *et al.* (1990); Schultz *et al.* (2007)).

This research suggests that those who violate the norm of tax compliance are less likely to violate the norm if an appeal is made, but those who are in compliance may actually be more likely to violate the norm unless their behavior is rewarded with some indication of social approval (Schultz *et al.* (2007); Irwin and Simpson (2013)).

The social norm messages resulting from these focus groups and used in the experiments are described in Table 1.

TABLE 1. Treatment Descriptions

Treatment	Group name	Test phrase
1	**Control**	Note: No information is presented.
2	**Descriptive norm**	"In a previous session of this experiment, a large majority of Appalachian State University/Cornell University students withheld enough earnings to pay their entire tax liability, and 12% did not. This is very similar to the country as a whole where 3 in 4 Americans withhold enough taxes throughout the year to pay their entire tax liability, and 1 in 4 does not."
3	**Injunctive norm, approval-framed**	"In a previous session of this experiment, a large majority of Appalachian State University/Cornell University students withheld enough earnings to pay their entire tax liability. This is very similar to the country as a whole where 3 in 4 Americans withhold enough taxes throughout the year to pay their entire tax liability. Some 90% of Americans say that personal integrity is a big reason why they comply with tax regulations, and those who withhold enough taxes have a 97% tax compliance rate."
4	**Injunctive norm, disapproval-framed**	"In a previous session of this experiment, a minority of Appalachian State University/Cornell University students did not withhold sufficient funds to pay their entire tax liability. This is very similar to the country as a whole where only 1 in 4 Americans still owes taxes at the time of filing. Some 88% of Americans agree that any type of tax cheating is unacceptable, and people who do not withhold enough earnings to pay all of their taxes are 4 times more likely to cheat on their taxes."

Results

Simple descriptive statistics from the various sessions are presented in Table 2. For both *Tax Paid* (or the amount of reported taxes by the subject) and *Withholding Amount* (or the amount of individual tax withheld), we report the average level of the variable, averaged across all subjects and all (relevant) rounds, along with its standard deviation. Tax compliance decreased as the experiment progressed, which is consistent with many other tax compliance experiments. Therefore, we separately examine participant behavior in the first

and second halves of the experiment. Recall that no social norm messages were shown during the first half of the experiment, and participants in each treatment group were shown the relevant social norm message for each round during the second half of the experiment. The relevant comparison is then between the change in behavior of the control group and the change in behavior of each treatment group from the first to the second half of the experiment.

The main conclusions are that both the disapproval- and approval-framed injunctive social norm messages are associated with significantly smaller decreases in the amount of taxes paid relative to the control group in the second half of the experiment, and thus can be said to decrease tax noncompliance. Note also that the effects of the approval- and disapproval-framed messages on amount of taxes paid are largely the same, while the effect on amount withheld is positive for the approval-framed message and negative for the disapproval-framed message. Unreported regression analysis of individual choices confirms the conclusions drawn from the simple descriptive statistics.

TABLE 2. Simple Descriptive Statistics (Amounts in Lab Dollars)

Treatment	N	Average Withholding Amount			Average Tax Paid		
		1st Half*	2nd Half**	Difference	1st Half*	2nd Half**	Difference
Control (Treatment 1)	120	3430.42 (1583.23)	3528.33 (1604.06)	93.91 2.9%	3241.53 (715.15)	3162.33 (736.89)	-79.20 -2.4%
Descriptive norm (Treatment 2)	119	3302.52 (1603.48)	3270.59 (1621.81)	-31.93 -1.0%	3284.38 (773.75)	3149.00 (777.31)	-135.38 -4.1%
Injunctive norm, approval-framed (Treatment 3)	120	3534.58 (1507.09)	3649.58 (1524.17)	115.00 3.3%	3214.26 (756.12)	3145.73 (757.89)	-68.53 -2.1%
Injunctive norm, disapproval-framed (Treatment 4)	120	3383.75 (1591.66)	3240.83 (1592.02)	-142.92 -4.2%	3279.44 (747.57)	3216.05 (709.01)	-63.39 -1.9%

NOTE: Standard deviations are in parentheses.
*No social norm messaging.
**With social norm messaging (except for control group).

Conclusion

Our experiments show a small but significant impact of injunctive social norm messages on tax compliance. The effect of both approval- and disapproval-framed injunctive norm messages in these experiments is a higher rate of taxes paid (measured by difference between first and second halves of the experiment) of around 2 percent as compared to the control group. If a similar response were to occur for the U.S. tax system with roughly a trillion dollars in taxes collected, the result would be an increase in tax revenue of around $20 billion.

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