

The Impact of Unstable Penalty Enforcement on Taxpayer Reporting

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ABSTRACT

Many taxpayers contract with lawyers and tax advisors to negotiate settlements for assessed tax liabilities. The effect of reduced sanctions has not been researched in the accounting literature. The purpose of this paper is to examine the impact settlements may have on tax compliance.

This study uses an experimental design to examine two issues: (1) the impact on compliance when taxpayers believe they may receive a reduction in assessed penalties and (2) the effect an actual reduction in penalty assessment has on future compliance. The results marginally support the suggestion that participants will engage in higher levels of noncompliance when know they may receive a reduction in penalties. The data also indicate that participants report higher income after receiving moderate, but stable, penalties than when they are assessed high penalties that are subsequently reduced. These results support using reasonable penalties and limiting the negotiation opportunities of noncompliant taxpayers.

THE IMPACT OF UNSTABLE PENALTY ENFORCEMENT ON TAXPAYER REPORTING

INTRODUCTION

In the late 1970's, the IRS audited 2.15% of all individual tax returns filed. This percentage dropped to 0.49% in 2001. In an attempt to keep compliance levels stable while reducing the number of audits performed, the IRS has continued to pile on penalties at an increasing rate (Graetz et al. 1990). Despite the increased penalties, delinquent and uncollectible taxes have continued to increase (Hamilton 2002). The IRS is beginning to step up its auditing efforts in an effort to combat the increase in noncompliance. However, auditing is not the final step in combating noncompliance. Once a taxpayer is found to be delinquent, the IRS has to collect the unpaid taxes and any penalties assessed. Many taxpayers contract with lawyers and tax advisors to attempt to negotiate lower payments in settlement of the assessed liabilities. The process of tax collection adds work to the already strained resources in the Internal Revenue Service. The effect of negotiated liabilities has not been researched in the accounting literature. The purpose of this paper is to provide additional information regarding the impact of penalty enforcement on tax compliance.

This study uses an experimental design to examine two issues concerning penalty assessment. The first issue concerns the impact on tax compliance when taxpayers believe they may be able to receive a reduction in assessed penalties. The second issue involves the effect an actual reduction in penalty assessment has on future compliance. The results marginally support the suggestion that participants will engage in higher

levels of noncompliance when they are aware of the possibility of receiving a reduction in penalties. The data also indicate that participants report higher income after receiving moderate, but stable, penalties than when they are assessed high penalties that are subsequently reduced. These results support using reasonable penalties and limiting the negotiation opportunities of noncompliant taxpayers.

The next section of the paper provides background information on this topic and motivates the study. The subsequent sections outline the related literature, hypothesis development, and the experimental design. The paper concludes with the analysis and results section followed by a short discussion of the findings, limitations of the study and the conclusion.

BACKGROUND AND MOTIVATION

Combating noncompliance is costly for the government and for taxpayers. Over the past several years, the expense of the enforcement process led to a steady decline in enforcement levels resulting in a reduction in the number of audits performed on an annual basis (Hamilton 2002). The Treasury Department examined the declining enforcement statistics and the apparent impact this decline has on tax collections. Michael Graetz, a Yale Law Professor, and Gene Steuerle, of the Urban Institute compiled a report on enforcement efforts and tax compliance for the American Bar Association Section of Taxation's Administrative Practice Committee's meeting on May 10, 2002. The report shows that the reduction in audit activity from 1970 levels resulted in a 22 percent increase in unpaid tax assessments and a \$4.2 billion decrease in revenues

collected through compliance efforts during FY 2000 alone (Report on Implementation of the IRS Restructuring and Reform Act of 1998).

In a report to the Joint Hearing before Committees of the United States Senate and United States House of Representatives on May 8, 2001, David C. Williams, Treasury Inspector General for Tax Administration expressed the concerns of the IRS management regarding the reduction in resources allocated to compliance efforts. Due to the decrease in revenue collections and the increase in delinquent accounts during 2000, the Treasury's FY 2001 budget includes a request for 2,800 new positions in enforcement and service over the next two years (Report on Implementation of the IRS Restructuring and Reform Act of 1998).

The IRS uses penalties to discourage noncompliant behavior. There are currently over 150 different types of penalties that can be assessed to taxpayers and tax preparers. Due to the complexity of the current penalty structure, the IRS is considering ways to consolidate and simplify the process (Pope et al. 2005). Specific deterrence theory suggests a negative correlation between the incidence of *actual* punishment and future undesirable behavior. Behavioral and archival studies examining the impact of *actual* detection and punishment on future reporting behavior produces inconclusive and conflicting results. With IRS contact used as a proxy for actual detection and punishment, one side of the controversy finds that contact by the IRS causes increased resistance to reporting accurately (Strumpel 1969; Spicer and Lundstedt 1976; Aitken and Bonnieville 1980; Wallachutsky 1984; Chang 1984). These results emphasize that there are social costs incurred when assessing penalties. According to Jackson and Jones (1985), "penalties that are perceived to be too severe or biased against a particular group

may foster increasingly negative attitudes toward taxation.” Other research, consistent with specific deterrence theory, suggests that IRS contact leads to increased compliance efforts on the part of those previously contacted (Benjamini and Maital 1985; Witte and Woodbury 1985; Spicer and Hero 1985).

One aspect of penalty imposition that has not been considered in the tax literature is the impact of *reduced* or *negotiated* penalties and tax assessments. At the same time that the IRS is increasing penalties, they also reduce imposed sanctions against taxpayers under various circumstances (Mills 1996). The IRS web site (www.irs.gov) informs taxpayers of its Offers in Compromise program:

“An Offer in Compromise (OIC) is an agreement between a taxpayer and the Internal Revenue Service (IRS) that resolves the taxpayer's tax liability. The IRS has the authority to settle, or compromise, federal tax liabilities by accepting less than full payment under certain circumstances.”

In addition, a search engine on the Internet generated 1.3 million potential sites for “Tax Settlements,” and there are many advertisements found in popular press communicating that the penalties associated with noncompliance can often be abated or, at least, significantly reduced. Whether or not these advertised sites can, in fact, deliver on their claims, the message indicates that the IRS is willing to negotiate. The negotiation process imposes high costs on the government as it diverts enforcement resources away from detection activity and redirects these resources into the collection process (IRS 2000). The opportunity for negotiation also suggests that the IRS is unsure of what mechanism is most successful in mitigating noncompliance.

Taxpayer awareness of the Offers in Compromise program and the abundance of solicitations relating to tax liability settlements may build expectations among the general

public that tax cheaters are not likely to be punished. The purpose of this paper is to expand the deterrence research and provide policy-relevant information regarding the way individuals process and react to the possibility and incidence of reduced penalties.

In sum, the Treasury department's recent request to increase the resources used in the detection process emphasizes the need for new information regarding the effectiveness of enforcement activities and penalty assessment policies. The department seems to be using conflicting efforts regarding penalty assessment. Charging high penalties while using departmental resources to negotiate the sanctions down may not accomplish the objective of encouraging higher compliance. The social and financial costs of the enforcement process are significant, but so is the loss in governmental revenue when enforcement activities decline. The expense of the enforcement process necessitates optimal policies and decisions that govern the administration of detection and penalties. With the recent push for increased enforcement efforts, further research on taxpayer reaction to the process is important in developing effective and timely strategies for reducing noncompliant behavior.

RELATED LITERATURE

Compliance research examining the impact of the threat of detection and punishment on current behavior indicates that an increase in the audit rate increases compliance (Cuccia 1994; Jackson and Milliron 1986). However, there are conflicting results regarding the relative importance of penalty assessment on future compliance. Most accounting research suggests that penalties are less of a deterrent than probability of detection (Webley et al. 1991; Friedland 1982; Alm et al. 1992). Nevertheless, this

stream of research concedes that when the level of detection is perceived to be a threat, penalties are significant in increasing compliant behavior. Basically, if there is no threat of detection, the threat of penalties is irrelevant. Other studies contradict these results and show that the magnitude of penalties is more effective than the probability of detection (e.g. Jackson and Jones 1985; Chang et al. 1987).

Jackson and Jones (1985) rely on prospect theory (Kahneman and Tversky 1979) and expected utility theory to explain the importance of the magnitude of penalties. Jackson and Jones follow Kahneman and Tversky's assertion that individuals do not accurately differentiate between small probabilities but rely more heavily on the magnitude of the outcomes. Therefore, it follows that an increase in an already small detection rate would not be discerned by the general public, but that individuals would focus more heavily on the cost of the penalty (i.e. the gamble). Jackson and Jones were able to find support for their assertions and demonstrate that the magnitude of penalties is more of a deterrent than an increase in the detection rate. This study suggests that the threat of higher penalties leads to lower noncompliance.

On the other hand, some studies find that detection and penalty assessment cause taxpayers to increase noncompliant reporting practices. Westat's (1980) survey of 171 individuals admitting previous IRS contact report only twenty percent of the individuals who indicate that they changed their behavior due to contact from the IRS. Several of the respondents admit changing their behavior by actually taking more chances in the period following an audit.

Aitken and Bonneville (1980) administer another survey related to taxpayer attitudes. In this survey almost seventy percent of the participants state that IRS contact would not

make any difference in the care and honesty they used in reporting taxable income. Of those respondents reporting that IRS contact would cause a change in their attitudes, 21 percent report they would be more “careful” in the future, but these respondents do not indicate they would be more willing to comply. Only four percent indicate they would report more honestly. Similarly, Spicer and Lundstedt (1976) indicate a positive relationship between prior audit experience and both increased tax resistance and increased evasion behavior.

One issue considered in this paper is the effect of the participants knowing that penalties may be lowered. A recent study by Alm et al. (2004) indicates that *unofficial* communications regarding audits may have a stronger effect on taxpayer behavior than official communications. Unofficial communications can be described as hearsay or drawing from someone else’s experience or belief regarding the probability of audit. If this holds true for audit rates, it may also hold true for the impact of penalties. When taxpayers receive *unofficial* word through advertising and/or friends who have had a reduction in sanctions, this type of information may carry a lot of weight with the taxpayer. Basically when they are unable to obtain official correspondence (i.e. the exact probability of punishment), yet develop a perception through the assertions of other people’s experiences or media claims, the perception is shown to have a stronger impact than the reality.

The deterrent effect of penalty assessment is also studied in the criminal law literature. Grasmick and Bryjak (1980) find that both certainty and severity of punishment need to be high in order for the threat of sanctions to be effective in reducing crime. Consistent with perceptual deterrence theory, Grasmick and Bryjack (1980)

suggest that even though the taxpayer is concerned about being audited, s/he may not believe that s/he will be punished severely. Therefore, taxpayers believing they may have penalties reduced or abated lessen the belief they will be punished severely. By not enforcing assessed penalties, the certainty of the sanctioning process is compromised.

Paternoster (1987) finds that certainty of punishment rather than severity of punishment acts as a deterrent. Paternoster's research is relevant to the current study when considering the impact of negotiated settlements for noncompliant taxpayers. Certainty generally correlates with detection, however, detection is not certain. In addition, the level of penalty assessment is not certain. Paternoster's findings may indicate that the stability of the enforcement process may be more effective in deterring future noncompliance than the magnitude of the penalty assessed.

Possibly the most alarming research comes from Hennessy et al. (1999). This study finds that the punishment communicated and set forth by the legal system is often negotiated into lower sanctions. These authors suggest that this action appears to reduce or negate the deterrent effects the threat of punishment has on the population. The reduction of sanctions in personal and property crimes frequently leads to increased occurrences of repeat offenses. The Hennessy et al. (1999) study focuses on capital crimes and the threat of incarceration. The interesting question is whether the same results will hold for monetary sanctions in a tax context.

HYPOTHESIS DEVELOPMENT

Criminal opportunity theory "holds that perceptions of the risk of apprehension and punishment for a specific type of law breaking have some grounding in the realities of the

enforcement process” (Cornish and Clarke 1986). Research suggests that those individuals who are not caught and not punished for a crime will be more likely to repeat the offense in the future. This phenomenon, dubbed the “experiential effect” by Mason and Calvin (1978) is found within opportunity theory. Paternoster and Iovanni (1986, p. 56) defines an experiential effect as the “effects of previously committed behaviors on current perceptions.” The results of these studies indicate that individuals who commit crimes but do receive sanctions for those crimes often lower their perceptions of detection risk (Paternoster 1987; Paternoster and Iovanni 1986; Paternoster et al. 1982, 1983; Saltzman et al. 1982). To sum up the literature, Calvin and Mason (1978) propose that “evasion breeds evasion” (p. 84).

Pallone and Hennesy (1992) state that individuals who engage in criminal behavior do so with “ an expectation of impunity” that is reinforced when observing others who commit criminal acts that go undetected and unpunished. This instability surrounding penalty enforcement may impact a person’s evaluation of risk.

Carroll and Weaver (1986) find that certainty and severity of punishment are not viewed as stable properties of criminal acts. Therefore, individuals perceive that they have some control over their detection and penalty risk. Kahneman and Tversky (1979) suggest that the more control a person believes s/he has over her situation, the more the person will be able to or believe s/he is able to minimize the risk.

Hennesy et al. (1999) states:

“Deterrence theories envision potential offenders as rational actors who weight the likelihood of escaping notice. In this context, infrequently imposed sanctions may be seen as a siren-like flirtation, challenging criminals to take the chance, or experience the thrill of the risk” (p. 73).

In summary, there is evidence that unstable penalty enforcement may cause a person to evaluate risk probabilities in a manner inconsistent with the edicts of expected utility theory. The first hypothesis addresses the impact of simply knowing that there is a possibility that the potential punishment may be negotiable. We expect compliance levels to be lower when the penalty structure is viewed as unstable:

H1: Given equivalent expected values, reported income will be lower for participants who know that there is a possibility of reduced penalties than for participants who know the assessed penalties will not be changed.

Opportunity theory, specific deterrence theory, and perceptual deterrence theory suggest that the act of reducing penalties sends a message to lawbreakers that they are “above the law” and may result in higher repeat offenses than setting and enforcing a lower penalty (Pallone and Hennessy 1992; Hennessy et al. 1999, Grasmick and Bryjak 1980). If results in a tax setting are similar to Hennessy et al. (1999), the government may be inadvertently encouraging noncompliant behavior by negotiating with taxpayers. These results suggest that penalties should be enforced in a stable and consistent manner in order to ensure a deterrent effect. Consequently, reducing penalties may not provide the desired effect of increasing tax compliance.

There is also evidence that large penalties are no more effective, and may be even less effective, than smaller penalties because taxpayers attempt to evade future taxes to regain a sense of fairness. Opportunity theory suggests that taxpayers receiving a relatively moderate, stable penalty will be more likely to comply in the future than taxpayers receiving a relatively high penalty or a higher penalty that is subsequently reduced.

The second hypothesis examines compliance in the period subsequent to the assessment of a penalty. Basically, we are investigating the effect of imposing a lower penalty with certainty to a higher penalty that is intermittently reduced to a lower level. This study gives insight into whether or not tax evaders react to reduced sanctions differently than they react to stable sanctions.

H2: Given equivalent expected values, reported income of noncompliant participants will increase more in periods following detection for participants who are assessed moderate, stable penalty rates than for participants who initially receive high penalty rates that are subsequently reduced.

EXPERIMENTAL DESIGN

A laboratory setting was used to test the hypotheses set forth above. Following experimental economic precepts, subjects earned money based on their decisions during the experiment and were paid in cash at the end of the sessions. No deception of subjects was employed.

Participants

This study uses 304 students from two universities¹. The students were recruited from various classes to insure a variety of majors and backgrounds. A large sample size was necessary in order to attain power levels approximating 80 percent for samples restricted to the noncompliant participants.²

¹ To the extent possible, students were equally divided between the two universities. A control variable is included in the analyses for school differences, if any exist.

² Kraemer and Thieman (1987) define critical effect size as the magnitude of a change that is considered to be "important to society" (p. 24). After reviewing the data contained in many behavioral studies, critical effect sizes appear to vary considerably between studies (i.e. Spicer and Hero 1985; Wartick, et al. 1999; Boylan and Sprinkle 2002; Vines and Wartick 2002). Jacob Cohen, a statistician, asserts that researchers can arbitrarily set standardized effect sizes of .2, .5 or .8 when searching for low, medium, or high deviations from the null (Huck and Cormier 1995). Therefore, a critical effect size of .5 is chosen since it should produce a medium effect (Huck and Cormier 1995; Cohen 1977). Sample sizes were chosen in each

Student participants are often the target of skepticism involving the credibility of laboratory results. These concerns may be relevant in experiments where the researcher is generalizing results to a more experienced population (Davis and Holt 1993). Wartick et al. (1999) find that participants over age 25 react differently than younger subjects when a tax context is used in experimental materials. When the experiment contains neutral language, behavior between the two groups is not significantly different. Since this study uses a tax context, we target individuals over age 25 by recruiting from graduate and/or evening classes rather than traditional undergraduate classes.

Procedure and Materials

The study is conducted in classrooms across the two universities. Packets containing instructions, case materials, and a post-experimental questionnaire are distributed to the participants (Appendices A,B and C). There are two different manipulations of the case. Across both treatments, the case information states that the participant earned \$100,000 in a specific year and made a charitable contribution of \$40,000 during the same year. The case explains that if the contribution is used for a tax deduction, taxable income will decrease from \$100,000 to \$60,000, thus, lowering the taxes required to be paid. However, at the end of the year, the participant discovers that the charity chosen for the contribution is not on the list of IRS approved charities; thus, it is not deductible. The question facing the participants is how much, if any, of the contribution to deduct.

The instructions inform the participants that they may deduct any amount of the contribution they choose, but that there will be an audit phase of the experiment. If they are chosen for audit and found to have deducted any of the contribution, they will be

treatment to target a power level of 80 percent given a critical effect size of .5 and considering the effect of unequal cells.

assessed additional tax and penalties on the underpaid tax. The case materials inform the participants of the audit rate and the penalty rate(s) (See Figure 1). The audit rate is the same, but the penalty rate varies between the treatments.

(Insert Figure 1 here.)

Treatment 1

After reading the case described above, the participants record the amount of their deduction on the first Period Sheet (Appendix A). After all participants have completed this process, the audit phase begins. During the audit phase, one participant rolls a 100-sided die. All participants record the result of the die roll on their individual Period Sheet. Each person's packet contains 32 numbers comprising an audit condition. These numbers are disclosed in the Instructions and on the Period Sheet. In Treatment 1, one-third of the participants have numbers 1-32 randomly assigned as audit numbers, one-third of the participants have numbers 33-64 randomly assigned as audit numbers, and one-third of the participants have numbers 69-100 randomly assigned as audit numbers. This numbering system provides a greater probability that some participants are audited each period than assigning all participants the same audit numbers.

After the result of the die roll is recorded on the Period Sheets, the participants note whether they are in the "audit" condition or "no audit" condition for that period. If the die roll results in one of the "audit" numbers for a participant, that person has his/her deduction denied. S/he is liable for the tax on the full amount of income (\$100,000) plus the penalty of 100 percent of the amount of underreported tax. Any participant that is not audited does not pay the additional tax and penalty, regardless of whether or not s/he deducted the contribution. After all participants have completed all calculations for the

first period, they record their “take home pay” for that period on a summary sheet on the front of their packet. This concludes Period 1. The entire procedure is repeated for Period 2. The participants again choose how much, if any, of the charitable contribution they would deduct. The result of their decision is recorded on their Period Sheets for the second period. Another participant rolls the 100-sided die and the procedure continues as it did in the first period. The experiment continues for a total of six periods. At the end of the fifth period, the administrator of the experiment announces that the next period is the final round.

Treatment 2

In the second treatment the case is identical to Treatment 1 except for the penalty assessment (Appendix B). The participants have a 32 percent chance of being audited and a penalty of 150% of any underpaid tax if audited and found noncompliant. The instructions continue by informing the participants that they have a 50 percent probability of having their penalty reduced to only half of the underpaid tax.

In the audit phase, one participant rolls a 100-sided die. Audit numbers are assigned in the same configuration as Treatment 1. After the die roll, all participants in Treatment 2 record the resulting number on their individual Period Sheet. They note whether they are in the “audit” or “no audit” condition.

Participants in the audit condition individually roll a six-sided die. If the die roll results in a number 1 through 3, the participant’s penalty remains at 150 percent of the underpaid tax. If the die roll results in a number 4 through 6, the penalty is reduced to 50 percent of the underpaid tax. The result of the second die roll is recorded on the Period

Sheet which guides the participant through the calculations necessary to arrive at their take home pay. This procedure continues for a total of six periods.

The hypotheses compare responses of participants receiving a moderate, stable penalty (Treatment 1) to participants receiving a high penalty that may or may not be reduced (Treatment 2). The expected value of penalty assessment is equal across treatments.³ Both treatments involve six periods of decision making. The successive periods allow for measurement of the change in behavior within participants. Common to experimental economics, the final period is announced to the participants and, thus, excluded from the analysis.

Post-experimental Questionnaire

After the completion of each session, participants fill out a post-experimental questionnaire (Appendix C). The questionnaire contains twenty-two items including demographic information, manipulation checks, and risk assessment questions (Kachelmeier 1989)⁴ as well as inquiries regarding the clarity of the instructions. Regression analysis includes information contained in the post-experimental questionnaire to control for the effects of potentially correlated variables such as age, income, gender, and risk propensity (Jackson and Milliron 1986). Manipulation checks are included in the questionnaire for each treatment.

³ Treatment 1: 100% penalty

Treatment 4: $.5(150\%) + .5(50\%) = 100\%$ penalty

⁴ Kachelmeier's instrument consists of responses to lottery situations but does not operationalize an actual lottery. A comparison of the participants' responses indicates no statistical difference between Kachelmeier's instrument and the more elaborate Harrison measure. Kachelmeier also tested his instrument for construct validity against two additional measures of the propensity assume risk: the Jackson Personality Inventory (Jackson 1974) and a situational dilemma instrument designed by Jackson et al. (1972). The results of these comparisons indicate that the Kachelmeier instrument is significantly correlated with the situational dilemma instrument and the questions relating to monetary risk in the Jackson Personality Inventory.

ANALYSIS AND RESULTS

Descriptive Statistics

Sample

Three hundred four student participants from two universities participated in this study. Approximately 72 percent of the participants were from one university. Two participants were eliminated from the analysis due to incomplete data. The demographics for the remaining participants are presented in Table 1.

Participants were recruited from a variety of graduate and undergraduate courses in order to ascertain a cross section of educational backgrounds. The participants primarily report eighteen different major courses of study. A nineteenth category for “Other Majors” accounts for any uncommon fields. Additionally, the courses selected for sampling are graduate courses and undergraduate evening classes. These courses are likely to have a larger percentage of non-traditional age students (over age 25) than traditional age students. In the total sample, over two-thirds of participants are over age 25, and the sample is roughly equal between male and female participants.

(Insert Table 1 here.)

The post-experimental questionnaire provides information on the income levels of the participants. Twenty-eight percent of the participants earn less than \$15,000 per year. The remaining income brackets are displayed in Table 1.⁵

Only one of the two experimental treatments is used in any one session. Since only one manipulation is utilized in each session, none of the participants were able to discern the exact purpose of the experiment. Approximately 93 percent of the subjects report that

⁵ Additional information collected in the post-experimental questionnaire includes the participants’ method and approach toward income tax preparation. Almost half of the participants hire professionals to prepare their taxes and approximately two-thirds attest that the accuracy of their return is their main consideration.

the stated experimental procedures were followed and that the experiment was unambiguous and uncomplicated.

Dependent Variable

The hypotheses test the impact of reducing penalties on current and future reporting behavior. The dependent variable in each of the analyses is either reported income or the change in reported income of the participants. The participants must report income in a range of \$60,000 to \$100,000⁶. Compliant participants deduct none of the contribution, thereby causing reported income to be \$100,000. Participants choosing to be noncompliant may pick any amount of the contribution to deduct up to a maximum of \$40,000. The lowest reported income can only total \$60,000 in this experiment.

Analysis of H1: Unstable vs Stable Penalty Structure

Hypothesis 1 examines reporting behavior for participants knowing there is a *possibility* of receiving reduced penalties for noncompliant reporting. This research question affects all taxpayers, thus reported income of all participants receiving stable (Treatment 1) versus unstable penalty structures (Treatment 2) generates the data for this analysis.

As shown in Figure 2, the average reported income of the first five periods for each treatment is calculated. The average reported income for participants

⁶ Univariate analysis on the dependent variable used for each hypothesis shows no evidence that the data is significantly skewed. However, the analysis and a frequency distribution demonstrate that the dependent variable has a bimodal distribution. Consistent with Boylan and Sprinkle (2001), ANOVA's are conducted using a rank transformation of the dependent variable. Performing an ANOVA using a rank transformation is likely to be more powerful than conducting an ANOVA on the actual reported income or change in reported income (Conover 1980). Results from the ranked data are consistent with the results of the actual data. The data reported in this paper consists of the actual data on reported income and changes in reported income.

receiving a stable penalty (Treatment 1) is compared to the average reported income for those receiving an unstable penalty (Treatment 2).

(Insert Figure 2 here.)

In the second treatment of this experiment, one hundred thirty-four participants are informed they will receive a penalty of 150 percent of any underpaid tax if they are audited and found to be noncompliant. They are also told there is a 50 percent chance that their penalty may be reduced to one-half of their underpaid tax rather than 150 percent of the underpaid tax. The one hundred seventy participants in Treatment 1 receive a consistent penalty of 100 percent of the underpaid tax. Consequently, the expected value of the penalty is 100 percent in both treatments if a noncompliant subject is chosen for audit. Table 2 shows a comparison of the mean reported income from participants in both sessions.

(Insert table 2 here.)

Hypothesis 1 states that reported income will be higher in the stable penalty condition compared to the unstable penalty condition. Consistent with Hypothesis 1, participants receiving a stable penalty structure report higher income. The mean reported income for the stable condition is \$80,558 compared to \$78,910 for the unstable condition. The participants in the stable condition report a higher income even though their penalty is lower than the 150 percent penalty that may be assessed in Treatment 2. Table 2 shows that the \$1,648 difference in mean reported income is marginally significant ($p=.0571$).

This data covers five periods of reported income. A repeated measures analysis of variance is used in order to compensate for any period effects within the data. While there is a significant period effect, the treatment remains significant in both the between-

subjects and within-subjects analyses (Table 2). A chi square test indicates that both income and sex are significantly associated with the treatment⁷.

Analysis of H2: Incidence of Penalty Reduction

Hypothesis 2 relates to reporting behavior after the actual incidence of penalty assessment. This research question concerns only noncompliant, audited taxpayers. Therefore, data from only noncompliant, audited participants from Treatment 1 and 2 comprise the analysis relating to this section of the paper (Figure 3). These participants self select a noncompliant position in the first round of the experiment. Given that the hypothesis tested by these treatments relate to changing behavior in noncompliant taxpayers, the population central to the study is persons selecting to engage in noncompliant reporting behavior. Therefore, the sample in this analysis matches the population to which it generalizes.

(Insert Table 3 here.)

Table 3 shows the analysis of the *change* in reported income between participants receiving a stable penalty and participants receiving a reduced penalty. Twenty-two participants receive reduced penalties. Fifty-four participants receive stable penalties in the first period. The difference in the change in reported income between the two groups is significant at the $p \leq 0.05$ level and in the predicted direction ($t=2.40, p = 0.0258$). Participants receiving stable penalties report, on average, \$2,852 more in reported income after being caught and sanctioned. Participants receiving reduced penalties actually report \$5,091 *less* income in period two than in period one. These participants are less

⁷ Treatment * Sex (Chi Square=158.5670; $p < .0001$)
Treatment * Income (Chi Square=50.0436; $p < .0001$)

compliant than they were in Period 1. The difference in the change in income between the two groups is \$8,292 in the predicted direction.

This result is interesting because specific deterrence theory suggests that being caught and punished will cause reported income to increase in the period following detection. The participants receiving a reduced penalty behave in direct contrast to the theory while the behavior of the participants receiving the stable penalty follow the predicted direction. These findings are similar to Hennessey et al. (1999) which suggests that reducing sanctions may often lead to increased repeat offenses.

The post-experimental questionnaire includes a manipulation check to determine if participants are aware of the penalty structure. In both the stable and unstable penalty condition, the question asks whether or not there is a chance that the penalty may be reduced. Of the 170 participants in Treatment 1 (stable condition), 20 subjects failed the manipulation check. Of the 134 individuals in Treatment 2 (unstable condition), 16 participants answered the question incorrectly indicating that they did not realize they could receive a reduced penalty.⁸ Statistical analyses removing all participants failing the manipulation checks generate the same results as the full sample.

DISCUSSION

Research in tax compliance continues to be important in order to provide information on the effectiveness and efficiency of the current tax collection system. This study contributes to the compliance literature by providing information concerning taxpayer reaction to current policies on penalty enforcement. Prior studies show mixed results

⁸ For H2, the sample size for participants receiving a reduced penalty in period 1 remained at 22 (same as the full sample). The sample size for participants receiving a stable penalty in period 1 totaled 46 compared to 54.

relating to the effects of penalties on future behavior. The literature in criminal law suggests reducing penalties may lead to a larger occurrence of repeat offenses. In this study, those participants receiving lower, stable penalties increased their income significantly more in the following period than those participants receiving a higher penalty that was subsequently reduced to a relatively low level. The data in this study actually demonstrate participants reporting *lower* income in periods following an audit when they receive a reduced penalty. These results may speak to the impact of negotiating penalty and tax liability reductions.

Negotiations are time-consuming and divert resources away from detection efforts. Tax accountants and lawyers often negotiate with the IRS to receive lower settlements for their clients. In addition, the Internal Revenue Service currently administers the *Offers in Compromise* program designed to assist taxpayers who are financially unable to meet their assessed taxes and penalties. The requests for tax settlements through this program are so numerous that administering the program drains significant resources from the continuing enforcement process. The program recently instituted a \$150 fee for any taxpayer applying to the program. The fee will assist in offsetting some of the costs, but more importantly, will discourage taxpayers from applying if they likely won't qualify for any reductions. The intent of this study is not to promote the enforcement of high penalties, but to suggest that reasonable penalties enforced on a consistent basis may warrant further consideration as an effective deterrent. The need or willingness to engage in negotiations could decline if the penalties are reasonable, thus freeing up some of these resources to perform other enforcement activities.

LIMITATIONS

The limitations inherent in this study warrant consideration when considering the implications of the results. A laboratory experiment is difficult to generalize to a more complex “real world” setting. External validity is lower under these conditions than is typically the case in other behavioral or archival methods of study. Obviously, a laboratory setting cannot induce the degree of anxiety or impose the level of sanctions commanded by the Internal Revenue Service. While a taxpayer may receive a reduction in their tax and penalty assessment, the process they endure while negotiating this settlement may be so emotionally distressing that a reduction in the amount owed will not induce further cheating.

Despite the weaknesses of an experiment, the strength of the lab setting is the ability to enhance internal validity and demonstrate causation. The advantage of experiments is that they allow researchers to manipulate the environment in which the subjects react to the stimuli under study, observe the behavior of the subjects, and draw conclusions (Elfers et al. 1992). Experiments also enable researchers to factor out extraneous variables and isolate the variables of interest so that they know that the results are only due to the factors being manipulated. Elfers et al. (1992) states, “no other method is as good at untangling the causal structure of a phenomenon” (p. 551).

Another limitation is the exclusive use of endowed income in this study. A recent study by Boylan and Sprinkle (2001) suggests participants react differently to changes in the tax rate depending on whether their income is endowed or earned. Boylan and Sprinkle (2001) suggest a “house money” effect causes participants to take more risks on endowed money than earned money. Future studies should investigate whether

participants react differently to audits and penalty structure when income is earned rather than endowed.

The current study does not investigate the effects of enforcement efforts on the frequency of noncompliant reporting only the magnitude. The magnitude of noncompliance and the dollar amount of the change in behavior comprises the data for analysis. A change in the frequency of noncompliance may be interesting as the IRS projects that for every one percentage point increase in the number of people choosing to voluntarily comply, the Treasury would receive an additional \$7 to \$10 billion in revenue (IRS 1990). There are two studies with conflicting results on a prior audit's impact on the frequency of misstatements (Long and Schwartz 1987; Webley et al. 1984). An archival study by Long and Schwartz (1987) finds that prior audits are marginally effective in reducing the frequency of misstatements. Webley (1987) finds the opposite results and discerns from the data that prior audit experience reduces the amount of evasion in subsequent periods, but not the frequency of times a person cheats. The idea of frequency could open up further avenues for research in compliance. Will taxpayers who cheat with small dollar amounts progress to cheating with larger dollar amounts? If the monetary magnitude of noncompliance is curtailed by audits and/or penalties, but taxpayers continue to cheat on "small" things, will they eventually work their way back to the initial levels of noncompliance?

CONCLUSION

After years of study, tax compliance remains an interesting and important venue for research. Given that tax evasion results in lower revenues available for public goods, the

problem directly or indirectly affects all citizens. Tax evasion is a crime that is becoming increasingly accepted in society (Hamilton 2002). While one answer or theory will not fit every situation, researchers can provide insight into general aspects of compliance behavior that will assist in minimizing the opportunity and inclination for people to cheat on their taxes. By further understanding taxpayer behavior, the government can develop and alter compliance programs and audit policies to further the efficiency of the enforcement process.

Figure 1
Description of Treatments

	Treatment 1	Treatment 2
Detection Probability	32%	32%
Penalty	100% of underpaid tax	150% or 50% of underpaid tax
Penalty Structure	Stable	Unstable: .5 prob of 150% .5 prob of 50%
Participants	<i>Total=170</i> Period 1: 112 noncompliant 54 audit/penalty 58 compliant	<i>Total=134</i> Period 1: 84 noncompliant 50 audit/penalty 22 reduced pen 50 compliant

Figure 2
Experimental Design for Hypothesis 1

Treatment 1 Stable Penalty (100% penalty) RI₁ <i>n = 170</i>	Treatment 2 Unstable Penalty (.5 x 150% Penalty .5 x 50% Penalty) RI₂ <i>N=134</i>
---	---

RI = Reported Income

Hypothesis 1: $RI_1 > RI_2$

H1: Given equivalent expected values, reported income will be lower for participants who know that there is a possibility of reduced penalties than for participants who know the assessed penalties will not be changed.

TABLE 1
DEMOGRAPHIC INFORMATION

<i>n=304</i>	<i>n</i>	%
Age		
Under 25	90	29.6
25-34	136	44.7
35-44	52	17.1
45-54	24	7.9
55-64	2	0.7
Over 64	0	0.0
Gender		
Female	158	52.0
Male	146	48.0
University		
University of Louisville	220	72.4
University of Kentucky	84	27.6
Income		
Less than \$15,000	86	28.4
\$15,001 - \$30,000	58	19.1
\$30,001 - \$50,000	52	17.1
\$50,001 - \$75,000	64	21.0
\$75,001 - \$100,000	34	11.2
Over \$100,000	10	3.2
Tax Preparation		
Complete tax return without the help of computer package	76	25.0
Complete tax return with the help of computer package	78	25.7
Use professional tax preparer	150	49.3
Attitude Toward Tax Preparation		
Minimize taxes	60	19.8
Accurate tax return	198	65.1
Minimize effort	46	15.1

TABLE 2
MEANS TESTS and REGRESSION RESULTS
Effect of Stable versus Unstable Penalty Structure on Participants’
Level of Reported Income
Treatments 1 and 2

Panel A: Mean Reported Income and t-values Between Subject Groups

	<u>Stable Penalty Structure</u> <i>(170 subjects)</i>	<u>Unstable Penalty Structure</u> <i>(134 subjects)</i>	<u>t-test</u>	<u>p value</u>
Reported Income				
All rounds <i>(std deviation)</i>	80557.65 <i>(17146.86)</i>	78910.45 <i>(16218.92)</i>	-1.90	0.0571

Panel B: Repeated Measures Analysis of Variance
n=304 participants Periods = 1520

<u>Source</u>	<u>Degrees of Freedom</u>	<u>Sum of Squares</u>	<u>Mean Square</u>	<u>F-Value</u>	<u>Significance</u>
Between-Subjects Effects:					
TRMT (Stability)	1	2836502865.3	2836502865.3	3.00	0.0842
AGE	1	1385683104.6	1385683104.6	1.47	0.2267
SEX	1	7506845276.6	7506845276.6	7.95	0.0051
INCOME	1	1875184807.5	1875184807.5	1.99	0.1598
RISK	1	5834610787.1	5834610787.1	6.18	0.0135
Within-Subjects Effects:					
Period	4	941477558.39	235369389.6	2.47	0.0437
Period*TRMT	4	1509955393.7	377488848.42	3.95	0.0035
Period*AGE	4	1311012414	327753103.5	3.43	0.0085
Period*SEX	4	500092603.83	125023150.96	1.31	0.2653
Period*INCOME	4	673783823.03	168445955.76	1.76	0.1343
Period*RISK	4	936906179.98	234226544.99	2.45	0.0446

Variable Definitions:

RI = reported income
TRMT = 0 if “unstable penalty”; 1 if “stable penalty”
AGE = 1 if “Under 25”; 2 otherwise
SEX = 0 if male, 1 if female
INCOME = actual income level; 0 if \$30,000 or under, 1 otherwise
RISK = 1 if risk averse, 2 if risk neutral, 3 if risk seeking

TABLE 3
MEANS TEST AND REGRESSION ANALYSIS
Effect of Receiving Stable Penalty Versus Reduced Penalty
On Change in Participants' Reported Income
(Reported Income in Period 2 for Participants that were Noncompliant and Penalized in Period 1)

Panel A: Mean Reported Income and t-values in Period 1 and 2 Between Subject Groups

	Reduced Penalty: 50% penalty <u>Treatment 2</u> (22 subjects)	Stable Penalty: 100% penalty <u>Treatment 1</u> (54 subjects)	t-test	p-value
Period 1				
Reported Income (std deviation)	83090.91 (16274.17)	74851.85 (16275.24)	2.00	0.0490
Period 2				
Reported Income (std deviation)	78000.00 (11872.34)	77703.70 (17213.02)	0.07	0.9414
Change in Reported Income (std deviation)	-5090.91 (9956.62)	2851.85 (13622.13)	-2.82	0.0068
Difference in Change	7942.76			
<u>t-test</u>	-2.40	1.54		
<u>p-value</u>	0.0258	0.1299		

Panel B: Regression Results Between Penalty Imposition Groups

Model: $DIFF_i = \beta_0 + \beta_1 TRMT_i + \beta_2 AGE_i + \beta_3 SEX_i + \beta_4 INCOME_i + \beta_5 RISK_i + e_i$
Adjusted R2 = .48 F=9.48, p<.0001

Variable	Coefficient	Std. Error	t-value	p-value
Intercept	-48392	10680	-4.53	<.0001
TRMT	22609	4965.78303	4.55	<.0001
AGE	0.47092	0.08172	5.76	<.0001
SEX	6085.34283	2749.16480	2.21	0.0303
INCOME	1355.98517	317.81057	4.27	<.0001
RISK	-5133.75638	1430.88008	-3.59	0.0006

Variable Definitions:

DIFF = Difference in the change in reported income between periods 1 and 2 for participants receiving reduced penalties vs stable penalties

TRMT = 1 if "reduced penalty"; 2 if "stable penalties"

AGE = 1 if "Under 25"; 2 otherwise

SEX = 0 if male, 1 if female

INCOME = actual income level; 0 if \$30,000 or under, 1 otherwise

RISK = 1 if risk averse, 2 if risk neutral, 3 if risk seeking

(p-values are for a one-tailed test)

APPENDIX A

Instrument – Treatment 1

INSTRUCTIONS SESSION 1

Thank you for agreeing to take part in the experiment. The purpose of this research is to learn more about economic decision making. If you follow the instructions, the decisions that you make will generate cash that will be distributed to you at the end of the experiment. You must be sure that you fully understand the instructions. Failure to understand the instructions may affect your decisions and result in lower cash earnings. If you do not understand the instructions, please raise your hand and an assistant will explain anything that is not clear. In addition, you may refer to the written instructions at any time. Please do not talk to any other participant or make any general comments that might disclose any information about your decisions or earnings during this experiment.

DECISION

At year-end you calculate your taxable income to be \$100,000 before taking into consideration any charitable contributions. During the past year, you made a \$40,000 charitable contribution to an organization. If used to offset taxable income, you will only pay tax on \$60,000. However, you have just been informed by your accountant that the organization you chose for your donation is not on the Internal Revenue Service's list of qualified charities. Therefore, this donation is not tax deductible.

Your decision is how much, if any, of this donation to deduct on your tax return.

You have a **32 percent chance of being audited and having the deduction disallowed.**

If you are audited and the deduction is disallowed you will have to pay additional tax and a penalty. **The penalty is 100 percent of the underpaid tax.**

A calculation sheet is provided to determine the amount to be paid in taxes and penalties, and to determine the amount you may keep as take home income for the different reporting and detection possibilities.

Example 1: If you choose to not report the donation as a deduction against income, you will report your taxable income as \$100,000. You are in the 25 percent tax bracket, so you will pay \$25,000 in tax (\$100,000 x .25). Your take-home income will be \$35,000 (\$100,000 less the donation of \$40,000 and the tax of \$25,000).

<u>Tax Calculation</u>					<u>Take Home Calculation</u>					
Example	Taxable Income	Reported Charitable Contribution	Reported Tax. Inc.	Reported Tax	Income	Actual Charit Cont	Reported Tax	Under-reported Tax	Penalty	Take Home Pay
	(a)	(b)	(a-b)	{.25*\$100K}						
1	\$100,000	-0-	\$100,000	\$25,000	\$100,000	- \$40,000	- 25,000	- 0	- 0	= \$35,000

Since you did not deduct any of the donation, you will pay no additional tax or penalty if audited. You will have \$35,000 in take-home income.

Example 2: If you choose to deduct the entire donation, your reported taxable income will be \$60,000 (\$100,000 less the \$40,000 donation). You are in the 25 percent tax bracket, so you will pay \$15,000 in tax (\$60,000 x .25). If the deduction is **not** discovered, your take-home income will be \$45,000. (\$100,000 less the donation of \$40,000 and the tax of \$15,000).

<u>Tax Calculation</u>					<u>Take Home Calculation</u>					
Home Example	Taxable Income	Reported Charitable Contribution	Reported Tax. Inc.	Reported Tax	Income	Actual Charit Cont	Reported Tax	Under-reported Tax	Penalty	Take Home Pay
	(a)	(b)	(a-b)	{.25*\$100K}						
2-no audit	100,000	\$40,000	60,000	\$15,000	\$100,000	- \$40,000	- 15,000	- 0	- 0	= \$45,000

If you are audited and the deduction is disallowed you will have to pay additional tax and a penalty. **The penalty is 100 percent of the underpaid tax.**

You will pay a total in tax of \$25,000 and you will pay a penalty of 100 percent of the originally underpaid tax. In this case, the underpaid tax is \$10,000 (\$25,000 less \$15,000). Therefore, the penalty will be \$10,000 (\$10,000 X 100%). Your take home income will be \$25,000 (\$100,000 less the donation of \$40,000, the tax of \$25,000 and the penalty on underreported tax of \$10,000).

<u>Tax Calculation</u>					<u>Take Home Calculation</u>					
Example	Taxable Income	Reported Charitable Contribution	Reported Tax. Inc.	Reported Tax	Income	Actual Charit Cont	Under-Reported Tax	Under-reported Tax	Penalty	Take Home Pay
	(a)	(b)	(a-b)	{ .25*\$100K}						
2-audit	100,000	\$40,000	60,000	\$15,000	\$100,000 - \$40,000 - 15,000 - 10,000					= \$25,000

The following table summarizes the three scenarios described in the examples.

<u>Tax Calculation</u>					<u>Take Home Calculation</u>					
Example	Taxable Income	Reported Charitable Contribution	Reported Tax. Inc.	Reported Tax	Income	Actual Charit Cont	Under-Reported Tax	Under-reported Tax	Penalty	Take Home Pay
	(a)	(b)	(a-b)	{ .25*\$100K}						
1	\$100,000	-0-	\$100,000	\$25,000	\$100,000 - \$40,000 - 25,000			- 0	- 0	= \$35,000
2-no audit	100,000	\$40,000	60,000	\$15,000	\$100,000 - \$40,000 - 15,000			- 0	- 0	= \$45,000
2-audit	100,000	\$40,000	60,000	\$15,000	\$100,000 - \$40,000 - 15,000			- 10,000	- 10,000	= \$25,000

The audits are completely random. As a reminder, there is a **32 percent chance that you will be audited and that the misstatement will be detected.**

PROCEDURE:

After you have decided how much income to report, a participant will roll a 100-sided die. There are two possible outcomes:

If the die roll results in a number 0 through 67, you will not be audited. You will only pay the tax that you originally reported and you will keep the \$60,000 less the tax on the reported income.

If the die roll results in a number 68 through 99, you will be audited. You will be detected if you misstated your charitable contribution. You will pay tax on the entire \$100,000 of income plus a penalty of 100 percent of the underreported tax. You will keep the \$60,000 (\$100,000 less \$40,000 donation) less the tax and penalty assessed during the audit.

Refer to the calculation sheet provided to determine the amount to be paid in taxes and penalties, and to determine the amount you may keep as take home income for the different reporting and detection possibilities.

You may change your reporting decisions at the beginning of each round. After a round is completed, the earnings from that round cannot be reported in future rounds nor can they be audited in future rounds. Each round is independent of all other rounds.

EARNINGS:

Your total earnings for the experiment will be calculated by totaling your take home income from all periods and converting it to cash at a rate of 7.5 cents per \$1,000. You will be paid in cash immediately following the experiment.

PERIOD _____

1. In the past year, you earned \$100,000 in income and made a charitable contribution of \$40,000. The contribution is **not** tax deductible. You are in the 25% tax bracket. You have a 32 percent chance of being audited and detected if you report your income incorrectly. If you are audited and found to have underreported your taxable income, you will pay a penalty of 100 percent of the unpaid tax.

A. Amount of the charitable contribution you will report as a tax deduction to the tax agency: _____

2. Compute your tax and net amount from your reporting decision as follows:

B. Total reported taxable income: _____
(\$100,000 – A)

C. Amount of tax on reported income:
Amount from B _____ x .25 = _____

3. Record the result of the die roll: _____

33 - 100 (No audit) 1 – 32 (Audit)

IF YOU WERE NOT AUDITED (i.e. rolled a 33 – 100) calculate your take home pay as follows:

D. Take home pay (\$60,000 minus C) _____

Transfer this amount to the Earnings Report, and then place this sheet in the envelope attached to the Earnings Report.

STOP HERE IF YOU WERE NOT AUDITED

IF YOU WERE AUDITED (i.e. rolled a 1 – 32) calculate your take home pay as follows:

E. Underreported tax: Total charitable contribution reported to the tax agency x tax rate (A x .25) _____

F. Penalty (E x 1.00) _____

G. Total underreported tax and penalty: (E plus F) _____

H. Take home pay [\$60,000 less (C + G)] _____

Transfer this information to the Earnings Report, and then place this sheet in the envelope attached to the Earnings Report.

APPENDIX B

Instrument – Treatment 2

INSTRUCTIONS SESSION 2

Thank you for agreeing to take part in the experiment. The purpose of this research is to learn more about economic decision making. If you follow the instructions, the decisions that you make will generate cash that will be distributed to you at the end of the experiment. You must be sure that you fully understand the instructions. Failure to understand the instructions may affect your decisions and result in lower cash earnings. If you do not understand the instructions, please raise your hand and an assistant will explain anything that is not clear. In addition, you may refer to the written instructions at any time. Please do not talk to any other participant or make any general comments that might disclose any information about your decisions or earnings during this experiment.

DECISION

At year-end you calculate your taxable income to be \$100,000 before taking into consideration any charitable contributions. During the past year, you made a \$40,000 charitable contribution to an organization. If used to offset taxable income, you will only pay tax on \$60,000. However, you have just been informed by your accountant that the organization you chose for your donation is not on the Internal Revenue Service's list of qualified charities. Therefore, this donation is not tax deductible.

Your decision is how much, if any, of this donation you will deduct on your tax return.

You have a 32 percent chance of being audited and having the deduction disallowed.

If you are audited and the deduction is disallowed you will have to pay additional tax and a penalty. **The penalty is 150 percent of the underpaid tax.**

A calculation sheet is provided to determine the amount to be paid in taxes and penalties, and to determine the amount you may keep as take home income for the different reporting and detection possibilities.

Example 1: If you choose to not report the donation as a deduction against income, you will report your taxable income as \$100,000. You are in the 25 percent tax bracket, so you will pay \$25,000 in tax (\$100,000 x .25). Your take-home income will be \$35,000 (\$100,000 less the donation of \$40,000 and the tax of \$25,000).

<u>Tax Calculation</u>					<u>Take Home Calculation</u>					
Example	Taxable Income	Reported Charitable Contribution	Reported Tax. Inc.	Reported Tax	Income	Actual Charit Cont	Reported Tax	Under-reported Tax	Penalty	Take Home Pay
	(a)	(b)	(a-b)	{.25*\$100K}						
1	\$100,000	-0-	\$100,000	\$25,000	\$100,000 - \$40,000 - 25,000 - 0 - 0 = \$35,000					

Since you did not deduct any of the donation, you will pay no additional tax or penalty if audited. You will have \$35,000 in take-home income.

Example 2: (See calculation on following page)

If you choose to deduct the entire donation, your reported taxable income will be \$60,000 (\$100,000 less the \$40,000 donation). You are in the 25 percent tax bracket, so you will pay \$15,000 in tax (\$60,000 x .25). If the deduction is **not** discovered, your take-home income will be \$45,000. (\$100,000 less the donation of \$40,000 and the tax of \$15,000).

<u>Tax Calculation</u>					<u>Take Home Calculation</u>					
Example	Taxable Income	Reported Charitable Contribution	Reported Tax. Inc.	Reported Tax	Income	Actual Charit Cont	Reported Tax	Under-reported Tax	Penalty	Take Home Pay
	(a)	(b)	(a-b)	{.25*\$100K}						
2-no audit	\$100,000	\$40,000	\$60,000	\$15,000	\$100,000 - \$40,000 - 15,000 - 0 - 0 = \$45,000					

If you are audited and the deduction is disallowed you will have to pay additional tax and a penalty. **The penalty is 150 percent of the underpaid tax; however, there is a chance that the penalty will be reduced to 50 percent of the underpaid tax. You have a 50 percent chance of receiving the lower penalty.**

You will pay a total in tax of \$25,000 and you will pay a penalty of 150 percent of the originally underpaid tax. In this case, the underpaid tax is \$10,000 (\$25,000 less \$15,000). Therefore, the penalty will be \$15,000 (\$10,000 X 150%). Your take home income will be \$25,000 (\$100,000 less the donation of \$40,000, the tax of \$25,000 and the penalty on underreported tax of \$15,000).

<u>Tax Calculation</u>					<u>Take Home Calculation</u>					
Example	Taxable Income	Reported Charitable Contribution	Reported Tax. Inc.	Reported Tax	Income	Actual Charit Cont	Reported Tax	Under-reported Tax	Penalty	Take Home Pay
	(a)	(b)	(a-b)	{.25*\$100K}						
2-audit(150%)	100,000	\$40,000	60,000	\$15,000	\$100,000	- \$40,000	- 15,000	- 10,000	- 15,000	= \$20,000

Assuming you receive a reduced penalty, you will pay a total in tax of \$30,000 and you will pay a penalty of only 50 percent of the originally underpaid tax. In this case, the underpaid tax is \$10,000 (\$25,000 less \$15,000). Therefore, the penalty will be \$5,000 (\$10,000 X 50%). Your take home income will be \$30,000 (\$100,000 less the donation of \$40,000, the tax of \$25,000 and the penalty on underreported tax of \$5,000).

<u>Tax Calculation</u>					<u>Take Home Calculation</u>					
Example	Taxable Income	Reported Charitable Contribution	Reported Tax. Inc.	Reported Tax	Income	Actual Charit Cont	Reported Tax	Under-reported Tax	Penalty	Take Home Pay
	(a)	(b)	(a-b)	.25*\$100K}						
2-audit(50%)	100,000	\$ 40,000	60,000	\$15,000	\$100,000	- \$40,000	- 15,000	- 10,000	- 5,000	= \$30,000

The following table summarizes the four scenarios described in the examples.

Example	<u>Tax Calculation</u>				<u>Take Home Calculation</u>					
	Taxable Income (a)	Reported Charitable Contribution (b)	Reported Tax. Inc. (a-b)	Reported Tax .25*\$100K	Income	Actual Charit Cont	Reported Tax	Under- reported Tax	Penalty	Take Home Pay
1	100,000	-0-	\$100,000	\$25,000	\$100,000	- \$40,000	- 0	- 0	- 5,000	= \$35,000
2-no audit	100,000	\$40,000	60,000	\$15,000	\$100,000	- \$40,000	- 0	- 0	- 5,000	= \$45,000
2-audit(150%)	100,000	\$40,000	60,000	\$15,000	\$100,000	- \$40,000	- 10,000	- 15,000	- 5,000	= \$20,000
2-audit(50%)	100,000	\$40,000	60,000	\$15,000	\$100,000	- \$40,000	- 10,000	- 5,000	- 5,000	= \$30,000

The audits are completely random. As a reminder, there is a **32 percent chance that you will be audited.**

PROCEDURE:

After you have decided how much income to report, a participant will roll a 100-sided die. There are two possible outcomes:

If the die roll results in a number 33 through 100, you will not be audited. You will only pay the tax that you originally reported and you will keep the \$60,000 less the tax on the reported income.

If the die roll results in a number 1 – 32, you will be audited. You will be detected if you misstated your charitable contribution. You will pay tax on the entire \$100,000 of income plus a penalty on the underreported tax. You will keep the \$60,000 (\$100,000 less \$40,000 donation) less the tax and penalty assessed during the audit.

The penalty is assessed at 150 percent of the underpaid tax. You may, however, get to reduce your penalty by 50 percent. You will roll a six-sided die. If the die roll results in a number 1 through 3, you will receive a reduction to your penalty assessment. If you roll a number 4 through 6, you will not receive a penalty reduction.

Refer to the calculation sheet provided to determine the amount to be paid in taxes and penalties, and to determine the amount you may keep as take home income for the different reporting and detection possibilities.

You may change your reporting decisions at the beginning of each round. After a round is completed, the earnings from that round cannot be reported in future rounds nor can they be audited in future rounds. Each round is independent of all other rounds.

EARNINGS:

Your total earnings for the experiment will be calculated by totaling your take home income from all periods and converting it to cash at a rate of 7.5 cents per \$1,000. You will be paid in cash immediately following the experiment.

PERIOD _____

1. In the past year, you earned \$100,000 in income and made a charitable contribution of \$40,000. The contribution is **not** tax deductible. You are in the 25% tax bracket. You have a 32 percent chance of being audited and detected if you report your income incorrectly. If you are audited and found to have underreported your taxable income, you will pay a penalty of 100 percent of the unpaid tax.

A. Amount of the charitable contribution you will report as a tax deduction to the tax agency: _____

2. Compute your tax and net amount from your reporting decision as follows:

B. Total reported taxable income: _____
(\$100,000 – A)

C. Amount of tax on reported income:
Amount from B _____ x .25 = _____

3. Record the result of the die roll: _____

33 - 100 (No audit) 1 – 32 (Audit)

IF YOU WERE NOT AUDITED (i.e. rolled a 33 - 100) calculate your take home pay as follows:

D. Take home pay (\$60,000 minus C) _____

Transfer this amount to the Earnings Report, and then place this sheet in the envelope attached to the Earnings Report.

STOP HERE IF YOU WERE NOT AUDITED

IF YOU WERE AUDITED (i.e. rolled a 1 – 32) calculate your take home pay as follows:

Record the result of the second die roll: _____

1 – 3 (regular penalty – 150%) 4 – 6 (reduced penalty – 50%)

IF YOU RECEIVED THE REGULAR PENALTY (150% - rolled a 1 - 3) calculate your take home pay as follows:

E. Underreported tax: Total charitable contribution reported to the tax agency x tax rate (A x .25) _____

F. Penalty (E x 1.50) _____

G. Total underreported tax and penalty:
(E plus F) _____

H. Take home pay [\$60,000 less (C + G)] _____

Transfer this information to the Earnings Report, and then place this sheet in the envelope attached to the Earnings Report.

STOP HERE IF YOU RECEIVED THE REGULAR (150%) PENALTY

IF YOU RECEIVED A REDUCED PENALTY (50% - rolled a 2 – 5) calculate your take home pay as follows:

I. Underreported tax: Total charitable contribution reported to the tax agency x tax rate (A x .25) _____

J. Penalty (I x .50) _____

K. Total underreported tax and penalty:
(I plus J) _____

L. Take home pay [\$60,000 less (C + K)] _____

Transfer this information to the Earnings Report, and then place this sheet in the envelope attached to the Earnings Report.

APPENDIX C

Post-Experimental Questionnaire

POST-EXPERIMENTAL QUESTIONNAIRE

1. What is your age?

- | | |
|-----------------------------------|----------------------------------|
| <input type="checkbox"/> under 25 | <input type="checkbox"/> 45-64 |
| <input type="checkbox"/> 25-34 | <input type="checkbox"/> 55-65 |
| <input type="checkbox"/> 35-44 | <input type="checkbox"/> over 65 |

2. What is your sex?

- Female
 Male

3. In which course are you taking this experiment and what is your major?

4. Did you have any advance knowledge or discussions with anyone (other than the experimenters) regarding this experiment? If the answer is yes, what was the nature of your advance knowledge?

5. Do you generally: (please check one)

- Complete the tax form yourself or with your spouse without a computer tax package
 Complete the tax form yourself or with your spouse with the use of a computer tax package
 Use professional help

6. Whether you do the tax return yourself or have help, which best describes your feelings about the way you approach your tax preparation (please check one):

- I try to minimize taxes
 I try to have the most correct return possible
 I try to minimize the total effort required

7. If the IRS sent you an audit notice, which statement would most accurately characterize your feelings?

- I'd look forward to the challenge
- It wouldn't bother me
- No anxiety, but annoyed
- I'd feel some anxiety
- I'd feel a great deal of anxiety

8. What do you believe is the chance that a tax return in the real world will be chosen for audit?

- Less than 1
- Between 1% and 5%
- Between 5% and 10%
- Between 10% and 20%
- Greater than 20%

9. Your Individual Income Level or Joint Income Level if married (before taxes):

- Less than \$15,000
- \$15,001 - \$30,000
- \$30,001 - \$50,000
- \$50,001 - \$75,000
- \$75,001 - \$100,000
- over \$100,000

For the following series of statements concerning the case you read and answered indicate the extent to which you agree or disagree by marking the scale.

10. The written instructions were clear and unambiguous.

1-----2-----3-----4-----5-----6-----7
Disagree Agree

11. The experimental procedures described in the instructions were actually followed during the experimental sessions.

1-----2-----3-----4-----5-----6-----7
Disagree Agree

12. The experiment was too complicated for me to understand.

1-----2-----3-----4-----5-----6-----7
Disagree Agree

13. The experiment was boring.

1-----2-----3-----4-----5-----6-----7
Disagree Agree

14. Were you audited during the first round of the experiment?

- Yes
- No

15. What was the chance in the experiment that you would be audited by taxing authority?

16. Did the instructions communicate that there was any chance that the penalty rate assessed on misreporting of taxable income would be reduced?

- Yes
- No

17. Do you believe that charitable contributions should be tax deductible?

- Yes
- No

18. Do you contribute to charitable organizations?

- Never
- Rarely
- Occasionally
- Regularly

19. Have you ever known someone that was audited by the IRS?

- Yes
- No

20. Have you ever been audited by the IRS?

- Yes
- No

21. If you answered YES to item 20, did the audit result in additional taxes and penalties owed to the government?

- Yes, I had to pay all additional taxes and penalties assessed
- Yes, but the IRS did agree to some compromises during the audit
- No, there were no additional amounts due from me

22. For each of the following 24 items, assume that you own a lottery ticket in which your chance of winning \$100 is stated in Column A, and your chance of winning \$0 is stated in Column B. In Column C, please write the minimum price you would accept in exchange for your lottery ticket. Consider each item separately.

<u>Item</u>	<u>Column A</u> Chance of Winning \$100	<u>Column B</u> Chance of Winning \$0	<u>Column C</u> Amount you would accept for the ticket
1	50%	50%	\$ _____
2	20%	80%	\$ _____
3	85%	15%	\$ _____
4	10%	90%	\$ _____
5	40%	60%	\$ _____
6	70%	30%	\$ _____
7	75%	25%	\$ _____
8	55%	45%	\$ _____
9	30%	70%	\$ _____
10	45%	55%	\$ _____
11	90%	10%	\$ _____
12	65%	35%	\$ _____
13	15%	85%	\$ _____
14	60%	40%	\$ _____
15	95%	5%	\$ _____

<u>Item</u>	<u>Column A</u> Chance of Winning \$100	<u>Column B</u> Chance of Winning \$0	<u>Column C</u> Amount you would accept for the ticket
16	35%	65%	\$ _____
17	25%	75%	\$ _____
18	80%	20%	\$ _____
19	5%	95%	\$ _____
20	62%	38%	\$ _____
21	37%	63%	\$ _____
22	73%	27%	\$ _____
23	28%	72%	\$ _____
24	53%	47%	\$ _____

23. During the experiment did you try to:

- Maximize your income
- Follow the tax laws

24. In a few words please describe what you think this experiment was trying to address.

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