CHANGING TAXPAYER ATTITUDES AND

INCREASING TAXPAYER COMPLIANCE:

THE ROLE OF INDIVIDUAL DIFFERENCES IN TAXPAYERS

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(ABSTRACT)

The level of taxpayer compliance has steadily decreased over the years. Individual taxpayers failed to report approximately $100 billion in federal taxes due on legal income received in 1989. The compliance gap is large enough to greatly reduce the federal government deficit.

Studies employing psychological cognitive structure approaches to analyzing taxpayer compliance and attempting to increase taxpayer compliance employ theories related to equity sensitivity, attitude formation, and change. These studies generally examine relationships between compliance and socio-economic and situational variables. Appeals to a taxpayer's moral obligation to pay taxes have been studied as a means to change taxpayer attitudes and intentions and thereby increase compliance.

The present study sought to determine if taxpayer compliance could be enhanced by sanction threats or by appeals to conscience. The study also endeavored to discover if

compliance differed between various types of taxpayers. These individual differences were posited to cause taxpayers to react differently to alternative types of interventions aimed at increasing compliance to income tax law. A laboratory study was designed to gauge a subject's sensitivity to equity, administer intervention techniques, and measure compliance and attitude toward taxation.

The data were analyzed using Multivariate Analysis of Variance (MANOVA). Although the results of the study showed no significant main effect for treatment type, a significant main effect ($p = .0075$) was found for Equity Sensitivity type when the scenario depicting Overstating Business Expenses was the dependent variable in the design. There were no significant main effects for Equity Sensitivity type or treatment type when the six attitude items were used as the dependent variables in a MANOVA.

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Chapter 1

INTRODUCTION

According to the Internal Revenue Service (IRS), individuals failed to report approximately $100 billion in federal taxes due on legal income received in 1989. This accounts for a significant portion of the federal deficit reported in that year. The compliance gap is expected to increase to $110-$127 billion by 1992 (Hilgen 1990).

The Panel on Taxpayer Compliance Research, has defined compliance as follows:

> Compliance with reporting requirements means that the taxpayer files all required tax returns at the proper time and that the returns accurately report tax liability in accordance with the Internal Revenue Code, regulations, and court decisions applicable at the time the return is filed (Roth, Scholtz, and Witte 1989, p. 2).

In a survey by Yankelovich, Skelly, and White (1984), one in five taxpayers admitted having cheated on their federal income taxes, and 41 percent of taxpayers believe that people who cheat in small amounts are unlikely to be caught. Unreported income accounts for about 75 percent of the noncompliance of individual taxpayers, overstated subtractions account for about 13 percent, nonfiling for about 10 percent, and math errors for the remaining two percent. The IRS manages to recover only 10 to 15 percent of the noncompliance tax gap through all its enforcement activities (Roth 1990).

Increasing Compliance

Two primary methods have been used to increase compliance to tax laws. The first method, sanction threat, uses increased penalties, threats of property seizure, or imprisonment to increase compliance. Since most governmental efforts to collect revenue have centered around civil and criminal sanctions, research efforts examining ways to increase taxpayer compliance have primarily concentrated on the effects of increasing sanctions for evasion (Jackson and Jones 1985, Klepper and Nagin 1989, Kinsey 1990, Sheffrin and Triest 1990). Penalties for noncompliance have increased steadily over the years. The $100 billion gap, however, is evidence that sanction threats are not as effective as the government would like for them to be.

The second method of increasing taxpayer compliance is appeals to conscience. An appeal to conscience is an invocation to a taxpayer's sense of moral obligation to pay taxes. Research investigating this method includes Grasmick and Scott 1982, and Schwartz and Orleans 1967. This method has been used only recently (Goldberg 1990).

Affecting a change in taxpayer attitude toward paying taxes is a method of achieving compliance which may lead to a long lasting change in behavior. Taxpayers' attitudes affect their intentions to perform behavior in the future, and their intentions lead to performance or nonperformance in the future. More research needs to address increasing taxpayer willingness to comply voluntarily with tax laws (Smith and Stalans 1990, Thurman et al. 1984).

The effects of both sanction threats and appeals to conscience are moderated by individual differences in taxpayers. One individual difference, a taxpayer's equity sensitivity (Huseman, Hatfield, and Miles 1985), may affect the manner in which an intervention attempt alters a taxpayer's behavior. Individuals react differently to perceived equity or inequity because of their different preferences for equity.

Compliance level and the perception of equity in the tax system are affected by environmental and personal variables. Environmental variables include social norms, opportunity to evade, legal controls, social controls, and perceived opportunities to evade. Personal variables include financial strain, personal strain, tax ethics, perceived injustice, and personal orientation (Weigel et al. 1987, Roth et al. 1989)

Little research has been conducted to investigate the role of individual differences in compliance or equity experimentation. Huseman et al. (1985) contrived a construct which describes the manner in which individual differences affect a person's perception of equity. This theory classifies an individual's perception of what is and what is not equitable and makes predictions about an individual's reaction to equity.

The Internal Revenue Service (IRS) plans to use methods other than sanctions to increase compliance. The IRS plans, as a part of its "Compliance 2000" program, to design interventions to increase taxpayer compliance. These interventions should be designed to take into account that all taxpayers will not react in the same manner to their intervention attempts. This differential reaction may be due to a taxpayer's perception of what is fair or equitable.

Purpose of the Study

This study sought to determine if changing taxpayer attitudes towards: (1) fairness, (2) equity, (3) government spending, and (4) probability of detection would change compliance. The study employed a laboratory study to examine the extent to which sanction threats and conscience appeals change taxpayer attitudes and increase taxpayer compliance. The ability to alter the degree of taxpayer compliance and the taxpayer's perception of the tax system was believed to be moderated by the taxpayer's equity sensitivity.

Organization of the Study

The next chapter reviews the literature exploring ways of changing attitudes through sanction threats and conscience appeals. The division of the chapter is based on the prominent theories underlying compliance research: prospect, deterrence, and cognitive theories. Chapter 3 develops the theory behind the study. It contains sections which discuss: (1) conditions affecting compliance and the perception of equity in the tax system, (2) the problem of obtaining reliable compliance data from respondents, (3) the concept of equity sensitivity, and (4) the statement of the problem and hypotheses. Chapter 4 discusses the methodological and statistical design. Chapter 5 reveals the results of the study. Chapter 6 discusses the research results, describes the contributions and limitations of the study, and contains recommendations for future research.

Chapter 2

LITERATURE REVIEW

The literature review is divided into three sections, based on the three prominent theories underlying past compliance research. The first section summarizes studies based on Kahneman and Tversky's prospect theory. Prospect theory contends that individuals make different decisions depending on how choices are framed. The second section examines studies using deterrence theory to investigate taxpayer compliance. Deterrence theory posits that taxpayers consider the benefits and drawbacks of noncompliance in view of the probability of detection and the severity of punishment for noncompliance. Section three explores the studies using cognitive structures (distributive justice and attitude change) as a basis for investigation. Distributive justice theories attempt to determine how much individuals should receive or pay in a particular situation and whether they are receiving what they deserve (Porcano 1984). Attempts to increase compliance through changing taxpayer attitudes have employed appeals to conscience. Conscience appeals are appeals to a taxpayer's perceived moral obligation to comply with tax laws (Schwartz and Orleans 1967).

Prospect Theory

The earliest economic model of tax evasion assumed that people treat evasion as a simple gamble (Allingham and Sandmo 1972, Srinivasan 1973, Weiss 1976). However, Prospect Theory modifies expected utility theory. It posits that individuals make different decisions depending on how choices are framed. The formulation of the problem and the norms, habits, and personal characteristics of the decision maker control the frame that the decision-maker adopts (Tversky and Kahneman 1981).

According to prospect theory, people make choices in two stages: problem-editing and evaluation. In the problem-editing stage, options are reformulated to simplify subsequent choices. During this process, outcomes are framed as gains or losses relative to some reference point. In the evaluation phase, the individual evaluates the outcomes and chooses the one with the highest value. Outcomes are viewed as positive or negative in relation to a reference outcome that is judged neutral (usually assigned a value of 0). The reference outcome is often set by social norms and expectations. The reference outcome is frequently correspondent to a level of aspiration. Whether an outcome is viewed as a gain or loss may depend on variations of the reference point (Tversky and Kahneman 1981).

In the evaluation, the individual uses a utility function which is convex for losses, concave for gains and steeper for losses than for gains (Tversky and Kahneman 1981). For example, the subjective value between gains of $20 and $30 is greater than the subjective difference between gains of $220 and $230. The response to losses is more intense than the response to gains (see Figure 1).

According to Kahneman and Tversky,

> In general, a preference for a sure outcome over a gamble that has higher or equal expectation is called risk averse, and the rejection of a sure thing in favor of a gamble of lower or equal expectation is called risk seeking (Kahneman and Tversky 1984, p. 341).

Based on Prospect Theory, taxpayers who expect a refund and perceive this as a gain should avoid the risks associated with evasion. Those expecting the loss of paying additional tax are predicted to be more likely to

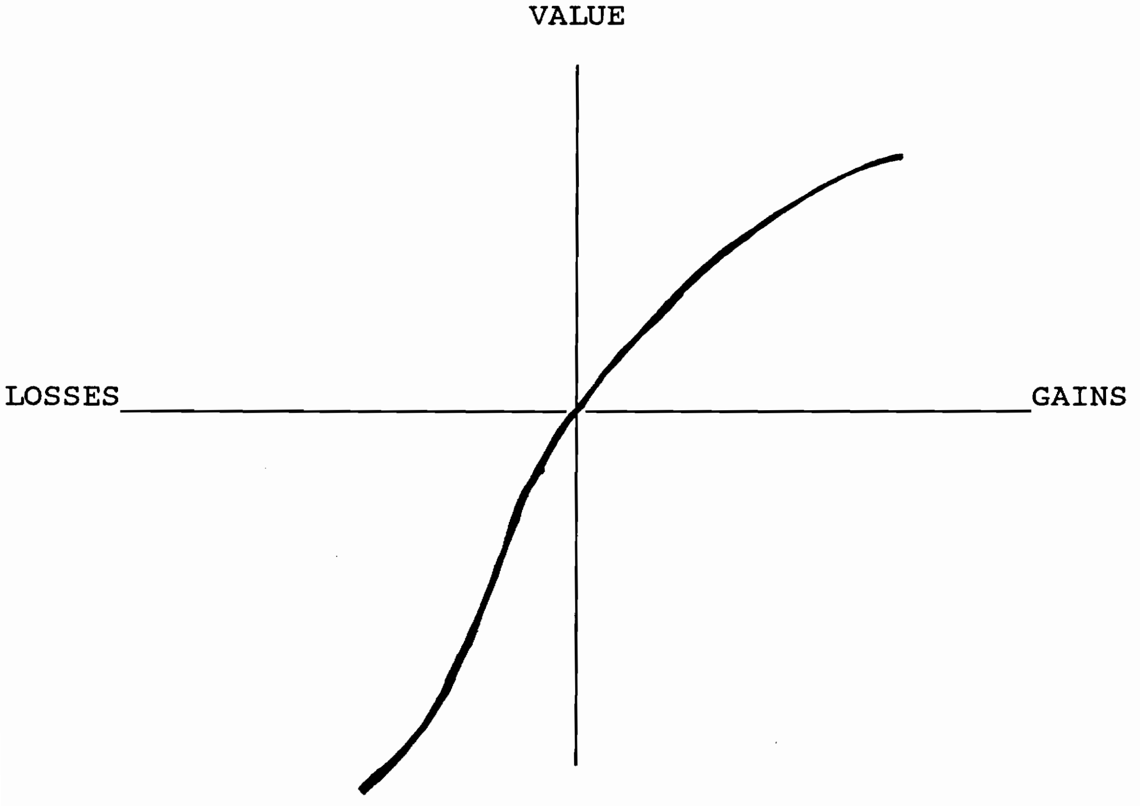

Figure 1. A Hypothetical Value Function

(Tversky and Kahneman 1981)

take the risky alternative and evade tax (Robben et al. 1990).

The major studies using prospect theory as a theoretical frame are Friedland et al. 1978, Friedland 1982, Chang et al. 1987, Klepper and Nagin 1989, Schadewald 1989, Schepanski and Kelsey 1990, Robben et al. 1990a, and Robben et al. 1990b. Discussions of these studies follow.

Friedland, Maital, and Rutenbery (1978)

Friedland et al. pioneered experimental studies concerning tax evasion. They used a game simulation to explore: (1) whether income tax evasion was sensitive to changes in tax rates, (2) which socio-economic variables are related to evasion, (3) whether the decision to evade tax and the extent of evasion are separate and distinct decisions, and (4) whether fines are a more effective deterrent than frequent audit. In a game-simulation, subjects were faced with hypothetical tax evasion decisions.

Fifteen undergraduate psychology students were given tax tables and received monthly taxable income. The subjects were told to report their income and pay tax according to the income they reported. The objective was to maximize their net income after taxes and fines.

Sensitivity of income tax evasion to changes in tax rates and whether fines are a more effective deterrent than frequent audit was gauged by employing Tversky and Kahneman's (1974) prospect theory. Friedland et al. gave subjects a one-in-fifteen chance of paying a fine of fifteen times the sum of tax evaded or a one-in-three chance of paying a fine of three times the sum of tax evaded. Random audits of subjects' returns were conducted each month.

The socio-economic variables examined were age, gender, marital status, ethnic background, whether employed, income (proxied by car ownership), and risk aversion or affinity (proxied by whether subject habitually buys lottery tickets). The experiment employed tax rates of 25 percent and 50 percent and frequency of audits/severity of fines as independent variables.

Friedland et al. concluded that large fines with a small probability of detection were a more effective deterrent than small fines with a high probability of detection. Fine magnitude did not prove statistically significant in correlations and regression analysis.

Evidence was found to support their contention that the decision to underreport and the magnitude of underreporting are separate decisions. These decisions were found to be influenced by different factors. They found that women were more likely to evade than men but underreport a smaller fraction of their income. Habitual lottery ticket buyers were not more likely to evade than others, but they did conceal more income when they did evade. Tax rate was found to be the most important determinant of the probability of evading. Age, marital status, and gender were important determinants of the extent of evasion.

Friedland (1982)

Friedland's 1982 study was motivated by the fact that taxpayers' information about the probability of tax audits and the fines they would incur for tax evasion are incomplete or inaccurate. Friedland conducted this follow-up study to evaluate the effects of variations in the quality of information about fine magnitudes and audit probabilities on the tendency to evade taxes.

Game simulation was employed as in Friedland et al. (1972). Thirteen law students were given tax tables and a form for reporting and calculating tax and net income. The objective again was to maximize net income after taxes and fines. The independent variables employed were precision of information (precise/vague), magnitude of fines (high/low) and probability of audit (high/low). The dependent variable was percent of income reported.

Through analysis of variance, Friedland found that subjects threatened with low fines reported significantly less income than those threatened with high fines and that high probability of audits extracted higher income reports than low probability audits. There was significant interaction, however, between audit probability and fine magnitude. High and low fine magnitude affected the percentage of reported income when audit probability was low but had little effect when audit probability was high. There was no significant main effect for the precision of information about the magnitude of fines or about audit probability. Friedland did find a significant interaction of the precision of information about audit probability with the magnitude of fines and audit probability. Because of the interaction, he concluded that vague information about audit probability enhances the deterrent power of low fines, and that the use of vague information about audit probability strengthens the deterrent power of low probability audits.

Chang, Nichols, and Schultz (1987)

Chang et al. investigated taxpayer attitudes toward tax audit risk from the perspectives of prospect theory. They asked subjects to play tax audit lotteries in hypothetical tax reporting problems that would be expected to provide information about the hypothesized utility function based on prospect theory. They hypothesized that a risk-neutral taxpayer should be indifferent to the choice between playing a tax audit lottery and not playing the tax audit lottery. A risk-seeking taxpayer would choose to play the lottery.

The subjects in the study were 56 middle-income executive MBA students. The subjects were given a booklet including instructions, six tax lottery cases, and debriefing questions. The cases represented a complete crossed factorial design. The independent variables were magnitude of tax savings ($100 and $1,000) and auditing frequency (10 percent, 50 percent, 90 percent). The respondents were asked if they would report the income in each hypothetical tax lottery case.

The debriefing questionnaire obtained information about a subject's: (1) gender, (2) age, (3) marital status, (4) profession, (5) income, (6) education, (7) composition of income, (8) perception of the fairness of the tax system,

(9) awareness of association with other evaders, (10) previous experience with IRS audits, (11) professional help from tax experts, and (12) statistical knowledge about expected utility theory.

Chang et al. found that the lottery was played most frequently when the implied penalty rate was 100 percent (31 subjects would save \$100 at an audit rate of 50 percent and 26 subjects would save \$1000 at an audit rate of 50 percent). The next highest frequency was at an implied penalty rate of 11 percent and the lowest at 900 percent implied penalty.

The choice to play the audit lottery reveals risk-seeking attitudes; the choice not to play would be risk averse. In only one of the six cases (\$100 savings at 50 percent audit rate) was the proportion of risk-seeking subjects greater than 50 percent. The authors concluded that taxpayers are, on average, risk averse.

The subjects were then divided into two groups: taxpayers viewing tax payments as a reduction of gain and those who viewed tax payments as certain losses. Twenty-eight subjects viewed tax payments as a pure loss and 22 subjects viewed tax payments as reduced gain. The pure loss (risk-seeking) group contained an average of 65 percent risk seeking behavior as opposed to 23 percent for the reduced gain (risk-averse) group.

Chang et al. next compared the demographics for the two groups. They found that the risk-seeking group contained a nearly equal number of males and females. The proportion of female subjects was greater in the risk-seeking group than in the risk averse group. The risk-seeking group was younger on average than the risk-averse group. The risk-seeking group also had a larger proportion of nonwage income, were more dissatisfied with the tax system, knew more tax evaders, and were more familiar with the tax law than the risk-averse group.

An analysis of variance on the arcsine transformation of the percentage of subjects who played the tax lottery for each case was conducted. The results revealed that the percentage of risk-seeking subjects was significantly greater when the tax payment was small than when the tax payment was large.

The authors concluded that "although taxpayers may be generally risk averse, a substantial proportion actually exhibit risk-seeking behavior" (p. 299). This behavior is consistent with prospect theory.

Klepper and Nagin (1989)

Klepper and Nagin conducted a survey to investigate how certain features of the enforcement of tax laws affect perceptions of detection risks and penalties for noncompliance to tax laws. They tested eight hypotheses concerning perceptions of detection risk and criminal prosecution, and intended behavior.

Klepper and Nagin used a survey containing scenarios of a hypothetical taxpayer with differing amounts of self-employment income and charitable deductions. The respondents were 163 students enrolled in an evening master of public management program. The students were randomly assigned among eight scenarios. Each respondent received two scenarios.

The respondents were presented with three gambles of under-reported income by 25, 50 and 90 percent. The respondents estimated: (1) the chance the IRS would catch at least half of the unreported income, (2) the chance the hypothetical taxpayer would be criminally prosecuted if at least 50 percent of the unreported income was detected, and (3) the likelihood the respondent would take the risk if the respondent were in the hypothetical tax position.

Klepper and Nagin found that:

> ...perceptions of detection risk on a line item are influenced by the amount and percentage [of]

> noncompliance on the line item, the noncompliance on other line items (especially for line items that are inferior evasion opportunities), and the cost to the IRS of detecting noncompliance on the line item. Our findings on perceptions of criminal prosecution suggest that the perceived probability of criminal prosecution is shaped principally by the percentage noncompliance on the line item (p. 229).

The findings suggested that taxpayers appear to make calculated decisions, weighting the benefits and costs of compliance. They also found that the perceived probability of criminal prosecution appears to act as a deterrent to noncompliance.

The authors conclude that taxpayers are sensitive to the effect that noncompliant behavior has on the risks of detection and criminal prosecution and that these risks affect their willingness to engage in noncompliance.

Schadewald (1989)

Schadewald conducted an experimental study to determine if the reference points contained in prospect theory were applicable to individual taxpayers' reporting decisions. Schadewald tested two hypotheses:

> H1: More subjects will be risk seeking when the refund is overestimated than when it is underestimated.
>
> H2: More subjects are risk seeking when they are under withheld than when they are over withheld.

Subjects in the study were 109 evening MBA students at the University of Minnesota. The subjects were paid $10.00 each. The study used a 2 x 2 experimental design in which the subjects were asked to make hypothetical tax reporting decisions. The nested design consisted of one between-subjects variable (tax due/refund amount) and one within subjects variable (amount withheld - $10,000 or $12,000). The subjects were asked to read and respond to two tax cases, four context-free choice problems designed to independently measure the subjects' risk preferences, and a post-experimental questionnaire.

After the presentation of the tax cases, the subjects were asked whether or not they would deduct an expenditure whose deductibility was uncertain. The subjects were also asked to give the strength of their preference rating on a nine-point scale. The data were analyzed with descriptive statistics and analysis of variance for H1 and H2.

The subjects' preferences for risk position were not significantly affected by either manipulation. The author concluded the framing of tax outcomes as gains or losses was not affected by either the prior expectation or the amount of tax withheld and that this result was consistent with utility theory and not prospect theory.

To determine if the negative results in the first experiment were due to the ineffectiveness of the case materials, Schadewald conducted a second experiment to determine whether the manner in which tax outcomes are described affect a taxpayer's decision frame and risk preference. The hypotheses for the second experiment were:

> H3: More subjects will be risk seeking when prospective tax refunds are described as deviations from a prior expectation (which implies the outcomes are losses) than when the refunds are described as deviations from the current cash position (which implies the outcomes are gains).
>
> H4: The effect hypothesized in H3 will be stronger when the outcomes are also explicitly labeled as "gains" or "losses."

The subjects were 130 MBA students at the University of Texas. The independent variables in the 2 x 2 design were: (1) whether the outcomes were deviations from the prior expectation or the current cash position, and (2) whether or not the outcomes were also explicitly labeled as gains or losses. The materials were similar to those in experiment one except that the subjects' risk preferences were not independently measured.

The results of the analysis of variance in experiment 2 were also insignificant. Schadewald concluded that the results in experiment 1 were not due to "ineffective operationalizations of the reference point concept but rather the inability of the two potential reference points to influence framing" (p. 79).

Schepanski and Kelsey (1990)

Schepanski and Kelsey conducted an experimental study to test the generalizability of the framing effect (Kahneman and Tversky 1979) in taxpayer compliance decisions. Prior studies by Hite et al. (1988) and Schadewald (1989) had found the effect of framing to be very weak or nonexistent. Chang et al. (1987) reported significant framing effect; however, all subjects were presented with the same decision frame. Schepanski and Kelsey extended prior research on prospect theory and included Markowitz's (1952) utility theory (decision making under uncertainty). Markowitz's theory uses customary wealth as the reference point. "It predicts framing effects can arise when wealth changes occur that are not included in the individual's reference point" (p. 62).

The study employed an experimental design in which the subjects were randomly assigned to one of three conditions: loss, refund, or final asset. The subjects were 202 undergraduate students in the College of Business Administration at the University of Iowa. In the loss condition, subjects were told that they possessed a net worth of $5,000. The subjects were in a situation where initially they had no tax due, and then learned that an additional $500 tax was due. They were asked if they would pay the additional tax or claim a nonallowable deduction to bring the tax back to $0. Subjects in the refund condition started from a net worth of $4,300 and were then given an unexpected increase of $700 refund. The refund was the result of a nonallowable expense deduction which would reduce the refund to $200. The subjects were asked to indicate if they would claim the nonallowable deduction. In the final asset condition, subjects started from a net worth position of $5,000. They received the same information as the subjects in the loss condition except the outcomes in this case were expressed in terms of final net worth states.

In all conditions, the subjects were also asked to indicate their strength of preference for the alternative chosen on a nine-point rating scale. Subjects evaluated five trials where they were given the tax plus interest and penalty in the event the nonallowable expense is claimed and the overstated deduction is detected and disallowed. They were also given the probability of an audit and detection.

The mean preference ratings in the refund condition were significantly lower than in the loss condition. The mean preference ratings in the final asset condition were all significantly lower than in the loss condition. The final asset condition results suggest that taxpayers may be more compliant when outcomes are expressed in terms of final net worth states than changes in net worth.

The Markowitz utility theory predicts "risk-seeking for large losses and small gains, and risk aversion for small losses and large gains" (p. 67). The value function is posited to be convex for large losses and small gains, and concave for small losses and large gains. A graph of the loss condition and refund condition results agreed with a graph of the Markowitz value function.

The results of the study support Kahneman and Tversky's prospect theory and are in opposition to the results of Schadewald's (1989) study. Schadewald concluded that Kahneman and Tversky's reference point concept was not applicable in tax contexts.

Schepanski and Kelsey conclude that framing can induce a significantly greater degree of risk aversion in compliance decisions. They also conclude that framing can be interpreted in the context of Markowitz utility theory as well as Kahneman and Tversky's prospect theory.

Robben, Webley, Elffers, and Hessing (1990)

Robben et al. (1990) conducted a business simulation to investigate the role of decision frames and opportunity in tax evasion. The study was based on Kahneman and Tversky's Prospect Theory. The business simulation was used because the authors felt that in previous studies where subjects were given income and information about tax rates and audit frequency, the subjects had a clear idea of what the experimenter wanted (hypothesis guessing).

Sixty-nine economics undergraduates were randomly assigned to one of four experimental conditions. The conditions were high opportunity/gain, low opportunity/gain, high opportunity/loss, and low opportunity/loss. The high opportunity condition contained six allowable deductible expenses. The low opportunity condition had three allowable deductible expenses. The gain/loss was manipulated by over or under withholding tax.

The subjects were told to imagine they were shopkeepers during a two year period. They had to make decisions on buying additional information, advertising, investment and setting selling prices. At the end of each year, a tax return was filed. Depending on the subject's experimental group, the subject would receive a refund or be asked for an extra payment. This experimental condition was independent of the decisions the subject made in the simulation.

The two dependent variables were the frequency of tax fraud and the amount of tax evaded. A two way analysis of variance resulted in no significant main effect for the amount of tax evaded. There was, however, a significant main effect for frequency of tax fraud. Evasion in the study was low. Forty-four of the 69 participants never evaded and 14 only evaded once out of four opportunities. The authors concluded that greater opportunity leads to greater tax evasion and that their study lends support to prospect theory.

Robben, Webley, Weigel, Warneryd, Kinsey, Hessing, Martin, Elffers, Wahlund, Van Langenhove, Long, and Scholz (1990)

Robben et al. (1990) conducted an international experimental study based on decision frames as described in Kahneman and Tversky's Prospect Theory and a taxpayer's opportunity to evade. The opportunity to evade stems from the opportunity to conceal income or declare unwarranted deductions.

The study used a simulated business management task requiring subjects to file tax returns. The study examined two hypotheses. Hypothesis one tested whether subjects would engage in more tax cheating when low withholding taxes created a loss situation than when high withholding on the same tax debt created a gain or refund situation. The second hypothesis stated that increased opportunities to cheat when filing tax returns would yield more tax cheating than would circumstances in which such opportunities were less available.

Multiple studies were carried out simultaneously in six countries (Belgium, England, the Netherlands, Spain, Sweden, and the United States). Results from the ten studies were polled and compared. The subject pool consisted of 674 individuals, 408 students and 286 members of the general public.

The subjects managed a computer simulated retail business. They were asked to make decisions concerning buying business related information, advertising, and making store improvements. The subjects were given a semiannual report which was said to represent the results of their decisions. The subjects' decisions, however, had no effect on the feedback they received.

Decision frame was provided by assigning subjects randomly to one of two conditions. In the first condition the subjects expected a substantial tax refund during each year they occupied the business manager role. In the second condition, a considerable tax payment was due on top of taxes already withheld. Subjects were given the opportunity to review and make changes on their tax forms after receiving information about the condition and before filing the tax return.

Opportunity to evade was manipulated by assigning the subjects to high opportunity conditions where the bulk of their business income was cash receipts and where the business had six categories of business expenses. In the low opportunity conditions, subjects were told that most customers paid with checks and the business was provided with only three business expense categories.

The dependent variables in the study were: (1) Occurrence of Evasion Index (a dichotomous variable based on whether the subject underreported income or exaggerated business expenses; (2) Frequency of Evasion Index - sum of the instances of income and deduction fraud; and (3) Amount Evaded Index - sum of dollar amounts of underreported income from both tax returns.

The data were analyzed using a 2 x 2 x 10 analysis of variance (opportunity x withholding status x study group). Results of the study revealed that: (1) among subjects confronting the prospect of an additional tax payment after withholding, noncompliance was more likely to occur, occurred on more occasions, and involved larger amounts of money; (2) when subjects had more opportunities, noncompliance was significantly more likely to occur and to involve more money. There was a significant main effect for study group observed for all three dependent variables. Students were found to be more likely to underpay taxes than members of the general public, underpay taxes more frequently, and underpay by larger amounts of money.

Deterrence Theory

Deterrence theory investigates the manner in which the number of deviant acts are reduced. Deterrence is most often accomplished through the threat of punishment. Individuals with varying perspectives on the law, morality, and the threat of punishment itself will react differently to the threat of punishment (Silberman 1976).

Silberman (1976) found several variables which influence the effectiveness of the threat of punishment. These variables are the certainty and severity of punishment, differential association (learning criminal behavior through involvement with those who view such deviant acts as favorable), and moral commitment.

In the past, most IRS efforts to deter noncompliance centered around civil and criminal sanctions. The civil penalties contained in the Internal Revenue Code have evolved in piecemeal fashion with little consideration of how individual provisions interact. In the past, the IRS has assessed more than one penalty per violation ("stacking") and used the multiple assessment to bargain with the taxpayer (Saubert, Kennedy, and O'Neil 1990). Penalties for noncompliance have steadily increased over the years. In 1989, many of the penalties for noncompliance were greatly increased.

This section will discuss studies that have investigated the use of sanctions to increase compliance. A discussion of amnesty programs (along with related studies) are also included. Under an amnesty program, a taxpayer has the opportunity to come forward during a specified period of time and pay delinquent taxes at reduced penalties.

Some of the most noted studies examining the effects of sanction threat are: Tittle (1980); Scott and Grasmick (1981); Grasmick and Scott (1982); Jackson and Jones (1985); Dubin and Wilde (1988); Stalans, Smith, and Kinsey (1989); and Violette (1989). Crane and Nourzad (1988) and

Alm, McKee, and Beck (1990) examined the effects of amnesty programs on taxpayer compliance.

Use of Sanction Threats

A sanction threat, in the case of tax evasion, is a warning that penalties, property seizure, or imprisonment may result from noncompliance. Sanction threats may: (1) lead to prevention of a particular deviant act (compliance); (2) reduce the frequency of the deviant act (lead to less frequent noncompliance); (3) change the way in which the deviant act is done (taxpayer may search for another means of noncompliance); (4) have no effect; or (5) lead to more deviance (increase noncompliance). Sanction threats operate through fear (wishing to avoid unpleasant consequences such as fines and imprisonment); moral or normative reinforcement (strengthening moral inhibitions, clarifying rules, creating habits of conformity); and motivational diffusion (stimulating associates or potential offenders to encourage the individual to seek nondeviant means of achieving goals) (Tittle 1980).

If a taxpayer anticipates a penalty that is probable enough and severe enough to outweigh the financial benefit of noncompliance, that taxpayer will likely comply with the tax laws. A taxpayer's perceived cost of noncompliance is influenced by the taxpayer's perception of detection risk and the magnitude of the related penalty. Sanctions are a necessary element to motivate compliance for the majority of taxpayers (Jackson and Jones 1985).

Tittle (1980)

Since most prior research on the effect of sanctions was not empirically based, Charles Tittle conducted a study to determine what effect sanctions actually have on human behavior. He surveyed 1,993 people from three states concerning individual perceptions of the probability of being caught and punished for a variety of deviant acts (including tax evasion) and then related those perceptions to individual self-reports of deviant conduct and inclinations.

Subjects responded on a five point scale about: (1) deviantness of norm (which of nine acts were morally wrong), (2) importance of deviant act (how serious an offense performing the deviant act was), and (3) legitimacy of the norm violated by the deviant act (whether it ought to be against the law to perform the deviant act and people have the right to expect you not to do the act).

Tittle then measured the association between the three dimensions mentioned above and 11 indicators of sanction fear. The indicators of sanction fear included a scale that combined individual estimates of the probability of different kinds of consequences occurring and the associated social costs.

Some of the conclusions drawn from the results of the study included: (1) fear of sanctions has a deterrent effect but may not be as important as moral commitment and affiliation with deviant influences; (2) fear of informal sanctions more effectively deters deviant behavior than fear of formal sanctions; (3) informal sanctions are only effective if they are perceived to be certain, while legal sanctions are only effective when perceived to be very severe; and (4) type of offense did not appear to be an important variable. The study also examined six demographic variables: gender, age, race, social status, marital status, and labor force status. Only age and gender were found to be reliable predictors of deviant behavior.

Scott and Grasmick (1981)

The authors developed a deterrence model based on motivational and inhibitory variables of behavior. They felt this model was necessary because prior research had not included perceptions of rewards in the research designs and had therefore underestimated the deterrent effects of sanctions.

To test their model, they collected data for model estimation from 329 randomly selected taxpayers living in the Oklahoma City metropolitan area. The independent variables were: (1) perceived injustice in the taxpayer's exchange with the government, and three inhibitory variables, (2) guilt, (3) stigma, and (4) legal punishment. The variables were measured on a 4-point Likert-type scale. The dependent variable, cheating, was measured by asking the respondents how many times in the past five years they had failed to report all income or claim undeserved deductions. Scott and Grasmick found that when perceptions of sanctions do not have a strong effect on behavior then individuals are not motivated to cheat. However, perceptions of sanctions have strong inverse effects on tax cheating when individuals are motivated to cheat. They also found that when inhibition is high, motivation has little influence on tax cheating. When inhibition is low, motivation significantly affects stigma and legal punishment.

Grasmick and Scott (1982)

Grasmick and Scott conducted a study to investigate whether individuals perceive greater or fewer threats of punishment for tax evasion than for petty or grand theft. They also examined whether three types of punishment (legal sanctions, social stigma or guilt feelings) had the same magnitude of inhibitory effect on tax evasion and the different types of theft. The study used survey data obtained from personal interviews of 401 adults in a metropolitan area. Legal sanctions were measured by asking if the individuals felt they would be apprehended. Social stigma was measured by asking how many of the five people you know best have evaded taxes, or been involved in petty or grand theft. Guilt feelings were measured on a five-point Likert type scale. The respondents were asked if they felt committing one of the acts was always, usually, sometime, seldom, or never wrong. Responses to the items measuring perceived punishment threats were then dichotomized.

The information was partially analyzed using frequency distributions. Chi square was also used to examine bivariate relationships and multiple regression to determine the combined effects for the three punishments. Grasmick and Scott found that 61 percent of the respondents felt tax evasion was always wrong, 63.6 percent said their friends had evaded taxation, and 37.9 percent believed they would be caught. The bivariate relationships (chi square test for high/low inhibition) was significant for all three perceived punishment threats. The three threats of punishment accounted for 31 percent of the variation in tax evasion. The variation in tax evasion explained by the threats was twice as great as the proportion of variance accounted for in the theft conditions.

Grasmick and Scott stated that their threat of guilt feelings was comparable to Schwartz and Orleans' (1967) conscience appeal. When examining intent to evade or steal in the future, the threat of guilt feelings had the greatest inhibitory effect on tax evasion. All three punishments were of equal or greater effectiveness in deterring tax evasion than theft.

Jackson and Jones (1985)

Jackson and Jones conducted a laboratory experiment to test the importance of the risk of detection and magnitude of monetary penalty in the tax evasion decision. They felt that an individual taxpayer's perception of, and reaction to, an increase in risk of detection for an evasion may be different from that taxpayer's response to an equivalent increase in magnitude of the penalty for that evasion. Taxpayers are confronted with the certain payment of taxes due or some probability of paying a greater amount if the taxpayer evades paying the correct amount of taxes due and the evasion is discovered by the IRS. The hypothesis for the study was:

> H_0: Given a low and equal expected values, the choice having the lower magnitude of penalty will be preferred.

Jackson and Jones conducted a laboratory experiment consisting of two parts. Both parts of the experiment used survey instruments. The experimenters used three groups of subject. The subjects were graduate and undergraduate students at two different universities. The responses of the subjects in the three groups were not significantly different.

The first part was a noncontextual experiment designed to gather evidence about decision making under risk in a strict monetary gamble evasion. The respondents indicated their indifference between two outcomes involving loss alternatives with small stated probabilities. This part of the experiments tested the theory of subadditivity of decision weights.

The second part of the study was an experiment designed to gather evidence about the sensitivity of subjects to risk of detection and magnitude of penalty. Subjects were presented with a choice between detection/penalty structures. They were also asked to evaluate the effect of the alternative audit/penalty structures on taxpayers other than themselves.

Jackson and Jones found: (a) at some penalty and detection risk levels, a small increase in probability of detection may not be as salient as an increase in penalty that yields the same expected utility value; and (b) the magnitude of the penalty may be an important variable at low risk levels.

Dubin and Wilde (1988)

According to Dubin and Wilde, most prior studies used IRS audit policies as exogenous and models of taxpayer compliance as simple portfolio problems. Dubin and Wilde felt the IRS audit was endogenous. The purpose of this study was to provide empirical evidence on the relationship between audits and compliance.

The two hypotheses for the study were: (1) an increase in audit rate leads to increased compliance, and (2) increased compliance levels leads to a decrease in audit rate. The two relationships were used to form simultaneous equations. The equilibria of the equations produced observed audit rates and compliance rates.

The study employed 1969 IRS Taxpayer Compliance Measurement Program data which consists of detailed audits of a stratified random sample of taxpayers. The sample was a pooled cross section of 36 variables for seven audit classes. The study also used two variables from the 1986 Report of the Commission of the Internal Revenue. These variables were: (1) estimated voluntary compliance based on Discriminant Index Function (DIF) score, zip code area, audit class, and self reported tax liability; (2) audit rates; (3) unemployment rates; (4) percent of the population nonwhite; (5) percent employed in manufacturing; (6) age (percent over 65); (7) education; (8) IRS resources; and (9) self-employment income.

Dubin and Wilde estimated voluntary compliance with ordinary least squares. The estimation used 1968 audit rates, and the various socio-economic variables. The equations were also estimated using instrumental variables (IRS resources as an instrument for audit).

The variables were measured for each of seven audit classes and aggregated to the three-digit zip code level. The audit classes are defined by income level (low, medium or high) and type of return (1040 only, Schedule C or F present, Schedule C or F not present).

The audit rate was endogenous in five of seven audit classes using the OLS estimate. Both OLS and instrumental variable estimation yielded a negative relationship between audit rate and compliance with high income, nonbusiness returns. Using instrumental variable estimation, significant deterrent effects were found in only two of the seven audit classes.

According to Dubin and Wilde (1988), it is critical whether the IRS audit selection process is mainly influenced by taxpayer compliance behavior. They suggest that in studies where audit rates are treated exogenously, the empirical model may be misspecified.

Stalans, Smith, and Kinsey (1989)

Most of prior research in deterrence theory had concentrated on the content of decisions. Stalans et al. examined some of the effects of the decision context on decision making. Structural opportunity refers to how well the IRS is able to trace sources of taxpayer income. A wage earner whose total income is reported by the employer on a W-2 form or by other third-parties on 1099 forms has little opportunity to not report income. This individual has low structural opportunity. On the other hand, an individual who has cash and/or tip income has a much greater opportunity to not report income. An individual with opportunities to not report income has high structural opportunity. The authors investigate how structural opportunity: (1) affects sanction perceptions, (2) relates to internalized norms, and (3) strengthens or weakens the effects of perceptual and normative processes on intention and behavior.

An individual's perception about formal and informal sanctions is dependent upon the amount of information the individual has about formal sanctions and about the compliance of members of their peer groups. The authors feel that individuals with low structural opportunity have less information about the norms of their peers than individuals with high structural opportunity have about their peers.

The authors hypothesize a two-way interaction effect:

> Individuals who both have high structural opportunity and perceive that persons they know would be likely to find out if they cheated will perceive less severe possible sanctions from acquaintances than will individuals with low structural opportunity or individuals who

> indicate that others are unlikely to find out about their tax cheating (p. 486).

The hypothesis was tested using cross-sectional survey data on the threats of punishment and future intentions to underreport income. The threats of punishment were divided into social disapproval, legal punishment, and reactions of guilt.

The respondents were 2,074 randomly selected Minnesota adults residents (1,031 from a 1985 survey and 1,043 from a 1988 survey). Structural opportunity was based on IRS Package X, 1985 and categorized as low, medium or high. The authors also collected information on perceived likelihood of: (1) feeling guilt, (2) IRS detection, (3) informal detection, and (4) detection. The variables also included perceived formal and informal sanctions and future intentions to underreport income. Demographic information collected included gender, age, education, and income level. The results of factor analysis revealed three scales: likelihood of IRS detection (explained 49.8 percent of variance), likelihood of other detection (explained 19.8 percent of variance), and likelihood of feeling guilty (explained 17.4 percent of variance). Likelihood of IRS detection was significantly correlated with likelihood of others finding out and with likelihood of guilt feelings.

Nine percent of the respondents in the 1988 survey and 18.4 percent of the respondents in the 1985 survey indicated that they would underreport the income.

The authors used ordinary least squares to analyze the effects of opportunity on the four main variables of the study. The demographic variables were used as control variables. They found that individuals with high structural opportunity were: (1) more informed about the low likelihood of IRS detection, and (2) had significantly lower likelihood of feeling guilty for noncompliance. Most respondents were aware that their significant others would not likely find out about their noncompliance.

Stalans et al. also found that: (1) there was a strong direct effect of structural opportunity on intentions to underreport income; (2) guilt feelings and likelihood of IRS detection had independent effects on the likelihood of underreporting income; (3) perceived likelihood of guilt feelings was the largest predictor of future intentions (7.0 percent); and (4) individuals with high structural opportunity who had indicated that others would find out about their noncompliance indicated a greater likelihood that they would underreport income in the future.

Violette (1989)

Violette sought to determine the effect of taxpayer education concerning the potential effect of legal and informal sanctions for tax evasion on compliance decisions. Legal sanctions include civil and criminal penalties for evasion. Informal sanctions include the threat of social disapproval and the influence of moral conscience. In this study, legal sanctions were described as civil and criminal penalties, and audit procedures and possibilities. As a proxy for informal sanctions, Violette used a story about a fictional part of the Tax Reform Act of 1986 which allows publication of the names of all taxpayers who are fined or punished for tax evasion.

Two hundred five subjects were chosen from evening classes at high schools, vocational schools and colleges in Phoenix, Arizona and Portland, Maine. The subjects had a mean age of 30 and an average income of approximately $40,000. Eighty-two percent of the subjects indicated cash income experience. Fifty-four had some college, 30 percent had a bachelor's degree and 54 percent of the subjects were female. The experiment consisted of four treatments (legal sanction, informal sanction, legal and informal sanction, and no message) randomly assigned to students in 12 different classes. The instrument consisted of one of the four treatments, a scenario describing a $10,000 (nontraceable) cash income evasion opportunity, and two questions. The first question asked if the subject would report all of the $10,000 on their tax return. The response was recorded on a five-point Likert type scale. The second question asked about the likely evasion amount. This response was recorded on an eight-point scale skewed toward the lower dollar amounts.

A two-way analysis of variance examining legal and informal main effects and their two way interaction resulted in significant main effect for the legal sanction treatment. Subjects receiving legal and informal sanction treatments had reported the lowest evasion dollar amount (mean $3192 of $10,000 possible). Subjects receiving the legal treatment only averaged $3,244 likely evasion. Subjects receiving no sanction treatment reported $3,842 evasion and the informal sanction group $4,198. Violette also found age and income to be significant factors in looking at evasion amounts. Sex and education, however, were not significant.

Violette concluded that communicating existing legal sanctions may increase compliance.

Amnesty Programs

One particular form of sanction threat which is receiving frequent attention is state tax amnesty programs. A state may decide to strengthen enforcement of their tax laws and convey the message that the taxpayer will be allowed to pay all past due taxes that qualify under the program before the institution of new enforcement regulations such as increased penalties and stepped up detection efforts. Usually, the state projects a "get tough" attitude to encourage taxpayers to come forward before a specific deadline passes.

Of primary importance is the addition of new taxpayer names to the tax rolls. Nonfilers are the most common participants in amnesty programs (Fisher, Goddeeris, and Young 1989).

Crane and Nourzad (1988)

Crane and Nourzad conducted a descriptive analysis of a sample of California Tax Amnesty Program participants. Their objective was to increase the knowledge of whether state amnesty programs are reaching their objectives to: (1) raise revenue in the short run; (2) increase revenue by getting new taxpayers on the tax rolls; (3) serve as a politically acceptable way of moving towards stronger enforcement: and (4) obtain information to improve overall tax compliance. This study concentrated on amended filers and ignored previous nonfilers. They chose amended return filers because they felt an analysis of individuals who file inaccurate returns would be of use in revising audit selection rules. They also viewed the amended return filers as a new source of data for conducting econometric analysis.

Crane and Nourzad first recalculated the tax bill on both the original and amended returns of the 123 individuals in the sample. They then compared the average figures from the amnesty participant's original return to those of overall California taxpayers. They found that amended filers had much higher average income. They also found that: (1) the average tax liability was understated by $343 (about 12 percent of the true tax bill); (2) true total income was understated by an average of $3,271 or 10 percent; (3) adjustments were overstated by an average of $738; and (4) over 50 percent of the sample used pure income underreporting as a sole type of noncompliance. Under normal audit procedures only two percent of the sample would have a relatively high probability of being audited. Thirty-one percent of the sample had a medium chance of being audited and two-thirds had a low probability of audit.

To demonstrate how amnesty data could be used for empirical analysis of tax evasion, the authors performed econometric analysis of the data. Crane and Nourzad also wanted to explore the nature of the relationship between evasion and tax rates. The results of a regression analysis found that income has the expected positive effect on evasion and that the marginal tax rate variable was positively and statistically significantly related to evasion.

Crane and Nourzad also converted parameter estimates of income and tax rates into elasticities by using mean values. The analysis revealed that measures of evasion were more responsive to changes in marginal tax rates than to changes in true income.

Crane and Nourzad concluded that their results support the use of income as a factor in making audit decisions. They also felt their results provide support for the "supply-side" argument that cutting marginal tax rates induces individuals to include some hidden income as part of the tax base.

Alm, McKee, and Beck (1990)

Many of the states that have conducted amnesty programs did not analyze their programs to see what effect amnesty had on long term taxpayer compliance. Alm et al. conducted a study to analyze the long term impact of an amnesty program on voluntary tax compliance.

In a laboratory simulation, subjects received income, paid taxes, faced the probability of audit, paid a penalty on taxes not disclosed if the nondisclosure was detected, and received a public good whose amount depended upon the tax payments of all individuals. A tax amnesty was introduced in several alternative ways. The variables manipulated were: (1) enforcement (constant or increased), (2) whether or not the possible amnesty was announced, (3) whether amnesty was given, and (4) whether there was a promise of a one time amnesty. The tax rate was held constant. No references were made to words such as taxes, audits or income; instead, the study used neutral words such as contributions, checks, and disclosed income.

Alm et al. found that overall tax compliance decreases after an amnesty program because of the behavior of the moderately compliant taxpayer. Other taxpayers are generally unaffected by a tax amnesty. Alm et al. also found that an anticipated amnesty significantly reduced compliance. Compliance was found to be higher when increased enforcement efforts were accompanied by an amnesty program than when enforcement was increased without an amnesty program. The authors concluded that taxpayer perceptions of fairness sometimes play a crucial role in the compliance decision.

Cognitive Structures

The psychological approach to the compliance problem concentrates on taxpayers' perceptions and attitudes. Perceptions of taxpayers regarding the justice of our tax system is best described using the distributive justice theory. Fishbein and Ajzen (1975) and Lewis (1980) have posited that behavior is a result of attitudes which have been mediated by intentions. This theory has led researchers to posit that taxpayer compliance can be increased by appeal to their moral obligation to pay taxes. Increasing guilt feelings through an appeal to conscience may change a taxpayer's intention to pay taxes. Attitudes have been shown to influence behavior through their impact on intentions (Bagozzi 1981). However, neutralization theory suggests that individuals have techniques to reduce the feelings of guilt they might experience when they violate the law (Sykes and Matza 1957).

This section discusses the use of distributive justice theory in research in the compliance area. It also examines studies that have attempted to increase compliance through changing attitudes and studies that examine taxpayers' use of neutralization to negate appeals to conscience.

Distributive Justice

The Federal income tax is felt by many to be the least fair tax (Yankelovich et al. 1984). Distributive justice (originated by Aristotle and adopted by Homans 1961, 1974) concerns the justice of the distribution of rewards between individuals or groups. Distributive justice posits that: (1) persons disadvantaged by inequity will display anger, and (2) persons benefiting from inequity will experience guilt feelings (Deutsch 1979). Distributive justice describes the fairness of the distribution of outcomes in our tax system. Noncompliance by taxpayers may be viewed as a means by which taxpayers attempt to restore equity in their relationship with the government (Spicer and Becker 1980). Distributive justice evaluations involve comparisons with two basic categories of referent others: the government and other citizens (Kinsey 1989).

Tax evasion is associated with feelings of inequity (Wallscutzky 1984). The perception of differences in tax treatment between oneself and another leads to feelings of unfairness. These feelings give rise to behavior to restore an equitable relationship (Webley et al. 1988).

The most notable studies employing distributive justice as a theoretical foundation are Spicer and Lundstedt 1976, Spicer and Becker 1980, and Porcano 1984. Huseman, Hatfield, and Miles 1985 studied individual differences as they affect perception of equity. These studies are examined next.

Spicer and Lundstedt (1976)

Spicer and Lundstedt developed a theoretical framework to examine a set of attitudes and norms affecting compliance. The framework depicted the relationship between a taxpayer and his government. This framework included: (1) coercion, (2) an exchange relationship in which the taxpayer paid taxes and received goods and services from the government, and (3) the taxpayer's internalized norms or role expectations. They used the framework to examine original survey data on taxpayer attitudes and behavior collected in 1974.

The hypotheses of the study were:

(1) Tax evasion is less likely when sanctions against tax evasion are perceived to be severe.
(2) Tax evasion is less likely when the probability of detection is perceived to be high.

(3) Tax evasion is more likely when a taxpayer perceives his terms of trade with government as inequitable when compared to other taxpayers.

(4) The more tax evaders a taxpayer knows, the more likely he is to evade taxes himself (p. 297).

The propensity to evade taxes was measured on a Likert-type scale. Perceptions of inequity were measured by gauging opinions about level of taxes and spending, the value received for tax dollars, and the fairness of taxes. The independent variables in the study were: (1) the number of tax evaders known personally, (2) perceived probability of detection, (3) perceived severity of sanctions, and (4) an index measuring perceptions of inequity in the level of taxes and spending.

One hundred thirty heads of household were selected from a large metropolitan area. The taxpayers were assured of confidentiality of their responses.

Total scores on the tax resistance scale were regressed on scores from the independent variables and seven background variables (experience with tax audits; age; education; whether or not the respondent was self-employed; amount of income; proportion of income received in wages, salaries, or pensions; and political party affiliation). Results of the analysis show that tax resistance scores were positively related to scores on the index of inequity items and to the number of tax evaders known personally, and negatively related to the perceived probability of detection. Age and party affiliation were negatively related to the tax resistance scale. Experience with tax audits was significantly related to both the tax resistance scale and the tax evasion index.

The authors concluded that taxpayer decisions between compliance and evasion appear to be responsive to the degree of perceived coercion and to attitudes toward the fiscal system.

Spicer and Becker (1980)

Spicer and Becker conducted a study to examine the relationship between tax evasion and perceived inequities in the tax system. They sought to determine whether perceptions of inequity actually increase tax evasion or simply serve as a means of rationalizing illegal behavior. They hypothesized that the amount of taxes evaded will increase for disadvantaged recipients of fiscal inequity, but decrease for beneficiaries of fiscal inequity.

The study used 57 students for the University of Colorado. The students were given tax tables and received monthly taxable income. The subjects were told to report their income and pay tax according to the income they reported. The objective was to maximize their net income after taxes and fines.

Subjects were given a one-in-fifteen chance of paying a fine of fifteen times the sum of tax evaded or a one-in-three chance of paying a fine of three times the sum of tax evaded. Random audits of subjects' returns were conducted each month.

The experiment employed tax rates of 25 percent and 50 percent and frequency of audits/severity of fines as independent variables. Inequity was simulated by providing some subjects with false information regarding relative tax rates.

Results of the study revealed that average evasion was 23.13 percent of total taxes payable. The subjects who were told that they had the highest tax rate showed the largest percentage of evasion. The subjects with the lowest tax rate exhibited the smallest percentage of evasion. The percentage of taxes evaded was regressed on perceived relative tax rates, gender, age, income and tax resistance scores. Perceived relative tax rate and gender significantly impacted evasion. Male subjects evaded a greater percentage of their taxes than female subjects.

The authors concluded that tax evasion may increase among those who feel victimized by redistribution of tax burdens among taxpayers but decrease among those who feel favored. They believe that the outcome of their simulation demonstrates that the experimental approach can play a role in understanding the factors underlying tax evasion.

Porcano (1984)

Because previous researchers had shown that taxpayers make judgments about the fairness of particular taxes and that taxpayers evaluate the equity of various tax laws and react accordingly, Porcano designed a study to measure taxpayers' perceptions of fairness and equity in tax structures and redistributions. The author believed that if a generally accepted normative policy was developed that exhibited equitable treatment, then compliance might increase.

Porcano uses distributive fairness as a theoretical foundation for the study. Deservingness is measured by an individual's net position. Three primary rules affecting a person's deserved outcomes were outlined: (1) contributions rule, (2) needs rule, and (3) equality rule.

> The contributions rule determines the fairness of a distribution according to an individual's overall contributions. ... The needs rule requires that the individual's legitimate needs be satisfied, regardless of what that individual contributes to the system....The equality rule requires individuals to receive similar outcomes regardless of the differences in their situations (p. 621).

In an experimental setting, 88 subjects (business school students and faculty) were given six tasks. Task one was a questionnaire regarding demographic information. Tasks three, four, and five were scenarios about taxpayers in a hypothetical country. The subjects had to collect $100,000 from 18 citizens in the country. They had to decide how much each citizen should pay in taxes or receive in negative income taxes.

Task two and six obtained specific weightings of the justice rules as they pertain to tax policy. Justice rules are beliefs that outcomes ought to be distributed according to certain criteria. The benefit rule is the most important to tax policy. It requires tax payments in line with the marginal benefits received in public goods and services. The other rules are: (1) the contribution rule (fairness of distribution according to individuals' overall contribution); (2) the needs rule (distribution according to individual's need regardless of what the individual contributes; and (3) the equality rule (similar distribution to individuals regardless of the differences in their situations).

Five independent variables were manipulated in the study: (1) marital status (single, married), (2) age (20, 40, or 60 years old), (3) number of dependents (0 or 2), (4) total income ($6,000, $20,000, or $60,000), and (5) education (elementary school, high school, or college). The dependent variable was the amount of tax each citizen should pay or receive.

The specific dollar magnitude that each independent variable had on the amount of tax due from the taxpayer was analyzed using multiple regression analysis. Also a ratio of tax payment to total income was calculated for each income group in each task setting to determine the average tax rate assessed at the different income levels.

Tests performed to determine if weights assigned to justice rules and assessments made by subjects were influenced by demographic variables were not significant. On average, the contribution rule was the most important in tasks two and six. The need rule had the next highest assigned weight. Regression analysis was performed on the variables in tasks three, four, and five. Regardless of marital status, the most important variables were income and number of dependents. The results also revealed that all groups used a progressive tax rate structure.

Porcano concluded that the subjects believed: (1) ability to pay is fair and relevant, and (2) negative income tax is fair for low income-level taxpayers. Porcano also concluded that no significant difference existed between the responses of student and nonstudent groups.

Huseman, Hatfield, and Miles (1985)

Based on Adams' (1963, 1965) equity rationale, Huseman et al. conducted a field study to test the effect on both perceptions of equity and reactions to inequity of an individual difference variable they developed called Equity Sensitivity. The construct is based on the theory that individuals differ in their sensitivity to equity.

The authors hypothesized that there would be significant differences in job satisfaction among under-rewarded, equitably rewarded, and over-rewarded individuals. They also hypothesized that individuals would have different relationships between level of perceived equity and job satisfaction dependent on the equity sensitivity classification.

Eight hundred fifty-nine individuals in management and professional positions were classified as Benevolent, Equity Sensitive, or Entitled. Sensitivity to equity was measured with an Equity Sensitivity Instrument (ESI) developed by the authors. The instrument is a five-item forced distribution instrument. Perception of equity was measured using an adaptation of the Hatfield, et al. (1979) Global Measure of Equity-Inequity which was used to assess whether respondents perceived themselves to be under-rewarded, equitably rewarded, or over-rewarded in relationship to the organization for which they worked. Job satisfaction was measured using a seven-point satisfaction question.

The data were analyzed using a two-factor, 3 x 3 analysis of variance. Significant main effects of sensitivity to equity and perceptions of equity were obtained. Duncan's multiple-range test revealed significance for all three levels of perceived equity. Benevolent subjects had significantly higher means; Equity Sensitives had lower means when under-rewarded and over-rewarded but had higher means when equitably rewarded; Entitleds exhibited a significantly higher level of perceived equity in the over-reward condition than the under-reward condition.

Huseman et al. concluded that people who are sensitive to equity follow the prediction of equity theory; those who are not equity sensitive (Benevolent and Entitled individuals) tend to follow expectancy theory. The researchers believe that sensitivity to equity should be used as an individual difference variable in research.

Use of Conscience Appeals

One method of changing the behavior of noncompliant taxpayers is through an attempt to change taxpayer attitudes toward taxation. Researchers' attempts to change taxpayers' attitudes have used conscience appeals.

Conscience appeals are appeals to a taxpayer's perceived moral obligation to comply with tax laws (Schwartz and Orleans 1967). The IRS uses mass media campaigns to encourage compliance through news articles and advertisements. However, virtually no measures are available on the effectiveness of these techniques (Roth 1989). In the past few years the IRS has begun to consider a different approach to increasing taxpayer compliance. They have designed a program entitled "Compliance 2000."

This new program aimed at changing the taxpayer's perception of the IRS will allow them to become in their words a "kinder and gentler IRS" (Goldberg 1990). The IRS is also examining ways of improving service to taxpayers. They now view taxpayers as customer groups. The IRS intends to use market segment strategies to improve taxpayer behavior.

Recent academic research has compared the effect of conscience appeals and sanction threats on increasing compliance. These studies include Schwartz and Orleans 1967; Groenland and van Veldhoven 1983; Yankelovich, Skelly and White 1984; and Jackson and Jaouen 1989. A discussion of these studies follows.

Schwartz and Orleans (1967)

Schwartz and Orleans conducted a field study to compare the effects of sanction threats to those of conscience appeals in increasing taxpayer compliance. The researchers obtained aggregate tax return information for the taxpayers in their study from the IRS. The subjects were randomly assigned to one of four experimental groups. The groups included a conscience group, a sanction threat group, a placebo group, and an untreated control group. The subjects were interviewed during the month prior to filing their tax returns. The conscience appeal group were asked questions designed to show: (1) noncontroversial uses for which tax money is employed, (2) citizen obligation to government, and (3) the value of personal integrity. The sanction threat group was given a series of questions that emphasized the severity of sanctions available to the government and the likelihood that tax violators would be apprehended. The placebo group was given an interview with neutral questions. The untreated control group was not interviewed or contacted at all.

The data were analyzed using a t-test to compare difference scores for the control and two experimental groups. A sign test was used to determine the difference in the number of taxpayers in each experimental group whose changes exceeded the median of the control group.

Their study examined responses to questions about sanction threats and moral reasons for compliance with tax laws. Schwartz and Orleans found that conscience appeals can be more effective in increasing compliance to tax laws than sanction threats. They also found that a conscience appeal can change the taxpayer's attitude toward the tax system or government spending of funds raised by taxation.

Groenland and van Veldhoven (1983)

Groenland and van Veldhoven developed a psychological framework depicting the determinants of tax evasion behavior. The framework is based on the assumptions that an individual's psychological factors and situation determine tax behavior.

The model depicts situational characteristics (opportunity, socio-economic, and tax system) and personality as antecedents which induce tax evasion indirectly. These characteristics act through mediating factors (knowledge and attitude towards the tax system, and disposition to engage in tax evasion behavior). The model also shows the direct effects that an individual's situation may have on tax evasion behavior.

The authors designed a study to test the plausibility of the model. Personality was measured with the Collins version of the Rotter (1966) I-E scale which measures locus of control. Situational characteristics were proxied by the selection of self-employed and wage earning respondents. The authors assumed that self-employed respondents had higher income and were better educated than wage earners. Knowledge of the tax system was measured with a number of questions about the structure of income tax, money subject to taxation, and deduction possibilities. Tax attitude was measured with a provisional 13-item Evaluation of Taxation. Disposition to engage in tax evasion behavior was measured by rating of the acceptability of five fiscal offenses on a Likert-type scale and by the ranking of five fiscal and five economic offenses involving the same amount of money. Tax evasion behavior was assessed by responses to a question about the receipt of money that was being kept outside of the tax system.

The data were analyzed using regression analysis. The results of the analysis revealed: (1) taxation was positively evaluated by higher educated people with a generalized internal locus of control; (2) fiscal knowledge was primarily a function of income and age; (3) disposition to commit a fiscal offense exceeded the disposition to commit an economic offense; (4) self-employed had a significantly higher degree of fiscal knowledge than wage-earners; (5) the disposition to commit fiscal offenses was stronger for higher educated respondents with a good knowledge of taxation; and (6) the interaction between education and generalized locus of control appeared to be the most important explanatory factor regarding tax evasion behavior.

Yankelovich, Skelly, and White (1984)

Yankelovich et al. conducted a study of taxpayers' attitudes for the Internal Revenue Service (IRS). The purposes of the study were to: (1) better understand the taxpaying public's views of how the IRS administers the tax system; (2) gain a better understanding of the forces motivating noncompliance; and (3) distinguish between those factors which are attributable to the IRS and those which are not.

The study surveyed 2,207 active taxpayers across the country. Noncompliance was measured using self-report of overstating deductions or underreporting income and an attitudinal measure to indicate the acceptance of tax noncompliance. In analyzing these measures of incidence and character on noncompliance, it was found that:

(1) nearly one in five admit having cheated on their federal income taxes; seven percent said they overstated deductions; sixteen percent said they underreported income; and four percent said they did both;

(2) most who reported noncompliance claim they did it in a small way, usually about $100; and

(3) the attitudinal measure yielded a higher incidence--one in three strongly endorsed noncompliance.

To identify factors contributing to noncompliance, multiple regression was run on demographic variables and perceptions of the IRS or social values. The results reveal that: (1) the attitudinal measure of noncompliance explained more variance than the measure of self-reported behavior; (2) social values were more closely associated with noncompliance than demographic variables; (3) the social values related to noncompliance were a "flexible definition of honesty" and "skepticism about human integrity"; and (4) noncompliance did not appear to be linked to perception of the IRS.

Jackson and Jaouen (1989)

Building upon the studies by Schwartz and Orleans (1967) and Grasmick and Scott (1982), Jackson and Jaouen sought to determine if taxpayer compliance could be directly modified by appeals to conscience or threats of punishment. Jackson and Jaouen also investigated the relative strength of appeals to conscience and sanction threats as incremental influences on taxpayers' tax resistance attitudes.

The subjects in this experiment were potential jurors awaiting jury selection in Golden, Colorado. The 66 subjects were randomly assigned to one of three groups: (1) appeals, (2) penalties, and (3) control. Each group received an instrument composed of an essay, and a questionnaire containing a Tax Resistance Scale and several demographic questions. The Tax Resistance Scale was adopted from Spicer & Lundstedt (1976) and used as an indicator of taxpayer attitude.

The appeals group received an essay emphasizing citizens' obligation to support government and explaining how tax dollars are spent. The penalties group received an essay emphasizing tax penalties and return examination procedures. The essay given to the control group described the legislative process followed to enact tax law.

An Analysis of Variance (ANOVA) using treatment group, age, gender, and education as independent variables and tax resistance score as the dependent variable revealed that there was no significant difference among the treatment groups. However, gender and age were found to be significant factors. ANOVA results for a between-group analysis on males and females revealed that females were more responsive to the appeals treatment than to the sanction threat.

Neutralization Theory

The research results of Grasmick and Scott (1982) suggest that increasing guilt feelings through an appeal to conscience increases taxpayer compliance. Neutralization theory, on the other hand, is based on the supposition that individuals have techniques to reduce the feeling of guilt when they violate the law. The individual makes an a priori justification of the deviant act, thereby reducing the inhibiting effect of the guilt feelings.

In a study of juvenile delinquents, Sykes and Matza (1957) found five strategies used by the delinquents to neutralize the guilt felt when they violated their social norms. These five strategies were:

1. Denial of responsibility - placing the blame for behavior on others.
2. Denial of injury - deny that act has negative consequences for others.
3. Denial of the victim - victim of the act deserves those consequences.
4. Condemnation of the condemners - blames lawmaker or enforcer for unjust rules which should not be obeyed.
5. Appeal to higher loyalties - nonconventional social bonds are more important than conventional ones.

Neutralization theory examines how individuals may reduce guilt feelings when they violate the law. The neutralization of guilt leads to a reduction or elimination of the effectiveness of an appeal to conscience or moral obligation. Thurman et al. (1984) and Hite and McGill (1990) examined the effect of neutralization on taxpayer compliance.

Thurman, St. John, and Riggs (1984)

An increase in guilt feelings through an appeal to moral conscience has been shown in several studies to increase compliance (Schwartz and Orleans 1967, Grasmick and Scott 1982). Minor (1981) posited that neutralization is effective only for individuals with a strong sense of moral obligation. Thurman et al. investigated whether techniques of neutralization would enable taxpayers to reduce the threat of guilt feelings and thereby negate an appeal to their moral obligation. They also evaluated a strategy to increase taxpayer compliance through increasing guilt feelings.

Data for the study were gathered in a 1982 survey interview of 350 adults randomly selected from a metropolitan community in the Southwest. The dependent variable in the study was tax evasion. Tax evasion was measured by a dichotomous response to a question concerning whether the respondents would ever fail to report certain income or claim undeserved deductions on their income tax returns in the future. The independent variables in the study were threat of guilt feelings and ability to neutralize. These variables were also dichotomized. Threat of guilt feelings was measured by asking if the respondent would feel guilty after failure to report certain income or claim undeserved deductions on their income tax returns. Ability to neutralize guilt feelings was measured by asking respondents if they believed it is all right not to pay their taxes in full under certain extenuating circumstances. Seven statements using neutralization techniques were used to depict the extenuating circumstances.

Logit models were used to examine the relationships among the independent and dependent variables. All of the neutralization strategies were found to effect anticipated future tax evasion. Both the threat of guilt feelings and the ability to neutralize guilt had significant effects on anticipated future tax evasion. The effects were additive, not interactive, as predicted by Minor (1981). The authors concluded that taxpayers who can justify evasion in certain circumstances and overcome the inhibiting effect of their guilt feelings are more likely to anticipate noncompliance in the future.

Because of the work by Scott and Grasmick (1981) and Grasmick and Scott (1982) showing that legal sanctions and threat of social disapproval are also related to evasion, Thurman et al. used threats of formal and informal sanctions as controls while examining the effect of neutralization on anticipated tax evasion. Legal sanctions were measured by asking the respondents how certain they were that they would be caught if they cheated on their taxes. Informal sanctions were measured by asking the respondents if most of the people whose opinions they value would lose respect for them if they learned the respondents failed to report certain income or claimed undeserved deductions. These responses were dichotomized and used in the Logit models. Thurman et al. found that the threat of guilt feelings and neutralization are both related to anticipated future tax cheating when the threat of legal and informal sanctions are controlled.

Hite and McGill (1990)

Because prior research had suggested that guilt neutralization was effective in reducing the effect of moral appeals, Hite and McGill examined the effect of combining neutralization strategy rebuttals with conscience appeals. They felt that if the use of neutralization strategies offset the increase in compliance caused by moral appeals, then an appeal that combined moral appeals and combats neutralization would result in less evasion than either strategy alone.

The first hypothesis for the study investigated whether the moral appeal would reduce evasion and the anti-neutralization approach would keep the effect of the moral appeal from being diluted. The second hypothesis predicted a significant interaction effect of guilt level and use of neutralization strategies.

The study used a mail survey sent to 600 subjects randomly selected from a commercially prepared list of U.S. residents. Of the 600 surveys mailed, 161 usable instruments were returned.

The subjects were asked to read one of three essays. The first essay contained moral appeals. The second essay contained rationalizations for noncompliance based on the seven neutralization strategies used in Thurman, St. John and Riggs (1984) and rebuttals to all neutralization rationales. The third essay combined the moral appeal and the anti-neutralization essays. Subjects were then asked to respond to a statement about their likelihood of future tax evasion and a statement about the extent of their guilt feelings if they were to not fully report income in the future. The responses were recorded on a nine point Likert-type scale.

The first hypothesis was analyzed using a planned comparison of the combined appeal group (moral appeal and anti-neutralization essay combined) and an average of the other two approaches (average of moral appeal and anti-neutralization). This analysis produced significant results ($p = .04$). The authors concluded that an approach combining a moral appeal and rebuttals of neutralization strategies produced less expected future evasion than an approach using either method alone.

An analysis of variance was performed to determine whether the use of neutralization strategies differed by guilt level. The dependent variable, evasion, was measured by the response to the question concerning not reporting certain income in the future. The independent variables were level of appeal (essay type), guilt level (dichotomized response to question of whether subject would feel guilty if they failed to report some income in the future), and the interaction of appeal type and guilt level. The appeal type by guilt level interaction was not found to be significant.

Hite and McGill also used regression analysis to examine the effect of guilt and neutralization levels on expected evasion. Guilt was measured on a eight point linear scale and neutralization variables were measured on a five point Likert-type scale. In the regression model, all the independent variables had significant coefficients. The interaction (guilt x neutralization) was also significant. Therefore hypothesis two was upheld: neutralization strategies had a differential impact depending on the level of guilt feelings. However, neutralization had a stronger effect for the low guilt subgroup than for the high guilt subgroup. This result was in the opposite direction of the prediction.

The authors concluded: (1) the neutralization of guilt offsets the positive benefits of a moral appeal in reducing anticipated evasion, and (2) combining an anti-neutralization strategy with the moral appeal might maximize the moral appeal's benefits.

Chapter Summary

The review of the literature was divided into sections based on underlying theory. Studies employing Prospect Theory as an underpinning demonstrated how individuals make different decisions based on how choices are framed. The section on Deterrence theory investigated how the threat of punishment reduces the level of noncompliance. The psychological approach to compliance concentrates on taxpayers' perceptions of equity in the tax system and attitudes toward the tax system.

Chang et al. (1987) concluded that a substantial portion of taxpayers are risk seeking. However, taxpayers are sensitive to the risk of detection and criminal prosecution (Klepper and Nagin 1989).

Taxpayers are more likely to evade taxes when they are faced with large additional tax payments (Robben et al. 1990a). The magnitude of this evasion varies directly with the opportunity for evasion (Robben et al. 1990b).

The decision to underreport and the magnitude of underreporting are separate decisions (Friedland et al. 1978). Schepanski and Kelsey (1990) found that framing can induce a greater degree of risk aversion in compliance decisions.

The studies based on prospect theory show generally that taxpayers do make evasion decisions based on how choices are framed. Taxpayers were found to exhibit greater avoidance for the risks associated with evasion if they expected a refund than if they expected the loss of paying additional tax. The primary method of investigation of these studies is game simulation.

The threat of punishment is an effective method of deterring a deviant act. The government's main effort to deter tax evasion has been through increased civil and criminal sanctions. On a state level, amnesty programs have been used to harbinger the implementation of stepped up enforcement efforts.

Grasmick and Scott (1982) found that legal sanctions, social stigma and guilt feelings were all effective deterrents to tax noncompliance. Fear of informal sanctions are more effective than formal sanctions. Formal sanctions must be very severe in order to be effective (Tittle 1980). The effect of sanctions are moderated by the individual's motivation to be noncompliant (Scott and Grasmick 1981), audit rate (Dubin and Wilde 1988), and decision context (Stalans et al. 1989). The magnitude of the penalty may be most important at low risk levels. Increased enforcement efforts are most effective in increasing compliance if they are accompanied by an amnesty program (Alm et al. 1990).

The $100 billion compliance gap may be viewed as evidence of the inability of legal sanctions to reduce noncompliance to an acceptable level. Although the Klepper and Nagin (1989) survey found that perceived probability of criminal prosecution appears to act as a powerful deterrent to noncompliance, these penalties cannot act as deterrents unless the taxpayer has knowledge of the penalties before making a compliance decision. Violette (1989) concluded that communicating existing legal sanctions may increase compliance.

Survey instruments were used most often to collect data for analysis. Laboratory experiments and historical data from the Taxpayer Compliance Measurement Program and archival data from states were also used. The authors generally concluded that communicating sanctions to taxpayers increases compliance.

Studies employing psychological approaches in analyzing taxpayer compliance behavior and attempting to increase taxpayer compliance have led to enlightening results.

Studies employing distributive justice, attitude formation and change, and neutralization theory were examined. These studies generally examine relationships between compliance and socio-economic and situational variables.

Taxpayers believe that basing our tax system on the ability to pay makes the system fair and relevant (Porcano 1984). Spicer and Lundstedt (1976) found that taxpayer decisions between compliance and evasion are responsive to the degree of perceived coercion and to attitudes toward the fiscal system. Spicer and Becker (1980) discovered that tax evasion may increase among those who feel victimized by redistribution of tax burdens among taxpayers, but decrease among those who feel favored. Huseman et al. (1985) showed that individuals react differently to perceived inequity.

Appeals to a taxpayer's moral obligation to pay taxes have been studied as a means of changing taxpayer attitudes and intentions and thereby increasing compliance. Schwartz and Orleans (1967) found that conscience appeals can be more effective in increasing compliance to tax laws than sanction threat. They also found that conscience appeals can change taxpayer attitudes toward the tax system or government spending of funds raised by taxation. Yankelovich et al. (1984) found that social values are closely associated with noncompliance.

The effect of conscience appeals may be moderated by neutralization of guilt feelings. Thurman et al. (1984) concluded that taxpayers who can justify evasion in certain circumstances by neutralizing their guilt feelings are more likely to envision being noncompliant in the future. Hite and McGill (1990) found that neutralization of guilt offsets the positive benefits of moral appeals in reducing evasion. They also found that combining an anti-neutralization strategy with moral appeal might maximize the benefit of the moral appeal.

Primarily, data are collected for these studies in a laboratory experiment. Researchers in this area found that compliance decisions are affected by taxpayer perceptions of and attitudes toward the fiscal system.

Chapter 3

THEORY DEVELOPMENT

Past taxpayer compliance research has been dominated by studies using Prospect and Deterrence theories. Prospect theory posits that all taxpayers are utility maximizers. Deterrence theory posits that if the penalty for noncompliance is severe enough, the taxpayer will likely comply. These theories however may not adequately explain taxpayer behavior.

Much of prior research has tended to ignore the fact that taxpayer attitudes leading to compliance or noncompliance are influenced by a variety of environmental and personal factors. A number of researchers (Spicer 1974, Vogel 1974, Spicer and Lundstedt 1976, Song and Yarbrough 1978, Lewis 1982, Groenland and van Veldhoven 1983, Weigel et al. 1987, Alm 1991) believe that non economic factors should be included in tax compliance models. These researchers have moved beyond classical expected utility theory to psychological and sociological theories of behavior.

Taxpayer attitudes concerning equity of the tax system may determine the way in which they frame perceptions of the tax system. People who feel that they are not being equitably treated, or who feel the distribution of benefits from taxation is unfair, may not pay all the taxes due in an effort to restore equity.

The first section of the theory development looks at how attitudes towards the tax system and paying taxes are formed. The second section considers changing attitudes and compliance level by sanction threats and appeals to conscience.

The third section of the chapter examines conditions affecting compliance and the perception of equity in the tax system. The fourth section discusses the problem of obtaining reliable data in compliance studies. The fifth section examines the Equity Sensitivity construct developed by Huseman, Hatfield, and Miles (1985).

Attitude Formation

Much of the research dealing with attempts to change taxpayer attitudes is based on Fishbein and Ajzen's Theory of Reasoned Action (Lewis 1982a). Figure 2 shows Fishbein and Ajzen's model adapted for tax evasion.

The demographic features of taxpayers and their attitudes towards targets (tax inspectors and government) are perceived as external variables. These variables are separated because Ajzen and Fishbein believe that there is not necessarily a relationship between external variables and a given behavior. Alternatively, the relationships between beliefs, attitudes, and behavioral intentions are assumed to have more consistent effects if they are properly measured. An attitude can be described as a learned predisposition to respond in a consistent manner to a given object (Fishbein and Ajzen 1975). According to learning theory, concept formation involves the conditioning or learning of a common response to a set of discrete stimuli. For example, the response to "taxes" becomes conditioned by or associated with a variety of stimuli, such as equity, IRS, and cheating. Fishbein and Ajzen (1975) argue that whenever a new concept is learned, an attitude toward that concept is acquired simultaneously.

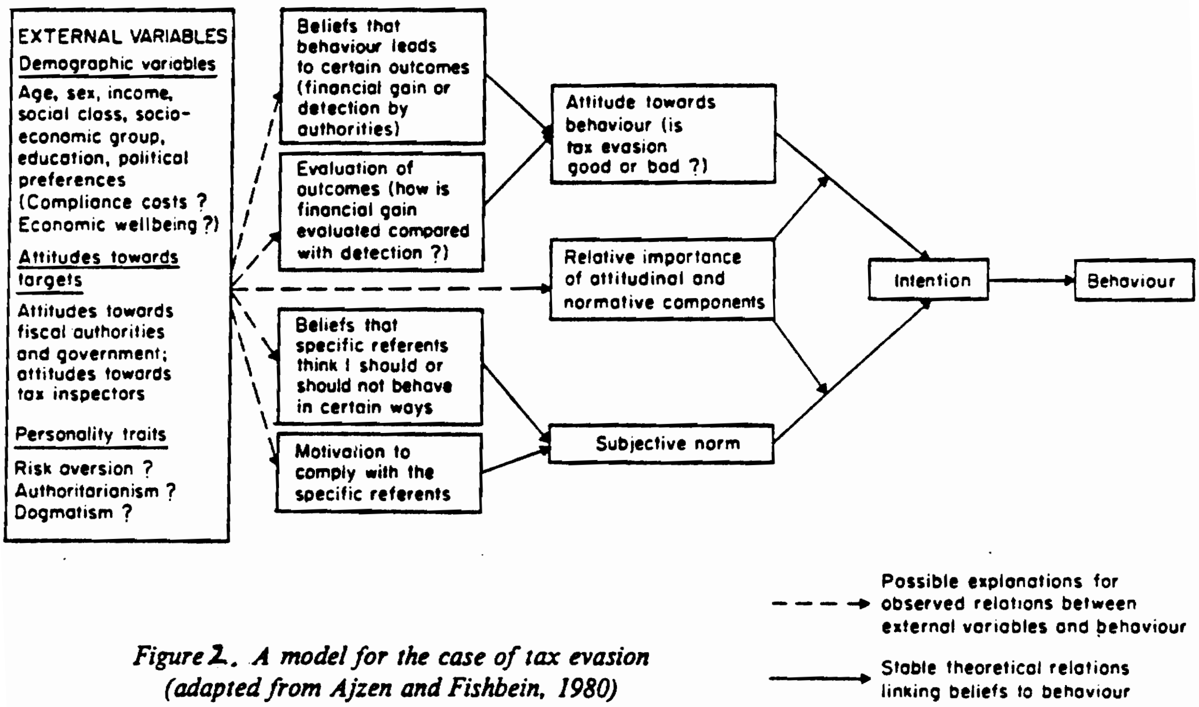

Figure 2. A model for the case of tax evasion (adapted from Ajzen and Fishbein, 1980)

(Lewis, 1982a)

New stimuli may be associated with an existing concept, and the mediating evaluative reactions produced by these new stimuli will also become conditioned to the concept and change the attitude toward the concept.

Fishbein and Ajzen have proposed the following formula that deals with the ways in which evaluative mediating responses combine to produce the overall attitude:

$$A_o = \sum_{i=1}^{n} b_i e_i$$

where: A_o is the attitude toward some object O; b_i is the belief i about O; e_i is the evaluation of belief i; and n is the number of beliefs.

According to this formula, a given stimulus object may elicit a variety of attitudinal responses that refer to the characteristics, beliefs, or qualities of the object. The model assumes that stimulus-response associations are learned through conditioning processes. The strength of an association should be a function of the number of conditioning trials. The responses are ordered in terms of the probability that they will be evoked by the stimulus object.

Evaluative mediating responses combine additively and the overall attitude towards the object is a weighted sum of all evaluative reactions conditioned to the object. Consider a person's attitude towards paying taxes. Assume a taxpayer holds the following beliefs: (1) the tax system is inequitable; (2) tax collection is necessary to fund the U.S. government; (3) the government wastes tax revenue; and (4) the only taxpayers who do not cheat on their taxes are those who do not have the opportunity to do so. According to Fishbein's model, the taxpayer's attitude toward paying taxes would be a function of the strength with which the taxpayer holds these beliefs and of the taxpayer's evaluation of each belief.

The remaining two boxes in the beliefs section of Fishbein and Ajzen's Theory of Reasoned Action comprise a product of beliefs about the support or sanctions of important others and a rating of the motivation to comply with them. Attitude toward behavior, relative importance of attitudinal and normative components, and subjective norms are most often measured with questionnaires. The model proposes that behavior can be predicted from behavioral intentions, behavioral intentions from attitudes and subjective norms, and subjective norms and attitudes from beliefs about behavior (Lewis 1982a).

Affecting a change in taxpayer attitude toward paying taxes is a method of achieving compliance which may lead to a long lasting change in behavior. Taxpayers' attitudes affect their intentions to perform behavior in the future and these intentions lead to performance or nonperformance of the behavior in the future (Bagozzi 1981, Fishbein and Ajzen 1975). Weigel and Newman (1976) found substantial attitude-behavior correlation when an attitude measure was used in conjunction with behavioral measures that mapped out an action domain of considerable breadth. If more taxpayers felt that paying taxes was the contribution to a larger community good or believed that not paying their fair share of taxes was unethical, then compliance would increase.

Changing Attitudes

Taxpayers often have negative views concerning government spending. Many taxpayers believe the government spending level is too high and the government does not support programs the average taxpayer favors. There could be more support for taxation if people were more cognizant of its purpose and the services it provides (Lewis 1982b). The vast majority of information that the taxpayer receives about government spending is negative. For example, news reports abound with stories of waste and fraud. Nonetheless, no meaningful attempts have been made by the government to present positive information to the taxpayer.

The presentation of positive information or positive persuasion could change taxpayer attitudes toward paying taxes and thereby increase compliance.

Basically two methods have been used in the past to increase taxpayer compliance: (1) changing the attitudes of taxpayers by appealing to the taxpayers' perceived moral obligation to comply with tax laws (conscience appeals), and (2) increasing enforcement (sanction threat). Hovland, Janis, and Kelley (1953) concentrated on the effects of persuasive communication (for example, source credibility, type of appeal, order of arguments in the message) in changing attitudes. Manipulation of the factors of persuasive communication listed above is assumed to influence the amount of attitudinal change to the extent that they affect two major intervening variables: reception (attention and comprehension) and acceptance or yielding. Persuasive communication contains certain stimuli to motivate listeners to ask themselves questions. The answers to these questions presumably form an initial attitude. Additional new arguments, which are rehearsed along with the initial arguments, strengthen the associative bond between the new stimuli and the desired attitudinal response.

Robert Mason (1987) examined the linkages among mass media exposure, interpersonal discussion, and fear of sanctions for individuals, and their effects on compliance with income tax laws. Mason surveyed a random sample of 800 Oregon adults. Face to face interviews were conducted by professional interviewers. The results of the study reveal that mass media exposure is strongly related to both fear of getting caught and to taxpayer honesty. Mass media exposure of taxpayers getting caught and punished causes one to overestimate the risk of getting caught and punished. Personal experience and interpersonal discussion give one a more accurate assessment of risk of getting caught and punished. Mason also found that interpersonal discussion is associated with low fear perceptions and is related to noncompliance.

Conditions Affecting Compliance and the Perception of Equity in the Tax System

Taxpayer compliance and perceptions of equity are affected by environmental and personal conditions. Environmental conditions affecting taxpayer attitudes toward compliance operate outside of the individual.

Personal conditions are the cognitive consequences of external variables.

Environmental Conditions

Some of the environmental factors that may influence compliance are social norms, opportunity to evade, legal controls, social controls, and perceived opportunities to evade. Social norms emphasizing personal wealth as a measure of success and status more than likely will result in taxpayers who are oriented more toward self-interest than community obligations. Individual taxpayers' personal orientations are responsible for the behavioral variation within social groups (Weigel, Hessing, and Elffers 1987).

Opportunity to evade is a function of the taxpayer's occupation. If a taxpayer receives only wage income, the existence of withholding at the source of income leaves little opportunity to evade taxation. Taxpayers who received all or part of their income in cash receipts have a greater opportunity to evade taxation. Income from sources very visible to the IRS, such as wages or interest income, is more likely to be reported. Madeo, Schepanski, and Uecker (1987) demonstrate that taxpayers are much more likely not to report income they believe cannot be traced than income they believe will be reported on W-2 or information returns (1099's). They modeled amount of income, source of income, penalty for cheating, and rate structures to investigate actual taxpayer compliance using Taxpayer Compliance Measurement Program (TCMP) data. They found that taxpayer perceptions of the likelihood of unreported income being discovered was three times more likely to be associated with noncompliance than penalty, amount of income, or tax rate structure.

Legal controls affect the taxpayer's perceived probability of apprehension and punishment relative to the taxpayer's reference group. Within a reference group, behavioral choices will be moderated by individual appraisals of personal risk (Weigel et al. 1987).

Social controls involve the number of evaders in a taxpayer's reference group. Lodge (1988) stated that people are motivated to cheat based less on a perception of unfairness in the tax system than by the thought that others are cheating and getting away with it. Spicer and Lundstedt (1976) found that taxpayers' compliance decisions are responsive to attitudes towards our fiscal system, particularly towards perceptions of inequity, and also the behavior of reference groups.

Perceived opportunity to evade is the taxpayer's subjective estimate of the opportunity to avoid paying taxes due. Perceived risk of punishment relates to the uncertainty and severity of punishment for noncompliance. Intolerance of tax evasion will diminish if a substantial proportion of the taxpayer's reference group is composed of tax evaders (Weigel et al. 1987). In this case, the constraining influence of social disapproval will be diminished. Knowledge of tax laws is assumed to increase the likelihood of evasion only to the extent that it increases perceived opportunity to evade, reduces the perceived risk of punishment, or yields tolerant attitudes toward tax evasion (Weigel et al. 1987).

Personal Conditions

Personal conditions may also affect taxpayers and cause them to be noncompliant. Among the personal conditions influencing noncompliance are financial strain, personal strain, tax ethics, perceived injustice, and personal orientation.

Financial strain impacts the likelihood of evasion by confronting the individual with the prospect of a large out-of-pocket expense. Individual reactions to such exposure are not uniform. Reactions depend on the extent to which taxpayers believe they are paying more taxes than they should, thereby motivating efforts to compensate for the perceived unfairness by concealing income or overstating deductions (Weigel et al. 1987).

Personal strain includes estimates of the difficulty of meeting tax obligations and the perceived unfairness of tax laws and authorities. Complexity significantly influences tax-reporting positions. Complexity relates to equity and opportunity for evasion in terms of its directional influences on reporting position (Milliron 1985).

Song and Yarbrough (1978) examined reasons underlying noncompliance and found from a survey of 287 households that 21 percent of taxpayers have a negative level of tax ethics, and that federal income tax is seen by a majority of taxpayers as the least fair tax. Song and Yarbrough devised a scale to measure tax ethics. They used a six item scale to measure the attitudes of taxpayers towards their tax obligations and compliance activities with respect to the tax laws. Song and Yarbrough found that the level of tax ethics is negatively related to the degree of suspicion that others violate the tax laws. Using correlation analysis, the two variables found to be significantly positively related to tax ethics were: income level and educational level. Sense of alienation, general distrust of people, suspicion of others, and political efficacy (whether local officials would act on the respondents request for public action) were found to be significantly negatively related to tax ethics. The authors assert that this level of tax ethics should be taken as "symptomatic of a disease seriously threatening the moral fiber of society and the viability of the democratic system " (p. 451). Taxpayers were found to be particularly dissatisfied with the income tax burden on those in the middle income level.

Taxpayers' views concerning taxation and government spending stem from their convictions concerning distributive justice. Distributive justice theories may be used to examine taxpayers' perceptions of equity in a tax system. Equity is an ideological construct about distribution and about the apportionment of resources in society. These distribution theories attempt to determine how much individuals should receive or pay in a specific situation and whether the individuals receive what they deserve (Folger and Konovsky 1989; Porcano 1984). Distributive justice is concerned with the distribution of conditions which affect individual well-being (Deutsch 1979). One of the key features of the distributive justice of the tax system can be identified by determining the values underlying the distribution (Deutsch 1985).

According to Rescher (1966) some of the key values underlying the distribution of conditions that affect individual well-being are whether (a) individuals have equal inputs; (b) individuals have equal outputs; (c) distribution is made according to need; (d) distribution is made according to ability or potential; (e) distribution is made according to efforts and sacrifices; (f) distribution is made according to the requirement of the common good; and (g) distribution is made according to the principle of reciprocity. Song and Yarbrough (1978) found that taxpayers generally have faith in the administrative efficiency of tax agencies, believe taxes should be levied according to the taxpayer's ability to pay, believe they pay about the same amount of taxes as their significant others, and perceive they get about an equal amount of benefit from the government as they pay in taxes. Spicer and Becker (1980) found that the amount of taxes evaded increased for taxpayers who perceive that they are victims of fiscal inequity (unfairness in the tax system), but decreased for taxpayers who perceive they are beneficiaries of fiscal inequity.

Personal orientation describes a taxpayer's concern for self versus concern for the community. According to Carroll (1987), a person may frame compliance decisions in two ways. A person may perceive taxpaying as a question of identifying the proper rules to follow. The same person may frame taxpaying as a question of doing what is most personally beneficial. Jackson and Jones (1985) suggest future research designs classify subjects into three groups: compliers - taxpayers who are unlikely to evade, middle grounders - taxpayers who consider evasion in some circumstances, and noncompliers - taxpayers who have little moral or ethical reservation against evasion. According to Scott and Grasmick (1981), perceived injustice is a motivation to cheat. For individuals who perceive inequity, noncompliance to tax laws is a way to re-establish distributive justice through decreasing the amount of taxes paid.

Environmental and personal variables may interact. They both operate within the individual and within the taxpaying situation (Weigel et al. 1987).

Obtaining Reliable Data

Taxpayers are often unwilling to give honest information about tax evasion (Lewis 1982a). Individuals are reluctant to express their feelings and attitudes on controversial issues (Edwards 1983). Hessing et al. (1988)

in a study with known evaders and nonevaders found insignificant correspondence between respondent's self reports of tax evasion and officially documented behavior. The scenarios employed in this experiment were framed in the third person. Much of prior research (Kaplan, Reckers, and Roark 1988; Porcano 1988; Roberts 1990; Yankelovich, Skelly, and White 1984) has framed some or all of the taxpayer behavior questions in the third person.

Self-reports suffer from biases. Subjects may not remember the information accurately, they may misunderstand what is asked of them, or they may deliberately conceal information that is threatening or reflects socially undesirable characteristics. The subjects may even exaggerate role confirming traits (Tittle 1980). Yankelovich et al. (1984) found that attitudinal measures of noncompliance were more accurate than self-reported behavioral measures in a study comprised of 2,200 in-home interviews. The confidentiality surrounding individual tax returns makes it necessary that most empirical studies rely on survey methodologies as a means of evaluating taxpaying behavior (Hite 1988).

Self-presentation

Self-presentation is the use of behavior to communicate personal information to others. Individuals engage in self-presentation to: (1) please the audience (experimenter), and (2) make their public image equivalent to their ideal self image (Baumeister 1986, Geem 1991, Milburn and Watman 1981). Self-presentation is based on self-protection from embarrassment, rejection, humiliation and enhancement of prestige and reputation (Baumeister et al. 1989). Subjects in laboratory experiments usually do not believe that the information they give is truly anonymous. The experimenter may be viewed as the subject's "public" (Baumeister 1982). Self-presentation concerns are likely to cause misrepresentations of past behavior and reports of attitudes consistent with those misrepresentations (Hessing, Elffers, and Weigel 1988).

Attribution theory

Attribution theory describes how individuals cope with information incompleteness (Kelley 1967; Shields, Birnberg, and Frieze 1981). An attribution is an inference about another's behavior. "An attribution is one way in which the perceiver goes beyond the information literally available" (Hamilton et al. 1990, p. 891). A person will draw the same conclusion about himself or another person he is observing if given analogous information (Kelley 1967). According to attribution theory, causal explanations which people develop for others' evasive behavior are associated with their own intentions to evade taxation (Kaplan, Reckers, and Roark 1988). In their study, Kaplan et al. used short scenarios to examine hypothetical cases of evasion. They found that "attributions made concerning the behavior of others is significantly associated with our own behavioral intentions" (Kaplan et al. 1988, p. 377). Hypothetical scenarios offer a non-inhibiting vehicle to gain greater understanding of subjects' own evasion intention. These cases make it more likely that subjects will provide truthful responses (Kaplan et al. 1988). A subject would feel safe attributing a noncompliant behavior to an imaginary taxpayer.

Equity Sensitivity

Lewis (1982a) argued that economic factors alone are not adequate to describe and predict tax evasion behavior. Individuals react in different ways to both perceived equity and inequity because of their different preferences for equity (Huseman, Hatfield, and Miles 1987). An individual's sensitivity to equity influences both perceptions of equity or inequity and also influences reactions to perceived inequity.

There has been little investigation into the role of individual differences in equity theory and compliance research. Some recent authors (Greenberg 1979; Greenberg and Westcott 1983; Jackson and Jones 1985; King, Miles, and Day 1991; Major and Deaux 1982) have called for the inclusion of individual differences in equity theory research. The manner in which individual differences affect a person's perception of equity has been explored in the Equity Sensitivity construct devised by Huseman et al. (1985).

The use of the Equity Sensitivity construct by Huseman et al. sets this study apart from those done by Grasmick and Scott (1982) and Schwartz and Orleans (1967). This theory classifies an individual's perception of what is and what is not equitable and makes predictions about that individual's reaction to inequity (King et al. 1991).

One of the assumptions of classical equity theory as posited by Adams (1963) and Homans (1961) is that individuals are equally sensitive to equity. Alternatively, the Equity Sensitivity construct states that individuals possess varying degrees of sensitivity to equity (Huseman et al. 1985). Their theory classifies individuals into three groups according to an individual's sensitivity to equity: Benevolents, Equity Sensitives, and Entitleds. As shown in Figure 3 below, individuals are classified on a continuum. The Benevolent individual gives, but expects little in return. Benevolents prefer that their inputs exceed their outcomes (I > O). Equity Sensitives prefer the traditional equity relationship (I = O). Entitled individuals want their outcomes to exceed their inputs (I < O) (Huseman et al. 1985).

I > O	I = O	I < O
Benevolents	Equity Sensitives	Entitleds

I = Inputs
O = Outcomes

Figure 3. Sensitivity Continuum for Equity

(Huseman et al. 1985)

Hypotheses

This study was designed to examine if taxpayers' compliance level or perception of equity in the tax system is affected either by an appeal to conscience (fairness) or a sanction threat. In either case, the ability to alter the degree of taxpayer compliance and the taxpayer's perception of fairness in the tax system is believed to be moderated by taxpayers' equity sensitivity. Individuals react in different ways to both perceived equity and inequity because of their different preferences for equity (Huseman et al. 1987). As shown in Figure 4, Equity Sensitive, Entitled, and Benevolent subjects were expected to respond differently to the fairness and sanction threat treatments. This differential reaction was thought to cause significant interaction in the analysis of the data.

The hypothesis for the study posited significant interaction between the two independent variables.

> H_1: There will be significant interaction of treatment type and Equity Sensitivity type with the compliance measure.

As discussed earlier, Huseman et al. (1985) define Entitled individuals as those who prefer their outcome/input ratios to exceed their comparison others.

	Treatment Type: Sanction Threat	Treatment Type: Conscience Appeal
Entitled	decrease	not important
Equity Sensitive	increase	increase
Benevolent	not important	not important

Figure 4. Posited Effect of Treatment by Sensitivity Type on Level of Compliance

The Entitled taxpayer was posited to be the least compliant initially. The more severe the sanction threat, the more compliant one might think the subject would become. However, as shown in Figure 4, the Entitled subject was expected to decrease compliance because of reactance (Kennedy 1990, McClenny and O'Neil 1992).

Psychological reactance is a theory concerning an individual's attempt to reestablish a freedom when specific freedoms in that individual's life are threatened, restricted, or eliminated (Brehm and Brehm 1981, Brocker and Elkind 1985, Hammock et al. 1989). Reactance stems from a desire to project a public image of autonomy (Cialdini et al. 1974, Heilman and Toffler 1976). Adrian Furnham (1983) found that anti-tax subjects assigned higher priority to freedom than pro-tax subjects.

Reactance should affect the respondents to different degrees (Yarnold, Grimm, and Mueser 1986). The Entitled taxpayer was posited to be affected to a significantly greater extent than the Equity Sensitive or Benevolent taxpayer, and thus cause the interaction in the analysis of the data. It is presumed the fairness treatment would have no effect on the Entitled taxpayers because of their feelings of deservingness (King et al. 1991).

Equity Sensitive individuals want their inputs to equal their outcomes. Equity Sensitive taxpayers were posited to become more compliant as a result of both the sanction threat and the fairness treatments. Both treatments depicted the IRS as an organization striving to ensure that all taxpayers are paying their fair share of taxes. (See Figure 4.)

Benevolent individuals get satisfaction when their inputs exceed their outcomes. The roots of benevolence lie in "a Calvinistic heritage, altruism, empathy, or disguised self interest" (King et al. 1991, p. 7). A Benevolent's satisfaction is expected to be high regardless of reward conditions (Huseman et al. 1985, King et al. 1991, Miles et al. 1989). Because Benevolent individuals are likely to be highly compliant taxpayers, the sanction threat and the fairness treatments should have little influence on the level of the Benevolent taxpayer's compliance. (See Figure 4).

This study also examined the magnitude of the attitude scores of taxpayers receiving the appeal to conscience (fairness) treatment versus the sanction threat treatment. Because taxpayers' attitudes affect their intentions to perform behavior and these intentions lead to performance or nonperformance of a behavior (Fishbein and Ajzen 1975), a taxpayer's attitude toward the tax system and paying taxes should mirror their compliance level. Taxpayers' attitudes should also be affected by equity sensitivity type. (See Figure 5.)

The Entitled taxpayer's attitude should be unfavorable as denoted by a low mean average attitude score. The sanction threat treatment was posited to anger the Entitled taxpayers and therefore their mean attitude score was posited to be lower than average (Kennedy 1990, McClenny and O'Neil 1992, Gordon and Boldy 1989). As shown in Figure 5, the fairness treatment was not expected to affect the Entitled taxpayers' attitude because Entitleds are most interested in self (Huseman et al. 1985).

Equity Sensitive and Benevolent taxpayers' mean attitude scores were posited to be high for both treatments. The Equity Sensitive individual preferences are in line with traditional equity theory (Huseman et al. 1985). The Equity Sensitive taxpayer's attitude toward the tax system were posited to be more favorable with the fairness treatment and with the sanction treatment. The fairness treatment informed the Equity Sensitive taxpayer that the IRS is trying to treat all taxpayers fairly.

	Sanction Threat	Conscience Appeal
Entitled	Low	Low
Equity Sensitive	High	High
Benevolent	High	High

Figure 5. Posited Level of Attitude Toward Taxpaying and the Tax System After Treatment

The sanction threat treatment informs the Equity Sensitive taxpayer that the IRS is working to ensure that all taxpayers do their share and that there is not favorable treatment for any one class of taxpayers. The Benevolent taxpayers' attitudes towards the tax system and paying taxes should be high initially, and remain so, because of the Benevolents' willingness to have their inputs be less than their outputs.

Chapter Summary

This chapter provided the theory behind the research expectations for the present study. Attitude formation and change, and conditions affecting compliance and perception of equity in the tax system were examined. This chapter also discussed the problem of obtaining reliable data in cognitive compliance studies. The concept of equity sensitivity was discussed and the hypothesis for the study developed.

The section on attitude formation discussed Lewis' (1982) model for the case of tax evasion. Taxpayer compliance and perceptions of equity in the tax system are affected by environmental and personal conditions. As shown in Lewis' model, attitudes affect intentions to perform behavior in the future, and these intentions lead to performance or nonperformance of the behavior in the future.

Attitude change can be brought about by persuasive communication. The two basic methods of increasing taxpayer compliance, conscience appeal and sanction threat, both make use of persuasive communication.

Also discussed in the chapter is the difficulty of obtaining reliable data. Many studies use self-report data. Subjects' self-report data suffers from biases of self-presentation, inaccurate recollection, and/or misunderstanding of the questions asked of them. Individual taxpayer records are not available for comparison; therefore, many studies suffer from mono-method bias. This study used hypothetical scenarios framed in the third person to gauge compliance.

The section on equity sensitivity describes Huseman et al.'s (1987) Equity Sensitivity theory. This theory developes the concept that all individuals do not have the same preferences for equity. An individual's sensitivity to equity influences both perceptions of equity and inequity and reactions to perceived inequity. This theory classifies individuals into three sensitivity groups: Benevolents, Equity Sensitives, and Entitleds.

The hypothesis section details the manner in which the different sensitivity types would be affected by the experimental treatments. Reactance was posited to cause the Entitled subject to lower their compliance level and thereby cause an interaction to occur between the treatment types and sensitivity types. The subjects' attitude toward the tax system and paying taxes were posited to mirror the subjects' compliance level.

Chapter 4

METHODOLOGICAL AND STATISTICAL DESIGN

Introduction

Compliance with income tax law involves fully and correctly reporting all income and deductions. Some of the issues involved in compliance include the degree of third-party reporting, amount of income from wages versus self-employment, and amount of recordkeeping required. In the present study, compliance and attitudes toward tax paying were measured in an experimental laboratory setting.

One of the main concerns with gathering information from taxpayers regarding their compliance behavior is whether the information obtained is accurate. Studies have shown that taxpayers' admitted noncompliance rates are lower than their actual noncompliance rates (Aitken and

Bonneville 1980, Yankelovich et al. 1984, Hessing et al. 1988, Kaplan et al. 1988). Because of this concern, compliance questions were framed in the third person in the current study.

This study attempted to change taxpayers' compliance levels. As previously discussed, a change in taxpayer attitude is posited to lead to a change in taxpayer behavior. Attitude and compliance level are gauged in this study after the subjects have received an experimental treatment attempting to increase compliance.

Subjects

Subjects were selected from students enrolled in graduate level education and graduate level business classes at Virginia Polytechnic Institute and State University. Students have been used in many studies related to taxpayer compliance (Friedland et al. 1978, Jackson and Jones 1985, Kaplan and Reckers 1985, Kaplan et al. 1988, Klepper and Nagin 1989, Porcano 1984, Robben et al. 1990, Spicer and Becker 1980, Spicer and Hero 1985, Spicer and Thomas 1982, Violette 1989). Porcano (1984) found no significant difference between the responses of student and nonstudent subjects in a study to determine the perceptions of equity in the tax system.

Subjects were classified as Benevolent, Equity Sensitive, or Entitled using the Equity Sensitivity Instrument (ESI). The ESI is a five-item forced-distribution measure developed by Huseman et al. (1985). On each item, two statements were presented; one was an Entitled response, and the other a Benevolent response. Subjects showed their agreement with each statement by distributing ten points between the two statements. The points allotted to Benevolent responses were totaled for each respondent. The higher scores indicated strong benevolence. Breakpoints used in prior studies (Huseman et al. 1985, King et al 1991, Miles 1991, Miles et al. 1989) were employed to separate the respondents into the three sensitivity types.

Huseman et al. (1985) report a coefficient alpha of .83 for the ESI. Miles et al. (1989) report a test-retest reliability of .80. The present study yielded a coefficient alpha of .67 for the ESI. The Equity Sensitivity classification served as an independent variable in this research design. (See Appendix A for the Equity Sensitivity Instrument.) The ESI has been used with subjects holding managerial and professional positions in industry who were enrolled in management development programs and who represented many different organizational environments, such as transportation, savings and loans, and state government (Huseman et at. 1985).

Treatments

In order to change taxpayers' attitudes towards compliance, written treatments were used. The subjects were randomly assigned to two treatment groups and one control group. The first treatment group received a conscience appeals treatment. This treatment detailed (a) the aspects of fairness in the system of taxation, (b) how noncompliance is detrimental to the country and the economy, (c) changes that Congress has made to the tax law to prevent tax evasion, (d) the alternative minimum tax (to show that even high-income taxpayers were paying their fair share of taxes), (e) taxpayer assistance programs provided by the Internal Revenue Service, and (f) efforts to record the history of taxation in the United States (see Appendix C).

The second treatment group was given the sanction threat treatment. This treatment discussed (a) enforcement efforts of the Internal Revenue Service (including number of investigations and prosecutions in a particular year), (b) the probability of getting audited, (c) tax penalties (including fines, property seizure, and imprisonment), (d) social stigma and career damage arising from prosecution, and (e) methods of detecting erroneous or omitted returns such as the Discriminant Index Function, Information Matching Program, and Targeted Items Program (see Appendix D).

The control group received a neutral treatment which gave statistics about the IRS. A control group provides a comparison against which differences in the treatments can be compared. The statistics in the control treatment included: (1) number of employees, (2) number of offices open to taxpayers, and (3) number of returns processed (see Appendix E).

Compliance Measures

The subjects were given four case scenarios which depict different taxpaying situations (see Appendix B). The scenarios described details of the taxpayer's income, number of dependents, and tax situation. Case scenarios support an unobtrusive method of data collection and allow collection of sensitive information about the subjects

(Kerlinger 1986). The subjects were asked to make an attribution decision as to how likely it was that the taxpayer in a scenario would properly report all income and deductions on a tax return.

Each response was recorded on a seven point Likert-type rating scale. Rating scales allow the subjects to express the degree of response certainty. Respondents feel that they are able to express themselves more precisely with rating scale items (Rust and Golombok 1989).

Attitude Measures

Each subject's attitude towards compliance, the tax system, and government spending was measured using an instrument containing six items measured on a seven-point Likert-type scale (see Appendix F). The items were used in a study by Yankelovich et al. (1984). The Yankelovich et al. study was conducted to gain a better understanding of the public's view of how the IRS administers the tax system and to better understand the forces motivating noncompliance (Yankelovich et al. 1984). The six items asked questions about the level and type of government spending and fairness of the tax system.

Two of the six items in the attitude scale were reverse item scored. These items were used to provide a manipulation check to determine if the subjects paid proper attention to the items in the instrument.

Demographic Data Collected

Demographic data were also collected to aid in additional analysis. The demographic data included: (1) filing status, (2) age, (3) knowledge of tax laws, (4) gender, (5) educational level, (6) whether or not the subject itemized on the tax return, and (7) who prepared the tax return. (See Appendix G.)

Statistical Design

Separate Multivariate Analyses of Variance (MANOVA) were used to analyze the differences between experimental groups on each of the dependent variables, compliance scenarios and attitude measures.[1] Compliance and attitudes

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[1]The original research design was Analysis of Covariance with pretest compliance score as a covariate. This design was not used for data analysis because of the violation of the homogeneity of regression coefficients assumption for ANCOVA designs. The pretest scores interacted significantly with the Equity Sensitivity

are not unidimensional constructs. There are several components that might be affected by the treatments. Rather than testing each component separately in individual ANOVAs until all the dependent variables have been analyzed, MANOVA provides an overall test of group differences that will prevent inflation of the alpha level. MANOVA also considers the correlations between the dependent variables and also implicitly tests the linear combination of the dependent variables that provides the strongest evidence of overall group differences (Hair 1987).

MANOVA first tests the overall hypothesis of no differences among the means. The results are reported in the omnibus test.[2] If the Omnibus test is significant, the follow-up tests are conducted to explain the group differences (Bray and Maxwell 1985).

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classifications. Analysis of difference scores was not used because difference scores are usually less reliable than the scores from which they are calculated (Kerlinger 1986). Also, there is usually a correlation between the difference score itself and the pre-postmeasures used to calculate the difference score (Keppel 1989).

[2]The Omnibus tests consists of four test statistics: Wilks' lambda, the Phillai-Bartlett trace, Roy's greatest characteristic root and the Hotelling-Lawley trace. Any of the four statistics might be used to test the multivariate null hypothesis.

MANOVA may also provide a more powerful test than performing separate ANOVAs. Post hoc testing was performed with univariate F-tests. To determine which groups were responsible for significance in the overall model, pair-wise contrast (Duncan) were performed. A Bonferroni adjustment[3] of the alpha level insured that the experiment-wise alpha level was not violated.

The independent variables in the MANOVA designs, equity sensitive score and treatment type, were categorical in nature. The dependent variables, the four compliance scenario measures and the six attitude scores, were metric. The categorical demographic variables were included as additional independent variables in ANOVA designs. The continuous demographic variables were included as covariates in a two way MANCOVA design.

Pilot Study

A pilot study was conducted to determine if the scenarios and treatments would be effective instruments for the study. The instruments were twice administered and

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[3]The Bonferroni procedure divides the nominal alpha by the number of variables in the study and makes comparisons for significance at the adjusted alpha level (Bray and Maxwell 1985).

revised. The respondents provided written or verbal feedback on any items they felt were not clearly presented.

The first administration of the instrument was conducted using 36 students. The scenarios in this instance were framed in the third person.

The second administration of the instrument involved 30 students. The second set of scenarios was framed in the second person. Subjects in the second pilot indicated a higher initial compliance level. When asked "would you comply?" subjects in group two tended not to admit to noncompliance.

The results of the tests showed that the treatments were too weak to differentiate the groups. The treatments were revised to be more extreme. Since even the treatment for the control group caused an increase in compliance level, the control group case information was condensed and added to the conscience appeal treatment. The new treatment for the control group, composed of facts and figures, was considered less likely to affect the level of compliance.

The scenarios were revised to allow for a wider range of compliance scores. The revision included making the scenarios more detailed and distinctive. The scenarios were also revised to improve portions which respondents indicated were unclear. One of the original five scenarios was dropped from the study. The mean compliance score on this particular scenario fell after each treatment in the case of both the second and third person framing of the scenario.

Chapter Summary

This chapter first detailed the methodology employed to gather the data to investigate the possibility of affecting taxpayer compliance and attitude. Also the statistical design used to analyze the data was examined.

To address these issues, a study was designed to gauge a subject's sensitivity to equity, administer intervention techniques, and measure compliance and attitude toward taxation. Sensitivity to equity was measured with the ESI, a five-item forced distribution instrument. The subjects were then classified into Entitled, Equity Sensitive, or Benevolent according to their score on the ESI.

Next the subjects were given a sanction threat, conscience appeal or control treatment in an attempt to influence compliance and attitude toward taxation. After these intervention attempts, compliance and attitude were measured. Compliance was measured with four hypothetical scenarios depicting taxpayers with different types of income in various taxpaying situations. Attitude was measured using six items from the Yankelovich et al. (1984) study. Demographic data were also collected.

Multivariate Analysis of Variance (MANOVA) was used to analyze the differences between experimental groups on each of the sets of dependent variables measuring compliance and attitude. The independent variables were Equity Sensitive score and treatment type. The dependent variables analyzed were responses for the compliance scenarios and attitude measures. The demographic variables were separately included as either additional independent variables in the MANOVA design or as covariates in an MANCOVA design.

The chapter also reported the results of pilot tests. The pilot tests were used to refine the scenarios and strengthen the treatments.

Chapter 5

RESEARCH RESULTS

Introduction

The results chapter is composed of the following sections: (1) results of the MANOVAs and post hoc tests, (2) sample size and manipulation check results, (3) frequency data, and (4) chapter summary. The first section gives the results of the MANOVAs, descriptive statistics, and post hoc tests. This section also contains the results of MANOVAs and MANCOVAs run while including the appropriate demographic variable in the model. In the frequency data section, the responses to the compliance scenarios and attitude measures of the questionnaire are presented.

Statistical Results

This section of the chapter describes the results of running the two-way MANOVAs. The independent variables for both were Equity Sensitivity type and treatment group. The dependent variables in the first MANOVA were compliance scores in each of the four scenarios. The second MANOVA used item responses to questions measuring the subjects' attitudes toward statements that people have made about government spending, equity in the tax system, and honesty of taxpayers as dependent variables. The results of the MANOVAs are presented separately.

Compliance Scenario Scores

Equity Sensitive, Entitled, and Benevolent subjects were posited to respond differently to the conscience appeal and sanction threat treatments. This differential reaction was hypothesized to cause significant interaction in the analysis of the data. Because of the low internal consistency of the compliance scenario items, the compliance scores on individual items were analyzed separately. The compliance scenarios were designed to measure whether subjects responded differently to questions of overstating expenses or understating income. The scenarios further distinguished the income or expense as to whether it arose from a business or personal situation.

Equity Sensitive individuals prefer an equity relationship in which their outcomes are equal to their inputs (Huseman et al. 1985). Both the sanction threat and the conscience appeal treatments were posited to increase the Equity Sensitive taxpayers' compliance level in each scenario.

The Entitled subjects are defined as those who prefer their outcome/input ratios to exceed those of their comparison others. The Entitled taxpayer was posited to be the least compliant. It was hypothesized that faced with the sanction threat treatment, the Entitled taxpayer would become angry and less compliant. This reactance would have been viewed as the Entitled's way of retaliating against the threat. The conscience appeal treatment was posited not to affect the Entitled taxpayer.

Benevolent individuals get satisfaction when their inputs exceed their outcomes. A Benevolent's satisfaction was posited to be high regardless of reward conditions. Because Benevolent individuals were thought to be highly compliant taxpayers initially, the sanction threat and the conscience appeal treatments were posited to have little influence on the level of the Benevolent taxpayer's compliance.

The formal hypothesis tested in the MANOVA study was:

H_1: There will be significant interaction of treatment type and Equity Sensitivity type with the compliance measures.

Table 1 shows the results of the Omnibus MANOVA tests for the compliance scenarios. For the ESI matrix, all of the Omnibus tests were significant. The results of the Omnibus test on the treatment variables were all insignificant. The next step in the analysis was to interpret the nature of the differences between the groups.

To analyze the difference in the means for the Equity Sensitivity types and treatment types, a series of two-way ANOVAs were run. Table 2 shows the p values for the different compliance scenarios. Only the scenario depicting Overstating Business Expenses was significant ($p = .0075$). There was a significant difference in the responses of the different personality types as measured by the Equity Sensitivity Instrument ($p = .0060$). Although the Equity Sensitivity Instrument seemed significant in the Understate Personal Income scenario ($p = .0445$), the model was not significant ($p = .1841$). Neither were the post hoc

Table 1. Omnibus MANOVA Tests for Compliance Scenario Measurements

Equity Sensitivity Matrix

Test Name	Value	Approx. F	Num df	Den df	p
Wilks' Lambda	.9322	2.1449	8	480	.0305*
Pillai's V	.0679	2.1175	8	482	.0328*
Hotellings	.0727	2.1720	8	478	.0283*
Roy's GCR	.0717	4.3209	4	241	.0022*

Treatment Matrix

Test Name	Value	Approx. F	Num df	Den df	p
Wilks' Lambda	.9782	.6638	8	480	.7235
Pillai's V	.0219	.6657	8	482	.7219
Hotellings	.0222	.6619	8	478	.7252
Roy's GCR	.0165	.9954	4	241	.4107

Interaction Matrix

Test Name	Value	Approx. F	Num df	Den df	p
Wilks' Lambda	.9331	1.0515	16	734	.3992
Pillai's V	.0681	1.0523	16	972	.3978
Hotellings	.0704	1.0497	16	954	.4006
Roy's GCR	.0451	1.7404	4	243	.0293*

* = significant at $p \leq .05$.

Table 2. p values for Compliance Scenarios

Variables	ESI	TMT	INTER	MODEL
OPE	.0860	.3139	.8059	.2943
OBE	.0060	.2726	.1020	.0075*
UPI	.0445	.5108	.4592	.1841
UBI	.9413	.7799	.2402	.6351

OPE = Overstate Personal Expenses

OBE = Overstate Business Expenses

UPI = Understate Personal Income

UBI = Understate Business Income

ESI = Equity Sensitivity Instrument

TMT = Treatment

INTER = Interaction

* = significant at $p \leq .05$.

tests of this variable, using the Bonferroni alpha adjustment to control for the overall alpha level. As shown in Table 2, the posited significant interaction between treatment type and equity sensitivity type was not found.

Table 3 shows the mean compliance scores for the Overstate Business Expense scenario. Under the conscience appeal treatment, the mean compliance scores for the Entitled subjects were significantly lower than the means for the Equity Sensitive or Benevolent subject ($p = .0060$). In fact, the Equity Sensitive subject had higher mean compliance scores than did the Entitled or Benevolent subjects under each treatment except the control treatment. The Entitled subjects had the lowest compliance scores under each treatment. There was no significant difference between the scores of the Equity Sensitive and Benevolent subjects under either treatment. In the control group, the order of the means was as anticipated: Benevolent - highest (3.4000), Equity Sensitive and Entitled lower (2.5172 each).

The Entitled subjects did not react to the sanction threat treatment as posited. In fact, the sanction threat treatment increased compliance for the entitled subject. Reactance instead seems to have occurred with the sanction

Table 3. Mean Compliance Scores
Overstate Business Expenses

Treatment Type by Sensitivity Type

ESI		Conscience Appeal	Sanction Threat	Control
	ENT	2.4400a	2.6364	2.5172
	ES	3.7500	3.4194	2.5172
	BEN	3.4545	2.9667	3.4000

a Compliance level of Entitled subject was significantly lower than for the Equity Sensitive or Benevolent subject under the Conscience Appeal treatment (p = .0060).

ESI = Equity Sensitivity Instrument

ENT = Entitled

ES = Equity Sensitive

BEN = Benevolent

threat treatment and the Benevolent subject (though not to a significant extent). The Benevolent subject had a lower score under the sanction threat treatment than under the conscience appeal or control treatment. A separate one-way ANOVA was run using Equity Sensitivity type as the independent variable and the Overstate Business Expense as the dependent variable. A significant difference exists between the Entitled subjects and the other sensitivity types. Table 4 shows the results of the Duncan's Multiple Range Test on the overall means for each sensitivity type.

Table 4. Duncan's Multiple Range Test On Means of Overstate Business Expenses Compliance Scenario

Sensitivity Type	Mean
Entitled	2.5263*
Equity Sensitive	3.2273
Benevolent	3.2727

* = significantly different from Equity Sensitive or Benevolent at p = .0125.

Attitude Scores

The attitude scale exhibited low internal consistency. For this reason, the results of the item responses to questions measuring the subjects' attitudes toward statements that people have made about government spending, equity in the tax system, and honesty of taxpayers were also included as dependent measures in a two-way MANOVA. Entitled subjects were posited to have a low attitude score for each item after both the sanction threat and the conscience appeal treatments. The Equity Sensitive and Benevolent subjects were posited to have a high attitude score on each item after both the sanction threat and conscience appeal treatments. As shown in Table 5, there were no significant main effects or interactions found for the six items as revealed in the results of the Omnibus tests for the two-way MANOVA. Table 6 shows the p values for the six attitudinal items.

Table 5. Omnibus MANOVA Tests for Attitude Scores

Equity Sensitivity Matrix

Test Name	Value	Approx. F	Num df	Den df	p
Wilks' Lambda	.9399	1.2369	12	472	.2544
Pillai's V	.0606	1.2352	12	474	.2555
Hotellings	.0632	1.2385	12	470	.2533
Roy's GCR	.0506	1.9995	6	237	.0665

Treatment Matrix

Test Name	Value	Approx. F	Num df	Den df	p
Wilks' Lambda	.9354	1.3346	12	472	.1951
Pillai's V	.0655	1.3370	12	474	.1938
Hotellings	.0680	1.3322	12	470	.1965
Roy's GCR	.0471	1.8589	6	237	.0887

Interaction Matrix

Test Name	Value	Approx. F	Num df	Den df	p
Wilks' Lambda	.9105	0.9362	24	825	.5517
Pillai's V	.0922	0.9395	24	956	.5470
Hotellings	.0955	0.9327	24	938	.5566
Roy's GCR	.0503	2.0039	6	239	.0659

Table 6. p values for Attitude Scores

Variables	ESI	TMT	INTER	MODEL
Government Adjusts For Noncompliers	.7321	.2471	.2724	.4117
Taxpayer Honesty	.1418	.1512	.1288	.1215
Government Spends Too Much	.0467	.5357	.5459	.2512
Disagree With Government Spending	.7004	.2331	.3257	.4828
Patriotic Duty To Pay Taxes	.0164	.1461	.5953	.0827
Present Tax System Unfair	.6051	.4041	.7444	.7753

Analysis of Demographic Variables

Some of the demographic variables, such as age, gender, and level of education, have been examined previously in the literature. The other variables examined here are not generally included in compliance research designs. These additional variables were included to see if they had any significant effect on compliance level.

The demographic variables were examined using MANOVA (for categorical variables) and Multivariate Analysis of Covariance (MANCOVA) (for continuous variables) designs. The demographic variables examined in a MANOVA design were: (1) preparer, (2) itemized deductions, (3) gender, (4) employment status, (5) filing status, and (6) level of education. A MANCOVA design was used to examine the effects of: (1) number of times subject had filed, (2) level of knowledge of tax law, (3) age, and (4) number of years spent as a full-time employee.

The results of the Omnibus tests and post hoc tests revealed that none of the demographic variables were significant or made a significant difference in the outcome of the data analysis. As in previous analyses, the

Bonferroni alpha level adjustment was used to control the overall alpha level.

Most prior research has shown that older taxpayers are more compliant (Vogel 1974, Mason and Calvin 1978, Warneryd and Walerud 1982, Friedland et al. 1982, Groenland and van Veldhoven 1983, Kaplan and Reckers 1985, and Witte and Woodbury 1985). However, several studies have found no significant relation between age and compliance (Spicer 1974, Spicer and Lundsted 1976, Song and Yarbrough 1978, Spicer and Becker 1980, Yankelovich et al. 1984, Jackson and Jones 1985, and Milliron 1985). Clotfelter (1983) found that the relationship between age and compliance is curvilinear; the youngest and oldest segments of the population have the highest degree of compliance. The lack of significance for the age variable in the present study could have been due to the fact that the distribution of age was skewed to the left. Approximately seventy-two percent of the subjects were in the 20-29 age group.

Early studies found males to be less compliant than females (Mason and Calvin 1978, Aitken and Bonneville 1980, Tittle 1980). Recent findings show a insignificant relationship between gender and compliance (Westat 1980, Groenland and van Veldhoven 1983, Thurman et al. 1984, Yankelovich et al. 1984, Jackson and Jones 1985, and

Violette 1989). The results of the present study also show a insignificant relationship between gender and compliance. This trend could be due to reduction of stereotypical roles for persons of different gender (Jackson and Milliron 1985).

Better education has been found to be related to decreased compliance (Chang 1984, Witte and Woodbury 1985). This relationship is posited to exist because higher levels of education are related to higher levels of knowledge of evasion opportunities (Jackson and Milliron 1985). Educational level was not significant in the present study. This may have been caused by the leptokurtic distribution of the subjects. Over 76 percent of the subjects fell in the four year college completed category.

Sample Size and Manipulation Check

The original sample size was 294. Eighteen instruments were unusable because the subjects failed to properly complete the ESI instrument. Five instruments were deleted because subjects did not properly fill in all the information on the questionnaire. Two of the items on the attitude scale were reverse item scored to determine if the subjects were attending to the questions being asked. As a result of the manipulation check, 18 additional instruments were eliminated.

The final sample contained 253 subjects. Some subjects did not respond to each item on the instrument. In instances where there was information missing, observations with missing independent or dependent variables were excluded from the analysis. Therefore, each table does not include the same number of responses.

Frequency of Responses

Random assignment to groups resulted in nearly equal treatment groups. There were 75 subjects whose ESI score placed them in the Entitled category. The Equity Sensitive category contained 88 subjects. The Benevolent category contained 87 subjects. Table 7 shows the number of subjects in each treatment group by sensitivity type. There were 250 subjects' observations used in the ANOVAs. Because cell sizes were not equal, the GLM procedure on SAS was used to analyze the data.

Appendix B shows the percent of subjects selecting particular item responses to the individual scenarios. As discussed in the methodology section, the subjects were asked to make an attribution decision as to how likely they

Table 7. Cell Size: Treatment Type x Equity Sensitivity Type

		Treatment Type		
		Conscience Appeal	Sanction Threat	Control
E	ENT	25	22	28
S	ES	28	31	29
I	BEN	33	30	24

ESI = Equity Sensitivity Instrument

ENT = Entitled

ES = Equity Sensitive

BEN = Benevolent

felt the taxpayers in the scenarios would comply with tax law. The responses were recorded on a seven-point Likert-type scale. Responses 1 - 3 were considered noncompliant, response 4 neutral and responses 5 - 7 compliant.

Compliance Scenarios

Table 8 lists the scenario topics and shows the percent of subjects who made an attribution decision denoting noncompliance. Scenario One asks the subject to predict the likelihood taxpayers would take a false medical deduction to compensate for a disallowed deduction they felt they deserved. Forty-seven percent of the subjects felt the taxpayers would likely take a false deduction.

Scenario Two details a family heavily in debt. One-half the family's income is from self-employment. The scenario asks for the likelihood that the taxpayers would overstate business expenses by at least $300. Sixty-five percent of the subjects felt the taxpayers would overstate business expenses.

Scenario Three depicts a family with income from wages and $150 income from a raffle. Seventy-one percent of the subjects thought it was unlikely the taxpayers would report the income from the raffle.

Table 8. Response to Scenario Topics

Scenario Topic	Percent of Subjects Indicating Noncompliance
Overstate Personal Expenses	47
Overstate Business Expenses	65
Understate Personal Income	71
Understate Business Income	27

Scenario Four included a family with only self-employment income. The subjects were asked how likely it was that the taxpayers would report income derived from a client that would not report the income as a corresponding expense. Twenty-seven percent of the subjects felt the taxpayers would not report the income.

Attitude Scores

Appendix F contains the percent of subjects selecting particular item responses to individual attitude questions. The subjects were asked to what extent they strongly agreed or disagreed with a number of statements that people have made about government spending, equity in the tax system, and honesty of taxpayers. The responses were recorded on a seven-point Likert-type scale.

Question One on the attitude scale asked if the subjects agreed that the government makes adjustments for noncompliant taxpayers. Approximately thirty-three percent of the subjects in the present study agreed that the government makes adjustments for noncompliance.

Question Two asked the subjects if they agreed that almost all taxpayers are absolutely honest about their income tax. Only 17 percent of the subjects agreed that taxpayers are absolutely honest about their income tax.

The third attitude question addressed the effect that the level of government spending had on compliance. Only 19 percent of the subjects agreed that it was "not so wrong to hold back a little on taxes since the government spends too much anyway."

The fourth attitude question addressed agreement with the types of government spending. Approximately fifty percent of the subjects agreed that the government is using tax dollars to support programs they don't approve of.

Attitude question five addressed the issue of patriotism. Approximately sixty-seven percent of the subjects agreed that it is a person's patriotic duty to pay exactly what is due in taxes, whether or not the tax system is fair.

The last question on the attitude scale gauges the subjects' perceptions of vertical equity in the tax system. Fifty-six percent of the subjects agreed that the present tax system benefits the rich and is unfair to the ordinary taxpayer. Table 9 gives the attitude item responses.

Table 9. Attitude Item Responses

	Percent Respondents Agreeing with Statement
Government Adjusts For Noncompliers	33
Taxpayers Are Honest	17
Okay Not To Comply Because Government Spends Too Much	19
Disagree With Government Spending	50
Patriotic Duty To Pay Taxes	67
Present Tax System Unfair	56

Demographic Variables

Appendix G displays the percent of subjects selecting the particular item responses to the demographic variables examined in the study. The demographic variables include: (1) number of times subjects filed state and federal income tax returns, (2) type of preparer, (3) itemized statements, (4) level of tax knowledge, (5) age, (6) gender, (7) number of years of full-time employment, (8) self-employed/wage earner status, (9) filing status, and (10) level of education.

Almost 52 percent of the subjects had filed state and federal income tax returns six or more times. Approximately eight percent had never filed a tax return. In response to the question, "Who generally prepares your income tax returns?" approximately fifty-seven percent of the subjects prepare their own return. Only 10.4 percent use a paid preparer.

Almost 54 percent of the subjects judged that they had below average knowledge of tax laws. Only 1.2 percent reported a very high level of tax knowledge.

Subjects' ages were greatly skewed. One hundred seventy-nine or 71.6 percent of the subjects were in the

20-29 year old category. Almost 20 percent were in the 30-39 year old category, and 8.6 percent in the 40-49 year old category.

The gender of the subjects was almost evenly divided. Approximately forty-nine percent of the subjects were male and approximately fifty-one percent were female.

Approximately forty-five percent of the subjects had worked full time for three or more years. Only 7.5 percent of the subjects had income from self-employment.

The subjects' filing status was also ascertained. Fifty-seven subjects or 23.3 percent used the married filing jointly status. Eleven or 4.5 percent filed married filing separately. One hundred seventy or 69.4 percent filed single. Seven or 2.9 percent filed as head of household. The majority of the subjects in the present study were master's students. One hundred fifty-eight or 62.45 percent of the subjects were from the College of Business and 95 or 37.55 percent from the College of Education. One hundred eighty-eight subjects or 76.4 percent of the subjects had completed a four year college degree. Fifty-six or 22.8 percent had earned a masters degree. Less than one percent of the subjects had not yet obtained a four year undergraduate degree.

Chapter Summary

The chapter presented the results of the statistical analysis of the data gathered. Frequency data were also presented.

There was no significant difference found between conscience appeal and the sanction threat treatments. There was, however, a significant difference in the level of compliance found for the sensitivity types. The results of the Omnibus tests for a MANOVA were significant in the case of the scenario depicting Overstatement of Business Expenses. The Entitled subject was significantly less compliant than the Equity Sensitive or Benevolent subject. The Entitled subject responded most positively to the sanction threat treatment. Under the control treatment, the Benevolent subject was most compliant. The Equity Sensitive subject in the conscience appeal treatment had the highest compliance score.

Chapter 6

DISCUSSION AND CONCLUSION

Introduction

This chapter contains a discussion of the results of the data analysis presented in the previous chapter and the conclusions drawn from those results. The first section contains a discussion of the results. The second section presents the conclusions that are drawn from the research results. The limitations of the study are reviewed in the third section. The fourth section contains the contributions made by the present study. The concluding section provides recommendations for future research.

Discussion and Conclusion

Federal and state governments have a need for a regular flow of revenue. The level of taxpayer compliance has steadily decreased over the years. Individual taxpayers failed to report approximately $100 billion in federal taxes due on legal income received in 1989. The elimination of the tax compliance gap would greatly reduce the federal and most state government deficits.

In the past, studies exploring means to increase compliance have focused on three theoretical frameworks: Prospect Theory, Deterrence Theory and Cognitive Structures. Studies employing Prospect Theory as an underpinning demonstrate how individuals make different decisions based on the framing of choices. Deterrence theory investigates how the level of compliance is increased by threat of punishment. The psychological cognitive structures approach to compliance concentrates on taxpayers' perceptions of equity in the tax system and attitudes toward the tax system.

The studies based on Prospect Theory generally show that taxpayers do make evasion decisions based on how choices are framed. Taxpayers were found to exhibit greater avoidance for the risks associated with evasion if they expected a refund than if they expected the loss of paying additional tax.

Research using Deterrence Theory has shown that the threat of punishment can be an effective method of discouraging a deviant act. Legal sanctions, social stigma and guilt feelings can all be effective deterrents to tax noncompliance.

Studies employing psychological cognitive structure approaches in analyzing taxpayer compliance behavior and attempting to increase taxpayer compliance have led to enlightening results. Studies in this realm employ distributive justice, attitude formation and change, and neutralization theory. These studies generally examine relationships between compliance and socio-economic and situational variables. Appeals to a taxpayer's moral obligation to pay taxes have been studied as a means to change taxpayer attitudes and intentions and thereby increase compliance.

None of the reviewed literature reported research which examined personality variables (other than locus of control) and their relationship to compliance. The present study lends support to the theory that a relationship exists between a personality trait (sensitivity to equity) and compliance.

The present study sought to determine if taxpayer compliance could be enhanced by sanction threat or by appeals to conscience. The study also endeavored to discover if compliance differed between various types of taxpayers. These individual differences were posited to cause taxpayers to react differently to alternative types of interventions aimed at increasing compliance to income tax law. A study was designed to gauge a subject's sensitivity to equity, administer intervention techniques, and measure compliance and attitude toward taxation.

The data were analyzed using MANOVA. Although results of the study showed no significant main effect for treatment type, a significant main effect ($p = .0075$) was found for Equity Sensitivity type when the scenario depicting Overstating Business Expenses was used as the dependent variable in the design. There were also no significant main effects for ESI or treatment type when the six attitude items were used as the dependent variables in a MANOVA.

Although there was no significant treatment effect, a review of the means leads to some interesting observations. The Entitled subjects were least compliant. The Entitled subjects were more compliant after the sanction threat treatment than after the conscience appeal treatment. The Equity Sensitive and Benevolent subjects were more compliant after the conscience appeal treatment. The sanction threat treatment appeared to evoke reactance in the Benevolent taxpayer.

There are several possible reasons for the lack of significant results for treatment type in the design: (1) weakly differentiated treatments (may not have been extreme enough to change attitudes and substantially increase compliance), (2) lack of novel information in the treatments (subjects may already have been aware of the information in the treatments), (3) inadequate number of choices in the scenarios (hypothetical choices may not fully reflect the choices that taxpayers would make in actual situations), or (4) inadequate time frame for attitude formation and change (may be a long-term process requiring repeated treatment).

Of the two methods of increasing taxpayer compliance (changing taxpayer attitudes and sanction threat), changing taxpayer attitudes, if effective, would be the most cost effective. Results in the literature have been mixed concerning the effect of conscience appeals versus sanction threats on taxpayers. Schwartz and Orleans (1967) found conscience appeals to be more effective than sanction threat in increasing compliance. The results of the present study and the one done by Jackson and Jaeoun (1989) found no significant difference in compliance for these two methods suggesting that attitudes cannot be changed easily. Repeated attempts over a much longer period of time may be needed to significantly change attitudes sufficiently to increase compliance. Sanction threat could have a short-term effect on many taxpayers, while changing attitudes could lead to long-term compliance.

Taxpayer compliance is a multi-faceted problem. Taxpayers frame their compliance decisions according to their attitudes toward the government and the tax system. Taxpayers also consider personal circumstances and perception of their peers in their compliance decisions. Once we determine the factors underlying noncompliance, programs can be designed to promote compliance through changing taxpayer behavior and attitudes.

Sanction threats in the form of civil and criminal penalties have been used by the IRS to increase compliance. These penalties are often not effective because the taxpayers are largely unaware of them. In some cases, taxpayers exhibit hostility after the threat or imposition of sanctions.

The IRS may be able to encourage support for compliance by encouraging taxpayers to reframe their compliance decisions in a more positive light - by personalizing the process, by reminding taxpayers of social commitments, or by reminding taxpayers of the tax-supported services they receive.

What is needed to increase compliance is probably a combination of penalties (needed to help define boundaries between compliers and noncompliers) and behavior change techniques. In the words of John S. Carroll,

> It is not desirable for a tax system to make criminals out of so many people that it has to continually monitor, frighten, and punish them. It would be better if people saw the value of paying their taxes, and that taxpaying behavior was simple and clear (Carroll 1987).

Limitations

The results of the present study must be examined in light of the following limitations: (a) questions concerning instrument reliability and validity, (b) the use of student subjects, and (c) mono-method bias.

A question arises concerning the reliability of the results of the present study. The compliance measures, when analyzed as a composite score, were not internally consistent. For this reason, the scenarios were analyzed separately.

The reliability of the attitude items are also questionable. The six attitude items were taken from an instrument originally containing 27 items (YSW 1984) which were purported to be an overall indicator of acceptance of tax cheating. Responses are not consistent across the items requiring attitudinal responses to statements that people have made about government spending, equity in the tax system, and honesty of taxpayers.

The Equity Sensitivity Instrument (ESI) displayed moderate internal consistency (.67). This reliability concern suggests a need for replication with an improved instrument to justify reliance on the finding of the significant difference between Equity Sensitivity types in the scenario depicting Overstating Business Expenses.

The limited results of the present study draw into question the attentiveness of the subjects to the treatments, despite the manipulation check in which certain items were reverse item scored. Students have been used in many compliance studies (Friedland et al. 1978, Jackson and Jones 1985, Kaplan and Reckers 1985, Kaplan et al. 1988, Klepper and Nagin 1989, Porcano 1984, Robben et al. 1990, Spicer and Becker 1980, Spicer and Hero 1985, Spicer and Thomas 1982, Violette 1989). Porcano (1984) showed that the responses of student subjects and nonstudent subjects were not significantly different in a study designed to determine the perceptions of equity in the tax system.

One of the major limitations of research in this area of tax research is the lack of confirmatory data. The present study used only one means of collecting compliance information and thus suffers from mono-method bias (Cook and Campbell 1979). Another measure of compliance would have bolstered the validity of the data. This problem exists because individual taxpayer information needed for verification of self-report data is not available from the Internal Revenue Service.

Individual taxpayer information is confidential. Because it was not possible to obtain tax return information on the subjects in the study, there was no way to obtain actual compliance information. Scholars who conduct research in the area of compliance have no choice but to accept this limitation.

One of the major problems of conducting questionnaire research in this area lies in determining the honesty of the responses (verifiability of self-report). Although researchers assure respondents that their responses will be held in confidence, the respondents may skeptically answer with "what they think they should do" instead of what they would do.

Contributions

The lack of significant treatment effect in this study is consistent with the results of the study by Jackson and Jaouen (1989) which found no significant treatment effect when using conscience appeal, sanction threat, and control groups as independent variables. The Jackson and Jaouen study employed Spicer and Lundstedt's tax resistance scale as a dependent variable.

Individual differences in taxpayers have been examined very little in the taxpayer compliance literature. In the past, demographic variables such as age, gender, and education have been studied, but no meaningful attempts have been undertaken to distinguish compliers from noncompliers on the basis of personality variables.

The main contribution of the present study is the discovery that subjects classified according to a personality variable had significantly different levels of compliance in one of the compliance scenarios. The results stemming from the use of the Equity Sensitivity Instrument open a new research avenue. Individual differences in taxpayers' personality traits had not previously been considered in compliance research of this nature.

The lack of significant difference between the Equity Sensitive and Benevolent subjects was contrary to expectation, but the fact that there was a significant difference for the Entitled subject should serve as a catalyst for further research in this area.

Recommendations For Future Research

The major limitation of the present study stemmed from reliability concerns for the instruments used in the study. It is recommended that more reliable compliance and attitude measures be developed. The compliance scenarios in this study, though detailed, may have been too ambiguous. The scenarios may not have been extreme enough to change attitudes and substantially increase compliance. Neither the compliance scenarios nor attitude items correlated highly with the other items that were supposed to measure the same construct. This may account for the low internal consistency. Including only one attitude in the instrument may provide greater internal consistency. It may not be possible to measure all aspects of compliance or all attitudes toward taxation in one instrument. Future studies of this type by the present author will employ professional writers to increase the effectiveness of the interventions used in the study. The resulting instruments should be checked for reliability and validity in pilot studies before administration to the main subject pool.

The ESI may not be well suited to compliance research. Only one of three classifications was not significantly different. A search should be made for an instrument that has proven reliability and will distinguish taxpayers on their sensitivity to equity or other personality variable that might affect compliance.

Research needs to be undertaken to distinguish compliant from noncompliant taxpayers on various personality traits. Once these traits have been identified, interventions can be designed to increase compliance of taxpayers possessing those particular traits.

Longitudinal studies also need to be conducted to determine if taxpayer attitudes can be changed using present and proposed intervention techniques. Attitude formation and change may be a long-term process. It is recommended that cross sectional and longitudinal studies be conducted with instruments that prove to be reliable.

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Appendix A

Equity Sensitivity Instrument

The questions on this inventory ask what you would like for your relationship to be with any organization in which you might be involved. On each question, divide 10 points between the two answers (a and b) by giving the most points to the answer that is most like you and the fewest points to the answer that is least like you. You can, if you would like, give the same number of points to both answers. And you can use zeros if needed. Just be sure to use all ten points on each question. Place your points into the blank next to each letter.

IN ANY ORGANIZATION IN WHICH I MIGHT BE INVOLVED:

1. It would be more important for me to:

_____a. Get from the organization

_____b. Give to the organization.

2. It would be more important for me to:

_____a. Help others

_____b. Watch out for my own good

3. I would be more concerned about:

_____a. What I received from the organization

_____b. What I contributed to the organization

4. My involvement should:

_____a. Benefit the organization

_____b. Benefit me

5. My personal philosophy in dealing with the organization would be:

_____a. If you don't look out for yourself, nobody else will

_____b. It's better to give than to receive

Appendix B

Compliance Scenarios

INSTRUCTIONS. Please indicate <u>how certain you feel</u> that taxpayers in each scenario would properly report all income and deductions on a tax return. A "1" means you are certain the taxpayers would not comply. A "7" means you are certain the taxpayers would comply. Indicate your response by circling the corresponding numbered circle on the opscan sheet provided. Please respond to each scenario. It is important that you answer each question as honestly as possible. ALL INFORMATION WILL BE TREATED WITH THE STRICTEST CONFIDENCE.

<u>Note</u>: A wage earner's income is reported to the Internal Revenue Service by the employer. In the case of most other income, the taxpayer is the only party that reports the income. Compliance means <u>fully</u> and <u>correctly</u> reporting all income and deductions.

(The bold numbers represent percent of subjects selecting the particular item response.)

1. The Wileys have $45,000 income. Mrs. Wiley earned $35,000 salary and Mr. Wiley earned $10,000 from selling a product door to door. The Wileys have three dependents. The Wileys feel they deserve a $400 disallowed deduction for medical expenses resulting from Mr. Wiley's cosmetic surgery. Mr. Wiley felt that removing a large scar from his face would better his chances of making sales. Do you feel the Wileys will make up an equal deduction in another place on the return where the IRS would have a difficult time detecting a false deduction (not comply) or do you feel they will forget about the deduction (comply)?

Certain they will <u>not comply</u>						Certain they will <u>comply</u>
1	2	3	4	5	6	7
9.9	**18.6**	**18.6**	**19.8**	**15.8**	**13.0**	**4.3**

2. The Bakers have $45,000 in income. One half of the Bakers' income ($22,500) is from salary and the other half ($22,500) from a back yard mechanic's business. The Bakers have three dependents and are heavily in debt. Do you feel the Bakers will overstate business expenses by at least $300 (not comply) or do you feel they will accurately state their business expenses (comply)?

Certain they will not comply						Certain they will comply
1	2	3	4	5	6	7
19.0	**26.1**	**20.6**	**15.4**	**7.9**	**7.1**	**4.0**

3. The Wimberly family has $45,150 income derived from $45,000 salary and $150 from winning a raffle. The Wimberly family includes a husband, wife and three dependents. Do you feel the Wimberlys will comply by fully reporting both the salary and the taxable income from the raffle?

Certain they will not comply						Certain they will comply
1	2	3	4	5	6	7
32.0	**27.3**	**12.3**	**8.7**	**4.3**	**6.7**	**8.7**

4. The Lackeys have an income of $45,000 from a printing business. The Lackeys have three dependents. One of the major jobs that the printing business had for the current tax year was a $350 printing job for a businessman who boasted that he had not filed a tax return in six years. Do you feel the Lackeys will comply by fully reporting this $350 of income on their tax return?

Certain they will <u>not comply</u>						Certain they will <u>comply</u>
1	2	3	4	5	6	7
9.5	**9.1**	**8.3**	**15.8**	**19.4**	**20.6**	**17.4**

Appendix C

Conscience Appeal Treatment

Not reporting your full income or claiming deductions to which you are not entitled are forms of lying and cheating. In many cases, noncompliance may be a criminal act. Many taxpayers feel that noncompliance hurts no one. WRONG! Noncompliance reduces the amount of funds the government has available to fund programs such as education, highway construction, regulation of industries, product safety and medical research. The problem of tax cheating has grown to over $100 billion. All noncompliant taxpayers contribute to this problem. This country belongs to all of us. We are responsible for its stability.

To aid all taxpayers, the Internal Revenue Services's (IRS) Office of Chief Counsel is participating in efforts to simplify the tax law, tax regulations, instructions in tax booklets, and tax forms. The IRS presently provides free tax education and aid programs to the public. These programs include the Volunteer Income Tax Assistance Program, the Tax Counseling for the Elderly Program, the Disaster Assistance Program, the Outreach Program, as well as general walk-in and toll-free telephone tax assistance.

A taxpayer would have to pay a lot to get these services from a private income tax preparer or lawyer.

Many taxpayers feel that high-income taxpayers don't pay any income tax. Because of the Alternative Minimum Tax, only .085 percent of the high-income taxpayers were able to avoid paying income tax in 1987.

The IRS is making every effort to ensure that all taxpayers pay their fair share of taxes. Congress has made many changes to the tax law to prevent tax evasion. Among them: withholding at the source of income, information reporting at the source, record-keeping requirements, restrictions on tax shelters, increased use of social security numbers, reporting of tip income, and increased penalties.

In the midst of Service wide efforts to establish future-oriented strategic and organizational planning functions, the IRS hired its first professional Historian. The program will involve development of an archival collection of the most important historical documents created by the IRS, research and writing of policy and management-related historical reports, preparation of a full-length history of taxation in the United States, establishment of a collection of oral history interviews, and assistance to IRS staff members in answering historical research questions.

Appendix D

Sanction Threat Treatment

During a taxpayer's lifetime, there is a 33 percent chance of getting audited. If the audit reveals the taxpayer has underpaid taxes due, a penalty and interest will be imposed. In addition to the penalties and interest charged by the IRS, the taxpayer may suffer from: loss of income while having to appear at an IRS office or in court; the cost of legal fees; and social stigma and career damage stemming from prosecution. The Internal Revenue Service also seizes homes, cars, boats and other personal property to satisfy tax liabilities.

The Criminal Investigation special agents have recommended prosecutions of taxpayers in more than 60 different industries and occupations. Included were wage earners, accountants, doctors, self-employed persons, corporate officers, attorneys, public officials, racketeers, illegal tax protesters, and abusive tax shelter promoters. During fiscal year 1989, Criminal Investigation initiated over 5,400 investigations. Special agents recommended prosecution in over 3,200 cases. The Internal Revenue Service (IRS) means business. First offenders are prosecuted to discourage further cheating.

The IRS is currently installing new computer systems to aid in catching additional tax cheats. They are even developing expert systems to examine tax returns. The new reporting requirements for wages and other sources of income coupled with the new computer technology, make it much more difficult for income to go undetected by the IRS. When the IRS finds tax cheats, stiff penalties are imposed. An individual required by law to pay tax and to file a federal income tax return who willfully does not comply may be fined as much as $25,000 and/or imprisoned for as long as a year, in addition to the costs of prosecution.

In 1989, the IRS imposed 26.2 million net penalties totaling $7.1 billion. Interest charges in the same year totaled $4.3 billion on individual returns. More than $19 million in fictitious claims were detected prior to being refunded.

The IRS has various methods for detecting erroneous or omitted returns. The Discriminant Index Function (DIF) Program selects returns which have the highest potential for a significant change in tax liability. Under the Targeted Items Program, items such as office in the home and casualty losses are selected by the IRS for audit because of the high audit potential of those returns for that year.

Under the Information Matching Program, information received by the IRS from sources other than the taxpayer (employers, banks, credit unions, mortgage companies) is matched with the information on the taxpayer's return. For example, interest, dividend and miscellaneous income reported on form 1099 is matched against the taxpayer's return to determine if the taxpayer reported the income. This program identifies taxpayers who underreport their income or overstate certain deductions and who fail to file returns. The Taxpayer Compliance Measurement Program randomly selects taxpayer returns and an examiner checks and verifies each item on the return. Once a taxpayer is audited and found to be evading taxes, the chance of future audits increases greatly.

Appendix E

Control Group Treatment

Many people are not aware of the size and scope of IRS's operations, but they are extensive. For example, at the end of 1989, IRS had 113,622 employees, over 600 offices and suboffice locations open to taxpayers in the United States and 13 offices internationally.

In 1989, the IRS received more than 199,567,000 tax returns and related documents filed by taxpayers. This figure is up from 194,305,000 returns filed in 1985. Of the 199,567,000 tax returns filed in 1989, over 157,129,000 were individual returns. Form 1040 was used to file 71,787,000 returns, form 1040A was used to file 18,720,000 returns, Form 1040EZ was used for 19,488,000 returns and 257,000 returns were filed on other types of 1040 forms.

The IRS has a national office and seven regional offices. There is at least one IRS district office in each state, and the more populous states may have up to five IRS districts. The ten service centers are the processing arm of the IRS.

The Southeast region processed the greatest number of returns (20,138,900) in 1989. The region with the next highest number of returns processed was the Western region with 18,128,580. The other regions in order of number of returns processed are: the Mid-Atlantic region - 15,128,888 returns; the North Atlantic region - 14,529,474 returns; the Midwest region - 14,381,768 returns; the Southwest region - 13,787,932 returns; the Central region - 13,564,085 returns; and International districts (Puerto Rico and others) 593,096 returns.

Appendix F

Attitude Items

Here are a number of statements that people have made which you may or may not agree with. Please read each statement carefully and indicate how much you agree or disagree with each one. A "1" means you strongly disagree and a "7" means you strongly agree. By the way, some of these statements may sound pretty much alike; but really, each one is different. Please blacken the corresponding numbered circle on the opscan sheet provided.

The bold numbers represent percent of subjects selecting the particular response. Rounded to nearest whole percent.

	Strongly Disagree 1	2	3	4	5	6	Strongly Agree 7
1. Most people cheat a little on their taxes; the government adjusts for that..	**12**	**20**	**16**	**19**	**15**	**11**	**7**
2. Almost everyone is absolutely honest about their income tax........................	**30**	**24**	**20**	**10**	**9**	**6**	**2**
3. It's not so wrong to hold back a little bit on taxes since the government spends too much anyway..............	**25**	**31**	**15**	**12**	**8**	**7**	**3**
4. The government is using my tax money to support programs I don't approve of...........	**5**	**10**	**10**	**27**	**13**	**15**	**21**
5. Whether it's fair or not, it's a person's patriotic duty to pay exactly what he owes in taxes......................	**3**	**5**	**10**	**15**	**24**	**22**	**21**

6. The present tax system benefits the rich and is unfair to the ordinary working man or woman.........	8	9	13	15	19	16	20

Appendix G

Demographic Variables

Please answer the following questions by blackening the corresponding number on the opscan sheet provided.

(The bold numbers represent percent of subjects selecting the particular item response.)

15. How many times have you filed state and federal income tax returns?

1	0	**7.6**
2	1-2 times	**12.0**
3	3-5 times	**28.3**
4	6-10 times	**26.7**
5	11-15 times	**10.8**
6	more than 15 times	**14.7**

16. Who generally prepares your income tax returns?

1	you	**56.6**
2	spouse	**7.2**
3	friend or relative	**17.5**
4	paid preparer	**10.4**
5	other _______	**3.2**
6	not applicable	**5.2**

17. Did you itemize on your last return?

1	yes	**25.3**
2	no	**56.6**
3	not applicable	**18.1**

18. What is your level of knowledge of tax laws in general?

1	very low	**20.3**
2	low	**33.5**
3	average	**35.1**
4	high	**10.1**
5	very high	**1.2**

19. What is your age?

1	20-29	**71.6**
2	30-39	**20.0**
3	40-49	**8.0**
4	50-59	**0.4**
5	60 or over	**0.0**

20. What is your sex?

1	male	48.6
2	female	51.4

21. During how many years have you been a full time (more than 32 hours) employee?

1	0	28.4
2	1-2	26.8
3	3-4	11.6
4	5-6	8.0
5	more than 6	25.2

22. During most of your work career have you been

1	self-employed	7.5
2	wage earner	92.5

23. What is your filing status?

1	married filing jointly	23.3
2	married filing separately	4.5
3	single	69.4
4	head of household	2.9

24. Your education: Indicate highest degree completed.

1	High school	0.4
2	2 yr. college	0.4
3	4 yr. college	76.4
4	Masters	22.8
5	Doctorate	0.0

VITA

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