UNCERTAINTY ABOUT THE PROBABILITY OF A TAX AUDIT:

RAISING COMPLIANCE OR CONFUSION?

by

CHRISTOPHER MARKL

Under the Direction of Arthur Snow

ABSTRACT

The purpose of this paper is to investigate the governmental use of uncertainty in the application of tax policy. The main query examines if the government is able to raise compliance through creating uncertainty about the probability of audit. The theoretical portion of this paper uses a two-period expected utility maximizing Bayesian learner; a model that is originally postulated by Gollier (2003) for use in the context of the insurance industry. This paper references empirical work in the use of uncertainty in taxes, as well as the legality of withholding the probability of audit under the Freedom Information Act. The goal of this paper is to prove that an expected utility maximizing Bayesian learner reduces the optimal amount of tax evasion in the first period if the ratio of absolute prudence to absolute risk aversion is smaller than two.

INDEX WORDS: Tax evasion, Tax policy, Uncertainty.

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DEDICATION

I would like to give thanks and praise to God, for without God, this world would not exist. This thesis is dedicated to my mother (Judith Markl), who has shown me limitless love; to my father (James Markl) who has shown me the importance of compassion, I would not be who I am without either of you two; to friends (Casey McCorkle, Brian Hunter, Scott Brandt, and Jared Jaskott) and family (Tammy, Russ, Abby Shih-Tzu, Ms. Enid, John Deluca, and the Ulery Family), thank you all for being there and everything you have done for me; to Jason Seligman and Andrew Helms, for keeping it real here at Georgia, and showing me that a Doctorate in Economics can do some great things; to Dr. Snow, Dr. Warren, and Dr, Trandel for direction; I am grateful for your help in this adventure. And to everyone I have met over the last 23years, I will look back at my time here and state that it has helped me grow into more like the person I want to be. One great quote is by Richard Bach, who states “here is a test to find out if your mission in life is complete: if you’re alive it isn’t.” Let us all find our mission in life, and give thanks to God and to everyone who has helped us on our journey.

TABLE OF CONTENTS

CHAPTER 1

INTRODUCTION

The creation of the Federal Income Tax (1913) began a new era in the United States for the collection of government revenues. Edwin Seligman (1914) commented that the taxing system had some faults but "the law must be pronounced as intelligent and well-considered effort" (Seligman, 76). Seligman notes flaws are present in the allocation of wealth, but writes with vision that the tax system can be refined dramatically; he states "let us look forward with hopeful anticipation to a future in which the income tax, improved and amended, will play its important part in brining about greater justice in American taxation" (Seligman, 77). Over the last ninety years the tax system has dramatically changed but not in the refining direction cited above, instead it has become exponentially complex. At the focal point is a 40,000 page manual utilized by taxing authorities, which approximately 45 percent comprises the probability of audit. The probability of audit is not a number; instead it is a numerous characteristics that (if present) trigger the taxing authority to review the given return. These characteristics are hidden from the public and the uncertainty that is created is used to raise tax compliance. This paper will investigate the use of uncertainty in the realm of taxation and will focus on a two-period model where the taxpayer is an expected utility maximizing Bayesian learner and all variables are known except for the probability of audit.

CHAPTER 2

LOGISTICS OF MODEL

Consider a two period model, in which a taxpayer chooses the total amount of tax liability to evade in both periods, and the amount to save in the first period. The timing of these decisions is important to the understanding of the model and its implications. Thus we will begin with a discussion of the timing of the decisions, and the explanation of all variables.

The taxpayer earns an exogenous income in a tax evadable sector in period one, and then chooses an optimal amount of income not declared to the tax authority x_1^* in the first period. This amount is based upon on the taxpayer's beliefs about the uncertain probability of being audited. The probability of an audit is the only variable that is not known to the taxpayer, who must make a best estimate of the true probability. After taking the evasion decision, the taxpayer is either not audited in this period. If there is no audit then the taxpayer retains the amount evaded τx_1. Alternatively, the taxpayer is audited by the government and is penalized the amount $m\tau x_1$ which must be paid immediately to the government before any consumption. This formula is based on the United States tax code, where individuals who are found to have evaded taxes are penalized based on a multiple of the amount evaded in the given period. It will be assumed m is always less than $(\frac{1-\pi}{\pi})$, where π is the taxpayer's expectation regarding the probability of an audit. As a consequence of this assumption the expected rate of return to tax evasion is positive implying that a taxpayer chooses a positive amount of evasion.

After the first period evasion decision and audit, the taxpayer chooses an amount to save out of the disposable income remaining in the first period. Each dollar saved in the first period returns (R*S) in the second period where (R) is the gross interest rate (1+r). This saving decision depends on two factors. The first is whether there was an audit in the first period. Saving is state dependent in that, if audited the taxpayer's total income over the two periods is decreased, and thus due to consumption smoothing effects, one will be able to save less. The second factor concerns one's beliefs about the probability of audit in the second period. If the agent believes that the probability of audit is relatively large, he or she maybe willing to save more, in light of expecting a loss from an audit occurring in the second period.

Thus, the agent has two decisions in the first period; these are the optimal amount of taxes to evade and the optimal amount of savings depending on whether the agent has been audited or not. As noted above these decisions do occur in succession, so the agent is fully aware of his financial situation when he chooses his optimal amount of savings.

In the second period the individual again chooses the optimal amount of undeclared income (x_2), and again is either audited by the government and penalized the amount of ($m\tau x_2$) or is not audited and thus retains the amount of tax evaded in the second period (τx_2). The individual has no bequest motive, thus the taxpayer does not choose to save any funds in period two. All wealth remaining after the individual is audited in the second period (if an audit occurs) is then consumed. This amount is comprised of the return to first period saving and all income that is earned plus any amount that is evaded (τx_2) or minus the penalty ($m\tau x_2$) if an audit occurs.

Another change to the second period is that the agent's beliefs about the probability of audit are updated based on the audit experience in the first period. Using a Bayesian approach, if the individual is audited in the first period he or she will increase the expectation about the probability of audit in the second period. Alternatively, if the individual is not audited in the first period one will reduce his or her expectations about the probability of audit in the second period. The key to this model is that an individual updates prior beliefs baaed on the audit experience.

The foundation for this model is taken from Gollier's (2003) work with uncertainty in the insurance industry. Gollier develops a two-period model where the probability of loss is unknown, and the agent is an expected-utility maximizing Bayesian learner who possesses full knowledge of the loss state when making the savings decision in the first period. Considering the lag between the file date (of taxes) and knowledge of the audit state, the timing that is presented in this paper is less compelling than in the insurance setting. This limitation is disregarded; the introduction about uncertainty of the audit state into the savings decision would substantially complicate the model.

CHAPTER 3

TAX EVASION BY AN EXPECTED UTILITY MAXIMIZING, BAYESIAN LEARNER

The goal of this paper is to prove that an expected utility maximizing Bayesian learner reduces the optimal amount of tax evasion in the first period if the ratio of absolute prudence to absolute risk aversion is smaller than two. We will begin the analysis of the taxpayer's decision problem from the second period, using backward induction. Thus, we begin with the second period problem of evasion, where the return to period-one saving and the audit state are both given. We denote by y the amount of income earned in each period, and by $U(c)$ the taxpayer's increasing strictly concave utility function for each period with consumption c. The period-two evasion problem is then

$$\underset{x_2}{Max} \qquad \mathrm{E}\left[\prod_2 U(y(1-\tau)+RS-m\tau x_2)+(1-\prod_2)U(y(1-\tau)+RS+\tau x_2)\right], \qquad (1)$$

where the expectation operator E is taken with respect to the taxpayer's beliefs about the uncertain probability of audit in period 2, $\prod_2$. The objective function is the taxpayer's expected utility. The first part is the utility gained from earning post tax income plus the return to saving in the first period when the individual is audited and penalized $m\tau x_2$. This utility is multiplied by the probability of audit in the second period. The second part of the objective function is the utility gained from income earned in the period after taxes, plus the return to saving in the first period and tax evaded in the second period, multiplied by the probability that an audit does not occur in the second period. This expected utility is random in the taxpayer's view in that all variables are known except the probability of audit. Because the objective function is linear with respect to probabilities, problem (1) can be rewritten as

$$\upsilon(S^i, \pi_2^i) = \underset{x_2^i}{Max} \quad \pi_2^i U(y(1-\tau) + RS^i - m\tau x_2^i) + (1-\pi_2^i) U(y(1-\tau) + RS^i + \tau x_2^i), \quad (2)$$

where $\upsilon(S^i, \pi_2^i)$ is the indirect utility function for the second period and $\pi_2^i = E\prod_2$ is the taxpayer's expected probability of being audited in the second period after audit experience an audit *i* in the first period. Note that first-period saving S^i and the second-period expectation of audit π_2^i both depend on the first-period audit state, $i = a$ if an audit occurred and $i = n$ if no audit occurred.

It is important to note the reason for the interchangeability of equation (1) to (2). The actual probability of audit is unknown, thus the individual must base his decision of the optimal amount of evasion on his belief on the probability of audit. We are able to replace the uncertain probability of audit in equation (1) with its expected value in statement (2) because the agent is an expected utility maximizer. The agent's best estimate of the probability of audit replaces the random probability of audit. Thus ambiguity about the probability of audit does not matter, as is standard under expected utility and we are able to discard the expectation in equation (1) and proceed with the statement (2). This is crucial to the model, because the taxpayer's beliefs about the probability of audit, crucial to the evasion decision, can be summarized in a single statistic. Moreover, this statistic is state-dependent in as much as the taxpayer updates his of her belief based on the audit experience in the first period.

We can use the indirect utility functions for the second period to analyze the saving decision that occurs at the end of the first period. This is defined below, but for notational ease we will first define cash on hand prior to taking the savings decision as

$$Z_1^a = y(1-\tau) - m\tau x_1, \tag{3a}$$

if an audit has occurred in the first period, and

$$Z_1^n = y(1-\tau) + \tau x_1 \tag{3b}$$

if no audit has occurred.

The saving decision at the end of the first period depends on both the amount of cash on hand at the end of the first period and the updated belief about the probability of audit. The optimization problem is

$$V(Z^i, \pi_2^i) = \underset{s^i}{Max} \quad U(Z^i - S^i) + \delta v(\pi_2^i, S^i), \tag{4}$$

where δ is the taxpayer's discount factor, which captures the individual's intertemporal preferences for consumption. Note that the saving decision is state dependent both the individual's cash on hand and his belief about being audited in the second period depend on the audit state has in the first period.

Finally, we return to the original problem, which is the first-period tax-evasion problem. This optimization problem is formulated as

$$x_1^* = \arg \max_{x_1} \quad \pi_1 V(y(1-\tau) - m\tau x_1, \pi_2^a) + (1-\pi_1) V(y(1-\tau)\tau x_1, \pi_2^n), \tag{5}$$

where x_1^* is the optimal amount of undeclared income in the first period. Once again we use the linearity of the objective function with respect to probabilities to replace the uncertainty about the probability of being audited in the first period $\prod_1$ with its expectation, π_1. The difficulty in analyzing this decision problem derives from the state dependency of the indirect utility function *V*. However, because the objective function is a weighted sum of concave functions of the decision variable, the first-order condition is necessary and sufficient for an optimum.

Our objective in this thesis is to compare x_1^* to the optimal level of undeclared income when the probability of audit is known with certainty to equal π_1. Notice that there is no updating in this alternative environment since all variables are known to the taxpayer, including the true probability of audit. In this case, the decision problem of the taxpayer is x_1^*

$$\hat{x}_1 = \arg\max_{x_1} \ \pi_1 V(y(1-\tau) - m\tau x_1, \pi_1) + (1-\pi_1)V(y(1-\tau) + \tau x_1, \pi_1). \tag{6}$$

We wish to determine the conditions under which the optimal solution of this program, x_1^*, is smaller than $\hat{x}_1$, the optimal level of evasion when the probability of audit is uncertain, but with the same prior expected value, and the taxpayer updates his or her prior beliefs from his or her audit experience as in problem (5).

We will start with the first-order condition for the first-period level of evasion when there is no uncertainty about the probability of audit,

$$-\pi_1 m \frac{\partial V}{\partial Z}(\hat{Z}^a, \pi_1) + (1-\pi_1)\frac{\partial V}{\partial Z}(\hat{Z}^n, \pi_1) = 0, \tag{7}$$

where $\hat{Z}^a$ and $\hat{Z}^n$ denote optimal cash on hand in the first period given an audit has or has not occurred respectively, when there is no uncertainty about the probability of audit. Because the objective function in problem (5) is concave in the decision variable x_1, the optimal solution under uncertainty about the probability of an audit smaller (larger) than

$\hat{x}_1$ if and only if the derivative of the objective function in problem (5) with respect to x_1 is negative (positive) when evaluated at $x_1 = \hat{x}_1$; that is, if and only if we have

$$-\pi_1 m \frac{\partial V}{\partial Z}(\hat{Z}^a, \pi_2^a) + (1-\pi_1)\frac{\partial V}{\partial Z}(\hat{Z}^n, \pi_2^n) > (<)\ 0. \tag{8}$$

Solving the first-order condition (7) for *m* and substituting the result into (8), we obtain

$$\frac{(1-\pi_1)\dfrac{\partial V}{\partial Z}(\hat{Z}^n, \pi_1)}{\pi_1 \dfrac{\partial V}{\partial Z}(\hat{Z}^a, \pi_1)}\ \pi_1 \frac{\partial V}{\partial Z}(\hat{Z}^a, \pi^a) - (1-\pi_1)\frac{\partial V}{\partial Z}(\hat{Z}^n, \pi^n) > (<)\ 0. \tag{9}$$

Simplifying this expression, we arrive at

$$\frac{\dfrac{\partial V}{\partial Z}(Z^a, \pi_2^a)}{\dfrac{\partial V}{\partial Z}(\hat{Z}^a, \pi_1)} > (<) \frac{\dfrac{\partial V}{\partial Z}(Z^n, \pi_2^n)}{\dfrac{\partial V}{\partial Z}(\hat{Z}^n, \pi_1)}. \tag{10}$$

Notice that when there is no updating from experience, $\pi^a = \pi_1 = \pi^n$ and both sides of these inequalities equal unity. With updating we have $\pi_2^a > \pi_1 > \pi_2^n$, and if the left-hand side is larger than unity and the right-hand side is smaller than unity, then the greater-than inequality holds. Hence, the inequalities imply that x_1^* is smaller (larger) than $\hat{x}_1$ if the marginal value of cash on hand is an increasing (decreasing) function of the probability of an audit in the second period. Therefore, we can state the following result.

Lemma 1: Uncertainty about the probability of audit decreases (increases) the optimal level of evasion if the marginal value of cash on hand ($\frac{\partial V}{\partial Z}$) is an increasing (decreasing) function of the probability of audit.

The intuition for this result is straight forward. Suppose that the marginal value of wealth is increasing in the probability of audit. The occurrence of an audit in period one raises the perceived probability of an audit in period two. This raises the marginal value of wealth in a state where it is already relatively high because of the original audit. By contrast, the absence of an audit in the first period reduces the expectation of an audit in the second period and reduces the marginal value of wealth where it is already relatively low, since the agent has relatively more wealth. In comparison to the case where the probability of audit is certain, the updating process reduces the marginal value of wealth where it is low and increases the marginal value of wealth where it is high. These effects are equivalent to an increase in the concavity of the value function with respect to wealth. Thus the optimal amount of evasion is reduced.

We next examine the conditions under which an increase in the probability of audit raises the marginal value of wealth. This is accomplished in two steps. The first is the pure static problem, which is captured above in $\upsilon(S^i, \pi_2^i)$. We derive the condition for $\frac{\partial \upsilon(S^i, \pi_2^i)}{\partial S}$ to be increasing in π. We then extend the analysis to take into account the savings problem, by showing that this property is inherited by function *V*.

The following Lemma relies on two indexes, the index of absolute risk aversion $A(c) = -U^{//}(c)/U^{/}(c)$ which measures the concavity of *U*, and the index of absolute prudence $P(c) = -U^{///}(c)/U^{//}(c)$, which measures the degree of convexity of marginal utility. The latter was introduced by Kimball (1990) to measure the strength of the precautionary savings motive in a lifecycle model.

Lemma 2: An increase in the expected probability of audit in the second-period raises (reduces) the marginal value of first-period saving $\frac{\partial \upsilon}{\partial S}$ if and only if the ratio of absolute prudence to absolute risk aversion is smaller (larger) than two; that is, we have

$\partial^2 \upsilon / \partial S \partial \pi_2^i > (<) \, 0$ if *P/A< (>) 2.*

We begin with the second-period evasion problem (2). The initial step is to use the first-order condition for this problem to determine the comparative statics effect of an increase in π_2^i on the optimal amount of tax evasion in period 2. The first-order condition is

$$-\pi_2^i m U'(c^a) + (1-\pi_2^i) U'(c^n) = 0, \tag{11}$$

where $c^a = y(1-\tau) + RS - m\tau x_2$ and $c^n = y(1-\tau) + RS + \tau x_2$ denote consumption in the second period when respectively, when an audit does and does not occur. Implicit differentiation of this condition yields

$$\frac{\partial x_2^i}{\partial \pi_2^i} = \frac{-mU''(c^a) - U''(c^n)}{m^2 \pi_2^i U''(c^a) + (1-\pi_2^i) U''(c^n)}. \tag{12}$$

Applying the envelope theorem to problem (2), we obtain

$$\frac{\partial \upsilon}{\partial S} = R[\pi_2^i U'(c^a) + (1-\pi_2^i) U'(c^n)]. \tag{13}$$

Differentiating this expression with respect to π_2^i, we arrive at

$$\frac{1}{R} \frac{\partial^2 \upsilon}{\partial S \partial \pi_2^i} = U'(c^a) - U'(c^n) + [-m\pi_2^i U''(c^a) + (1-\pi_2^i) U''(c^n)] \frac{\partial x_2^i}{\partial \pi_2^i}. \tag{14}$$

Notice that the third and fourth terms on the right-hand side are a result of $U(c^a)$ and $U(c^n)$ depending on π_2^i through the optimal choice of x_2^i.

Substituting $\frac{\partial x_2^i}{\partial \pi_2^i}$ from equation (12) into equation (14) yields

$$\frac{1}{R}\frac{\partial^2 \upsilon}{\partial S \partial \pi_2^i} = U^{/}(c^a) - U^{/}(c^n) + \\ [-m\pi_2^i U^{//}(c^a) + (1-\pi_2^i)U^{//}(c^n)]\frac{-mU^{/}(c^a) - U^{/}(c^n)}{m^2\pi_2^i U^{//}(c^a) + (1-\pi_2^i)U^{//}(c^n)} . \tag{15}$$

Thus, the left-hand side of this equality is positive if and only if

$$U^{/}(c^a) - U^{/}(c^n) > \frac{-m\pi_2^i U^{//}(c^a) + (1-\pi_2^i)U^{//}(c^n)}{m^2\pi_2^i U^{//}(c^a) + (1-\pi_2^i)U^{//}(c^n)}[-mU^{/}(c^a) - U^{/}(c^n)]. \tag{16}$$

After eliminating terms and simplifying, we arrive at

$$\frac{U^{//}(c^n)}{(U^{/}(c^n)^2} < \frac{U^{//}(c^a)}{(U^{/}(c^a)^2}, \tag{17}$$

as the necessary and sufficient condition for $\frac{\partial^2 \upsilon}{\partial S \partial \pi_2^i}$ to be positive. Because we assumed above that $m < \frac{(1-\pi_1)}{\pi_1}$, tax evasion is optimal implying consumption is larger in the no-audit state where the individual keeps τx opposed to the state where the agent is audited and is obliged to pay $m\tau x$ to the government. It follows that inequality (17) is satisfied if and only if the function $\phi(c)$ defined by $\phi(c) = U^{//}(c)/(U^{/}(c))^2$ is decreasing in c. This is equivalent to requiring that $U^{///}(c)(U^{/}(c))^2 - 2U^{/}(c)(U^{//}(c))^2$ be negative, which is the case only if *P/A* is uniformly smaller than two.

Thus when *P/A* is smaller than 2, an increase in the probability of audit raises the marginal value of savings. Of course, it also increases the optimal level of saving and the marginal value of cash on hand in the first period, as stated in the following Lemma.

Lemma 3: An increase in the expected probability of audit raises (reduces) the marginal value of cash on hand ($\partial V / \partial Z^i$) if the ratio of absolute prudence to absolute aversion is smaller (larger) than two; that is, we have $\frac{\partial^2 V}{\partial z \partial \pi_2^i}$> (<) 0 if we have *P/A< (>) 2.*

Proof: This Lemma 3 concerns problem (4), the consumption-savings decision that occurs at the end of the first period after an audit has or has not occurred. The first step is to apply the envelope theorem, which yields the following result:

$$\frac{\partial V}{\partial Z} = -U^{/}(Z^i - S^i)\,, \tag{18}$$

which implies

$$\frac{\partial^2 V}{\partial Z \partial \pi_2^i} = -U^{//}(Z^i - S^i)\frac{\partial S^i}{\partial \pi_2^i}\,. \tag{19}$$

Since the taxpayer is risk averse, this expression has the same sign as $\frac{\partial S^i}{\partial \pi_2^i}$. To evaluate this comparative-statics effect we implicitly differentiate the first-order condition for problem (4),

$$-U^{/}(Z^i - S^i) + \delta \frac{\partial \upsilon}{\partial S}(S^i, \pi_2^i) = 0, \tag{20}$$

to obtain

$$-U^{//}(Z^i - S^i)\frac{\partial S^i}{\partial \pi_2^i} = \delta \frac{\partial^2 \upsilon}{\partial S^2}\frac{\partial S^i}{\partial \pi_2^i} + \delta \frac{\partial^2 \upsilon}{\partial S \partial \pi_2^i}\,. \tag{21}$$

Rearranging terms yields

$$\frac{\partial S^i}{\partial \pi_2^i} = \frac{\delta \dfrac{\partial^2 \upsilon}{\partial S \partial \pi_2^i}}{-U^{//}(Z^i - S^i) - \delta \dfrac{\partial^2 \upsilon}{\partial S^2}} . \tag{22}$$

The second-order condition implies that the denominator of this expression is positive. As a consequence, $\frac{\partial S^i}{\partial \pi_2^i}$ and $\frac{\partial^2 V}{\partial Z \partial \pi_2^i}$ have the same sign as $\frac{\partial^2 \upsilon}{\partial S \partial \pi_2^i}$, which according to Lemma 2 is positive (negative) if we have *P/A > (<) 2*.

There is some intuition for this result. Consider the special case $m = \frac{(1-\pi)}{\pi}$ as our benchmark. In such a situation, there is no evasion since the taxpayer is risk-averse and the expected rate of return to evasion is zero. Now, suppose the probability of audit is reduced, thereby making it profitable for one to evade a positive amount of taxes. The agent is aware that he or she is less likely to lose the amount $m\tau x$ and more likely to retain the amount τx. Hence, a reduction in the probability of audit increases expected total consumption. To smooth consumption over the two periods the taxpayer will increase consumption in the initial period and reduce the willingness to save for the second period. The strength of this effect is proportional to the index of *A* of aversion to consumption fluctuation over time. In opposition to this, a positive amount of evasion compels the agent to accumulate savings for period two, in case an audit occurs in this period. The strength of this precautionary effect is proportional to *P*. Hence, a reduction in the probability of audit reduces savings if and only if the consumption-smoothing effect dominates the precautionary effect. This results only when *P/A* is smaller than 2. Thus when *P/A* is smaller than 2, optimal saving and the marginal value of cash on hand are positively correlated with the probability of audit.

Notice that the above results hold for any case, and not just when $m = \frac{(1-\pi)}{\pi}$; specifically they also hold for any marginal changes in the probability of audit whenever π is below the prohibitive level. A marginal reduction in the probability of audit raises expected final consumption, and also raises the size of the optimal risk taken by the decision maker. The same consumption-smoothing effect and the same precautionary effect work at the margin. We can now state and prove our main result.

Proposition 1 Uncertainty about the probability of audit raises (reduces) the optimal level of compliance in the first period if the ratio of absolute prudence to absolute risk aversion is smaller (larger) than two.

Proof Lemma 1 states that uncertainty about the probability of audit decreases (increases) the optimal level of evasion if the marginal value of cash on hand ($\frac{\partial V}{\partial Z}$) is an increasing (decreasing) function of the probability of audit. Lemma 3 states that $\frac{\partial V}{\partial Z}$ is an increasing (decreasing) function of the probability of audit if the ratio of absolute prudence to absolute aversion is smaller (larger) than two. Thus, if *P/A* is smaller (larger) than two, uncertainty about the probability of audit reduces (raises) the optimal amount of evasion in the first period.

To sum up, when *P/A* is smaller than two, the consumption-smoothing effect dominates the precautionary effect. In such a situation, updating reduces the marginal value of wealth in the no-loss state, and it raises the marginal value of wealth in the loss state. This induces the representative agent to reduce the amount of tax evaded. Notice that, as is well known, log utility decision makers are optimally myopic. In this specific environment, their optimal investment in evasion in the first period is not affected by the uncertainty surrounding the probability of audit.

These theoretical results must be tested empirically for the theory to be relevant in the policy arena. There is extensive empirical work in the realm of taxation policy. Some of this work is reviewed below; furthermore other theoretical work on the role of uncertainty in tax modeling is also discussed.

CHAPTER 4

CONSTANT RISK AVERSION

Consider a taxpayer who exhibits constant relative risk aversion, possessing the utility function

$$U(c) = \frac{1}{1-\gamma} c^{1-\gamma}, \tag{23}$$

where γ is the index of relative risk aversion. The derivatives of this function are

$$U^{/} = c^{-\gamma}, \tag{24}$$

$$U^{//} = -\gamma c^{-1-\gamma}, \tag{25}$$

and $U^{///} = -\gamma(-1-\gamma)c^{-2-\gamma}$ (26)

respectively. Furthermore the index of absolute risk aversion and the index of prudence are, respectively,

$$A = \gamma c^{-1} \tag{27}$$

and $P = (1+\gamma)c^{-1}$. (28)

The condition *P/A < (>) 2* can be reduced for an individual who possesses constant relative risk aversion to

$$(1+\gamma)c^{-1} < (>)\, 2\gamma c^{-1}. \tag{29}$$

Simplifying, this result reduces to

$$1 < (>)\gamma. \tag{30}$$

Thus, the effect of the introduction of uncertainty in the probability of audit, for a constant relative risk aversion taxpayer, depends solely on the magnitude of γ.

Independently Summers (1982) and Hall (1988) have empirically investigated the magnitude of γ, they conclude that there is strong evidence that γ is greater than 2. This evidence, along with the theoretical results from Chapter 3 imply that individuals who exhibit constant relative risk aversion increase compliance when uncertainty about the probability of an audit is introduced. This empirical evidence supports governmental introduction of uncertainty in the realm of compliance. Next a number of studies that examine empirically the effect of uncertainty in controlled laboratory tests, anonymous surveys, and past tax returns. These results are reviewed in the next chapter, along with additional theoretical considerations.

CHAPTER 5

OTHER EMPIRICAL FINDINGS IN UNCERTAINTY AND TAX EVASION

The first paper that will be explored is Alm, Jackson, and McKee (1992). Alm, Jackson, and McKee claim that there is great reason to investigate the effects of uncertainty on tax compliance since the Internal Revenue Service (IRS) "has deliberately maintained some uncertainty in its audit selection process in order to increase compliance" (Alm, 1018). The role of uncertainty is the focus of this paper, and laboratory experiments are used to examine the effects of uncertainty on taxpayer compliance. The experiment was a repeated game where each individual is subjected to twenty-five rounds, with each round representing a given period in which income is earned and taxes paid to ensure that the agents would have full knowledge of the workings of the game and how uncertainty was introduced. The probability of audit is represented in the experiment by having a number of bingo balls in a cage each representing a taxpayer, plus additional balls with no marking. In each round, one ball is chosen, and the respective agent is audited. If a ball with no marking is chosen then no audit is conducted. Uncertainty is introduced by having two cages; the first cage has 17 balls, 15 of which are marked with a subject's number, and the remaining two are blank. The second cage contains 60 balls, with 15 marked and 45 unmarked. A six-sided dice is used to determine which cage is used an odd roll dictates the former cage is used, and an even roll requires that the latter is used. Thus, when uncertainty is introduced, the range of the probability of audit is from .02 to .06. The authors note "an individual who maximizes expected utility would not be affected by the introduction of detection uncertainty, since expected utility is linear in the probabilities. However, there is much evidence that individuals do not always behave according to the axioms of expected utility" (Alm, 1023). It would be interesting to see how individuals responded to greater changes in the probability of audit, including probabilities that exceeded .25. One additional note that should be made in regard to the experimental environment is the use of neutral words, to avoid any bias or negative connotation that could be associated with taxes and tax evasion.

The main finding that is emphasized in this paper concerned the role of government expenditures. In one scenario, the dispensation of the tax revenue had no effect on agents' compliance, while in an alternative scenario there was a direct correlation between paying taxes and compliance. In the second scenario, "the taxes of all five individuals in the group are paid into a group fund, this fund is increased by a multiple of 2, and the resulting amount is then distributed in equal shares to the members of the group. Any amounts collected via audits are not added to the group fund" (Alm, 1022). Thus, public spending is equal to a multiple of taxes paid by all individuals and each individual is given an equal share no matter how much he or she may have paid in taxes. By contrast, in the first scenario there is no public spending and no tax revenue taken by the government is returned to the individuals.

Uncertainty is introduced in both of these situations and the results show different effects. The first is that introducing public spending always increases compliance. This occurs in part because net taxes are less expensive since forty percent (2/5) will be returned no matter how high or low the amount of tax paid. This feature of the experiment is represented in the real world by the introduction of taxable deductions for charitable donations. These deductions increase the amount that is donated to non-profit organizations, since it is less expensive net-of-tax to give money to these groups.

The second conclusion to be drawn is that introducing uncertainty in the tax rate, the penalty rate, or the probability of audit always raises compliance, if no public spending occurs. This means that if individuals are paying taxes with no positive return, creating uncertainty in any of the three forms reduces tax evasion. This result confirms the theoretical conclusion reached in the previous section that, by creating uncertainty in the probability of audit, the Internal Revenue Service may be able to raise compliance and revenues.   This conclusion provides justification for the IRS belief that compliance will increase if uncertainty is introduced.

The final result, though, is problematic for the IRS. The experiments revealed that, if there is no public spending, then the introduction of uncertainty always increases compliance, but if public spending accompanies the tax levy this is not the case. In the experiment, it is found that the introduction of public spending increases compliance, but "unlike the sessions with no public good, the introduction of fiscal uncertainty in the presence of a public good always lowers the average compliance rate relative to the base case" (Alm, 1024). It is noted that this finding could be a result of the relatively small size of the group, in that an individual may change his or her behavior in response to changes in the behavior of others.

While uncertainty may lower compliance in small groups when government supplies a public good, there are over 250 million taxpayers in the U.S. and individuals feel that they have little power over what goes on in government. In particular,: one's small contribution paid to government tax revenues has no effect on the government's budget, and so one is only concerned with his or her own expected utility, and not the tax-revenue implications when making an evasion decision.

The authors note the disturbing fact that "uncertainty about the enforcement efforts (the probability of detection and the fine rate) may also lower compliance. If individuals believe that either fine or detection uncertainty makes enforcement against non-compliers less reliable, then they may well pay less in taxes" (Alm, 1025). This result is again intuitive because the introduction of uncertainty in tax enforcement is a risky tool which could reduce tax revenues if individuals do not believe in the enforcement of the tax policy. Furthermore, if enforcement is too strict then individuals are harmed because they would have preferred to pay their taxes if they knew how strict the policing of evaders was going to be. Thus, it appears to be somewhat difficult to obtain optimal revenue and welfare results from the introduction of uncertainty; when both government revenues and individual welfare is positively influenced. The moral of the story is that if the government introduces uncertainty in any of the factors listed above, it cannot deviate too far from the actual audit probability since individuals may, through updated beliefs, be able to evade a greater amount of taxes in successive time periods.

The decision to use uncertainty to increase governmental revenues is studied in a number of other papers. One that does so in a purely theoretical framework is Alm (1988). This paper investigates whether, given an agent's preferences and utility function, uncertainty in the form of governmental tax policy creates higher compliance and thus greater tax revenues. The first point that is introduced is the differentiation between two types of tax risks. One is a "tax base risk", which occurs when the individual is uncertain that the statutory tax base will remain unchanged. In this case, a taxpayer who is making decisions regarding labor supply, consumption, and investing believes that it is possible the government will change current laws, and so engaging in these activities becomes more risky. The other type of risk is a "tax rate risk". This type of risk occurs when "the tax rate applied to the (certain) base becomes riskier" (Alm, 237). As a consequence, a taxpayer becomes uncertain about the percentage of taxable earned income, for example, that will be taxed. In both of these instances, an increase in risk is represented by a mean preserving spread in the distribution of the random variable. The two types of risk are very similar in nature but the differences between them are important since uncertainty about the tax base and the tax rate have different effects on taxpayers' compliance.

The authors analyze the effects of an increase in uncertainty on itemized deductions, tax shelters, evasion, savings, and labor supply. As expected, an increase in risk has an effect on each of these decisions, but this effect does not occur in the same direction for each. The main findings in this paper are concerned with the income tax base, and reveals that an increase in tax base risk "often changes individual behavior so as to increase the size of the income tax base, while an increase tax rate risk always has the opposite effect on the base" (Alm, 23). These results hold for the decision to choose labor over leisure and saving over consumption and to engage in activities that result in tax deductions such as donations to charitable organizations, and the use of tax shelters.

As an additional consequence, when uncertainty results in greater tax revenues, it may be possible to alter tax rates so that the welfare of risk-averse citizens increases even though they are forced to bear greater uncertainty. The logic behind this result is that greater uncertainty in tax-base risk raises compliance and thus increases expected tax revenues. As a result, the government is able to lower the tax rate and return expected tax revenues to their original level. This policy change has opposite effects in regard to the change in revenue and the change in a taxpayer's expected utility. The introduction of uncertainty lowers expected utility, while the reduction in the tax rate raises expected utility. Thus, if it is possible to make the latter effect dominant while maintaining constant tax revenues, the policy change will have raised welfare and while maintaining a constant level of public spending. Alm contends that this is possible and concludes that an increase in tax-base risk with an offsetting reduction in the tax rate often will increase welfare, where as increasing tax-rate risk while keeping tax revenues constant will always decrease welfare. These findings are obtained in a theoretical framework, and are based on (plausible) restrictions on risk preferences under which greater uncertainty in tax policies will increase the welfare of taxpayers.

Another paper that examines empirically the relationship between uncertainty and taxpayer behavior is Beck, Davis, and Jung (1991). This paper uses experimental tests to estimate the effect of increased uncertainty about income, the tax rate, the penalty rate, and the probability of audit. This controlled experiment took into account individuals' risk preferences by asking a series of questions a few days after the original experiment; individuals were classified as either risk averse, risk neutral, or risk loving. Furthermore, the experiment was a repeated game where participants were subjected to sixty trials, and were able to keep a prorated portion of their total wealth at the end of the experiment.

The first conclusion from the research was that increasing the probability of audit or increasing the penalty rate resulted in significantly higher levels of reported taxable income. This result is predicted in the majority of theoretical papers, and is also intuitive. If one is maximizing a risk averse expected-utility function, and the probability of audit is increased, then it is attractive to report additional income. This is a great tool for the IRS since, if it is able to increase the productivity of its auditors, then it would not only induce a larger amount of taxes and penalties it would also induce more compliance. Furthermore, if the taxing authority were able to raise the penalty for evasion, it would also be able to achieve the same result of higher compliance.

The main conclusion of this paper though, is that when uncertainty is introduced "experimental findings indicate that the subjects reported more taxable income than implied by the tax reporting models" (Beck, 552). This, again, is in line with the theoretical prediction that, if the government introduces uncertainty, it is possible for compliance and revenues to increase. But, as noted previously, the same results could be achieved by increasing either the penalty rate or the probability of audit. This choice is important to the design of optimal tax policy. The IRS seeks to maximize the revenue from the federal income tax, while minimizing the welfare cost to the public. The result is that, through the creation of uncertainty, it is possible to raise compliance. Furthermore, this objective could be achieved by hiring more tax auditors, providing more training, or by raising the fine that is imposed by evading taxes if detected.

A different aspect of IRS policy is examined in Reinganum and Wilde (1988). This paper concludes "increased uncertainty may not stimulate increased compliance" (Reiganum, 797). This conclusion is opposed to other literature that contends that uncertainty may raise compliance and revenue. Their important conclusion is that uncertainty is a tool that is not easy to utilize, since if it is not properly applied uncertainty could result in lower compliance and revenue.

An interesting point that is developed in their paper is the idea that governmental audits are pursued by the IRS only if the expected return on that audit will provide more revenue in the form of back taxes and penalties than the total cost of conducting the audit. This cost benefit analysis is facilitated by the results of a discriminant function known as the DIF (Discriminant Function System). The DIF is the formula used by the government to select tax returns for the possibility of audit. The problem is that this formula is not made public. The purpose of DIF which assigns scores to various types of returns that merit greater scrutiny by examiners and the TCMP (Taxpayer Compliance Measurement Program), is to predict, for any given return, the additional tax and penalty that can be expected to result from the audit. Thus, the probability of audit is unknown in that, in addition to selecting randomly a certain percentage of returns, the government selects returns based upon characteristics which it believes will result in a profitable return. The reason that the DIF formula is not made public is because the IRS is unable to audit and detect fraud committed by every taxpayer who violates the tax laws. Some individuals, who violate the idea of strict compliance but only by nominally, will not be caught because the IRS is unable to detect all individuals who evade taxes. Furthermore, "among all those whose noncompliance has been discovered, not all will be subject to enforcement action, because the IRS does not have the resources to proceed against every known transgressor" (Roberts V IRS). This quote emphasizes the limited resources that the government has, and provides the reason the IRS must be selective about who it prosecutes to be cost effective. Thus, one of the tools the government utilizes is hiding the factors that trigger an audit to ensure that others do not manipulate this system.

By pursuing a policy of cost-effective enforcement, the IRS has established a standard for law enforcement which acknowledges, and indeed, allows for illegal activity. Taxpayers who evade a small amount of taxes are not pursued by the government, but the exact boundaries of acceptable evasion are not known. The creation of this grey area induces taxpayers to comply with the tax code and generates additional revenue. This additional revenue would not be forthcoming if the lower limit of the probability of audit was made public, since rational taxpayers would evade up to the acceptable limit, where the probability of audit was zero. By keeping a lower limit it could be creating a buffer zone to ensure a minimal amount of non-compliance. This idea similar to alcohol enforcement policy where the legal drinking age is 21, but 18, 19, and 20 year olds are able to receive fake identifications, due to close association in college with individuals over the age of 21. But in high school, this practice is rather limited except in rare instances. If the law was changed so that the legal drinking age was reduced to 18, then 15, 16 and 17 year olds may consume greater amounts of alcohol, due to their close association with individuals who are of the new legal drinking age. Thus, by leaving the drinking age at 21, the number of minors (under the age of 18) who consume alcohol is limited.

By creating a buffer through uncertainty, the amount of voluntary compliance is increased, which is one goal of tax policy. Again, the IRS may have some justification for its policy; Reinganum and Wilde state that their model "suggests that the IRS may indeed gain, both in terms of revenue and compliance, from some taxpayer uncertainty regarding enforcement costs. However, increasing the extent of uncertainty may not always improve compliance or increase revenue" (Reinganum, 797). The authors make this claim because the government utilizes hides the amount of evasion that is acceptable. Thus taxpayers are forced to guess what comprises the probability of audit. This combined with a penalty rate for evasion is less then one, implies that "increasing taxpayer uncertainty first increases but ultimately decreases compliance" (Reinganum, 797). The authors remark that if the penalty rate was substantially greater than one, than increasing uncertainty would always raise compliance. The solution of raising the penalty rate to greater than one, would apply directly theoretically, in that if individuals were risk averse would evade no taxes if the penalty rate was greater than $(\frac{1-\pi}{\pi})$.

Another paper that discusses alternative means for raising taxpayer compliance is Feinstein (1991). This article presents "an econometric analysis of income and its detection based on individual-level data drawn from the Internal Revenue Service 1982 and 1985 Taxpayer Compliance Measurement Programs" (Feinstein, 14). This paper utilizes actual tax returns for the years listed above, instead of a controlled experiment. There are two models in this paper; the first examines the agent's compliance decision and the extent of individual evasion, while the latter examines the fraction of evasion that is detected by auditors. This approach investigates first who evades taxes, and then asks if auditors are competent to find the majority of the tax evaded. The goal of tax enforcement is to obtain the greatest possible amount of revenue within the budgetary constraints for the IRS by Congress. Thus, looking at both of these aspects is crucial to optimal enforcement. Feinstein notes that the IRS over-samples certain evasion-prone groups, and the results show that: "for 1982, 66% of the weighted sample was detected in understatement of total taxable income. Similarly 64% of the weighted 1985 sample was detected in understatement. The average detected understatement of income per capita in 1982 was $1001 (1982 dollars) of this evasion 73% occurred in the form of understatement of adjusted gross income (AGI), and the remainder in the form of overstatement of deductions" (Feinstein, 21). These results are unexpectedly high, especially the proportion of individuals who evade taxes, and show that tax evasion is a serious problem in the United States. Thus, it is important for policy makers to use tools that not only deter evasion, but also supply auditors with the tools to discover the full amount that has been evaded. In the most important feature of this paper, Feinstein asks, how well-prepared and consistent are tax auditors? Here, Feinstein develops the idea of fractional detection, the ratio of evaded taxes that are found to the total amount of taxes that are evaded. He concludes that for every dollar of evaded taxes, auditors are able to detect one-half dollar. This fraction is consistent for both years, and could stem from the limited resources facing auditors. But this conclusion rests upon the idea that a fifty-percent detection rate is consistent among all IRS agents. The statistics clearly show that this is not the case. "In each year, the approximately half of the examiners have raw detection rates above 60% and half below. Further, the dispersion in rates is substantial, with examiner rates spread from 25% to above 90%" (Feinstein, 22). Even after controlling for the characteristics of the filers to which the auditor is assigned, substantial heterogeneity in the "productivity" of the auditors is present. This finding shows that the fifty percent evasion detection rate is not due entirely to limited resources, but instead results in part from auditors who are not able to perform their jobs adequately. The main idea here is that auditors are imperfect. They are not able to detect all evaded taxes, so auditors need to either be better trained, or better educated, or the IRS needs to hire more selectively. If the IRS was able to raise the average detection rate to sixty-percent, which is where half of the auditors already are, it would be possible to raise tax revenues without the additional cost of extra training or higher salaries to attract more competent auditors.

The final conclusion of this paper involves the reassessment of tax returns but with tax agents possessing new information about filers that is not normally present. During this second round of audits, a considerable amount of evasion that had gone previously undetected was found. Unfortunately, Feinstein does not elaborate about what auditor or tax-return characteristics lead to this result, but they obviously show that there are ways to better equip auditors to increase their detection rate.

Another aspect of tax evasion is associated with the underground sector, in which no income earned is reported to the government. These activities encompass any employment that is paid in cash, including activities that are illegal such as drug sales or prostitution. Lemieux, Fortin, and Frenchette (1994) examine the nature of this underground sector in a randomized survey of 2,134 individuals 18 and over in the metropolitan area of Québec City, Canada. The focus of this paper is to determine if an increase in the tax rate shifts individuals from employment in the legitimate, un-evadable sector to the evadable underground sector. This question is important to government officials in that if this shift was severe enough it could cause tax revenues to fall, which is not the objective of a tax-rate increase. The survey was completely anonymous, and to ensure the no underreporting of underground income, questions about expenditures were also asked and the difference was reconciled in the same manner that national income and expenditures are resolved. The results show that a high degree of substitutability of labor exists between the two sectors. This conclusion is implied by an inverse relationship between labor income in the regular sector and the underground sector. Another important finding is that the "fundamental difference between the covariance structures of earnings, hours, and wages in the two sectors is that hours and wages are positively correlated (.520) in the regular sector, but negatively correlated (-.346) in the underground sector" (Lemieux, 237). This means that wages have a positive effect on hours worked in the normal sector, but a negative effect on the amount of hours that are worked in the underground sector. The reason for this inverse relationship in the underground sector is the market limitations where "the underground-sector worker faces a downward-sloping demand for his or her output. As hours of work and output expand, output price goes down, which tends to reduce the value of the marginal product of labor when there are constant (or decreasing) returns to scale in production. Labor earnings in the underground sector are, thus, typically a concave function of hours worked in that sector" (Lemieux, 240). The market limitations that are discussed include the informal nature of the underground sector arising from fear of being discovered by the taxing authorities.

The small size of the underground economy is reflected in the summary of the report, which finds "8.5 percent of the people in the sample report working in the underground sector, for an average of 357 hours per year. The average underground income of these underground-sector participants is 2,006 Canadian dollars. The demographic groups with the highest participation rates are males, youth, and unmarried people" (Lemieux, 234). This means that the number of individuals who work in the underground economy is small, and the amount of taxes in the aggregate that is evaded is far less than the taxes evaded by individuals who work in other segments of the economy and who underreport their respective incomes. Furthermore, it should be noted that over half of the jobs in the underground sector are in construction services and repairs, with almost no income from illegal activities being reported. This result suggests that there is, in the aggregate very little income that is underreported by the absence of income from drug sales. But the government is surely more concerned with finding these individuals for the reason that they are distributing narcotics and not because they are evading taxes.

The main conclusion raised in this paper is that increasing the marginal tax rate would have a substitution effect toward activity in the underground economy, but only for a small percentage of the population and for a small amount of money. This low degree of resource substitution is attributed to the loose confines of the underground sector, with corresponding fear of discovery. Thus, it is unlikely that the taxing authorities should be greatly concerned with this substitution effect in their policy decisions or with policing these individuals due to the small amount of income that goes unreported.

Another paper that examines tax evasion empirically is Slemrod (1985). This paper uses data from a large sample of the U.S. Treasury tax file for 1977. Through simple regressions, it is found that the frequency of tax evasion is substantially greater than zero. Slemrod uses this as his original premise to test for certain characteristics that are commonly found among those who evade taxes. He develops a model, which is based on the actual tax code, where the tax liability that an individual faces is based on step function of taxable income, with a step length of fifty dollars. His paper begins with definitions of primary and secondary tax evasion. Primary evasion is the amount of income that is underreported if the tax schedule is fully differentiable; where the step function is a close approximation. Secondary evasion is the amount of understatement of income that occurs in response to the nature of taxes being a step function. He shows that all individuals who commit secondary evasion would do so only if they were primary evaders. This may seem not very important for policy, until it is found that those individuals who commit secondary evasion will most always place their adjusted income near the top of one of the fifty-dollar steps. Through his empirical work, Slemrod shows that, more then twenty percent of those who committed primary evasion placed their income within the top ten dollars of the associated step. Another finding of his empirical work is that the tendency to evade taxes "is associated with higher marginal tax rates, the presence of fungible items, being less than 65 years of age, and being married" (Slemrod, 237). Thus, Slemrod finds certain characteristics which, across large samples, show the government could employ uncertainty not only to create a higher rate of evasion detection, but also to ensure higher tax revenues and, in the long run, greater tax compliance.

One policy-relevant question is whether the problem is getting better or worse? This topic is discussed by Dublin, Graetz, and Wilde (1987). The authors begin by using statements from the commissioner of the Internal Revenue Service from 1982, who claimed that the income-tax gap was increasing substantially and predicted it would reach $120 billion dollars by the year 1985. The income-tax gap is the difference between taxes owed (the "true" tax liability) and taxes paid voluntarily and in a timely manner for any given tax year. The projected growth of the income-tax gap to $120 billion dollars represented an increase of over four times what it was ten years previously. Fortunately, after-the-fact data did not support this projection and, instead, the tax gap for 1985 (in 1972 dollars) had reached 36.8 billion, an increase of only $7.8 billion dollars. Although this figure is considerably smaller than the predictions made by the commissioner, 7.8 billion could have funded an additional 173,000 teachers, policeman, or firefighters a year, assuming an annual salary for each of 45,000 dollars. Thus if the IRS was able to stop the leakage of $7.8 billion dollars, many public-service jobs could have been funded that are crucial to our nation's well being. It is important to find the reasons for the increase in the income-tax gap, and determine if this increase is avoidable. According to the empirical findings, the cause of the increase in the income-tax gap is the decline in audit rates. These results indicate that if audit rates had remained constant from 1978 to 1985, then real individual tax collections would have risen by over 15 billion dollars in that period. Furthermore, this revenue increase would have reduced the income-tax gap and, thus, lowered total evasion.. The data used for this report are found in the *Annual Report of the Commissioner of Internal Revenue* and cover the period from 1977 to 1985. This report shows once again the importance of higher audit rates in raising compliance and tax revenues. Since the new teachers, police, and firefighters who could have been hired would pay approximately twenty percent of their taxable income in taxes the increase in tax revenue would be able to fund another 34,000 jobs, which could then provide the funds for hiring additional tax agents to find unreported income through audits. Thus one alternative to raising tax revenue and compliance by uncertainty is by using more auditors. This is obviously a decision that the tax authorities could make instead of using uncertainty about the percentage of audit to enforce compliance.

A central theme throughout this thesis has been the how the objective of higher tax revenues could be reached. It has been shown both empirically and theoretically that, through creating uncertainty about the probability of audit, it is possible for the tax authority to raise compliance. One final point that must be discussed, however, is the legality of the IRS tactic of masking the probability of audit from the public.

CHAPTER 6

LAW AND UNCERTAINTY

In 1967 the Freedom of Information Act (5 U.S.C. § 552) was enacted into law. This Act guaranteed citizens the right to view and copy governmental records. Access to certain records was initially limited but, by the end of 1975, amendments to the Freedom of Information Act and the Privacy Act of 1974 had made this legislation more effective. The passage of these laws provided for broad access to FBI records, which previously had been severely limited. But, despite these new laws, thousands of pages in the Internal Revenue Manual were not made available to the public. In 1984, a case was brought to trial in The United States District Court for the Eastern District of Michigan, southern division, in which Glen L. Roberts sued the IRS and Roscoe Egger (Commissioner of the IRS) to force disclosure of these concealed pages. Roberts asked for disclosure of 18,000 pages which comprised the Law Enforcement Manual (LEM). The LEM is comprised of two parts; the first (17,500 pages) contains sensitive material for the computer processing of returns, including information about the DIF, which provides criteria for determining which returns need to be audited further. The other 500 pages contain information about what dollar amount of deductions will trigger an audit, and list factors determining whether other deductions on the return need further examination. Both parts of the LEM reveal that the government is hiding the probability of audit from taxpayers. Is this tactic legal under the Freedom of Information Act? As noted above, a wide range of FBI material is now available under the Act and so it would seem plausible that these thousands of pages in the tax code must be revealed to the public.

Roberts was unable to prove under what particular part of the Freedom of Information Act that the IRS must provide this information. Thus, the court concluded "the only conceivable source of authority is 5 U.S.C. § 552(a)(2)(C), which provides as follows: Each agency in accordance with published rules, shall make available for public inspection [**6] and copying (C) *administrative* staff manuals and instructions to staff that affect a member of the public (emphasis added)" (Roberts υ. IRS). It would seem plausible that this manual would fall under the Act, but under a previous case (*Hawkes v. IRS* (6th Cir. 1972)), the court ruled that law-enforcement manuals were exempt from the Freedom of Information Act if their release would directly harm the enforcement of such laws. It was noted in the case that "enforcement is aversely affected *only* when information is made available which allows persons simultaneously to violate the law and to avoid detection. Information which merely enables an individual to conform his actions to an agency's understanding of the law applied by that agency does not impede law enforcement and is not excluded from compulsory disclosure under (a)(2)(C)." This is an important distinction in the definition of "aversely affected enforcement," as can be seen in the example of the FBI disclosing the techniques that are used for engaging in a raid or stake out. The court found that any tax-paying citizen could make the claim, and stressed the importance of the need to be aware of this manual and how the government chooses which returns to audit. However, the intent of an individual to discover this information would be for no purpose other than to evade taxes. Furthermore, due to the limited resources of the IRS, the agency is unable to detect and prosecute all individuals who have committed tax transgressions, and thus utilizes uncertainty to enforce compliance. If this information is released, an individual would be able to "confirm his conduct not only to the boundary between strict compliance and non-compliance, but also to the boundary between non-compliance which does not merit enforcement action by the IRS, and noncompliance which is so egregious as to prompt the agency to respond." Thus, the entire effect of disclosing these additional materials would be to enable violators to escape detection more easily. This idea is not in accordance with the Freedom of Information Act. Consequently, the court ruled against the plaintiff, and uncertainty about the probability of facing an audit remains legal.

CHAPTER 7

CONCLUDING REMARKS

The goal of this paper was to show that by introducing uncertainty about the probability of audit, it is possible for the government to raise tax revenue. It has been confirmed theoretically and shown strong empirical evidence exists that by the government creating uncertainty it would be able to raise taxpayer compliance. Furthermore, the federal courts have ruled that this tactic is legal, and the material that comprises the probability of audit falls outside of the Freedom of Information Act. As noted above there are some concerns with the use of uncertainty in the probability of audit and the long-run sustainability of raised tax revenues.

The objective of any tax system is to refine policy so that revenue collection is maximized while maintaining a minimal burden on the nation's citizens. Let one look at the future of tax policy with the hope and belief that the taxing policy is increasingly becoming more efficient, and that with each piece of research that is conducted either empirically or theoretically is aiding in this journey towards a balance of the two objectives listed above.

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