ARTICLE

PROBABLY? UNDERSTANDING TAX LAW'S UNCERTAINTY

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This Article analyzes the meaning of probability statements in tax law and in scholarship addressing civil tax penalties. Specifically, the Article draws on economics and the philosophy of mathematics to argue that because tax law is substantively uncertain, some probability statements in tax law are best understood as a reflection of the speaker's belief, rather than as a description of the number of times a given event will occur out of the number of times that it could occur over the long run. That is, these tax probability statements are best understood using a subjectivist interpretation of probability, rather than a frequentist interpretation. Prior work in tax law scholarship in particular, and law and economics in general, has either glossed over or misunderstood this crucial distinction.

Understanding that probability statements in tax law should be given a subjectivist interpretation changes both the theory and practice of tax compliance. First, because tax probabilities represent beliefs, different parties—for example, Congress (the penalty setter) on the one hand and taxpayers on the other—may have different perceptions of the chances that a given transaction is permissible, and economic models should reflect these possibly disparate beliefs. Second, a subjectivist interpretation of tax probabilities provides additional

support for stringent and widely criticized laws that regulate the substance of tax advisors' written opinions, as these strict rules may actually help tax advisors arrive at more accurate, less biased estimates of the chance that a tax position would be upheld by a court. And finally, lawmakers should be cautious of reducing tax law's uncertainty. If, as empirical work suggests, some taxpayers have an aversion to uncertainty, the uncertainty associated with whether certain questionable transactions are permitted (aside from any penalties imposed if transactions do turn out to be forbidden) may itself reduce the number of taxpayers who engage in those transactions.

> *The theorist not having definite assumptions clearly in mind in working out the "principles," it is but natural that he, and still more the practical workers building upon his foundations, should forget that unreal assumptions were made, and should take the principles over bodily, apply them to concrete cases, and draw sweeping and wholly unwarranted conclusions from them. . . . [I]t is imperative that the contrast between these simplified assumptions and the complex facts of life be made as conspicuous and as familiar [in economics] as has been done in mechanics.*

Frank H. Knight[1]

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[1] FRANK H. KNIGHT, RISK, UNCERTAINTY AND PROFIT 11 (Univ. of Chi. Press 1971) (1921).

INTRODUCTION

Economic approaches to analyzing legal problems can provide helpful insights by applying a set of familiar analytical approaches to reach conclusions that would otherwise be nonobvious. However, if economic models are used to support specific policy recommendations, the assumptions and definitions underlying these models must be made explicit and evaluated, particularly because those models have become so familiar and are too often applied without sufficient reappraisal of their underlying assumptions, strengths, and weaknesses. Rooting out and understanding the components of economic models is particularly important in tax law, where economic analysis has become a predominant method of analysis.

One core claim of economic analysis is that individuals tend to act in their own self-interest: individuals weigh the costs and benefits of a given action and act when the expected benefits of that action outweigh the expected costs. A corollary of this insight, as famously stated by Gary Becker, is the idea that the optimal sanction to impose on lawbreakers depends on both the expected harm to society created by the unlawful act and the probability that the lawbreaker will be ap-

prehended.[2]   This basic model has been analyzed and expanded in the tax context by a slew of economists and, more recently, legal scholars, both in more formal papers and as a basis for broad-stroke proposals. Relying on the basic model, David Weisbach uses the idea of marginal deterrence to propose an optimal level of judicial anti-avoidance doctrines such as the economic-substance and business-purpose doctrines.[3] Alex Raskolnikov, taking a more conceptual approach, argues that the economic calculus of deterrence suggests that penalties should be higher for tax evasion that is difficult to detect.[4] There are any number of additional examples.[5]

Some scholars acknowledge that specific recommendations based on these models are only "second best" approaches. Raskolnikov, for example, acknowledges that some underlying assumptions of economic theory remain "controversial" and that his goal is not to create an ideal tax system, but merely to remove "obvious flaws."[6] In its strongest version, though, the claim is that economic models are the best method for creating tax law policy. Thus, Weisbach writes that "[to] use an economics approach to answer a question normally addressed only by lawyers . . . is, in my view, the right way to approach tax law policy."[7] Given the centrality of economic analysis to tax scholarship and policy, it is crucial to understand the assumptions and definitions underlying that analysis.[8]

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[2] Gary S. Becker, *Crime and Punishment: An Economic Approach*, 76 J. POL. ECON. 169 (1968).

[3] David A. Weisbach, *An Economic Analysis of Anti-Tax-Avoidance Doctrines*, 4 AM. L. & ECON. REV. 88 (2002). For further discussion of these doctrines, see *infra* Section II.A.

[4] Alex Raskolnikov, *Crime and Punishment in Taxation: Deceit, Deterrence, and the Self-Adjusting Penalty*, 106 COLUM. L. REV. 569, 599-605 (2006).

[5] *See, e.g.*, Yoram Keinan, *Playing the Audit Lottery: The Role of Penalties in the U.S. Tax Law in the Aftermath of* Long Term Capital Holdings v. United States, 3 BERKELEY BUS. L.J. 381, 419-21 (2006) (using cost-benefit analysis to argue that tax-compliance legislation should focus on increasing the likelihood of detection rather than on increasing penalties); Eric A. Posner, *Law and Social Norms: The Case of Tax Compliance*, 86 VA. L. REV. 1781, 1782 (2000) (developing a "signaling model" for tax compliance in which individuals are said to comply with tax laws in order to signal that they have a low discount rate and are therefore unlikely to "cheat" in future transactions).

[6] Raskolnikov, *supra* note 4, at 579-80.

[7] David A. Weisbach, *Disrupting the Market for Tax Planning*, 26 VA. TAX REV. 971, 972 (2007).

[8] The need to understand these assumptions is, of course, not unique to tax law. *See, e.g.*, Neil H. Buchanan, *Playing with Fire: Feminist Legal Theorists and the Tools of Economics, in* FEMINISM CONFRONTS HOMO ECONOMICUS 61, 74-79 (Martha Albertson Fineman & Terence Dougherty eds., 2005) (highlighting assumptions on which certain economic models rely and warning both that economic models include values

This Article analyzes one concept crucial to the economic approach as applied to tax law: the meaning of probability statements in scholarship addressing civil tax penalties. This definition is both theoretically and practically important. From the theoretical side, one core assumption of a law and economics approach is the validity of expected-utility theory: that an individual takes only those actions that she believes will increase her own welfare.[9] Put another way, an individual takes an action only when the benefits of that action outweigh the costs. But the expected benefits and costs of an action depend on the relative probabilities of the various outcomes of that action. Understanding the meaning of probability statements thus sheds light on the basic terms of the law and economics argument.

Moreover, it is particularly important to understand the meaning of probability statements in tax law (as opposed to other areas that may be subject to economic analysis) because of tax law's uniquely problematic types and degrees of uncertainty. It is often unclear ex ante whether a position will (or should) be subject to a penalty ex post, and this uncertainty, or chance of incorrectness, has been incorporated into the law itself. Taxpayers who take positions that are less likely to be correct are subject to higher penalties, and tax advisors are often called upon to protect taxpayers from these penalties by providing opinion letters stating that the taxpayers' positions have a certain probability of being correct.[10] Thus, understanding the meaning of probability statements can help structure a more effective penalty system.

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within their frameworks and that the tools of economics are not, pace economics' scientific apparatus, a source of value-neutral answers); Cass R. Sunstein, *Cost-Benefit Analysis Without Analyzing Costs or Benefits: Reasonable Accommodation, Balancing, and Stigmatic Harms*, 74 U. CHI. L. REV. 1895, 1896 (2007) (pointing out, through an analysis of a Seventh Circuit holding by Judge Posner that a particular accommodation is not "reasonable" under the Americans with Disabilities Act, that "cost-benefit analysis can . . . operate as a vessel for unreliable intuitions rather than a way of disciplining them").

[9] *See, e.g.*, Becker, *supra* note 2, at 176.

[10] *See infra* subsection III.A.1.

With a few notable exceptions,[11] however, legal scholarship has not focused on the question of what probability statements mean. This lacuna exists even though law and economics has become increasingly important in the legal academy and even though the meanings of probability statements and the implications of those various possible meanings have received sustained attention in the economics (as opposed to law and economics) literature. Indeed, a discussion of the meaning of probability statements has been completely absent from the tax-compliance legal literature[12]—even those articles that take as their framework the Beckerian approach to compliance. Many articles fail to provide any definition of probability, while other tax-specific articles simply equate the probability of sanction with the fraction of taxpayers who are audited.[13] But defining the probability of

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[11] There has been some discussion of the distinction between frequentism and subjectivism (Bayesianism) both in the context of risk assessment by regulators such as the Environmental Protection Agency, *see, e.g.*, David E. Adelman, *Scientific Activism and Restraint: The Interplay of Statistics, Judgment, and Procedure in Environmental Law*, 79 NOTRE DAME L. REV. 497 (2004); Matthew D. Adler, *Against "Individual Risk": A Sympathetic Critique of Risk Assessment*, 153 U. PA. L. REV. 1121, 1142, 1206-20 (2005); Matthew D. Adler, *Risk, Death and Harm: The Normative Foundations of Risk Regulation*, 87 MINN. L. REV. 1293, 1297-98, 1340-88 (2003), and in the context of evidence law, in particular the use of scientific evidence in the courtroom, *see, e.g.*, Gregory Mitchell, *Mapping Evidence Law*, 4 MICH. ST. L. REV. 1065, 1094, 1095 & n.52 (2003). Additionally, the distinction between frequentist and subjectivist interpretations has been used to call into question the behavioral law and economics claim that people do not "correctly" or "rationally" incorporate information about probabilities into their decision making. *See, e.g.*, Charles Yablon, *The Meaning of Probability Judgments: An Essay on the Use and Misuse of Behavioral Economics*, 2004 U. ILL. L. REV. 899.

[12] For example, Terrence R. Chorvat, *Ambiguity and Income Taxation*, 23 CARDOZO L. REV. 617 (2002), discusses the effect of ambiguity on substantive tax policy, in particular the taxation of risk-taking, but he does not address the effect of ambiguity on tax compliance. Several legal scholars have applied behavioral law and economics (i.e., the idea that people "incorrectly" incorporate information about probabilities into their decision making) to tax law. *See, e.g.*, Christopher C. Fennell & Lee Anne Fennell, *Fear and Greed in Tax Policy: A Qualitative Research Agenda*, 13 WASH. U. J.L. & POL'Y 75, 129-36 (2003) (pointing out gaps in tax-aversion research and analysis); Lee Anne Fennell, *Death, Taxes, and Cognition*, 81 N.C. L. REV. 567, 572-93 (2003) (using behavioral law and economics to explain puzzles related to the estate tax); Edward J. McCaffery & Jonathan Baron, *Thinking About Tax*, 12 PSYCHOL. PUB. POL'Y & L. 106, 107-08 (2006) (reporting a set of experiments that suggest that "ordinary people think about tax" inconsistently with "ideal rationality"). But these articles address issues that arise subsequent to this Article's topic—that is, what the putatively correct probability means.

[13] One notable exception to this general failure to define probability is Raskolnikov, who breaks down the probability of punishment into the probabilities

> that an offense will be detected; that it will be selected for prosecution; that the government will prevail at trial on the substantive issue, decide to seek a penalty and convince a court to impose it; that the judgments favoring the

sanction as the chance of audit, or even as the chance of detection, might be close to accurate if every tax-reporting position were either clearly wrong or clearly right. In that case, either there would be no chance of a penalty's being imposed due to the position, or the chance of a penalty would be primarily determined by the chance that the position would be detected. But tax law is complicated enough that it is unclear whether some tax positions are in fact wrong. Indeed, many tax positions that are eventually struck down by courts adhere to the letter of the statute.[14] In other words, because tax law is uncertain, to equate the probability of sanction with the chance of detection is a vast oversimplification.

This Article uses insights from economics and the philosophy of mathematics to argue that many statements about tax probabilities are best interpreted as statements about belief, not as statements about the number of times a particular event will happen in the long run. Interpreting tax statements as statements about belief changes a number of widely accepted conclusions in the tax literature. As this Article shows, this interpretation adds a new complication to optimal tax modeling that may reverse other legal scholars' results, supports recent controversial laws relating to tax advisors that have changed tax law practice, and, counterintuitively, cautions against making tax law more certain.

Part I frames the problem of interpreting probability statements. Section I.A explains why probability statements are key to a law and economics analysis of tax compliance, and Section I.B explains two ways to interpret statements about probability: frequentist and subjectivist. A frequentist interpretation takes a statement about probability to describe the number of times a given event will occur over the long run out of the number of times that it could occur. A subjectivist interpretation takes a statement about probability to describe the speaker's belief about whether the event will occur. Part II addresses what it means for a tax position to have a certain chance of being cor-

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government will survive appeals; and, finally, that the government will actually collect the penalty from a taxpayer.

Raskolnikov, *supra* note 4, at 581. Indeed, the probability that a penalty will be imposed can be decomposed into an arbitrarily large number of probabilities. He focuses on the probability of detection, noting that audit is not sufficient to discover a "bad" transaction and that the probability of a penalty should be broken down into the probability of audit and the probability that the position is discovered if a return is audited. *Id.* at 583.

[14] These transactions are held impermissible under the court-created doctrines discussed below. *See infra* Section II.A.

rect. A position is "correct" for penalty purposes if it would be upheld by a court. This Part argues that statements about the likelihood that a particular tax position would be upheld by a court should be interpreted as statements about beliefs: that is, that these statements should be given a subjectivist interpretation. Part III lays out three possible implications of the subjectivist interpretation for tax-compliance practice and theory. Section III.A gives an example of how systematically disparate beliefs about the probability that a tax position is correct can lead to unexpected results in economic modeling. In particular, if lawmakers and taxpayers have different views of whether tax positions are correct, a welfarist approach may, contrary to arguments other academics have made, actually support fault-based penalties. Section III.B describes how a subjectivist interpretation of tax probability statements provides another justification for regulations that impose rigorous requirements on the substance of legal opinions provided by tax advisors. Section III.C suggests that, given the subjectivist interpretation of tax probability statements, if taxpayers are averse to uncertainty, making tax law more predictable might actually decrease compliance.

I. INTERPRETING PROBABILITY STATEMENTS

A. *The Economics of Deterrence: Why Tax Probabilities Matter*

In the typical economic model of individual utility maximization, a person takes an action only if the benefit of that action outweighs the cost. Thus, if society is to prevent an action, it must make the cost of that action greater than its benefit. But this does not mean that the penalty for stealing $100 should be only $101, because someone who steals $100 may or may not be caught. Rather, the *expected* cost of the action must outweigh the *expected* benefit. In other words, at issue is not the amount of the penalty assigned to the bad action, but rather the expected value of the penalty in the mind of the potential lawbreaker.

The idea of expected utility or expected value is, of course, at the core of law and economics. On this understanding, an individual considers the effect that an action will have on her welfare by analyzing the expected utility of that action. An action's expected utility equals the sum of the utility of each possible outcome of the action, multiplied by the probability that that particular outcome will occur.

For example, the expected value of a coin flip in which heads pays a dollar and tails pays nothing is, assuming a fair coin,[15] fifty cents: one dollar multiplied by 50% (the chance that the coin will come up heads), plus zero multiplied by 50% (the chance that the coin will come up tails). Put another way, the expected value of a game is the answer to the question, "How much would you pay to play this game?" So the answer to the question, "How much would you pay to play a game in which a coin is flipped and you receive (a) one dollar if the coin comes up heads or (b) nothing if the coin comes up tails?" should be fifty cents.[16]

Similarly, the expected benefit of engaging in a particular tax activity equals the utility of the amount of tax savings that the activity will create, multiplied by the probability that the taxpayer will be permitted to engage in the activity. The expected cost of engaging in that activity equals the (dis)utility of the penalty that will be imposed on the taxpayer if she is not permitted to engage in the activity, multiplied by the probability that the penalty will be imposed. The expected utility of the activity is the sum of these two values.

More formally, where

I = income;
$U(*)$ = utility of consumption;
T = tax due with compliance;
t = tax due without compliance, $t < T$;
F = penalty for noncompliance, $F \geq 0$; and
p = probability of imposition of penalty,

a taxpayer will weigh the relative utilities of two worlds: first, the world in which she complies and gets the utility of her income less the tax she owes (i.e., the left side of Equation 1 below); and second, the world in which she does not comply (i.e., the right side of Equation 1). In the world in which she does not comply, one of two things will happen: she will get caught, in which case she will have to pay the tax she would have owed plus some penalty, or she will not get caught, in which case she will pay a smaller amount than she would have had she complied. If she is caught, she will be worse off than if she had com-

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[15] We assume, for example, that the coin is not weighted so that the chance of the coin turning up tails is 75%; in that case, the expected value of the coin toss would be only twenty-five cents.

[16] This answer assumes, of course, that the person has no particular taste for or against risk or coin-flipping games.

plied, but if she gets away with cheating, she will be better off.[17] Formally, then, the taxpayer complies when the utility of the world in which she does not cheat exceeds the utility of the world in which she does cheat:

$$U(I - T) > p \times U(I - T - F) + (1 - p) \times U(I - t) \qquad [1].$$

Most importantly for this Article, this analysis makes clear that to determine the expected benefit and expected cost of an activity, we must weight all possible outcomes by the probabilities of those outcomes. Therefore, to use this analysis to predict taxpayer behavior or recommend appropriate tax policy, we must understand the meaning of probability statements. The next Section provides the framework for a more accurate characterization of the probability that a taxpayer will be subject to a sanction by describing two possible ways to interpret tax probability statements.

B. *What Statements About Probability Mean*

Some events involve risk; some involve uncertainty. We are operating under risk if an event may or may not happen in the future and we know the chances that it will happen.[18] For example, craps is a game of risk. We do not know whether two dice will add up to seven on the next roll, but we know that the probability of this event (assuming the dice are fair) is six out of thirty-six, or one out of six.[19] An event is uncertain if it may or may not happen in the future and we do not know the chances that it will happen. For example, I do not know *whether* a particular sports team will win its next game or *whether* a particular candidate will win the next presidential election. But, unlike the situation with the dice, I also do not know the *probability* that the team, or the candidate, will win.

Of course, few probabilities, if any, are known with certainty. A coin flip or roll of the dice is probably the closest we can come in the real world to risk, as opposed to uncertainty, and a coin flip or roll of the dice is a question of risk only if we are certain that the coin or dice are fair. For example, our opponent might be a cheat, and the dice might, unbeknownst to us, be weighted; indeed, even if we know that

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[17] This assumes, of course, that for incomes *x* and *y*, if *x* > *y*, then $U(x) > U(y)$. In other words, it assumes that the utility function is strictly increasing.

[18] *See generally* KNIGHT, *supra* note 1, ch. 7.

[19] Saying that the probability is one out of six is the same as saying that the odds are five to one against.

the dice are weighted, if we do not know how they are weighted, we also do not know the probability that the dice will add up to seven. Thus, we assume that we know the probability of a situation only because "we have chosen to simplify our description . . . by treating [the situation] as [a] case[] of known probabilities."[20] Nonetheless, decisions may be more or less risky (as opposed to uncertain), and so, using the "simplified" example of a fair roll of the dice, we can further examine the distinction between risk, on the one hand, and uncertainty, on the other.

1. Risk and Frequentism

What does it mean to say that we "know" that the probability of rolling a seven is one out of six? One interpretation is that, in the long run, over many rolls, the percentage of sevens rolled will converge on one out of six. The rolls of the dice are random events that are independent from each other, and therefore the law of large numbers applies. This sort of interpretation of a statement of probability ("The chance that we will roll a seven is one out of six") is a frequentist interpretation. In other words, a frequentist interpretation of the statement "The probability of the event is $X\%$" is "Over the long run, the ratio of occurrences to total events will converge on $X\%$." Equivalently, a frequentist interpretation of the probability of an event can be taken to mean that the underlying class from which the sample is drawn contains $X\%$ "event" and $1 - X\%$ "nonevent." This would be a way to understand the statement, made by someone who knows that a container contains one hundred balls, five of which are red, that "the probability that I will draw a red ball from the container is 5%."

2. Uncertainty and Subjectivism

Not all events can be so interpreted, though. Think again of the example of the sports team—for example, the New York Giants. Someone might say during football season, "The Giants have a 75% chance of winning their next game."[21] A frequentist interpretation does not illuminate this statement. Does this person mean that, over

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[20] Sven Ove Hansson, *Philosophical Perspectives on Risk*, 8 TECHNÉ 10, 11-12 (2004).

[21] Actually, she would probably say something like, "The odds are three to one that the Giants will win Sunday," which is the same thing. Or she might say, "The Giants money line is -300."

the long run, the Giants will win 75% of their games—that their winning percentage over time will converge on 75%? That does not seem right. Maybe next year the Giants will have a terrible team, and for the next twenty years after that they will win only one game a season. That possibility does not have anything to do with whether they win this game. Or consider the statement, "Mitt Romney has a 10% chance of winning the 2012 presidential election." That statement cannot mean that, over time, Romney's winning percentage in presidential elections will converge on 10%.

Perhaps, then, the person means that the Giants have won three out of four games "just like this one." What does it mean, though, for a game to be "just like this one"? This question raises two related problems. First, this is a nonrepeatable event: the Giants playing next week's opponents under these precise circumstances will happen only once. Second, we have a reference-class problem: What group of games should we look at to determine how many times the event "Giants win" occurs? All the games the Giants have ever played? Away games? Games against this opponent? Away games against this opponent? Away games against this opponent when it is snowing? As we make the description of the reference class more specific, we are in some ways gaining information; each of these factors may affect whether the Giants win. On the other hand, we are also narrowing the class until we have no other games to which to compare this game, because this particular game is a nonrepeatable event.

Similarly, if Romney runs in 2012, he will have run for President before, but never against those particular (future) opponents and never in that particular political climate. And the reference-class problem presents itself here as well: What group of elections should we look at to determine how many times "Romney wins" occurs? All elections in which he has competed? Only federal-level elections? Only presidential elections? Only presidential elections when he runs against incumbents? As before, making the reference class more specific provides us with more information, but again, the more information we add, the narrower the class becomes—sometimes becoming empty, as in the last category.

The statements "The Giants have a 75% chance of winning their next game" and "Romney has a 10% chance of winning the 2012 presidential election" are not, however, meaningless. Each statement tells us something about the belief of the person who makes the statement. Specifically, we can take each statement to tell us how

strongly the person making it believes that the Giants (or Romney, as the case may be) will win.

One way of capturing this belief is to ask how much the person would pay to have a chance to win one dollar if the Giants win their next game. Under this interpretation, the statement, "The Giants have a 75% chance of winning" might be taken to mean that the person making this statement would be willing to pay seventy-five cents to have a chance to win one dollar if the Giants win their game.[22] Similarly, "Romney has a 10% chance of winning" would mean that the person would be willing to pay ten cents to have a chance to win one dollar if Romney is elected president in 2012. This interpretation of probability—that a statement about probability reflects the strength of the speaker's belief that the event will happen—is a subjectivist interpretation.

The betting analogy makes sense because the player should be willing to pay the expected value of the bet. If she wins, she gets one dollar. If she loses, she gets nothing. So her expected value (*EV*) for this bet should be the probability of winning (*P*), multiplied by $1, plus the probability of losing, multiplied by zero:

$$EV = P(1) + (1 - P)(0),$$

which simplifies to

$$EV = P.$$

The betting analogy, however, only imperfectly captures the idea of degrees of belief. For example, it assumes that the person who is making this bet is risk neutral (i.e., that she neither particularly likes nor particularly dislikes betting). If she is not risk neutral, then her expected utility will be increased (or decreased) by the act of betting itself. Similarly, the analogy assumes that the person has no other reason for making the bet. If the Giants' coach were to bet on the game, he might have other reasons for setting the odds heavily in the Giants'

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[22] *See, e.g.*, BRUNO DE FINETTI, 1 THEORY OF PROBABILITY 194-95 (Antonio Machi & Adrian Smith trans., John Wiley & Sons 1974) (1970) (explaining how to evaluate the meaning of probability statements in the forecasting of sports results); RICHARD JEFFREY, SUBJECTIVE PROBABILITY 1-2 (2004) (providing an introduction to betting and probabilities); LEONARD J. SAVAGE, THE FOUNDATIONS OF STATISTICS 30 n.† (1954) (discussing and providing examples of the "personal" view of probability, another term for which is "subjective probability").

favor—perhaps to express his strong belief in his team.[23] And were Romney himself to place a public bet on his election, he might bet on himself because he wants to win, and he might lose votes if he revealed that he believed there to be little chance he would be elected. But for our purposes we may assume a risk-neutral, betting-neutral person with no expressive interest in the bet.

The identity of the person making the prediction might affect how much weight we should give her statement in another way. If we thought that the person knew a lot about football, we might give more weight to her statement. If we thought that the person did not even know who the Giants were, or what sport they play, we might not give much weight to her opinion at all—we might think that she was just making up a number. Finally, we might be particularly interested in someone's view of the Giants' chances if that person could affect the outcome of the game. If the head referee, for example, told you that he was sure that the Giants would win the game, you might pay particular attention, because he could throw the game. Similarly, we might find particularly interesting the views of Romney's campaign manager (or anyone who would be in a position to sabotage Romney's campaign) on whether Romney will be elected. For our purposes, however, we will imagine the probability statement to be the statement of someone who cannot mold the outcome of the event.

Defining statements of probability as statements about belief is most assuredly not a radical, deconstructive move that drains all meaning out of probability statements. Perhaps the easiest way to see this is to contrast "subjectivist" or "subjective" as used here with "subjective" as used in criminal or contract law. The term "subjective" in criminal or contract law is often set in opposition to "objective" as a method of judging the rationality of an individual's belief. A subjective test looks only at the individual's belief. A subjective test would allow as a defense against willful evasion of tax an individual's good-faith, honest belief that the law does not require anyone to pay income tax. An objective test would not allow such a belief as a defense, because the belief that the law does not require anyone to pay tax is unreasonable.[24]

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[23] *See, e.g.*, Lina Eriksson & Alan Hájek, *What Are Degrees of Belief?*, 86 STUDIA LOGICA 183, 187 (2007) ("[T]hink of the football team owner who flamboyantly places a bet at ridiculously short odds on his team winning, as a display of his loyalty.").

[24] *See, e.g.*, Cheek v. United States, 498 U.S. 192, 202 (1991) ("[T]he issue is whether, based on all the evidence, the Government has proved that the defendant was aware of the duty at issue, which cannot be true if the jury credits a good-faith misunder-

I use the word "subjectivist" here quite differently, following its use in the philosophy of probability. A subjectivist interpretation of a probability statement is not set in contrast to some other method of judging a belief. Rather, a subjectivist interpretation of a statement about probability says that the statement is about some particular individual's internal state. This is set in contrast to an interpretation that purports to say something about the external world, such as a frequentist interpretation, which is, at bottom, simply a matter of counting occurrences in the world. Under a frequentist interpretation, to say that the chance of rolling a seven is one out of six is simply to say that this event will happen a certain number of times; that the number of times can be counted; and that if we rolled the dice many, many times and then counted the number of sevens rolled as against other numbers, one out of every six rolls would be a seven.

Thus, it is quite possible to judge a probability statement even if we interpret that statement to reflect an individual's belief. An individual's belief can be more or less reasonable—it can comport with general beliefs and with facts in the world, or it can be a belief that no reasonable person holds. Defining statements about probabilities as statements of belief does not, therefore, put those statements beyond judgment—indeed, as discussed below, tax penalties rely in part on judgments about the reasonableness of these beliefs.[25]

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Bearing in mind the distinction between risk and frequentism, on the one hand, and uncertainty and subjectivism, on the other, we can now understand tax-related statements about probability.

II. AN UNCERTAIN CHANCE OF CORRECTNESS

This Part examines what it means to say that a tax position has a particular chance of being correct, and why that statement is a statement under uncertainty and therefore should be interpreted as a statement about belief.

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standing and belief submission [i.e., a subjective standard], whether or not the claimed belief or misunderstanding is objectively reasonable [i.e., an objective standard].").

[25] *See infra* text accompanying notes 97-100.

A. *Sources of Uncertainty in Tax Law: Judicial Anti-Abuse Doctrines*

Complying with tax law is not easy. A transaction may adhere to every element laid out in the tax code but still violate the law. To be permissible, the transaction must also be consistent with "the thing which the statute intended."[26] This rule is why tax shelters are difficult to create: anyone can think of a way to pay less tax,[27] but a true tax shelter permits a taxpayer to pay less tax while still adhering to the letter of the law. And this is also why tax shelters are difficult to define: the essence of a tax shelter is that it technically complies with the law while nonetheless violating the substance or intent of the law, which is no easy thing to determine.[28]

Courts have developed a number of judicial doctrines to capture the animating spirit of the tax code, though there is not uniform agreement about how these doctrines interact or should be applied. The sham-transaction doctrine holds essentially that the substance, not the form, of a transaction determines whether it will be upheld for tax purposes.[29] Relatedly, the economic-substance test asks whether the transaction has nontax economic benefits[30] and rejects transactions "that comply with the literal terms of the tax code but lack economic reality."[31] Finally, the business-purpose test looks at the intent

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[26] Gregory v. Helvering, 293 U.S. 465, 469 (1935). The Court in *Helvering* struck down a transaction that adhered to the letter of the law because the transaction violated "the plain intent of the statute," and thus to uphold the transaction would have been to "exalt artifice above reality." *Id.* at 470.

[27] *See, e.g.*, *Saturday Night Live: Steve Martin's Monologue* (NBC television broadcast Jan. 21, 1978) ("You can be a millionaire and never pay taxes! You can be a millionaire and never pay taxes! You say, 'Steve, how can I be a millionaire and never pay taxes?' First, get a million dollars. Now, you say, 'Steve, what do I say to the tax man when he comes to my door and says, "You have never paid taxes"?' Two simple words. Two simple words in the English language: 'I forgot!'").

[28] This "tension between technical compliance with the Internal Revenue Code" and judicial anti-abuse doctrines has been characterized as "[p]oignant[]" by the Court of Federal Claims. Jade Trading, LLC v. United States, 80 Fed. Cl. 11, 13 (2007).

[29] *See, e.g.*, Frank Lyon Co. v. United States, 435 U.S. 561, 573, 583-84 (1978) (describing the analysis to use when determining whether a transaction is a sham for tax purposes); *see also* Black & Decker Corp. v. United States, 436 F.3d 431, 440-42 (4th Cir. 2006) (same).

[30] *See, e.g.*, ACM P'ship v. Comm'r, 73 T.C.M. (CCH) 2189, 2214-17 (1997) (explaining that the economic-substance test requires a fact-based determination as to whether the transaction is "rationally related to a useful nontax purpose that is plausible in light of the taxpayer's conduct and useful in light of the economic situation and intentions"), *aff'd in part and rev'd in part on other grounds*, 157 F.3d 231 (3d Cir. 1998).

[31] Coltec Indus., Inc. v. United States, 454 F.3d 1340, 1352 (Fed. Cir. 2006).

or purpose of the taxpayer and asks whether the taxpayer intended to engage in a transaction that had nontax benefits.[32]

Some courts hold that the economic-substance test should take into account both the economic substance of a transaction and the business purpose behind the transaction[33] and that a transaction can be struck down only if it fails both tests.[34] Other courts have struck down a transaction after finding that the transaction has no economic reality other than to reduce taxes. In other words, these courts hold that an economic analysis that revealed no benefit other than a tax benefit was sufficient for striking down a transaction and that there was no need to inquire into the taxpayer's purpose for entering into the transaction.[35] Yet other courts have described the relationship between the economic-substance and business-purpose steps as not "discrete prongs" of a "rigid" analysis, but rather "related factors," both of which should "inform [an] analysis of whether [a] transaction ha[s] sufficient substance . . . to be respected for tax purposes."[36]

More important for our purposes than the details of these doctrines, though, is that the doctrines are standards, not rules.[37] That is, whether something is an acceptable tax position, on the one hand, or a tax shelter, on the other, is determined not before the transaction is entered into, but rather after it is reviewed; the law of tax shelters is

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[32] *See, e.g.*, Klamath Strategic Inv. Fund v. United States, 472 F. Supp. 2d 885, 895 (E.D. Tex. 2007) (describing the business-purpose test as a "subjective inquiry").

[33] *See, e.g., id.*

[34] *See, e.g., Black & Decker*, 436 F.3d at 441 ("To treat a transaction as a sham, the court must find [(1)] that the taxpayer was motivated by no business purposes . . . and [(2)] that the transaction has no economic substance . . . ." (bracketed alterations in original) (quoting Rice's Toyota World, Inc. v. Comm'r, 752 F.2d 89, 91 (4th Cir. 1985))).

[35] *See, e.g., Coltec*, 454 F.3d at 1355 ("[A] lack of economic substance is sufficient to disqualify the transaction without proof that the taxpayer's sole motive is tax avoidance.").

[36] ACM P'ship v. Comm'r, 157 F.3d 231, 247 (3d Cir. 1998).

[37] *See* Joshua D. Blank, *What's Wrong with Shaming Corporate Tax Abuse*, 62 TAX L. REV. (forthcoming 2009) ("At the time corporations entered into [tax-shelter] transactions, no *tax rules* explicitly prohibited them. . . . The IRS, and at least some courts, however, concluded that these transactions were corporate tax shelters because they violated broad judicial *tax standards*."); Kyle D. Logue, *Tax Law Uncertainty and the Role of Tax Insurance*, 25 VA. TAX REV. 339, 362-68 (2005) (discussing judicial anti-abuse doctrines and noting that "the tax law can be characterized by significant substantive uncertainty"); Weisbach, *supra* note 3, at 89-90 ("[A]nti-avoidance doctrines can be analyzed through a rules/standards analysis. Anti-avoidance doctrines are standards. . . ."); *see also* David A. Weisbach, *Formalism in the Tax Law*, 66 U. CHI. L. REV. 860, 865-67 (1999) (discussing rules versus standards in tax law).

created ex post, not ex ante.[38]   That tax shelters' illegality is determined ex post, by judicial review, shapes the very definition of what it means for a transaction to be "correct" for tax purposes, as the next Section explains.

B. *The Meaning of Correctness*

To know a tax position's *chance* of being correct, we must first know what it means for a tax position to *be* correct. While we may struggle to understand what it means for the Giants to have a 75% chance of winning their next football game, we know what it means for them to win a football game: at the end of the game, the Giants have more points than the other team. It is not as obvious, however, what it means for a tax position to be correct.

As explained in the previous Section, whether a transaction is an illegal tax shelter is determined after the transaction is entered into because tax shelters are forbidden not only by detailed statutory rules, but also by standards, in the form of judicial anti-abuse doctrines. Therefore, for the purpose of determining penalties, and thus for the purpose of considering deterrence, statutes and regulations provide that a tax position is correct if it would be upheld by a court. Put another way, a tax position is correct if and only if the taxpayer would ultimately prevail should the Internal Revenue Service (IRS) challenge the tax position.[39]   A position is incorrect if a court would strike down the position.

To determine whether a tax position is incorrect, however, a taxpayer may not simply resolve the question of whether a court will *in fact* strike down her tax position. By far the most common way that a court would fail to strike down a tax position would be that no court would ever review the transaction. For a court to review the transaction, the taxpayer would have to be selected for audit. The chances of

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[38]   *See* Louis Kaplow, *Rules Versus Standards: An Economic Analysis*, 42 DUKE L.J. 557, 618 n.180 (1992) (noting that the tax law governing sham transactions consists of relatively "open-ended" standards).

[39]   *See, e.g.*, I.R.C. § 6664(d)(3)(A)(ii) (2006) (stating that a taxpayer's belief that her tax treatment of an item is correct is reasonable only if the belief relates "solely to the taxpayer's chances of success on the merits of such treatment"); Treas. Reg. § 1.6662-4(g)(4)(i) (1995) (stating that a taxpayer has a reasonable belief that "the tax treatment of an item is more likely than not the proper tax treatment" if "[t]he taxpayer . . . reasonably concludes . . . that there is a greater than 50-percent likelihood that the tax treatment of the item will be upheld if challenged by the Internal Revenue Service").

audit vary based on the taxpayer, but audit rates are generally low.[40] Even if the taxpayer is selected for audit, a court reviews the transaction only if the taxpayer and the IRS fail to reach a settlement, which is highly unlikely, because the vast majority of audits result in settlements, not substantive court decisions.[41] The chance that a court will actually strike down a tax position is thus very low.

The law does not, therefore, allow a taxpayer to take into account the chances that the transaction will be reviewed when she is considering whether a court would strike it down.[42] In other words, the taxpayer is not trying to answer the question, "Will a court strike down this transaction?" The answer to that question will almost always be, "No, because a court will not review this transaction." Rather, the law requires the taxpayer to answer the question, "On the off chance that a court *were* to review this transaction, would the court strike it down?" But this question is almost always counterfactual, because in almost every case, no court will review the transaction.

A useful way to think about whether a tax position is correct is to imagine tax positions arrayed along a continuum. As one moves from

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[40] For example, in fiscal year 2007, the audit rate was 1.03% for individuals overall and 0.66% for business returns overall. The IRS focused its resources on high-earning corporations and individuals, but even those audit rates were not overwhelming: the audit rate for large corporations (i.e., corporations with assets of at least $10 million) was 16.8%, and the audit rate for individuals with income of more than $1 million was 9.25%. The audit rate for very large corporations (i.e., corporations with assets of at least $250 million) was 27.2%. IRS, FISCAL YEAR 2007 IRS ENFORCEMENT AND SERVICE STATISTICS (2008), http://www.irs.gov/pub/newsroom/irs_enforcement_and_service_tables_fy_2007.pdf.

[41] Although it is difficult to determine precisely how many audits are resolved by a court decision, we can get a very rough sense of the ratio of audits to cases by comparing their relative numbers in a single year. In 2007, for example, according to a Westlaw search, there were 1228 federal trial-level income-tax-related decisions. (This was the number of documents returned when searching for income tax decisions in 2007 in district courts, the Court of Federal Claims, and the Tax Court. The specific search was [da(2007) & "income tax"] in the databases FTX-DCT, FTX-FEDCL, and FTX-TCT.) This number is both over- and underinclusive if we are trying simply to determine the number of substantive income-tax issues resolved by a trial-level court in 2007; for example, it includes cases requesting enforcement of tax summonses and it does not include some jury cases. Nonetheless, it provides an order of magnitude. By comparison, in 2007 the IRS audited 1,550,922 returns. IRS, DEP'T OF THE TREASURY, INTERNAL REVENUE SERVICE DATA BOOK 2007, at 23 tbl.9. Thus, in 2007, there were approximately 1200 times more audits performed than trial-level tax decisions.

[42] *See* I.R.C. § 6664(d)(3)(A)(ii) (2006) (stating that a taxpayer's belief as to the legality of her tax position is reasonable only if that belief "does not take into account the possibility that a return will not be audited").

left to right along this continuum, tax positions become more likely to be upheld if reviewed by a court, as depicted in Figure 1.

Figure 1: The Tax Compliance Continuum[43]

| chance of being upheld by a court | 0% | 50% | 90% | 100% (complete certainty of prevailing) |
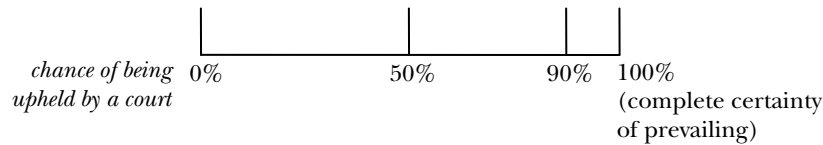
Placing tax positions on this continuum is difficult because such a placement requires a taxpayer to predict the future—specifically, to predict what a court would do in the future if it were to review the transaction.[44]   As the next Section explains, because of this uncertainty, the tax compliance continuum should be interpreted subjectively and taken to represent an ordering of beliefs.

C. *Compliance Under Uncertainty*

This Section argues that because it is uncertain ex ante whether a transaction is permitted by tax law, the best way to understand the tax compliance continuum—indeed, the only understanding that makes sense—is to interpret the probabilities on that continuum as statements of belief. That is, we should interpret the continuum in terms of subjective probability. This Section first shows why a frequentist in-

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[43] This rendering of the tax continuum is mine, but the idea of the tax continuum appears in both EXECUTIVE TASK FORCE, COMMISSIONER'S PENALTY STUDY, IRS, REPORT ON CIVIL TAX PENALTIES, at VIII-38 to -39 (1989), and Logue, *supra* note 37, at 352-62, 360 fig.1. The general idea of a probability continuum may be traced back at least as far as Keynes:

> The so-called magnitudes or degrees of knowledge or probability, in virtue of which one is greater and another less, really arise out of an *order* in which it is possible to place them. Certainty, impossibility, and a probability, which has an intermediate value, for example, constitute an ordered series in which probability lies *between* certainty and impossibility. In the same way there may exist a second probability which lies *between* certainty and the first probability. When, therefore, we say that one probability is greater than another, this precisely means that the degree of our rational belief in the first case lies *between* certainty and the degree of our rational belief in the second case.

JOHN MAYNARD KEYNES, A TREATISE ON PROBABILITY 35 (MacMillan & Co. 1948) (1921).

[44] *Cf.* Michael Abramowicz, *Predictive Decisionmaking*, 92 VA. L. REV. 69, 69-72 (2006) (advocating the government's increased use of predictive, as opposed to normative, decision making).

terpretation of the tax compliance continuum fails and then explains why a subjectivist interpretation avoids the problems presented by a frequentist interpretation.

1. Frequentist Interpretation

Let us imagine a position that falls at the 90% mark on the tax compliance continuum in Figure 1. This location means that the position has a 90% chance of being upheld by a court. But how should we interpret this 90% as applied to a single position? We might begin with a frequentist interpretation, which may be defined in terms of underlying classes or, equivalently, may be defined in terms of converging frequencies: over the long run, given repeated samples, the ratio of correct positions to total positions will converge on nine out of ten. So perhaps our 90% means that there is an underlying class of positions like this position, and 90% percent of the members of the class of positions like this one are "correct" and ten percent are "incorrect." Alternatively, we could say that courts uphold 90% of the positions that they review that are like this position. If this were the right interpretation, then it would also be true that over the long run, if a taxpayer continued to take these 90% positions on her return, nine out of every ten positions would be correct and one would be incorrect, or if we could run the same event (a court reviewing this position) over and over, the court would uphold this position 90% of the time. But this is not a useful interpretation for three reasons.

First, whether a given position is "correct" under U.S. law is not a numbers game. For example, if a court of appeals has upheld a position, then the position is "correct" in that circuit, even if twenty district courts in that circuit had previously struck it down. So if it is truly uncertain how the position will be resolved, then it must be true that no controlling authority has made a determination about whether the position is "correct." Perhaps ten other courts of appeals have evaluated the position and nine of them have upheld it. But there might be additional information we have about the eleventh circuit in which this case would be decided that suggests to us that the outcome would be different there. Similarly, perhaps nine out of ten Tax Court judges would uphold the position. But again, this is not how law is made; if five out of nine Supreme Court Justices would strike it down, then the position is not correct.

Second, such a description suggests that correctness and incorrectness inhere in the positions themselves; it suggests that correctness is a separate category that reveals an underlying truth about the posi-

tion. Presumably, though, the position has been subject to close scru-
tiny already, perhaps by the taxpayer's lawyer or by an accounting
firm. If correctness is a quality that inheres in the position—that is, if
correctness is an on/off switch—it seems odd that a tax lawyer could
not discover it but that a court could. Moreover, as discussed above,
tax law does not inquire into abstract or underlying correctness; it
recognizes correctness as a characteristic that is created by a court.

Third, and perhaps most importantly for this project, there is no
obvious way to determine what positions fall into this class. Within
one circuit, perhaps ten tax positions have come before the court and
nine of them have been upheld. But the court does not make deci-
sions by rolling a ten-sided die and striking down the tax position if
the die shows a ten. The decisions are highly fact specific and highly
contingent. Knowing that nine out of ten "similar" positions have
been upheld does not tell us that there is a 90% chance that this par-
ticular position will be upheld or that if the court looks at all ten of
the positions on the taxpayer's return, it will find nine of them to be
correct.

In other words, it is very difficult to tell what it means for the posi-
tion in question to be "like" another position; there is no certain way
to determine the reference class. The question of degrees of similar-
ity between tax positions is difficult. For example, the IRS requires
taxpayers to report certain transactions, sensibly called "reportable
transactions," on a separate tax form.[45] The IRS believes that these
types of transactions have a higher probability of being transactions of
which the IRS would disapprove, and so it wants taxpayers to highlight
those transactions on their returns.[46] One type of reportable transac-
tion is a "listed transaction," which is either a transaction that the IRS
has determined is a tax-avoidance transaction, or, interestingly, a
transaction that is "substantially similar" to a transaction that has been

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[45] *See* I.R.C. § 6707 (2006) (imposing a penalty for failure to file a return with re-
spect to a reportable transaction).

[46] For further discussion of reportable transactions and penalties related to those
transactions, see *infra* text accompanying notes 88-97. The reportable transaction sys-
tem may also be effective in part because people do not want to draw the IRS's atten-
tion to their tax returns and thus may overweight the downside of having to file the
additional form. *Cf.* Tom Herman, *Fear of the Home-Office Deduction*, WALL ST. J., Jan.
16, 2008, at D3 (explaining that many taxpayers do not take the home-office deduction
because they overweight the chance that taking the deduction will cause their returns
to be audited).

determined to be a tax-avoidance transaction.[47] The concern here, of course, is that the IRS describes listed transactions very specifically, and a rule that required taxpayers to report only those transactions that were identical to listed transactions would be very easy to avoid.

For example, the IRS has designated as a listed transaction something that it calls an "intermediary transaction."[48] As described by the IRS, this transaction involves four parties: a target corporation, a seller who wants to sell stock of the target corporation, an intermediary corporation, and a buyer who wants to purchase the assets, not the stock, of the target corporation.[49] The seller purports to sell the target's stock to the intermediary, and the target claims to sell its assets to the purchaser. After the purported sale to the intermediary, the target and the intermediary belong to the same consolidated group. There is gain on the sale of the target's assets to the buyer, but that gain is offset by losses within the consolidated group, or the tax on the sale of the assets is offset by tax credits available to the consolidated group.

A transaction would be substantially similar to this listed transaction even if the intermediary is not treated as a member of the same consolidated group as the target.[50] For example, a substantially similar transaction might be structured so that the intermediary does not file as a member of the consolidated group that includes the target, but rather purchases and liquidates the target[51] and then sells the target's assets, offsetting the gain (or tax) on the sale of the low-basis assets with losses (or credits).[52]

The similarity between these two structures is fairly obvious. In each case, an entity with losses or credits purchases the stock of the

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[47] Treas. Reg. § 1.6011-4(b)(2) (as amended in 2007). These transactions are sometimes called "midco transactions," after the "middle" (intermediary) company. *See, e.g.*, Sam Young, *No Immediate Relief from "Midco" Transaction Notice, Official Says*, TAX NOTES TODAY, June 25, 2008, 2008 TNT 123-5 (LEXIS).

[48] I.R.S. Notice 2001-16, 2001-9 I.R.B. 730.

[49] This scenario might arise, for example, when the seller has a high basis in the stock and the target has a low basis in the assets.

[50] *See* Treas. Reg. § 1.6011-4(c)(4) (as amended in 2007).

[51] The liquidation would be tax free. *See* I.R.C. § 332(a) (2006) ("No gain or loss shall be recognized on the receipt by a corporation of property distributed in complete liquidation of another corporation.").

[52] *See* Treas. Reg. § 1.6011-4(c)(4), ex. 2 (as amended in 2007) ("An example is a transaction in which [the intermediary] is a corporation that does not file a consolidated return but which buys [another corporation's (T)] stock, liquidates T, sells assets of T to [a buyer], and offsets the gain on the sale of those assets with currently generated losses.").

target corporation and combines in some way with the target corporation in order to permit those losses or credits to offset gain or tax from the sale of the target's assets. But is a transaction substantially similar to an intermediary transaction if there is no intermediary? After the IRS first issued guidance classifying intermediary transactions as listed transactions, some practitioners took the position that the answer to this question was "no": these practitioners marketed a transaction in which a third party purchased stock in a closely held corporation after the corporation sold its assets in an (ostensibly) unrelated asset sale but before it liquidated. This transaction had, they argued, no intermediary, so how could it be substantially similar to an intermediary transaction?[53] In response, the IRS issued additional guidance that attempted to refine the concept of an intermediary transaction by shifting the focus from an "intermediary" to a facilitator.[54]

As this back and forth suggests, defining "substantially similar" in the abstract is not so easy. The IRS's definition is that one transaction is substantially similar to a listed transaction if it is "expected to obtain the same or similar types of tax consequences and . . . is either factually similar [to] or based on the same or similar tax strategy."[55] This definition is not terribly helpful. Presumably all tax strategies are designed to obtain the same tax consequences in some larger sense: reduction of tax. Moreover, the criterion of being factually similar to or based on a "similar tax strategy" simply does not help refine the inquiry—when is a tax strategy "similar" to another tax strategy? For that matter, what is a "tax strategy"? Is the tax strategy in the listed intermediary transaction merely that the party who purchases the stock is tax indifferent for some reason? Is the mere presence of a tax-indifferent party enough to make a transaction substantially similar to the listed intermediary transaction?[56]

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[53] Letter from David S. Miller, Chair, Tax Section, N.Y. State Bar Ass'n, to Eric Solomon, Assistant Sec'y (Tax Policy), Dep't of the Treasury, and Douglas Shulman, Comm'r, Internal Revenue Serv. 3 (May 23, 2008), *available at* http://www.nysba.org/AM/Template.cfm?Section=Mission_Statement4 (click "Tax Section Reports 2008" link on left side of page; then click "1156" link).

[54] *See* I.R.S. Notice 2008-20, 2008-6 I.R.B. 406 (identifying the components of an Intermediary Transaction Tax Shelter).

[55] Treas. Reg. § 1.6011-4(c)(4).

[56] The IRS, in its corporate-tax-shelter check sheet, tells its examiners that the presence of a tax-indifferent party is one of nine characteristics of corporate tax shelters. Internal Revenue Serv., Examination Guide—Abusive Tax Shelters and Transactions § III.E.2, *reprinted in* TAX NOTES TODAY, May 27, 2005, 2005 TNT 102-14 (LEXIS).

It is probably not accidental that the definition of "substantially similar" is so broad as to provide almost no guidance and that this broad definition must itself be "broadly construed in favor of disclosure."[57] The definition of "substantially similar" was added to the regulations because some taxpayers were "ma[king] subtle and insignificant changes to a listed transaction in order to claim that their transactions [were] not subject to disclosure."[58] The broad definition of "substantially similar" permits the IRS to punish taxpayers who are trying to sneak through what the IRS believes to be a tax shelter. In short, the IRS essentially has left to itself the judgment of whether a transaction is substantially similar to a listed transaction, perhaps thinking that it will know it when it sees it, because similarity in this context is difficult to define precisely.

While a frequentist interpretation of the compliance continuum does not, for the reasons described in this subsection, accurately describe tax probabilities, a subjectivist interpretation of the continuum provides a useful way to understand tax compliance, as the next subsection explains.

2. Subjectivist Interpretation

In contrast to the frequentist interpretation of the continuum set forth above, a subjectivist interpretation takes the statement "the tax position has a 90% chance of being upheld" to reflect the speaker's degree of belief in that statement. In other words, using the betting analogy described above, the speaker would set fair odds for this proposition at nine to one. Put another way, she would be willing to pay ninety cents for a chance to win a dollar if the position would be upheld by a court.[59]

This interpretation makes sense for precisely the reasons that a frequentist interpretation does not. Deciding whether the position will be upheld is not a decision under risk; we do not know the underlying probability that the position will be upheld. Rather, it is a decision under uncertainty. As described above, there is no way to tell

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[57] Treas. Reg. § 1.6011-4(c)(4).

[58] T.D. 9000, 2002-2 C.B. 87, 88.

[59] There are, of course, problems with this interpretation, as discussed *supra* text accompanying notes 23-24. For example, as mentioned above, perhaps the speaker does not like to bet or doubts that the bet will ever be paid off because courts rarely review tax positions. But these objections to the betting interpretation do not affect this Section's analysis.

with certainty what sort of tax position we are dealing with—e.g., is it the sort of tax position that is upheld 90% of the time? When faced with a decision under uncertainty, a subjective interpretation of probability is the best that we can do.

It is true, of course, that interpreting the statement as a statement about belief means that the taxpayer is being asked to quantify the strength of her belief about something that has not yet happened and probably never will: as discussed above, the question of whether a tax position is correct is a question about an event (review by a court) that will probably never occur. But the simple fact that this is a question about a counterfactual does not prevent people from forming beliefs about its answer. People form beliefs—sometimes quite strong beliefs[60]—about the counterfactuals all the time, and some counterfactual statements seem more true than others.[61]

A subjective interpretation of the statement also explains the emphasis placed on the role of the tax advisor. Most taxpayers do not have the expertise that would allow them to form a judgment about a tax position based on current tax law (simply because most taxpayers do not know the details of current tax law). Therefore, tax law permits a taxpayer to rely on the advice of a professional tax advisor to

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[60] These strong beliefs seem to arise frequently in scenarios about World War II and about sports. *See, e.g.*, BEVIN ALEXANDER, HOW HITLER COULD HAVE WON WORLD WAR II, at x-xii (2000) (exploring opportunities that could have led Hitler to build an "unassailable" continental empire); GAVRIEL D. ROSENFELD, THE WORLD HITLER NEVER MADE: ALTERNATE HISTORY AND THE MEMORY OF NAZISM (2005). Another example is *Saturday Night Live: Bill Swerski's Super Fans* (NBC television broadcast Jan. 12, 1991):

> Bill Swerski: Now, gentlemen, let me ask you this: What if Da Bears were all 14 inches tall, you know, about so high? Now, what's your score of today's game?
>
> Carl Wollarski: Against Da Giants?
>
> Bill Swerski: Yes, give 'em a handicap.
>
> Carl Wollarski: Bears 18, Giants 10. And that would finally be a good game.
>
> Pat Arnold: Yeah, it would be a good game. Mini Bears 24, Giants 14.
>
> Todd O'Conner: What about Ditka? Would he be mini, too?
>
> Bill Swerski: No, he would be full-grown.
>
> Todd O'Conner: Oh, then, uh . . . Mini Bears 31, Giants 7.
>
> Carl Wollarski: Oh, hold on. Then I change mine, too. I thought it was Mini Ditka.

[61] *See generally* DAVID LEWIS, COUNTERFACTUALS (1973) (explaining the "possible worlds" approach).

avoid accuracy-related penalties.[62] To prevent imposition of a penalty, this reliance must be reasonable.[63] The opinion itself must also be reasonable, as only a reasonable opinion provides penalty protection; an opinion provides no protection if it "is based on unreasonable factual or legal assumptions," including "assumptions as to future events."[64] This emphasis on tax advisors makes sense because given that the counterfactual statement should be interpreted as a statement of belief, we have to know whose belief it is. There is no continuum except that which is attached to a particular person; a position does not fall on the continuum, but rather is placed there by a particular someone with a particular set of information. If positions do not have probabilities, in the abstract, then it matters who assigns the probability to the position. It matters whose belief we are capturing.

Finally, a subjectivist interpretation of the statement can be entirely consistent with an economic analysis. Economic models, even neoclassical economic models, have long taken into account that many expected utilities are formed based on individuals' beliefs about the likelihood that an event will occur, rather than any external "truth" about likelihood of apprehension.[65] A choice-theoretic approach to probabilities (i.e., deriving probabilities from choices, as opposed to external "reality") appeared at least as early as 1931.[66]

It is true that for a purely theoretical, economic analysis, it may be harmless to smooth over the difference between frequentist and subjectivist interpretations of probability. For example, Becker, in what is widely accepted as the seminal modern law and economics article, defines p, the factor by which to weight the expected cost of an offense, as the "probability of conviction per offense."[67] He discusses elsewhere in the article the "actual probabilities" of convictions, which he

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[62] *See* Treas. Reg. § 1.6664-4(c) (as amended in 2003) (describing the minimum requirements for relying on tax advice).

[63] *See* Treas. Reg. § 1.6664-4(c)(1) (as amended in 2003) (mandating analysis of "all facts and circumstances" as a prerequisite to reasonableness). The reliance must also be in good faith. *Id.*

[64] I.R.C. § 6664(d)(3)(B)(iii) (2006). For further discussion of the tax advisor's role, see *infra* Section III.B.

[65] *See, e.g.*, Itzhak Gilboa et al., *Probability and Uncertainty in Economic Modeling* (Penn Inst. for Econ. Research, Working Paper No. 08-002, 2008), *available at* http://ssrn.com/abstract=1088122.

[66] *See, e.g.*, Mark J. Machina & David Schmeidler, *A More Robust Definition of Subjective Probability, in* 2 THE ECONOMICS OF UNCERTAINTY 745, 746-47 (John D. Hey ed., 1997) (describing Frank Ramsey's work on the subjective approach to probability).

[67] Becker, *supra* note 2, at 177.

determines by dividing the estimated number of convictions by the estimated number of offenses.[68]   Summarizing Becker's "pathbreaking" article some years later, Erling Eide writes that in Becker's account, "[p] is the subjective probability of being caught and convicted."[69] While this may be, for the reasons described in this Section, the correct interpretation of p, it is not how Becker's article defines p. But apparently Eide considers the difference between the two accounts of no moment for his larger point, which is to describe the basic law and economics analysis of crime and punishment based on the idea of a rational utility maximizer.

More generally, an expected-utility analysis can be used in an idealized model even if the model describes conditions of uncertainty. Thus, the probabilities involved are subjective probabilities, if individuals' subjective probabilities are assumed to adhere to certain postulates.[70] To model conditions of uncertainty in economics, then, one assumes that individuals have "rational" probabilistic beliefs and behave to maximize their own subjective expected utility. This essentially reduces the question to one of risk, rather than uncertainty.[71]

As Part III explains, however, when economic theories serve as the basis for real-world recommendations, attending to the distinction between frequentist and subjectivist probabilities can make a significant difference.

3. Uncertainty Restated

The distinction between risk and uncertainty, and thus between frequentist and subjective interpretations of probability, can also be incorporated into a formal model. For example, Kaplow has provided a model that describes deterrence when individuals are uncertain whether their acts will be subject to sanctions.[72] Uncertainty can, he points out, stem either from an individual's lack of knowledge about the law or from a lack of knowledge about the acts in which the individual is engaging.[73] Kaplow first posits an informed individual, that

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[68] *Id.* at 186, 187 tbl.2.

[69] Erling Eide, *Economics of Criminal Behavior, in* 5 ENCYCLOPEDIA OF LAW AND ECONOMICS: THE ECONOMICS OF CRIME AND LITIGATION 345, 346 (Boudewijn Bouckaert & Gerrit De Geest eds., 2000).

[70] *See, e.g.*, SAVAGE, *supra* note 22.

[71] *See, e.g.*, Gilboa et al., *supra* note 65, at 2.

[72] *See* Louis Kaplow, *Optimal Deterrence, Uninformed Individuals, and Acquiring Information About Whether Acts Are Subject to Sanctions*, 6 J.L. ECON. & ORG. 93 (1990).

[73] *Id.* at 93.

is, an individual who knows that her act is illegal.[74] Such an individual should commit an illegal act only when the benefit of the act to her exceeds the expected sanction,[75] where the expected sanction (*ps*) equals the probability of detection (*p*) multiplied by the sanction (*s*).

Kaplow then posits an uninformed individual, one who does not know whether her act is illegal. Such an individual will act when the benefit of acting exceeds *pqs*, where *q* is what the individual believes to be the probability that her act is illegal.[76] Kaplow imagines a world in which an individual can, if she chooses, pay a certain amount to learn whether her act is illegal.[77] Every uninformed individual can therefore choose to become informed.

My argument, as laid out in this Part, is that all individuals are uninformed about many tax positions, and necessarily so. The illegal act (or, in Kaplow's terms, the harmful act) is taking an incorrect tax position. Some few taxpayer-favorable positions are clearly wrong (for example, the position that nobody is required to pay taxes). Perhaps some few taxpayer-favorable positions are clearly right (for example, the position that a corporation may deduct salaries), though one can argue about the meaning of terms even in clearly correct positions (a corporation may not deduct excessive salary payments, and the meaning of "excessive" is far from clear). But a taxpayer who considers a position outside of those few clear positions cannot know with certainty whether that position is incorrect—that is, taxpayers do not know whether most acts are permitted. Kaplow's *q* term appears in every taxpayer's calculation. As the next Part discusses, this uncertainty, and the accompanying subjectivist interpretation of probability statements regarding the correctness of tax positions, has practical implications for tax law.

III. THE IMPLICATIONS OF UNCERTAINTY

This Part shows that analyses of tax compliance are affected by taking the fact of subjective probabilities into account in at least three ways. First, taking into account disparate beliefs about the probability

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[74] While Kaplow grounds his model in terms of harmfulness, he equates harm and illegality. *See id.* at 96 ("If and only if an act is harmful is it illegal, in which case there is some probability that the act will be detected and the individual penalized.").

[75] *Id.* at 97. Both the benefit and the sanction are measured in monetary equivalents.

[76] *Id.* at 98.

[77] *Id.* at 101-02.

that a tax position is correct challenges certain commonly accepted conclusions based on economic modeling, in particular the conclusion that a fault-based penalty system is necessarily not optimal. Second, a subjectivist interpretation of tax probabilities provides additional support for stringent and much-criticized laws that regulate the substance of tax advisors' written opinions, as these strict rules may actually help tax advisors arrive at more accurate, less biased estimates of the chance that a tax position would be upheld by a court. And finally, lawmakers should be cautious before reducing tax law's uncertainty. If, as empirical work suggests, some taxpayers have an aversion to uncertainty, the uncertainty associated with whether certain questionable transactions are permitted (aside from any penalties imposed if transactions do turn out to be forbidden) may itself reduce the number of taxpayers who engage in those transactions.

Section III.A provides one example of how disparate beliefs can play out within the tax penalty systems by showing how acknowledging that parties' beliefs may differ could affect whether penalties should be fault-based. Section III.B discusses the regulation of tax advisors in light of the subjective nature of tax probability statements. Section III.C suggests that, given that tax probability statements are best interpreted as subjectivist, future models of tax compliance should take into account uncertainty aversion—that is, that some people may prefer not to engage in activities for which they do not know the chance of success.

A. *Accounting for Disparate Beliefs*

Because tax probabilities are subjective probabilities, different actors may have different beliefs about the chance that a particular tax position is correct. This Section provides one example of how varying views between lawmakers and citizens can affect how a tax system would be structured to deter tax evasion optimally.

The current system of tax penalties in the United States is in part fault-based. The argument has been made that a law and economics approach to tax policy suggests that fault-based penalties are not optimal.[78] This Section describes the fault-based penalty structure and then explains how a subjectivist interpretation of the tax continuum shows that fault-based penalties can be consistent with marginal-

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[78] *See* Daniel Shaviro, *Disclosure and Civil Penalty Rules in the U.S. Legal Response to Tax Shelters, in* TAX AND CORPORATE GOVERNANCE 229 (Wolfgang Schön ed., 2008).

deterrence theory. In particular, if lawmakers' views about the chance of correctness of certain tax positions vary from taxpayers' views, marginal-deterrence theory may actually require fault-based penalties.

1. The Fault-Based Penalty Structure

A taxpayer who underpays her taxes faces an array of possible civil penalties. This subsection focuses on two underpayment penalties that can be imposed on taxpayers who engage in transactions that may be tax shelters: a general accuracy-related penalty that can be imposed on substantial understatements of tax, and an accuracy-related penalty that can be imposed on transactions that the IRS feels are particularly likely to be tax evasion or avoidance strategies.

a. *Substantial Understatement Penalty*

A taxpayer who underpays her tax is subject to an accuracy-related penalty equal to 20% of the underpayment if, among other things, the underpayment is due to a "substantial understatement" of tax.[79] An understatement is "substantial" if it "exceeds the greater of . . . 10 percent of the tax required to be shown on the return . . . or $5000."[80]

The taxpayer may escape the penalty in three ways. First, a taxpayer is excused from the substantial understatement penalty if there was "reasonable cause" for her substantial understatement and she "acted in good faith" with respect to the understatement.[81] Reasonable cause and good faith, for these purposes, are case-by-case determinations.[82] Second, a taxpayer need not pay the penalty if she had "substantial authority" for the position that resulted in the underpayment.[83] "Substantial authority" has been estimated as a 35% to 40% chance of success.[84] Finally, the taxpayer also need not pay the penalty if she disclosed the position on her tax return and had a "reason-

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[79] I.R.C. § 6662(a)-(b) (2006).

[80] *Id.* § 6662(d)(1)(A).

[81] *Id.* § 6664(c)(1).

[82] Treas. Reg. § 1.6664-4(b) (as amended in 2003).

[83] I.R.C. § 6662(d)(2)(B)(i).

[84] *See, e.g.,* Jasper L. Cummings, Jr., *The Range of Legal Tax Opinions, with Emphasis on the "Should" Opinion,* 98 TAX NOTES 1125, 1128 (2003) (collecting sources approximating what is meant by "substantial authority").

able basis" for that position.[85] A "reasonable basis" has been viewed as having anywhere from a 10% to 25% chance of success.[86]

b. *Reportable Transaction Penalty*

In response to growing concerns about tax shelters, Congress created a new accuracy-related penalty in 2004 meant to target transactions deemed particularly suspicious.[87] This new penalty equals 20% of a tax understatement related to a "reportable transaction," if a significant purpose of entering into the transaction was "avoidance or evasion of Federal income tax."[88] A "reportable transaction" is a transaction of the sort that the IRS has identified as "having a potential for tax avoidance or evasion."[89] The category of reportable transactions is quite broad: current reportable transactions include transactions offered to taxpayers "under conditions of confidentiality"; transactions for which the taxpayer has the right to a refund if the promised tax consequences do not materialize; and transactions that result in a large tax loss.[90]

Reportable transactions also include "transactions of interest."[91] Transactions of interest are specific transactions, described in detail by the IRS, or transactions that are substantially similar to those specifically described.[92] Transactions of interest are transactions that the IRS and the Treasury Department believe have the potential to be tax-avoidance transactions but for which they need more information to definitively arrive at such a conclusion.[93] If the IRS and Treasury obtain more information and conclude that transactions of interest are tax-avoidance transactions, the transactions will presumably become "listed transactions."

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[85] I.R.C. § 6662(d)(2)(B)(ii).

[86] *See, e.g.*, Cummings, *supra* note 84, at 1127 (collecting sources approximating what is meant by "reasonable basis").

[87] American Jobs Creation Act of 2004, Pub. L. No. 108-357, § 812(a), 118 Stat. 1418, 1577-80 (codified as amended at I.R.C. § 6662A).

[88] I.R.C. § 6662A(b)(2)(B).

[89] *Id.* § 6707A(c)(1).

[90] Treas. Reg. § 1.6011-4(b) (as amended in 2007).

[91] *Id.* § 1.6011-4(b)(6).

[92] *Id.*

[93] T.D. 9350, 2007-38 I.R.B. 607, 608.

Listed transactions are the final category of reportable transactions.[94] Like transactions of interest, listed transactions are specifically described by the IRS and also include substantially similar transactions.[95]   Listed transactions are, in Treasury's view, tax-avoidance transactions (or, as they are more commonly known, tax shelters). As might be expected, harsher rules apply to taxpayers who engage in listed transactions: a 20% penalty is imposed on understatements stemming from listed transactions regardless of the taxpayer's purpose for entering into that transaction.[96]

c. *Escaping the Penalties*

It is easier for a taxpayer to escape paying the substantial underpayment penalty than to escape paying the reportable transaction penalty. A taxpayer need not pay the substantial underpayment penalty if she had reasonable cause for the underpayment and acted in good faith.[97] The taxpayer escapes the reportable transaction penalty only if those two conditions are met and, in addition, she disclosed the transaction on her tax return, there was substantial authority for the position, and she reasonably believed that the treatment she reported was more likely than not the proper treatment.[98]

A belief is reasonable for these purposes only if it "is based on the facts and law that exist at the time" that the taxpayer takes the position.[99] Tax law therefore requires a taxpayer and her advisor to consider whether their beliefs are consonant with what they imagine other people's beliefs would be if faced with the same question. This rule permits the IRS to appeal to the beliefs of other taxpayers and experts, and it permits courts to impose penalties by looking outside of an individual's belief. By requiring beliefs to be reasonable, the law

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[94] Treas. Reg. § 1.6011-4(b)(2). See *supra* text accompanying notes 48-58 for additional discussion of listed transactions.

[95] I.R.C. § 6707A(c)(2) (2006).

[96] *Id.* § 6662A(b)(2).

[97] As discussed *supra* text accompanying notes 83-86, a taxpayer can also escape the general accuracy-related penalty if she had substantial authority for the item or if she disclosed the item and had a reasonable basis for her position. In other words, either substantial authority or good faith and reasonable cause are sufficient to avoid the general accuracy-related penalty, whereas both are required to escape the reportable transaction accuracy-related penalty, in addition to the taxpayer's reasonable belief that her treatment of the tax item was more likely than not correct.

[98] I.R.C. § 6664(d).

[99] *Id.* § 6664(d)(3)(A)(i).

stymies tax protesters, who could avoid penalties entirely if a sincere individual belief was the only requirement for good faith.[100]

Finally, this reasonable belief cannot take into account the probability of audit. In other words, the taxpayer must have believed that if the return were audited, the position were detected on the audit, and a court reviewed the position, the court would be more likely than not to uphold that position.[101] The taxpayer cannot base her belief that her tax position will not be struck down on her belief that she will not be audited and that her tax position will therefore never be reviewed.

Thus, we see that to determine whether these penalties apply, the taxpayer or her advisor is asked about her predictions at three levels of (increasing) certainty: whether there is a "reasonable basis" for her position, whether there is "substantial authority" for her position, and whether she believed her position is "more likely than not" the proper treatment.[102]

Figure 2: The Penalty Continuum

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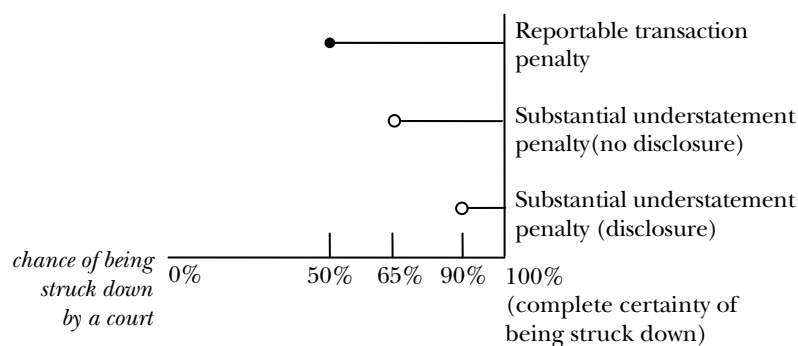
[100] In contrast, *Cheek v. United States*, 498 U.S. 192 (1991), was a criminal case in which a tax protester was charged with willfully failing to file tax returns and willfully evading tax. The Court found it possible "for a defendant to be ignorant of his duty based on an irrational belief that he has no duty" and held that this ignorance could negate willfulness. *Id.* at 203. A good-faith belief, in other words, could be objectively unreasonable. This holding was based on case law that defined "willfully" in the context of criminal tax statutes. *Id.* at 200-01. For further discussion of the objective/subjective distinction, see *supra* text accompanying notes 24-25.

[101] I.R.C. § 6664(d)(3)(A)(ii).

[102] A more detailed guide to degrees of certainty is available, but it may not be intended completely seriously. *See A Detailed Guide to Tax Opinion Standards*, 106 TAX NOTES 1469 (2005) (stating, inter alia, that a 44% chance of success should be interpreted to mean "[i]f we get the right judge"; a 14% chance, "[m]aybe Enron would do this"; and a 5% chance, "[y]ou must not understand the legislation").

We can imagine these penalties arrayed on a penalty continuum much like the compliance continuum, but, as shown in Figure 2, reversed, with an increasing chance of being struck down by a court. As the chance of the position's being struck down by a court increases, more penalties may be imposed. In short, these are fault-based penalties.

2. Fault-Based Penalties and Uncertainty

It has been argued, in particular by Daniel Shaviro, that fault-based tax penalties are inconsistent with marginal-deterrence theory.[103] In this view, these penalties "focus excessively on the taxpayer's state of mind."[104] The fault-based nature of these penalties, the argument goes, merely incorporates an irrelevant mens rea element into tax penalties. Thus, a penalty in this context simply "worsens the company's betting odds" on taking a particular tax position.[105] The purpose of penalties, in this view, is to "properly align[] corporate taxpayers' incentives."[106]

Interpreting probability statements as statements about belief makes clear, however, that fault-based penalties are not necessarily inconsistent with, and in fact may be required by, marginal-deterrence theory. A subjectivist interpretation reveals that a taxpayer's positions will not converge over the long run. More crucially, because lawmakers do not know the precise expected harm of tax positions, marginal-deterrence theory may actually require fault-based penalties, depending on the relationship between Congress's view of a transaction and the taxpayer's view of that same transaction.

a. *No Convergence*

Shaviro claims that "a taxpayer who . . . tak[es] ten potentially controversial tax return positions, each of which has a [ninety] percent chance of being correct . . . is likely to have, *ex post*, one error on

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[103] Shaviro, *supra* note 78. Kyle Logue also argues against a fault-based penalty regime, but his argument is based primarily on the nonadministrability of a fault-based regime, and although his analysis nominally uses optimal tax theory, his suggestions for changing the penalty regime are based on the application of a fault-based regime to the real world. Kyle Logue, *Optimal Tax Compliance and Penalties When the Law Is Uncertain*, 27 VA. TAX REV. 241, 280-93 (2007).

[104] Shaviro, *supra* note 78, at 230.

[105] *Id.*

[106] *Id.* at 231.

the tax return in its own favor."[107]   He argues that there is therefore no relevant difference between this taxpayer and "a taxpayer who does one transaction with zero chance of being correct."[108]

This interpretation of the tax continuum is a frequentist interpretation: it appeals to the law of large numbers, the idea that if the "experiment" is run enough times, it will converge on a certain number of "incorrect" outcomes. But the law of large numbers does not apply if we interpret probabilities as subjective statements of degrees of belief. Understanding the statement as a subjective statement means that the "90%" number describes the level of certainty that a particular individual with particular information has in an outcome.

Thus, there may be a great difference indeed between the taxpayer who does ten transactions, each with a 90% chance of being correct, and a taxpayer who does one clearly incorrect transaction. We do not know that they will have, on average, the same number of errors on their returns. We do know that the latter taxpayer, who does one clearly incorrect transaction, will have one error on her return. But we do not know, even over the long run, how many errors the taxpayer with ten 90% positions will have on her return. In fact, we do not even know what it means that the position has a 90% chance of being correct without knowing who holds that view and what information that person has. A tax lawyer who could so accurately characterize tax positions that over the long run the actual holdings would converge on her subjective probabilities would not just be skilled; she would be psychic.

b. *The Effect of Governmental Uncertainty*

More interestingly, if taxpayers' views of acceptable transactions differ from lawmakers' views, fault-based penalties may be required by marginal-deterrence theory. Take the substantial understatement accuracy-related penalty. Just as a taxpayer, ex ante, is uncertain whether her tax position is illegitimate, so the government, ex ante, does not know the expected harm of the taxpayer's position. After all, Congress sets penalties (including deciding whether penalties are fault-based), but, as we have seen, courts decide whether a transaction is correct. The institutional split between setting penalties, on the one hand, and deciding whether a transaction is correct, on the other,

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[107] *Id.*
[108] *Id.* at 237-38.

means that the penalty setter (Congress) is also unsure just which transactions are correct. As a result, fault-based penalties are consistent with marginal-deterrence theory, as this subsection explains.

Kaplow tells us that the government should set the expected penalty equal to the actual harm.[109] Formally, let

θ = probability that the tax position is illegal (i.e., probability of harm);

h = societal harm inflicted by an individual's taking an illegal tax position (i.e., the difference between the societal utility of the tax collected without the transaction and the societal utility of the tax collected with the transaction);

p = probability of detection;

q = perceived probability that the tax position is illegal (i.e., the taxpayer's estimation of the probability that the transaction would be struck down by a court if reviewed); and

s = sanction.[110]

Kaplow suggests that to optimize penalties for informed actors (taxpayers, for our purposes), the expected sanction should equal the actual expected harm to society, and to optimize penalties for uninformed actors, the perceived expected sanction should equal the actual expected harm. The "actual expected harm" depends both on the amount of harm inflicted by an individual's taking an illegal position, h, and on the probability that the tax position is illegal, θ.[111] The optimal relationship between harm and the sanction can therefore be written as:

$$\theta h = pqs \qquad\qquad\qquad [2].$$

It is possible to extend Kaplow's model to show that marginal-deterrence theory can require fault-based penalties. Note that in the tax-shelter context, Congress, which sets penalties, does not know the chance that a transaction is illegal—that is, Congress does not know the value of θ. Recall how tax shelters are struck down: courts hold that the transactions are impermissible under judicial doctrines.

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[109] Kaplow, *supra* note 71, at 99-100.

[110] The variables used here are also used in Kaplow's model. *Id.* at 97.

[111] This equation assumes that unpaid taxes result in societal harm, which might not be true.

Congress has declined to codify these doctrines.[112] Thus, the substantive law created by Congress, through its omissions, essentially says, "There shall be no harmful tax acts, and courts shall decide what is harmful." Courts then decide whether a tax act is harmful, based on the somewhat amorphous judicial doctrines described above.[113] Because, as discussed above, these doctrines are standards rather than rules, whether a transaction is a tax shelter is determined after a taxpayer engages in that transaction.[114] Congress does not know what that decision will be. In short, just as taxpayers face uncertainty about which tax acts are incorrect, Congress faces uncertainty about which tax acts are harmful. We can now refine our definitions:

θ = lawmakers' perceived probability of harm (i.e., lawmakers' estimation of the probability that the transaction would be struck down by a court if reviewed); and

q = taxpayer's perceived probability of harm (i.e., the taxpayer's estimation of the probability that the transaction would be struck down by a court if reviewed).

The importance of Congress's uncertainty becomes apparent if Equation 2 is rewritten as

$$s = \frac{h}{p}\left(\frac{\theta}{q}\right).$$

According to this equation, if we hold h and p fixed, penalty levels should be set based not only on the taxpayer's perceived probability of harm (q), but rather on the relationship between the taxpayer's perceived probability of harm and the lawmakers' or government's perceived probability of harm (θ). I have suggested that Congress does not know θ with anything approaching certainty when it is setting penalties, because θ is unknowable. And we do not know that θ and q are independent. If the government finds transactions more problematic than do taxpayers for some range of q, and θ increases faster

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[112] Whether they should codify these doctrines is an issue of much contention. *See, e.g.*, Donald L. Korb, *Codification of the Judicial Economic Substance Doctrine, in* TAX STRATEGIES FOR CORPORATE ACQUISITIONS, DISPOSITIONS, SPIN-OFFS, JOINT VENTURES, FINANCING, REORGANIZATIONS AND RESTRUCTURINGS 2008, at 377, 392-95 (PLI Tax Law & Estate Planning Handbook Series No. 14,322, 2008) (describing the advantages and disadvantages of codifying the economic-substance doctrine).

[113] *See supra* Part II.A.

[114] *See supra* notes 37-38 and accompanying text.

than *q*, the sanction should increase as transactions become more questionable.

Of course, at some point, θ's acceleration relative to *q* would have to slow down because θ cannot exceed 100%. And if a taxpayer is 100% sure that her transaction is wrong, the government could not be more sure than the taxpayer that the position is incorrect. But the current penalty structure does not attempt to calibrate fault and amount of penalty closely. Rather, penalties simply toggle: they are imposed only when the taxpayer's perceived probability of harm, *q*, reaches a certain level. For example, a taxpayer is subject to the reportable transaction penalty only if $q \geq 50\%$. This would make sense under marginal-deterrence theory if, with regard to reportable transactions, the government tends to agree with the taxpayer when the taxpayer believes that the transaction is likely to be correct but tends to take a harsher view of the transaction than does the taxpayer when the taxpayer is less sure that the position is correct.

For example, one might imagine θ as a function of *q*, where if $q < 50\%$, $\theta = q$, and if $q \geq 50\%$, $\theta = 100\%$ (see Figure 3).
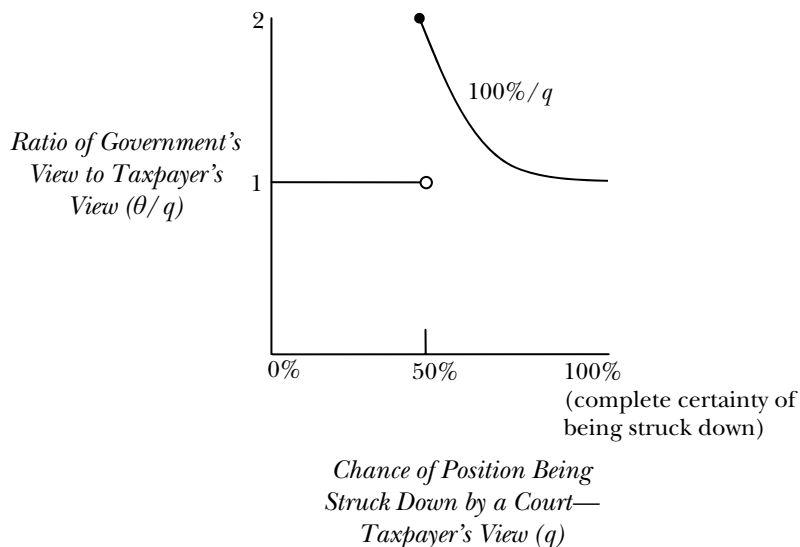
Figure 3
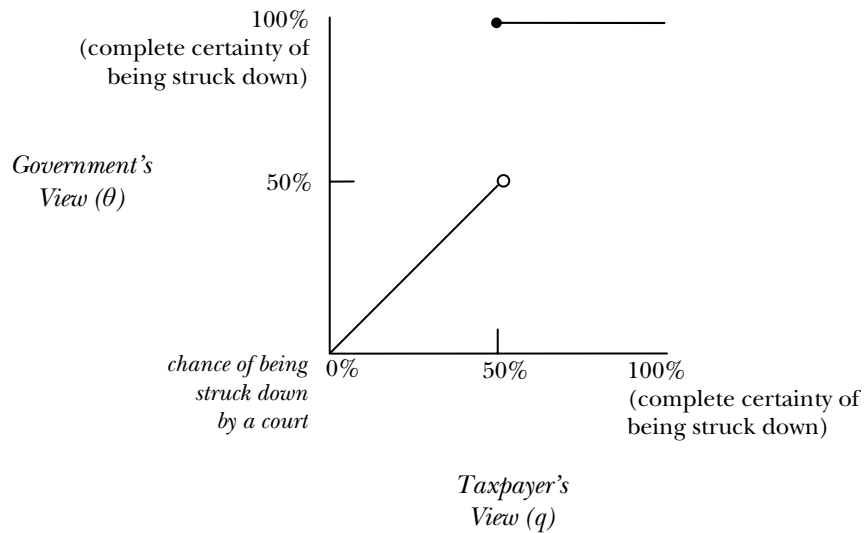
If this function accurately described the relationship between the government's view and the taxpayer's view, a graph of the ratio of

these two views (i.e., θ/q), as against the taxpayer's view (q), would look something like Figure 4.

The key point is that, as Figure 4 shows, θ/q is greater for $q \geq 50\%$ than for $q < 50\%$. And therefore, because the sanction is a multiple of θ/q, the sanction should also be greater for $q \geq 50\%$ than for $q < 50\%$. In other words, if this is the relationship between θ and q, then marginal-deterrence theory would require fault-based penalties: penalties would be higher when the taxpayer believed with greater-than-50% certainty that her position was incorrect.

Notice as well that different relationships between θ and q for different types of transactions would explain why different penalties apply to reportable transactions than to other types of transactions. Perhaps discrepancies between taxpayers' views and the government's view tend to deviate sharply for reportable transactions starting at $q = 50\%$, whereas for nonreportable transactions the deviation begins further along the penalty continuum, at, for example, $q = 85\%$. Or perhaps taxpayers who would choose to engage in transactions that have been targeted by the IRS as problematic tend to have beliefs about tax transactions that are especially discrepant from the beliefs of the government.

Figure 4

Ratio of Government's View to Taxpayer's View (θ/q)

100%/q

0%   50%   100%
(complete certainty of being struck down)

Chance of Position Being Struck Down by a Court— Taxpayer's View (q)

To be clear, I am not arguing that this particular relationship is the actual relationship between θ and q, that θ in fact increases faster than q for some range of q, or that this type of reasoning is why the penalties have their current structure. I simply note that penalties that increase as the taxpayer's perceived likelihood of harm increases are not inconsistent with marginal-deterrence theory, if we make certain assumptions—assumptions that are not impossible and perhaps are not even unlikely. Thus, fault-based penalties are not necessarily inconsistent with, and indeed may be required by, marginal-deterrence theory.

More generally, when modeling tax compliance, one should take care to determine which probabilities are best given a subjectivist interpretation and whether, if multiple probabilities occur in a model, these probabilities could diverge due to parties' disparate perceptions.

B. *The Tax Advisor as a Source of Perceived Probabilities: Regulatory Requirements as Debiasing Tools*

Understanding that the probability of correctness reflects the beliefs of individuals, and not an absolute underlying truth, provides additional justification for detailed regulations that impose extensive requirements on the substance of tax advisors' opinions. In particular, recent regulations[115] and statutes[116] relating to practice before the IRS impose strict requirements on tax advisors who provide their clients with certain written opinions, including opinions meant to protect the client from tax penalties (by, for example, showing that the client had the requisite level of belief in the correctness of the tax position[117]). Among other requirements, the tax advisor "must use reasonable efforts" to find all relevant facts and "must not base the opinion on any unreasonable factual assumptions";[118] must relate the law to the facts and generally cannot assume the "favorable resolution of any significant Federal tax issue";[119] and must consider (with a few exceptions) all significant tax issues and reach an opinion with regard to each issue.[120] An advisor who does not adhere to these rules may be cen-

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[115] 31 C.F.R. pt. 10 (2008).

[116] American Jobs Creation Act of 2004, Pub L. No. 108-357, §§ 812, 815, 118 Stat. 1418, 1577-80, 1581-83 (codified as amended in scattered sections of I.R.C.).

[117] See the discussion of fault-based penalties *supra* subsection III.A.1.

[118] 31 C.F.R. § 10.35(c)(1).

[119] *Id.* § 10.35(c)(2).

[120] *Id.* § 10.35(c)(3).

sured, suspended, or even disbarred.[121]   As discussed above,[122] the statutory changes increase the threshold for opinions on which taxpayers may rely and also disqualify certain advisors from rendering opinions that can protect taxpayers from penalties.[123]

The regulatory source of these rules, Circular 230,[124] has been much criticized as tremendously burdensome and ultimately superfluous.[125]   As one scholar has noted, the rules apply to almost all formal, written opinions provided by tax advisors—not just tax-shelter opinions—and thus "wildly overshoot the mark" intended by the Treasury Department—that is, the goal of reducing the number of opinions that protect those who use and market tax shelters.[126]   But the new regulations and statutes may serve an additional purpose, one not previously recognized: these requirements not only push advisors to issue honest opinions, but may also actually help advisors arrive at less-biased estimates of the chance that a position will be upheld.   The requirements may make the advisors' honest opinions less self-interested and perhaps more accurate.

A tax advisor who tells her client that a tax position has a particular chance of being correct is essentially an expert making a forecast: she is forecasting whether a court would strike down the position.[127] Empirical work has shown that there are various methods for improving experts' forecasts.   One of the best ways to improve forecasting is to carefully analyze past work and whether (and when) predictions were accurate.[128]   However, a serious problem faces an individual who is determined to improve the accuracy of her predictions of whether a

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[121]   *Id.* §§ 10.50(a), 10.60(a).

[122]   *See supra* text accompanying notes 63-64.

[123]   I.R.C. § 6664(d)(3)(B) (2006).

[124]   Department of the Treasury, Circular No. 230 (rev. April 2008), *available at* http://www.irs.gov/pub/irs-utl/circular_230.pdf.

[125]   *See, e.g.*, Michael L. Schler, *Effects of Anti-Tax-Shelter Rules on Nonshelter Tax Practice*, 109 TAX NOTES 915, 918-22 (2005) (arguing that the costs of Circular 230 exceed its benefits); Juan F. Vasquez, Jr. & Jaime Vasquez, *Section 10.35(b)(4)(ii) of Circular 230 Is Invalid (But Just in Case It Is Valid, Please Note that You Cannot Rely on This Article to Avoid the Imposition of Penalties)*, 7 HOUS. BUS. & TAX L.J. 293 (2007) (arguing that Circular 230 has adversely affected taxpayers).

[126]   *See* Deborah H. Schenk, *The Circular 230 Amendments: Time to Throw Them Out and Start Over*, 110 TAX NOTES 1311, 1312-13 (2006) (stating that Circular 230 is "overkill" and has "unintended negative effect[s]").

[127]   *See supra* Section II.B.

[128]   *See, e.g.*, Nigel Harvey, *Improving Judgment in Forecasting*, *in* PRINCIPLES OF FORECASTING 59, 69-71 (J. Scott Armstrong ed., 2001) (summarizing studies on "outcome and cognitive feedback").

court will uphold certain tax transactions: she will almost never find out whether her previous predictions were correct.[129] Because few tax transactions are ever reviewed by a court, a tax advisor almost never discovers whether she had correctly predicted that a court would uphold the transaction. As discussed above, the difficulty of this counterfactual question is one reason that it seems inaccurate to interpret probability statements about tax positions as frequentist probabilities—the underlying probability is not known, and therefore the prediction cannot be seen as a decision under risk (as opposed to uncertainty).

Moreover, it is not clear that there is any advantage to predicting accurately whether a court will uphold a transaction. The government's main interest is the mindset of the taxpayer: the government wants taxpayers to make a good-faith effort to determine whether the court will uphold a transaction. But the government also wants the taxpayer to make a "reasonable" judgment—that is, it wants the taxpayer to judge and report her own chances of success in the same way that a non-self-interested person would judge and report those chances.

The onerous rules regarding tax advisors' opinions thus serve at least two purposes: not only, as has been much noted, do they require the advisor to report her opinion honestly, but they also may serve as guidelines by which advisors generate less biased opinions. More specifically, the rules may help tax advisors attend to and reduce their own cognitive biases. This Section shows that the new rules require advisors to employ a number of crucial debiasing techniques. But there may also be a limit to the potential use of these techniques. In particular, some forecasting techniques rely on groups to push opinions toward generally accepted beliefs and thus may be too expensive or too invasive of taxpayers' privacy to be widely adopted.

1. Informing the Expert

Learning as much information relevant to a judgment as possible helps remove bias from that judgment. Subjective interpretations of probability reflect not only the view of a particular person, but also the information that the person has about the question to be addressed.[130]

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[129] See the discussion of the counterfactual problem *supra* Section II.B.

[130] This is the basic idea of Bayesianism: begin with a prior distribution and then update one's analysis as new information becomes available. *Cf.* Michael Risch, *How Can* Whelan v. Jaslow *and* Lotus v. Borland *Both Be Right? Reexamining the Economics of Computer Software Reuse*, 17 J. MARSHALL J. COMPUTER & INFO. L. 511, 524-28 (1999) (arguing that a correct economic model of judicial decision making in copyright-

Implicit in a statement like "there is a 90% chance that a court would uphold this transaction" (or "there is a 75% chance that the Giants will win on Sunday") is the phrase "*given the information that I have*, I believe that . . . ." Additionally, it is a key element of subjective probabilities that an individual revises her probability estimate based on additional information that she receives about the question.

It is especially important to learn the underlying facts when trying to determine whether a transaction would be upheld by a court because the transactions in question adhere to the letter of the statute; if they did not, it would be simple to conclude that the transactions did not provide the promised tax benefits. To hold the transactions impermissible, courts must rely on court-created doctrines, in particular the economic-substance and business-purpose tests. The economic-substance test asks whether the transaction has nontax economic benefits.[131] The business-purpose test asks whether the taxpayer had a business (i.e., nontax) purpose for entering into the transaction.[132] A tax advisor who simply assumes that a transaction has economic substance and a business purpose could provide a strongly favorable tax opinion about a very dubious transaction.

A classic example can be found in *Long Term Capital Holdings v. United States*.[133] That case addressed a situation in which a law firm issued a written opinion stating that the transaction in question "should" be upheld by a court. The firm's conclusion relied, however, on an assumption that all parties involved had a business purpose for the transaction and that the transaction had economic substance. Specifically, the firm's opinion stated,

> You [the client] have instructed us to assume that [at all relevant times], each of [the parties involved] operated for valid and substantial business purposes with the objective of realizing a material pre-tax profit and possessed independent economic substance, and that each is expected to do so for the foreseeable future.[134]

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infringement cases takes into account the information that judges have before them at the time of the decision and not just information available to the parties ex ante).

[131] *See, e.g.*, ACM P'ship v. Comm'r, 73 T.C.M. (CCH) 2189, 2215 (1997) ("The doctrine of economic substance becomes applicable, and a judicial remedy is warranted, where a taxpayer seeks to claim tax benefits, unintended by Congress, by means of transactions that serve no economic purpose other than tax savings."), *aff'd in part and rev'd in part on other grounds*, 157 F.3d 231 (3d Cir. 1998).

[132] *See, e.g.*, Klamath Strategic Inv. Fund v. United States, 472 F. Supp. 2d 885, 898 (E.D. Tex. 2007).

[133] 330 F. Supp. 2d 122 (D. Conn. 2004), *aff'd*, 150 F. App'x 40 (2d Cir. 2005).

[134] *Id.* at 210.

The court held that relying on an opinion that was based on such broad, conclusory assumptions did not constitute reasonable, good-faith reliance on advice of counsel and that this opinion, which included "little, if any, of what could be characterized as legal analysis of the economic substance of the . . . transaction," could not save the taxpayers from penalties imposed for underpayment of tax.[135]

To make this sort of question-begging less appealing, the law includes incentives for both taxpayers and advisors to ensure that those providing tax opinions have a large amount of information about the transaction in question.[136] A taxpayer will not receive penalty protection from the advisor's opinion if that opinion does not take into account all relevant facts, including the taxpayer's purposes for engaging in the transaction.[137] This was the rule even before *Long Term Capital Holdings* and, indeed, was applied in that case.[138]

The recent changes to Circular 230 increase incentives for advisors to obtain all the relevant information before providing taxpayers with tax opinions. Under the old rules, someone providing a "tax shelter opinion" was required to inquire into all relevant facts and was not permitted to accept as true facts that she should not reasonably have believed to be true.[139] But she was not required to verify facts independently, nor was she required to assume that a client's statement of facts could not be relied upon.[140] The revised rules are stricter. Under these rules, an advisor issuing an opinion on which a taxpayer can rely to avoid penalties must use "reasonable efforts" to obtain all relevant facts and may not base her opinion on any "unreasonable" factual assumptions, including "unreasonable factual representations" made by individuals other than the taxpayer.[141] In contrast to the old rules, however, the new rules explicitly state that it is "unreasonable to assume" (rather than to establish through investigation) that a transaction has a business purpose or economic substance.[142] These new requirements may help advisors provide less biased opinions.

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[135] *Id.* at 209.

[136] *See* 31 C.F.R. § 10.35(b) (2008).

[137] Treas. Reg. § 1.6664-4(c)(1)(i) (as amended in 2003).

[138] *Long Term Capital Holdings*, 330 F. Supp. 2d at 210.

[139] 31 C.F.R. § 10.33(a)(1)(i)–(ii) (amended 2004).

[140] *Id.*

[141] 31 C.F.R. § 10.35(c)(1)(iii) (2008).

[142] *Id.* § 10.35(c)(1)(ii).

2. Justifying the Conclusion

The revised regulations also require tax opinions to describe the tax advisor's reasoning behind her conclusions, including both the facts and legal analysis.[143] This requirement of course makes it more difficult for a tax advisor to provide a completely spurious opinion that includes nothing more than her client's desired result. But this rule may also help the advisor improve the accuracy of her opinion. Numerous psychology and economics studies show that an expert may increase the reliability of her predictions if she produces analytic justifications of her conclusions, as opposed to basing her opinion on her intuitive sense of a situation.[144] Similar to the rule that an advisor must be fully informed before offering an opinion, the rule that an advisor must fully justify her conclusions may serve not only to keep the advisor's conclusion honest, but also to shape that conclusion and help minimize the extent to which the conclusion is influenced by the advisor's unconscious biases.[145] Put another way, the rules may help "debias" the advisor's conclusion.

3. Avoiding Overconfidence

The regulation of tax opinions may also help address the problem that experts making forecasts are often overconfident.[146] Overconfidence (that is, a too-strong belief that one is correct) may particularly plague an advisor who is forecasting the success of a plan she has developed herself. One way to increase the accuracy of forecasts is to split the tasks of developing a plan and estimating that plan's probability of success, even if the forecaster does not intentionally misrepresent the chances of the success of her own plan.[147] Splitting tasks helps to justify the statutory rule that an opinion of a tax advisor will not provide penalty relief for a taxpayer if the advisor is the one who created, promoted, or sold the transaction with regard to which her opinion is being sought; if her fee is contingent on the taxpayer's receiving a promised tax benefit; or if she has a personal financial inter-

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[143] *Id.*

[144] *See* Thomas R. Stewart, *Improving Reliability of Judgmental Forecasts, in* PRINCIPLES OF FORECASTING, *supra* note 128, at 81, 96-97.

[145] *Id.*

[146] *See* Hal R. Arkes, *Overconfidence in Judgmental Forecasting, in* PRINCIPLES OF FORECASTING, *supra* note 128, at 495, 496-98.

[147] Harvey, *supra* note 128, at 65-66, 74.

est in the transaction.[148]   This type of rule not only ensures a more neutral expert, but also may prevent a tax advisor from unintentionally favoring the taxpayer. The regulations could, however, go even further to avoid advisor overconfidence by requiring advisors to explicitly consider arguments that go against their forecasts.[149]   Tax law does not currently require opinions to include (and presumably refute) specific arguments against the advisor's conclusion; such a requirement might help the advisor reach a less biased opinion.

4. Group Methods: How Much Does Accuracy Matter?

There are a number of more powerful, group-based methods for increasing the accuracy of predictions, but current law does not require advisors to use these methods. This result is probably correct, as cost and privacy concerns may outweigh the benefits of whatever increased accuracy these methods may provide. But if the government wanted to debias tax advisors' opinions even more, it might look to similar group-based approaches.

For example, one way for an expert to avoid overconfidence is to discuss her conclusion with a group in which someone is assigned to make contrary arguments.[150]   This technique helps the expert avoid defending her own beliefs too zealously, even irrationally, thus increasing her confidence.[151]   Tax law does not, however, require this sort of group interaction, and it is not clear how the law could enforce such purely process-based requirements.

Other group methods for improving forecasts rely on aggregating beliefs and can be used even if there is no feedback on whether predictions are correct. For example, information markets—also known as prediction markets—appear to be one effective way of forecasting the future.[152]   Think of the stock market, in which the price of a stock varies based on the stock's perceived value. In some sense, the stock's perceived value is a prediction about what will happen in the future, because the price of a corporation's stock should represent the present value of all future cash flows stemming from owning a certain

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[148]   I.R.C. §§ 6664(d)(3)(B) (2006).

[149]   Arkes, *supra* note 146, at 500-02.

[150]   *Id.* at 502-04.

[151]   *Id.*

[152]   *See, e.g.*, Abramowicz, *supra* note 44, at 103 (citing "preliminary research" that shows that information markets have predictive power).

amount of equity in that corporation.[153] Similarly, in an information market, parties buy and sell contracts that promise to pay a certain amount if a particular outcome occurs. Like the price of a publicly traded stock, which increases with the stock's perceived value, the price of a predicted event increases in an information market if the event is perceived as more likely to occur. Information markets are a useful tool for predicting future events. Information markets might not be a good method to determine whether a court would uphold a given tax transaction, however, because for the markets to work, taxpayers would have to disclose to the public, or to a relatively large group, substantial information about their businesses and transactions. This openness might not be acceptable, especially to business taxpayers.

The Delphi Method, used in a variety of contexts, is another group technique that seems to improve predictions.[154] This method avoids the privacy concerns created by information markets. The Delphi Method first asks a number of experts to fill out an anonymous questionnaire. A facilitator then informs everyone in the group of the views of the other group members. After hearing these views, each group member fills out another questionnaire. This process is repeated a number of times, and at the end of the process the facilitator takes the group judgment to be the statistical average (either the mean or the median) of the experts' views on the final questionnaire.[155] The Delphi Method could be applied to estimating the probability that a court would uphold a transaction, because the question that the experts are asked to evaluate has a numerical answer (i.e., the probability number). The Delphi Method might be unattractive to clients, however, because the method requires a number of experts

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[153] *See, e.g.*, ANDREW BAUM & DAVID MACKMIN, THE INCOME APPROACH TO PROPERTY VALUATION 53 (3d ed. 1989) ("Valuation [can be] summarised as the estimation of the future benefits to be enjoyed from the ownership of a freehold or a leasehold interest in land or property, expressing those future benefits in terms of present worth."); ALFRED M. KING, VALUATION 91 (2002) ("In the final analysis, an investment in any asset is worth no more than the present value today of the income to be derived in the future from that investment."). To take into account the fact that future cash flows are not guaranteed, the discount rate may be adjusted for future cash flows. Alternately, one could lay out multiple risk-free scenarios and then weight each scenario by one's estimated probability of that scenario's occurring. *See* KING, *supra*, at 95-100.

[154] *See, e.g.*, Kesten C. Green et al., *Methods to Elicit Forecasts from Groups: Delphi and Prediction Markets Compared*, FORESIGHT, Fall 2007, at 17 (collecting sources stating that the Delphi technique improves decision making when compared to techniques used in traditional group meetings).

[155] Gene Rowe & George Wright, *Expert Opinions in Forecasting: The Role of the Delphi Technique*, *in* PRINCIPLES OF FORECASTING, *supra* note 128, at 125, 126-27.

(at least five, and perhaps as many as twenty).[156]   If taxpayers were billed by the hour for each expert, and if the per capita time spent was not significantly less than the usual approach of having only one or two attorneys work on a tax opinion, taxpayers might bridle at the Delphi Method's cost.

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In short, interpreting probability statements as statements of belief, instead of statements reflecting some objective external reality, highlights a previously acknowledged benefit of the current law regulating tax advisors: this law, although onerous, may serve not only to keep tax advisors honest, but also to debias advisors' opinions. Stronger, group-based debiasing tools are available but are probably impossible to implement due to cost and privacy concerns, thus lending additional support to the current requirements that the regulations impose on tax advisors' opinions. This discussion does not, of course, necessarily mean that the law regulating tax opinions should stand as currently written. But when discussing whether, and how, to amend Circular 230 and other guidances affecting tax advisors, the benefits of debiasing should be taken into account.

C. *Uncertainty Aversion: When Not Knowing Is the Penalty*

It might seem that to describe uncertainty in tax law is to diagnose a problem.   Perhaps we should work to minimize this ambiguity; should not law be as certain as possible? But empirical work suggests that we should be careful before reducing tax law's uncertainty. As discussed above, law and economics proposes that an individual takes an action when the benefit of that action to her outweighs its cost. One cost suggested by a subjectivist approach to tax probabilities is the cost of uncertainty itself. Some taxpayers may be averse to uncertainty—as opposed to risk—and therefore increasing tax law's certainty might actually, all else being equal, increase the number of questionable or forbidden transactions. This Section describes uncertainty aversion and explains how uncertainty aversion could operate to reduce the number of questionable transactions into which taxpayers enter.   Whether taxpayers are in fact averse to uncertainty is, of course, an empirical question, but it is a question that should be taken

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[156] *Id.* at 128-29.

into account when using a welfarist approach to model optimal tax penalties.

1. Uncertainty Aversion Defined

Daniel Ellsberg famously presented the following thought experiment: imagine two urns, each containing some combination of red and black balls.[157] You know that the first urn contains one hundred red and black balls, but in some unknown ratio—there may be zero red balls, or there may be one hundred. You know that the second urn contains fifty red balls and fifty black balls. You may choose either to bet $100 that a red ball will be drawn from the first urn or to bet $100 that a red ball will be drawn from the second urn. If you choose to bet on the second urn, you have chosen risk (a known probability) over uncertainty (an unknown probability) because you know the odds that a red ball will be drawn from the second urn, but you do not know the odds that a red ball will be drawn from the first urn.[158] A person who prefers to avoid uncertainty (unknown probabilities) is said to be "uncertainty averse" or "ambiguity averse."[159] A large amount of empirical data shows that many individuals are in fact uncertainty averse.[160]

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[157] Daniel Ellsberg, *Risk, Ambiguity, and the Savage Axioms*, 75 Q. J. ECON. 643, 650 (1961).

[158] Interestingly, if you would also prefer to bet $100 that a black ball will be drawn from the second urn, rather than betting $100 that a black ball will be drawn from the first urn, you apparently (if we do not take the risk/uncertainty distinction into account) think both that drawing a red ball from the second urn is more likely than drawing a red ball from the first urn, and also that drawing a black ball from the second urn is more likely than drawing a black ball from the first urn. But this means that you regard drawing a red ball from the second urn as more probable than drawing a red ball from the first urn, and you also regard drawing a not-red ball from the second urn as more probable than drawing a not-red ball from the first urn. As Ellsberg shows, this is inconsistent with "essential properties of probability relationships." *Id.* at 651-63. Specifically, it violates two axioms proposed by Leonard Savage: (1) there must be complete ordering of actions—that is, as between two actions, either Action I is preferred to Action II, Action II is preferred to Action I, or there is indifference between Action I and Action II, and that transitivity applies to this ordering (complete ordering of actions); and (2) if Action I and Action II have the same pay-off for a given event, the choice between these two actions should not be affected by this event (the "Sure Thing" principle). *Id.*

[159] Several formal definitions of ambiguity aversion have been suggested. *See, e.g.*, Larry G. Epstein, *A Definition of Uncertainty Aversion*, 66 REV. ECON. STUD. 579, 583-86 (1999); David Schmeidler, *Subjective Probability and Expected Utility Without Additivity*, 57 ECONOMETRICA 571, 578-84 (1989).

[160] *See, e.g.*, Jeff T. Casey & John T. Scholz, *Boundary Effects of Vague Risk Information on Taxpayer Decisions*, 50 ORGANIZATIONAL BEHAV. & HUMAN DECISION PROCESSES 360

2. Uncertainty Aversion and Probability of Audit

A number of scholars have noted that tax compliance may benefit from uncertainty aversion, but this work has generally focused on the uncertainty of audit—that is, the uncertainty that a forbidden position will be discovered by the tax authorities—and not on the uncertainty of the law itself. To provide an example of uncertainty aversion, this subsection describes, first, why taxpayers are uncertain about whether they will be audited and, second, previous scholarly work describing how this aversion to uncertainty can be used to increase compliance.

The probability that a penalty will be imposed can be decomposed into two probabilities: the probability of detection and the probability that the position taken is a position that is incorrect—that is, a position that would be subject to a penalty if detected.

Formally, we can return to Equation 1[161]:

$$U(I\text{-}T) > p \times U(I - T - F) + (1 - p) \times U(I - t).$$

The probability that a taxpayer will have to pay a penalty for taking a tax position, p, can be decomposed into (at least) two probabilities: the probability of detection, $p(find)$, and the probability that the position taken is incorrect, $p(incorrect)$. We can easily relate these two probabilities. The chance, p, that the position is both incorrect and detected can be rewritten as

$$p = p(find \,\&\, incorrect) = p(find \mid incorrect) \times p(incorrect),$$

where $p(find \mid incorrect)$ is the probability that a position is detected (found), given that it is incorrect.

As we have already seen, a statement regarding the chance that a position is incorrect, $p(incorrect)$, is best interpreted as a statement about belief. As a number of scholars have noted, $p(find)$, the probability of detection, should also be interpreted as a statement about belief.[162]   Indeed, we might decompose $p(find)$ further, into the chance of audit and the chance that, given that the taxpayer is audited, the position is detected. It seems clear that the probability of detection, given audit, is a counterfactual and as such is "hard[] to es-

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(1991); Dipankar Ghosh & Terry L. Crain, *Structure of Uncertainty and Decision Making: An Experimental Investigation*, 24 DECISION SCI. 789 (1993); Anat Horovitz & Uzi Segal, *The Ambiguous Nature of Ambiguity and Crime Control*, 2 N.Y.U. J.L. & LIBERTY 541, 542, 548 n.19 (2007); *see also infra* text accompanying notes 173-175.

[161]   *See supra* Section I.A.

[162]   *See, e.g.*, Raskolnikov, *supra* note 4, at 584-85.

timate."[163]   Contrary to the claims of at least one legal scholar,[164] though, the probability of audit is also difficult, perhaps impossible, for a taxpayer to know accurately.

The problem here is somewhat different than the problem presented by the compliance continuum. There, it was impossible to know the probability that a position would be upheld on review by a court. In contrast, the probability of audit is knowable—or, at least, more knowable. We might say that on a spectrum of subjective to objective probabilities, the probability of being audited is far toward the objective end. However, although the probability of audit is knowable, taxpayers do not actually know that probability: the IRS makes sure that the details of its methods for selecting taxpayers for audit are secret. Thus, from a taxpayer's perspective, the probability of being audited is best interpreted subjectively.

The example of how individuals (as opposed to corporations) are selected for audit helps clarify why a subjective interpretation is the best interpretation of statements about the probability of audit in the deterrence context. Individuals may be selected for audit in one of three ways.[165]   The first way, random selection, is so uncommon as to verge on irrelevance for deterrence purposes: under the current system, about 13,000 returns annually—out of over 130,000,000—are selected for audit at random.[166]   The chances of being selected for random audit are thus about 0.01%.   The other two ways are more interesting for our purposes. Individuals may be selected through IRS special projects, in which the IRS decides that it will focus on returns with particular characteristics. These projects vary from year to year. They are sometimes, but not always, announced publicly before the projects begin. Finally, individuals may be selected for audit through statistical profiling. The IRS scores individual returns using its Discriminant Index Function (DIF). Any return that scores above a certain numerical threshold is reviewed "by hand"—that is, by an individual human auditor who decides, based on her review of the return,

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[163] *Id.* at 584.

[164] *See id.* (claiming that the audit rate is "well known and well documented" and that the portion of the detection probability that involves the probability of audit is thus not problematic).

[165] *See* Sarah B. Lawsky, *Fairly Random: On Compensating Audited Taxpayers*, 41 CONN. L. REV. 163, 166-70 (2008).

[166] Press Release, Internal Revenue Serv. Media Relations Office, IRS Updates National Research Program for Individuals (June 6, 2007), *available at* http://www.irs.gov/pub/irs-news/ir-07-113.pdf.

whether the taxpayer will be audited. The DIF is determined based on statistical analyses of information gathered through the random audits. The key for our purposes is that the DIF is secret, as is the cut-off score. No taxpayer knows how to determine her DIF score ex ante.

One could theoretically assemble a useful frequentist analysis of the chance that an individual has of being selected for audit, but the problem here is the problem of determining the relevant reference class. For example, say the IRS audits 10% of all tax returns that it receives each year. It would be wrong to conclude, based on this number, that a given very large corporation has a 10% chance of being audited in a given year if 100% of very large corporations are audited every year. In other words, information about the reference class of all tax return filers does not provide much information about the chances that a very large corporation will be audited.

Similarly, although the IRS audits about 1% of individual tax returns it receives each year,[167] it is not necessarily the case that a given individual has a 1% chance of being audited. Again, this is a reference-class issue. The IRS does not select 1% of individual tax returns at random; rather, the IRS uses special projects and DIF scores to select subgroups of individuals on which it will focus its audit efforts. For example, if the IRS notices that individuals in Georgia tend to underpay their federal income taxes, it may focus its audit resources on residents of Georgia. It may then choose the particular residents to audit at random. Thus, within the reference class of residents of Georgia, an individual may have a 10% chance of being selected for audit. If a Georgia resident believed that she had a 1% chance of being selected for audit, she would be woefully underestimating her actual chances of audit. But the IRS does not always announce special projects in advance of their implementation, and it may have different special projects from year to year—it may focus on auditing Georgia residents for one year only, or it may extend the project over many years. Simply put, an individual will not know in advance of filing her return whether she will end up as part of a special project. Her error might, however, be in either direction; she might incorrectly believe either that she will be part of a special project or that she will be part of the general pool of tax returns, not subject to a special project.

Or take the class of individuals who file tax returns with DIF scores in excess of the cutoff score. Individuals whose returns have DIF scores that exceed the cutoff score apparently have a much higher

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[167] *Id.* at 189.

chance of being audited than do individuals whose returns have low DIF scores (and who are not part of a group that is the subject of a special project). But the IRS intentionally keeps the DIF and cutoff score secret, so an individual cannot determine before she submits her return whether she will have a DIF score high enough to subject her to an increased chance of audit. It is generally believed that certain positions on a tax return are red flags that automatically trigger audits. It may be, though, that these positions do not trigger audits but rather increase these particular individuals' DIF scores enough to trigger an audit.

The IRS may also use other techniques to select tax returns for audit. Fraudulent tax-return data can sometimes be detected simply by examining the digits on the tax return, a technique known as digital analysis. For example, digits in actual financial numbers do not appear randomly. The first digits of actual financial numbers tend to be lower rather than higher—"1" will appear more frequently than "2"; "2" will appear more frequently than "3"; and so forth. Fraudulent tax return data generally does not follow this rule.[168] It is known that some state tax authorities use digital analysis to detect fraudulent returns, but the IRS will not reveal whether it uses the technique.[169]

Although taxpayers do not know their chances of being audited, they could obtain a better sense of that probability. An individual taxpayer could know her chances of being selected for a random audit, but as discussed above, the chance of being selected for a random audit is only about 0.01% and as such is not terribly useful for deterrence. It is probably not possible to predict special IRS projects. In theory, though, taxpayers could figure out a fairly good approximation of the Discriminant Index Function by pooling years of their tax return information and audits and running a regression analysis to figure out how the IRS was selecting returns to audit—that is, what items on a tax return increased chances of an audit, in what combination, and by how much. TurboTax actually has a smaller, and thus much less effective, version of this project: after an individual fills out her tax return using TurboTax, but before she files, TurboTax tells her whether she is at high risk of audit, based on the deductions she has taken as compared to deductions taken by others,[170] and "provides

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[168] *See* James Tackett et al., *Profiling Fictitious Tax Data*, 116 TAX NOTES 953, 955 (2007) (discussing this rule, known as "Benford's Law").

[169] *Id.*

[170] *See* Sandra Block, *Software Can Save When Filing Your Taxes*, USA TODAY, Feb. 29, 2008, at 3B.

suggestions for reducing [her] audit risk."[171] Similarly, some people believe that certain deductions (such as the home-office deduction) are red flags that will trigger an audit,[172] and so they may avoid these deductions in order to hide other, more lucrative, and perhaps unlawful tax avoidance.

Regardless of the precise techniques that the IRS uses or does not use, the result of its secrecy about those techniques is that taxpayers do not know with certainty whether they will end up in a group with a high audit rate or in a group with a low audit rate. While they know, or could know, that the content of their return may itself increase their chances of audit, they do not know how the content of the return has that effect, and so they are unable to control the precise content of their return in order to minimize their chances of audit.

In the real world, then, a taxpayer does not know the chance that she will be audited, either because of the factors described above or perhaps because she has not investigated her chances of audit. A number of empirical studies have found that this uncertainty about one's audit rate may increase tax compliance. For example, one study asked its subjects to fill out a model tax return and then to estimate their probability of audit. The subjects were permitted either to give a single number or to give a range around a mean; all the subjects chose the latter. The study found that taxpayers tended to comply less, the smaller the range they provided—that is, there was less compliance when there was less (perceived) ambiguity associated with the audit rate.[173]

It does not appear, however, that increasing audit uncertainty *necessarily* increases compliance. The same study that found that compliance increased with uncertainty also found that increased uncertainty had less of an effect when taxpayers perceived an overall lower chance of audit.[174] Another study found that "[w]hen individuals receive nothing for their tax payments, [audit] uncertainty increases compliance[, but] when individuals perceive that they receive a public

[171] John Rizzo, *Intuit TurboTax and H&R Block TaxCut*, MACWORLD, Mar. 4, 2008, http://www.macworld.com/article/132338/2008/03/taxprep_desktop.html?t=203.

[172] *See, e.g.*, Harvey, *supra* note 128.

[173] *See* Ghosh & Crain, *supra* note 160, at 800 ("These results support the predictions that the lower the mean and lesser the ambiguity of the probability distribution, the higher the intentional noncompliance."); *cf.* Tom Baker et al., *The Virtues of Uncertainty in Law: An Experimental Approach*, 89 IOWA L. REV. 443, 446-47(2004) (showing via experiment in a nontax context "that uncertainty with regard to either the size of the sanction or the probability of detection increases deterrence").

[174] Ghosh & Crain, *supra* note 160, at 800.

good . . . , uncertainty always lowers compliance."[175] In short, uncertainty about the audit rate has some effect on compliance, but that effect depends on a variety of other factors and thus its direction may be difficult to predict.

3. Extending Uncertainty Aversion: Uncertainty Aversion and Ambiguous Law

The probability of audit is, as discussed above, not the only source of uncertainty for taxpayers who are trying to determine whether to comply with the law: tax law itself is a source of uncertainty.[176] It might initially seem that this uncertainty should be reduced. But, as the empirical work on audit uncertainty suggests, and as this subsection argues, reformers should consider whether uncertainty itself has benefits and, in particular, whether uncertainty aversion operates to increase compliance.

Some uncertainty about tax law is unavoidable as long as the correctness of a tax position depends on predicting the future actions of a court. But this uncertainty could be reduced. For example, as explained above,[177] one good way to improve forecasts (which would in turn reduce uncertainty) is to look at the success of prior forecasts. But few tax transactions are reviewed by courts, and thus little data is available to check prior forecasts. If the government were determined to reduce uncertainty in tax law, it could decide to dedicate a large amount of resources to bringing tax disputes to court, so that both taxpayers and the government had more information about how courts actually addressed the questionable issues. Some uncertainty would, however, remain.

Other uncertainty might be reduced even if the government decided not to pursue an aggressive litigation strategy. For example, not all taxpayers are sophisticated, and not all taxpayers can hire lawyers to provide them with tax advice. Educating taxpayers or simplifying the law could reduce taxpayers' uncertainty to the extent that their uncertainty is due to ignorance or confusion.

There may be good reason to educate taxpayers, to simplify the law, or to take other steps to reduce legal uncertainty. But reducing uncertainty may also end up reducing compliance. For example, one

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[175] James Alm et al., *Institutional Uncertainty and Taxpayer Compliance*, 82 AM. ECON. REV. 1018, 1024-25 (1992).

[176] *See supra* Part II.

[177] *See supra* notes 128-129 and accompanying text.

argument against the (eventually adopted) "check the box" regime, which permits certain entities to elect their classification for tax purposes, was that the nonelective regime's uncertainty increased "costs and risks" associated with potentially abusive techniques and thus reduced the use of these techniques.[178]

More generally, one study examined how subjects reacted to increased vagueness about whether a tax deduction would be disallowed.[179] The subjects were given a probability that the deduction would be disallowed, qualified either by a statement from an accountant that "I am very unsure and hesitate to guess" about the probability that the deduction would be disallowed or that the probability was "exact."[180] The study found that people tended to be more uncertainty averse when risks were low. The authors, a psychologist and a political scientist, thus suggested that to increase compliance when risks are low, the government should actually decrease the precision of information available.[181] As legal scholars and tax compliance experts consider simplifying the law, or modifying the definition of correctness to decrease uncertainty, they should take into account that uncertainty is not necessarily, from a compliance perspective, a negative characteristic.

Additionally, theoretical models of tax compliance may benefit from taking into account an additional aspect of deterrence: the built-in penalty that is uncertainty. It has long been acknowledged that a simple model that considers only the utility of the money involved in cheating or not cheating on taxes does not explain tax compliance, because the audit rate is so low.[182] Experimental results suggest that an aversion to uncertainty is one factor among many that may also increase compliance and thus one factor that should be considered when modeling optimal tax penalties.

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[178] *See* OFFICE OF TAX POLICY, DEP'T OF THE TREASURY, THE DEFERRAL OF INCOME EARNED THROUGH U.S. CONTROLLED FOREIGN CORPORATIONS 69 (2000), *quoted in* Adam H. Rosenzweig, *Harnessing the Costs of International Tax Arbitrage*, 26 VA. TAX REV. 555, 580 n.46 (2007); *see also* Rosenzweig, *supra*, at 627 & n.142.

[179] Casey & Scholz, *supra* note 160, at 362.

[180] *Id.* at 371.

[181] *Id.* at 387.

[182] *See, e.g.*, Lawsky, *supra* note 165, at 189 n.118 (collecting sources supporting this proposition).

CONCLUSION

This Article examined a concept that underlies many economic analyses of tax compliance: the meaning of the probability that a tax position will be subject to sanction. This sort of probability statement is best interpreted as a statement about belief, because whether a tax position is correct is a decision under uncertainty. The Article described three implications of this subjectivist approach to interpreting tax probability statements. First, a subjectivist interpretation of tax probability statements shows that, contrary to accepted views, fault-based penalties are not necessarily inconsistent with, and in fact may be required by, a welfarist approach to tax compliance. Second, subjectivism may provide additional support for strict and much-criticized requirements that current law imposes on tax opinions provided by legal advisors. And, finally, a subjectivist approach highlights an additional area of ambiguity in tax law, which, given that some individuals are averse to uncertainty, may warn against making laws more certain.

More generally, economic methods and models can be useful and powerful tools for creating and analyzing tax policy. But, as the example of probability suggests, we must be careful not to let the use of mathematics in articulating these models seduce us into believing that the answers provided by this sort of reasoning are right in some absolute sense. Indeed, one important use of an economic approach to law is to highlight areas about which we are uncertain, and thus to create not definitive answers, but rather new questions.