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Addressing Personal-Income-Tax Manipulation with Tools from Psychology

Alex Rees-Jones, PhD

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In one form or another, nearly all citizens in modern America face taxes. Despite the significant social benefits of taxes, the individual costs of paying them are famously aversive.

To combat their aversion to paying taxes, many taxpayers can exercise some control over their tax bill. U.S. tax law includes a rich menu of tax-incentivized behaviors, including favorable treatment of mortgage interest, retirement savings, and charitable giving, among many other provisions. Through undertaking these actions, or through remembering to claim credits or deductions due for actions already taken, substantial legal tax reductions are possible. More insidiously, taxes may be illegally reduced through tax evasion.

Tax manipulation decisions like these meaningfully affect federal revenue. Focusing on illegal evasion, the difference between the tax revenue that is believed to be due and the tax revenue that is actually collected typically exceeds $400 billion per year. When it comes to legal manipulation, recent work has documented that taxpayers often forgo substantial tax savings to avoid the hassle cost of itemizing their tax returns.[1] In total, enormous sums of money are legally and illegally kept out of the tax collector's hands every year, and even greater sums could be if taxpayers chose to do so.

Improved understanding of the manipulation-decision-making process can provide tools to policymakers, as well as a means to better policy analysis.

SUMMARY

- Tax manipulation decisions—both legal uses of tax deductions and illegal tax evasion—significantly affect federal revenue, keeping enormous sums of money out of the tax collector's hands.
- In order to better understand the manipulation decision-making process, this brief looks specifically at the impact of gain/loss framing on tax manipulation, as part of a larger discussion about the tools that policymakers have at their disposal for both deterring tax evasion and making existing tax incentives maximally effective.
- Analysis of tax data confirms that tax decisions are influenced by "loss aversion." Taxpayers are more likely to pursue tax reduction activities when they make a loss smaller, as compared to when they make a gain larger. Moreover, it may be possible to reframe a taxpayer's perception of what constitutes a gain or a loss, potentially through relatively cheap alterations to phrasing or presentation in tax documents.
- The brief discusses instances when such gain/loss framing interventions might be deployed, and provides estimates around the size of the revenue responses they may generate.
- The author estimates that if tax filers who face losses experienced the lower motivation to manipulate shown by those facing gains, annual tax revenue would increase by $1.4 billion. Even attempts at marginal interventions, though smaller in predicted effects, might be financially worthwhile.

A long history of research has focused on rational incentives that affect these decisions, such as the fear of financial penalties or social sanctions that come with audits. In this Issue Brief, I will discuss the highlights of my recent research,[2] which measures the importance of a type of psychologically induced incentive on manipulation: specifically, the impact of gain/loss framing. This will then shape the discussion about the tools which policymakers may have at their disposal both for deterring evasion and for making existing tax incentives maximally effective.

GAIN/LOSS FRAMING AND TAX MANIPULATION DECISIONS

A large literature in psychology documents a robust asymmetry in both judgments and decisions: our aversion to losses typically outweighs our affection for equal-sized gains. Marginally reducing the size of a loss is commensurately valued more highly than marginally increasing the size of a gain. These regularities are commonly referred to as "loss aversion," and serve as a cornerstone of Daniel Kahneman and Amos Tversky's behavioral model of Prospect Theory. Attempts to make use of this aversion to losses have become a go-to approach for "nudge"-style interventions, and the literature building on this idea prominently contributed to Kahneman's 2002 Nobel Prize in Economics.

How might loss aversion influence tax decisions? Imagine a taxpayer in the process of filling out his annual tax return shortly before tax day. In this process, the taxpayer formally documents all of his tax-relevant information for the previous calendar year. The resulting tax liability is compared to the taxes already collected through employer withholding and earlier estimated tax payments. A remaining difference nearly always exists, and must be settled. This settlement can be very naturally framed as a gain or a loss. Most taxpayers receive money back from the IRS in the form of a refund—a literal gain. Remaining taxpayers, however, must send a check to the IRS to cover the tax that they owe—a literal loss.

To see the potential impact of this gain/loss framing, imagine that our example taxpayer has a sense of the balance that will be due. As he works on his tax return, he considers a variety of options available to manipulate the final balance that he will have to report. He remembers that he made a charitable contribution and knows that if he spends time looking through his records he can find that documentation and request a deduction. Additionally, he has a tax-preferred retirement savings plan and knows that if he takes the time to add money to this plan he might claim an adjustment to income. This taxpayer also has income from a small business and believes that he might get away with illegally evading taxes by claiming less business income than he actually earned.

As I explore in my research, loss aversion makes two distinct predictions about how this taxpayer would think about this set of potential manipulation decisions. First, loss aversion would lead the taxpayer to be more likely to pursue any of these tax reduction activities in a situation where it makes a loss smaller as compared to when it makes a gain larger. Second, loss aversion predicts a sudden drop in the incentives to manipulate as soon as a loss is turned to a gain.

Directly examining these predictions is challenging, since the taxpayers in question are actively concealing their behavior. While the pursuit of individual credits and deductions is seen in tax records, tax evasion is of course observed only in cases where the evader is caught. As a result, precise measurement of tax manipulation is not possible in the absence of extremely thorough audit data, which are rarely available and which would still leave some types of evasion undetected.

NOTES

1 See Benzarti (2015), "How Taxing is Tax Filing? Leaving Money On The Table Because Of Compliance Costs," SSRN Working Paper 2412703.

2 See Rees-Jones, "Quantifying Loss-Averse Tax Manipulation," Forthcoming at Review of Economic Studies.

3 See D. Jones (2012), "Inertia and Overwithholding: Explaining the Prevalence of Income Tax Refunds," American Economic Journal: Economic Policy, 4, 158–185.

4 See, e.g., Shepanski and Shearer (1995), "A Prospect Theory Account of the Income Tax Withholding Phenomenon," Organizational Behavior and Human Decision Processes, 63, pp. 174–186.

5 See Rees-Jones and Taubinsky (2016), "Tax Psychology and the Timing of Charitable Giving Deadlines," The Urban Institute.

As I document in my work, however, the presence of loss-averse manipulation can be readily detected without observing manipulation itself. Rather, it can be inferred by particular patterns in the shape of the distribution of the balance due that is reported to the IRS after all manipulation has occurred. As documented in Figure 1, the first prediction noted above (i.e., that taxpayers are more likely to pursue tax reductions when they make a loss smaller, as opposed to when they make a gain bigger) would lead to a "shift" of the loss domain of the distribution: the higher degree of manipulation would drive this portion of the distribution to lower values than would be forecasted from behavior over gains. The second prediction (i.e., that there is a sudden drop in the incentive to pursue tax manipulation once a loss is turned into a gain) would lead to "bunching" near the reference point of zero: since loss-averse taxpayers' motivation to manipulate drops as soon as they get to zero, this would lead to an unduly large number of tax returns being filed with reported balances close to zero. Importantly, the quantitative impact of loss aversion on manipulation behavior may be inferred from these features of the distribution with relatively few assumptions.

As documented in Figure 2, these predicted features are found in the distribution of balance due observed in tax records. As predicted by the model, the distribution of balance due is shifted in a manner consistent with higher manipulation in the loss domain, and significant excess mass is seen in the near vicinity of zero balance due. This pattern is shown to be associated with the pursuit of the common tax manipulation opportunities that can be observed. Furthermore, it is more pronounced among higher-income tax filers, who traditionally pursue the greatest amount of tax manipulation. My estimates suggest that individuals facing a loss pursue an additional $34 of tax reductions above and beyond what would be pursued if they faced a gain.

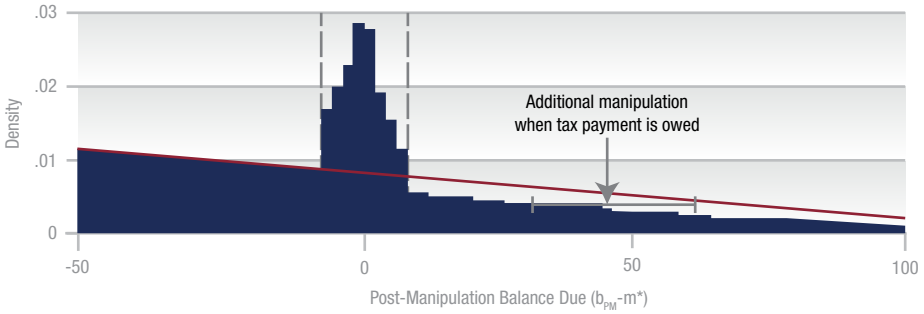
IMPLICATIONS FOR OVERWITHHOLDING POLICY

Beyond providing a window into the psychology surrounding manipulation decisions, these results inform several practical questions of tax policy design.

Perhaps most directly, the presence of this type of gain/loss framing can affect the consequences of policies that change the rate of overwithholding. Most taxpayers in America—77% in the sample I studied—find that they are overwithheld on tax day, meaning that the taxes already withheld from their paycheck by their employer were in excess of the total taxes that were due. At the time of filing, these taxpayers document their overpayment and submit for a refund in that amount.

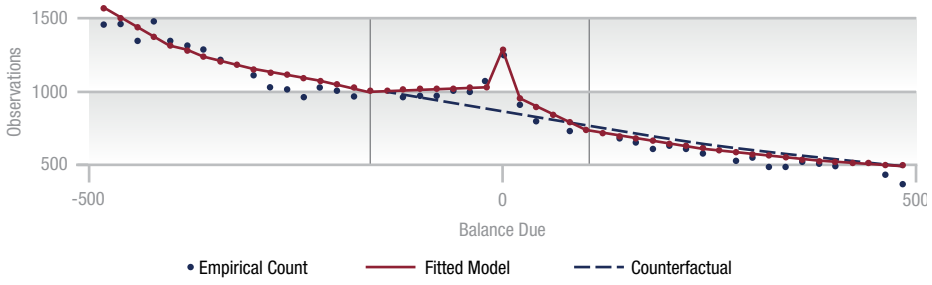
Overwithholding has been argued to have negative consequences for taxpayers. A taxpayer who is owed a refund on tax day effectively granted the IRS a loan: they gave the IRS money beyond what they owe in

FIGURE 1 DISTRIBUTION OF BALANCE DUE PREDICTED FROM LOSS-AVERSE TAX MANIPULATION



Source: Quantifying Loss-Averse Tax Manipulation," Rev Econ Stud, published online June 28, 2017, doi:10.1093/restud/rdx038.

FIGURE 2 DISTRIBUTION OF BALANCE DUE FROM OBSERVED TAX RECORDS



Source: Quantifying Loss-Averse Tax Manipulation," Rev Econ Stud, published online June 28, 2017, doi:10.1093/restud/rdx038.

taxes, and only receive that money back after tax day. In contrast to a typical loan, however, the IRS pays no interest. As a result, if this money were instead, for example, invested in an interest-granting financial product or used to pay off credit card bills, it would have yielded the taxpayer greater financial returns. Jones (2012) estimated the average foregone interest due to overwithholding to be $63 in 2004.[3] As discussed in that paper, there are anecdotal reports of states intentionally changing withholding policy to try to capture some portion of this interest.

If taxpayers are loss averse, the burdens of overwithholding on taxpayers—and the benefits of overwithholding for government revenue generation—are even more substantial than these usual opportunity-cost calculations would indicate. Overwithholding not only generates interest income for the government, but it also leads to even greater revenue generation because it reduces incentives for taxpayers to reduce their taxes through manipulation activities. Focusing on the interpretation of my results for individuals, my estimates suggests that the excess transfer to the IRS associated with overwithholding is 42% higher than one would infer by considering interest costs alone. And for government revenue, my estimates suggests that at least 30% of the extra revenue accrued to the government from overwithholding arises from loss-averse behavioral responses (i.e., reducing motivation for manipulation by presenting taxpayers with apparent gains).

While it has been recognized for some time that overwithholding is more desirable for the tax authority if tax filers are loss-averse,[4] my approach provides the first estimates of the magnitude of these effects. In short, loss aversion accounts for a significant portion of the costs or benefits of policy changes in this domain.

THE POTENTIAL OF FRAMING EFFECTS

Conceptually, it may be possible to reframe a taxpayer's perception of what constitutes a gain or a loss—potentially through relatively cheap alterations to phrasing or presentation in tax documents. In this section, I discuss the manner in which such framing interventions might be deployed, and provide estimates guiding the size of the revenue responses that may be possible with such interventions.

1. GAIN FRAMING TO MINIMIZE EVASION

Gain framing may prove useful as a tool to dissuade evasion among traditionally noncompliant groups.

To illustrate the nature of a gain framing intervention, consider a small business owner. Compared to wage and salary income, income from small businesses is more likely to be associated with evasion, due to the greater difficulty associated with detecting a misrepresentation of earnings. Because this tax filer is in an at-risk group for tax evasion, the tax authority could attempt to ensure that this taxpayer's bill is viewed as a gain. One potential means of doing so would be to provide a report that shows the taxes she paid in relation to a group of comparable business owners in her geographic area or within her industry. Conceptually, such an approach is similar to local energy providers who supply regular reports to homeowners about energy use and efficiency relative to their neighbors, with the goal of decreasing energy use or increasing investments in energy efficient appliances. If the government could present the small business owner's tax payments on a scale that reframes her perceived tax losses as relative gains, compared to other people or even to herself over time, the payment of taxes may be less likely to trigger the psychology of loss aversion, and thus less likely to be associated with an increase in attempts at evasion. Given the low-cost of information interventions such as these, such an approach has the potential to be cost-effective when compared to existing tools for dissuading tax evasion, such as audits.

2. LOSS FRAMING TO MAXIMIZE UPTAKE OF TAX INCENTIVES

Many of the credits and deductions that constitute legal tax manipulation opportunities are rewards for activities we view as socially desirable. For example, they might provide financial benefit to those who donate to charity, make energy saving improvements to their home, or spend on childcare. In situations where loss framing can be induced, it potentially could be applied to intentionally increase taxpayers' uptake of these behaviors.

Concretely, loss framing interventions would involve making the targeted citizens' tax bill salient, presented in a way where the tax transfer is framed as a loss, and then making it clear that this loss can be reduced by pursuing a tax-incentivized activity. For example, charitable institutions

could target potential donors in the time around tax day, reminding them of the tax payments that they are in the process of documenting and presenting the potentially desirable option of reducing some of those payments by making an immediate donation to charity. While such loss framing would translate into less money collected in the form of taxes, it does so in the name of directing resources toward other socially-beneficial ends.

One complication that arises with this approach is that, for many tax-incentivized activities, the time at which the tax benefits are documented and realized will not occur until the next calendar year. For example, if a tax filer is completing their 2017 tax return in April of 2018, an immediate donation to charity will only affect the next tax return that will be submitted in April of 2019. Issues such as these have motivated attempts to change the deadlines for the claiming of tax benefits for charitable giving from the end of the calendar year to tax day of the following year, in order to capitalize on taxpayers' immediate desire to mitigate tax losses when they become salient during tax season.[5] Such changes in deadlines likely would prove effective in the presence of loss aversion.

3. APPROXIMATING THE POTENTIAL REVENUE IMPACT OF FRAMING POLICIES

Attempts to influence the gain or loss framing adopted by taxpayers may provide a quantitatively important policy tool to the tax authority. To illustrate the potential aggregate consequences, I calculate the predicted consequence of large-scale framing changes under the assumption that the impact of loss framing on manipulation remains similar to what I have measured.

To help illustrate the potential magnitude of framing interventions, we may compare the predicted differences in tax manipulation that would arise if we transitioned from the status quo—in which approximately three quarters of taxpayers face a gain on tax day—to a world where all taxpayers viewed their final tax bill as a gain, or to one where all taxpayers viewed their tax bill as a loss. My estimates suggest that, if all tax filers who currently face gains were as motivated to manipulate as those facing losses, annual tax revenue would decrease by $3.7 billion. If tax filers who face losses experienced the lower motivation to manipulate of those facing gains, annual tax revenue would increase by $1.4 billion.

Of course, extrapolating to such different policy regimes inherently involves strong assumptions; and indeed, it is unlikely that interventions exist that could control all taxpayers' perceptions of whether their tax bill constitutes a gain or loss. However, predicted effect sizes of this magnitude suggest that even attempts at marginal interventions might be worthwhile. For example, an intervention that leads a mere 1% of taxpayers to change their assessment of their tax bill from a loss to a gain is predicted to increase revenue by $51 million. While effects of this size are small when compared to the national budget, capitalizing on this psychology can provide a cost-effective means of making the most of the tax system in place.

CONCLUSION

A greater understanding of the psychology of the loss-averse taxpayer creates new opportunities for policymakers. Incorporating this psychology into analysis of existing policy can assist in accurately predicting taxpayer behavior, and in accurately predicting the situations in which the tax authority should expect evasion. Perhaps more interestingly, this psychology provides an opportunity for tax authorities to control the incentives for tax manipulation activities by controlling the framing of tax gains and losses. Through these channels, tax manipulation decisions provide a setting in which the simple psychology of gain/loss framing can generate large revenue effects in the aggregate. As governments continue to integrate ideas from behavioral science into the design of policy, attempts to specifically deploy these ideas to control tax morale likely will prove to be useful.

ABOUT THE AUTHOR

ALEX REES-JONES, PhD

Assistant Professor, The Wharton School

Alex Rees-Jones is an Assistant Professor in the Operations, Information, and Decisions Department at the Wharton School of the University of Pennsylvania. His research is focused on integrating psychological biases into economic policy analysis, particularly in the contexts of taxation and market design.

Professor Rees-Jones conducted his studies at Cornell University, where he received a PhD in Economics and a bachelor's degree in Economics and Mathematics. Prior to coming to Wharton, he worked as a postdoctoral fellow at the National Bureau of Economic Research (NBER). He remains a faculty research fellow at NBER and is a senior fellow at the University of Pennsylvania's Leonard Davis Institute of Health Economics.

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CONTACT THE PENN WHARTON PUBLIC POLICY INITIATIVE

At Penn
Steinberg Hall-Dietrich Hall, Room 201
Philadelphia, PA 19104-6302
+1.215.898.1197

In Washington, DC
440 First Street, NW, Suite 810
Washington, DC 20001
+1.202.503.3773

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