Does Choice Matter? The Effect of Filing Method Autonomy on Taxpayer Aggressiveness in a Pre-Filled Tax Return System

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ABSTRACT

While pre-filled tax filing systems are the norm in many European countries, individuals in the U.S. are accustomed to the autonomy and control associated with preparing their own tax return. Taking that autonomy away by requiring individuals to use a pre-filled system could have negative consequences. Prior research has shown that implementing a pre-filled system in the U.S. may decrease compliance. Building on prior literature, results of an experiment manipulating filing method (traditional vs. pre-filled) and autonomy (present vs. absent) indicate that taxpayers who are given autonomy to choose the pre-filled system report significantly less aggressively than those forced to use it. Given that the Internal Revenue Service (IRS) revoked its promise not to compete with tax preparation software companies—opening the door for an IRS-created pre-filled filing system—this study has major implications for policymakers. Namely, policymakers would have to decide whether to make a pre-filled tax return system voluntary or mandatory. This study sheds light on the consequences of this policy decision.

Keywords: aggressiveness, autonomy, pre-filled tax return, compliance

INTRODUCTION

When it comes to taxes, individuals in the U.S. have the autonomy to choose how their taxes are prepared and filed. Yet, according to the Tax Policy Center, more than 36 countries around the world currently have a pre-filled tax filing system where the government *at least partially* completes tax returns for individuals using information reported by third parties (e.g., employers, banks), and in some countries, requires taxpayers to use the system. Additionally, U.S. policymakers proposed the Tax Filing Simplification Acts of 2017, 2019, and 2022 which call for the IRS to offer a pre-filled return option and permit taxpayers the option to use it (Scott 2016; Warren 2017; Sherman 2019; Sherman 2022; Warren 2022). In contrast to countries that utilize pre-filled systems, American taxpayers have long been accustomed to choices when it comes to preparing and filing their tax returns. According to IRS tax return preparer statistics, taxpayers in the U.S. can choose from several tax filing methods. For example, numerous self-preparation tax software programs exist in the U.S. (e.g., TaxAct, TurboTax, and TaxSlayer), individuals can hire a professional preparer (e.g., CPA or EA), or complete a return on paper (Internal Revenue Service). If a pre-filled system were implemented in the U.S., and policymakers required individuals to use it, individuals would lose some of the autonomy and control over their tax preparation process, and reactions to a loss of autonomy may be negative.

A pre-filled system is one in which the tax authority prepares the tax return for the individual using information reported to the IRS by third parties (e.g., employers, banks).[1] The individual then reviews and edits the return before submitting it or, in some systems, may

[1] The IRS requires third-party reporting for items such as W-2 wages, non-employee compensation (via 1099-NEC), interest income (via 1099-INT), taxable retirement distributions (via 1099-R), and others. This allows the IRS access to much of the necessary information needed to pre-fill individual tax returns.

completely discard it and file using a traditional method (Tax Policy Center Briefing Book).[2] Pre-filled systems are beneficial as they reduce administrative costs for the tax authority, reduce errors on the part of the taxpayer, and reduce the costs of filing a return for taxpayers (OECD Library). Though not currently available to Americans, a pre-filled system from the IRS seems possible for several reasons. First, pre-filled systems have been previously piloted in several states for state tax returns, making it a viable possibility federally (Goolsbee 2006; Walczak 2018). Second, policies requiring the IRS to create a pre-filled system have been proposed multiple times recently (Warren 2017; Sherman 2019; Sherman 2022; Warren 2022). Third, pre-filled systems are common throughout the world. In Germany and Australia, taxpayers have the option to use the country's pre-filled return system. However, in Nordic countries like Denmark and Sweden, taxpayers are required to use the pre-filled return system (CEF Digital). Finally, the IRS has recently shown an interest in mandating new technology, lending credence to the possibility that pre-filled returns may eventually be required in the U.S. (see IRS News Release, February 2022). Therefore, given the possibility that pre-filled returns may become viable soon in the U.S., understanding whether and how mandating or providing choice for the use of new tax technology impacts taxpayer behavior is important.

Though pre-filled systems have benefits for taxpayers and revenue agencies alike, requiring taxpayers to use pre-filled tax returns also comes with costs. For example, prior work has demonstrated that the use of a pre-filled system can increase taxpayers' reporting aggressiveness (Schwebke, Brink, Hansen, and Kelliher 2023) and lower their compliance if they do not include accurate cash income estimates (Doxey, Lawson, and Stinson 2021). However,

[2] Importantly, not all pre-filled systems allow the taxpayer to discard a pre-filled return and prepare their own. Several countries require individuals to use the pre-filled system (see OECD 2013, Table 7.1). In this study, participants do not have the opportunity to discard the pre-filled return when they choose or are required to use it.

previous research has not considered the effect of filing method autonomy, defined here as *the ability to choose between the pre-filled and traditional tax filing method*, on tax compliance. This question is important because taking away taxpayers' autonomy, or freedom to choose their preferred filing method, might backfire, resulting in taxpayers' reporting more aggressively.[3] As such, the purpose of this study is to examine whether and how autonomy affects the established relation between tax filing method and tax aggressiveness.

Omission bias posits that errors of omission—those errors stemming from taking no action—are judged less harshly than errors of commission, defined as errors stemming from taking a particular action (Baron and Ritov 1994; 2004; Ritov and Baron 1990; 1995; 1999). Prior research indicates that individuals choosing not to edit a return prepared for them by the IRS when it is missing income information perceive themselves as less dishonest than if they had actively under-reported income when manually completing a return, and thus, pre-filled returns lower compliance (Schwebke et al. 2023; Doxey et al. 2021). Even so, prior research does not explicitly examine the effect of voluntary (i.e., autonomy) versus mandatory (i.e., no autonomy) use of a pre-filled return on tax compliance. Examining the effect of autonomy on this relationship is important as theory and prior research suggest that compliance may actually increase when individuals have filing method autonomy and choose to use the pre-filled method as compared to being forced to use it.

Consistent with the omission bias and prior research, I attempt to replicate prior findings that individuals using a pre-filled filing method will report cash income more aggressively than those using a traditional filing method. Second, consistent with prior theoretical and empirical

[3] The term compliance refers to being in accordance with tax laws, while the term aggressive refers to "engaging in significant tax positions with relatively weak supporting facts" (Frischmann, Shevlin, and Wilson 2008, 265). Therefore, in this study, an individual who is *more* aggressive is one who is reporting *less* income.

work that demonstrates positive behaviors stemming from autonomy, I predict that the established negative relation between tax filing method and tax aggressiveness will be weakened by the presence of filing method autonomy.

To test my predictions, I utilize a 2 (tax filing method: traditional software or pre-filled return system) x 2 (filing method autonomy: present or absent) quasi-experimental design.[4] Participants are recruited from Amazon Mechanical Turk and answer several screening questions to ensure they are at least 18 years of age, have filed at least two U.S. tax returns in the last five years, self-prepared their most recent return, and have earned cash income in the last five years. I use an instrument adapted with permission from Brink and Hansen (2020) and Schwebke et al. (2023). In period one, participants complete a hypothetical tax return using simulated traditional tax preparation software and indicate the amount of cash income they wish to report. In period two, in the autonomy present condition, participants complete their return using the method they choose (i.e., pre-filled return or traditional software as in period one), while participants in the autonomy absent condition are randomly assigned one of the two filing methods (traditional or pre-filled). Since cash income is not reported by a third-party to any government agency, the government does not have knowledge of cash income, so it is up to individuals to volunteer that information on their tax return. The dependent variable, taxpayer aggressiveness, is the amount of cash income reported in period two. I also calculate a change variable—the change in cash reported between periods one and two—to conduct supplemental analysis. Participants then answer manipulation check questions, post experimental questions, and demographic questions.

[4] When filing method autonomy is present, participants can choose the filing method under which they prefer to report rather than being randomly assigned to a condition. Because I am theorizing an autonomous choice, self-selection is a necessary and important feature of the experimental design.

Participants earn $2.25 for participating in this study and complete the study in an average of 17.6 minutes.

Consistent with prior research, I find that individuals who utilize a pre-filled filing method report significantly more aggressively than do those who use a traditional filing method. Second, in line with prior work on autonomy, I find that autonomy weakens the negative effect of filing method on tax aggressiveness such that individuals who have filing method autonomy and choose to use the pre-filled filing method report less aggressively compared to those who are forced to use the pre-filled filing method.

This study makes several contributions to the literature. Primarily, this study extends limited previous work on pre-filled returns (see Doxey et al. 2021; Fochmann, Muller, and Overesch 2021; Fonseca and Grimshaw 2017; Schwebke et al. 2023; van Dijk, Goslinga, Terwel, and van Dijk 2020). These prior studies focus primarily on the actual pre-filling of the return and how it affects compliance choices. Fonseca and Grimshaw (2017) and Doxey et al. (2021) focus on providing individuals with estimates to attempt to prevent errors of omission by individual taxpayers. Similarly, Fochmann et al. (2021) and van Dijk et al. (2020) focus on individuals' ability to passively accept incorrect information on a pre-filled return and its impact on compliance. Schwebke et al. (2023) focus on social influence (i.e., public opinion about the pre-filled system) to curb noncompliance. None of these prior studies examine whether allowing individuals to have a choice of filing method or requiring them to use a particular filing method affects compliance. This study extends the current literature by examining differences in taxpayer aggressiveness when taxpayers are either provided filing method choice or are required to use a particular filing method. This study demonstrates that providing filing method choice increases tax compliance when using a pre-filled tax filing method, extending what we currently

know about how pre-filled returns impact compliance. Second, this study extends the literature on autonomy. While prior work on autonomy demonstrates its positive effects in the classroom (Patall and Leach 2015), in parenting (Grolnick and Ryan 1989), and in the workplace (Pfister and Lukka 2019; De Clercq and Brieger 2022), less is known about its effects on compliance in a tax setting. This study demonstrates that the positive effects of autonomy are also present in tax filing.

Considering that the IRS recently rescinded its non-compete agreement with the tax preparation industry, it could consider creating and implementing a pre-filled filing system in the future (Elliott 2019). Whether policymakers elect to require taxpayers to use such a system is an important policy decision, and this study provides insight into the consequences of doing so. Individuals who maintain filing method autonomy and choose the pre-filled return report less aggressively than individuals who have no choice and are required to use the pre-filled return method. Thus, policymakers may wish to allow taxpayers autonomy over the pre-filled system if one is introduced to minimize potential decreases in compliance that could result if use of the pre-filled system was required.

THEORY AND HYPOTHESIS DEVELOPMENT

Background on Pre-Filled Tax Return Systems

Several countries employ a pre-filled system where the tax authority *fully* prepares the tax return for individuals and the individual then reviews, edits if necessary, and approves the return. Chile, Denmark, Finland, Malta, New Zealand, Norway, and Sweden provide fully pre-filled returns for the majority of taxpayers (OECD Library). Specifically, as of 2011, Finland reported *fully* completing 95 percent of returns, Denmark reported *fully* completing 78 percent of

returns, Norway *fully* completed 65 percent of returns, Sweden *fully* completed 61 percent of returns, Chile *fully* completed 53 percent of returns, and New Zealand *fully* completed 51 percent of returns. Other countries, like Australia, Ireland, Italy, Spain, China, and South Africa all reported *partially* pre-filling 100 percent of returns (OECD Library).[5]

As of 2011, while about half of revenue agencies around the world reported at least some use of pre-filled tax returns for individuals, the IRS pre-filled zero percent of returns to any degree. Even so, some U.S. states have attempted to use pre-filled systems at the state level. In 2004, California implemented a state-level pre-filled return system called ReadyReturn (Goolsbee 2006). Over 50,000 eligible taxpayers in California were invited to use the free system, but only 11,000 individuals opted to participate (Goolsbee 2006). Despite a 98 percent satisfaction rate among those who did use it (California Franchise Tax Board 2006), the ReadyReturn program was ended in 2012 due, in part, to robust lobbying efforts by tax preparation software producers like Intuit, who strongly opposed the system (Goolsbee 2006; Day 2013). Pre-filled systems were also attempted in Michigan and Colorado, but both suffered because taxpayers chose not to participate (Walczak 2018). Colorado's program, called File4Me, was also a state-level pre-filled return system, but lacked participation over its three-year run (Fichtner, Gale, and Trinca 2019).[6]

The National Taxpayers Union Foundation (NTUF) estimates that U.S. taxpayers used 6.1 billion hours to comply with the U.S. federal tax code in 2014. That equated to $202.1 billion of lost productivity in the U.S. economy and $31.7 billion in out-of-pocket expenses (Kellogg

[5] Although this data is nearly 10 years old, there is no evidence to suggest that countries have regressed in their attempts to modernize their filing systems since 2011.

[6] It is plausible that the lack of participation was due in part to the inconvenience of using a separate system to file one's state tax return. Because most federal tax software automatically prepares state returns based on the taxpayer's federal return, it likely seemed like extra work for the taxpayer to use a separate system to file their pre-filled state return. This is another reason why starting pre-filled returns at the federal level is more feasible.

2015). These figures may be substantially reduced with the implementation of a pre-filled filing system. Even so, lobbying efforts to fight a pre-filled filing system in the U.S. have been successful to date. In fact, they were so successful that the IRS even included a promise not to compete with software providers in a written agreement in 2002 with Free File, Inc., the organization that represents the software companies that provide the federal free file program for individuals who qualify.[7] In a 2015 *New York Times* article, the chief tax officer at Intuit said the company opposed a pre-filled filing system because it "minimize[d] the taxpayers' voice and control over the tax process by reducing their role in filing their taxes and getting their own money back" (Manjoo 2015). However, in January 2020, a report found that these software companies were hiding free file programs in internet searches, making it less likely that qualifying individuals would be able to find them, and more likely that those individuals would be led to a fee-generating software service (Elliott 2019). After that report became public, the IRS altered its agreement with Free File, Inc., including removing the clause that prohibited the IRS from creating its own software. Importantly, this change to the agreement paves the way for the U.S. to implement a pre-filled filing system in the future. Additionally, in early 2022, the IRS announced it would require the use of new facial recognition technology for taxpayers to access their online accounts. However, amid pushback from several groups, the IRS retracted that requirement a month after the announcement (see IRS News Release, February 2022). The IRS' choice to initially require the new technology and the public reaction to the requirement demonstrates the need for research to understand the implications of such decisions. It is unknown how U.S. taxpayers might react to being told they must use the IRS pre-filled return

[7] See https://www.irs.gov/pub/irs-utl/2002-free-online-electronic-tax-filing-agreement.pdf for a copy of the original agreement.

system, yet this information would be extremely helpful to policymakers. The current study begins to fill this gap in the literature.

Theory and Framework

Tax Filing Method

Prior research on tax filing method and compliance demonstrates the negative impact of pre-filled tax returns on compliance is motivated by omission bias (Doxey et al. 2021). Omission bias occurs because errors of omission are judged less harshly by others than errors of commission in situations with equivalent outcomes (Ritov and Baron 1990; Baron and Ritov 1994). Said differently, individuals have a "preference for harm caused by omissions over equal or lesser harm caused by acts" (Baron and Ritov 2004, 74). An omission happens when no action takes place that leads to the outcome, whereas a commission happens when an act takes place that leads to the outcome. Omission bias has been demonstrated repeatedly in prior research in psychology. For example, Ritov and Baron (1990) find that participants are hesitant to vaccinate a hypothetical child (i.e., take action) against a disease if the vaccination can cause death, even when not vaccinating (i.e., taking no action) against the disease could lead to even higher possibility of death. In a hypothetical investment scenario, Baron and Ritov (1994) find that missing out on additional profit is judged more harshly for those that sold one stock (i.e., take action) to purchase another, and then the original stock increased in value more quickly, relative to those who hold their original stock (i.e., take no action) and learn that purchasing a different stock would have yielded a higher gain.

In the tax setting, taxpayers who receive a pre-filled tax return from the IRS that does not include their cash income and file it without first adding their cash income have evaded taxes via an error of omission because they took no action. On the other hand, taxpayers who complete a

traditional return must intentionally enter a number for cash or other income (or, in some software, answer a question stating that they have no additional income to report), which constitutes an error of commission if they choose to underreport. Because individuals perceive errors of omission to be judged less harshly than errors of commission, taxpayers using the pre-filled return who have the opportunity to commit an error of omission may be more likely to underreport cash income. Prior research (see Doxey et al. 2021; Fochmann et al. 2021; Fonseca and Grimshaw 2017; Schwebke et al. 2023; van Dijk et al. 2020) confirms that individuals using pre-filled returns may be less compliant, so I do not formally hypothesize that in this study.

Tax Filing Method and Filing Method Autonomy

While prior studies demonstrate that tax compliance decreases when taxpayers use a pre-filled filing method (Doxey et al. 2021; Schwebke et al. 2023), I expand upon these studies by investigating the joint effect of the filing method and filing method autonomy on taxpayer aggressiveness. I explore this by examining whether taking away filing method choice and requiring individuals to use a certain filing method (pre-filled return or traditional tax software) impacts tax aggressiveness.

Individuals prefer to have autonomy and freedom to engage in behaviors of their choice (Brehm 1966). In a moral sense, autonomy has been shown to promote positive behaviors like honesty (i.e., less cheating) in an educational environment (Kanat-Maymon, Benjamin, Stavsky, Shoshani, and Roth 2015; Patall and Leach 2015; Bureau, Gareau, Guay, and Mageau 2022) as well as prosocial behaviors (Gagne 2003). In a study of middle school students, Kanat-Maymon et al. (2015) find that autonomous motivation for learning is inversely related to academic dishonesty. In a study using undergraduate college students, Patall and Leach (2015) find that students misreport their own scores (i.e., cheat) less when provided autonomy to choose which

game they played. Bureau et al. (2022) investigate cheating among college students and find that an autonomous educational environment can mitigate students' likelihood of cheating. In terms of other positive behaviors, Gagne (2003) shows that college students who indicated higher autonomy orientation—that is, the tendency to be self-motivated rather than motivated by pressures or control—engaged in more prosocial behaviors. Overall, prior research on autonomy demonstrates that its presence is associated with less cheating and more prosocial behaviors.

In addition, the positive effects of autonomy on individual behavior have been studied in a variety of different contexts, including weight loss (Williams, Grow, Freedman, Ryan, and Deci 1996), parenting (Grolnick and Ryan 1989), the classroom (Stefanou, Perencevich, DiCintio, and Turner 2004; Niemiec and Ryan 2009), the workplace (Baard, Deci, and Ryan 2004; Anderson, Chang, Cheng, and Phua 2017; Pfister and Lukka 2019; De Clercq and Brieger 2022), and in a corporate tax compliance environment (Chan, Lo, and Lai Lan Mo 2006). In a weight loss study, individuals who were autonomously motivated—that is, attended by their own volition—attended the weight loss program more often and maintained weight loss better after the program ended compared to those who were pressured or coerced to join the program (Williams et al. 1996). In a child rearing study based on interviews conducted with each parent, parents who allowed their children more decision-making authority reported their children completed chores and homework more often than parents who controlled their children's choices (Grolnick and Ryan 1989), a positive behavioral change that resulted from autonomy. In the workplace, employee satisfaction is higher in bank employees who perceive the environment created by the managers is more autonomous than for those who perceive the environment is more controlled (Baard et al. 2004). In an accounting field study, Pfister and Lukka (2019) demonstrate that autonomy better facilitates creativity and the ability for employees to reach

stretch targets. Similarly, Anderson et al. (2017) find that when management gives an employee the autonomy to choose their own supplier, initial trust in the supplier is higher as compared to when the manager chooses the supplier for the employee. In another workplace study, De Clercq and Brieger (2022) find that women entrepreneurs who have a higher sense of job autonomy also feel more satisfied with their work-life balance. Finally, Chan et al. (2006) find that, in a transfer pricing setting, tax adjustments for foreign investment enterprises are lower when the enterprise has the autonomy to set its own transfer prices as opposed to when the prices are set by the parent company. Thus, prior research demonstrates that the presence of autonomy creates more positive behaviors than its absence.

In a tax filing setting, autonomy may influence the relation between tax filing method and taxpayers' reporting aggressiveness. As mentioned, prior work shows that tax filing method influences tax aggressiveness such that when taxpayers use a pre-filled return they report more aggressively (see Schwebke et al. 2023; Doxey et al. 2021). However, autonomy might be particularly important when a pre-filled tax return system is first introduced. Because the presence of autonomy leads individuals to behave more honestly and prosocially, I suggest that the presence of choice of filing method will reduce the established negative effect of filing method on aggressiveness. That is, a positive behavior from an individual taxpayer as a result of autonomy will be less cheating (i.e., higher compliance). Because resulting behavior tends to be more positive when individuals have autonomy, the mere choice to use the pre-filled system or not (i.e., filing method autonomy) may result in better compliance from individual taxpayers as compared to forcing taxpayers to use it. As such, I present the following interaction hypothesis:

> **Hypothesis:** The negative effect of tax filing method on tax aggressiveness will be weakened by the presence of filing method autonomy.

METHOD

Participants and Design

To test my hypothesis, I use a 2 (*Filing Method*: traditional software or pre-filled return) x 2 (*Autonomy*: present or absent) quasi-experimental design with two periods. Participants are partially randomly assigned. That is, in the *Autonomy* absent condition, participants are randomly assigned a *Filing Method* while in the *Autonomy* present condition participants self-select into a *Filing Method*. Participants are 242 individuals sourced through Amazon Mechanical Turk.[8] Participants answer several screening questions to ensure they are at least 18 years of age, have filed at least two tax returns in the U.S. in the last five years, have previously earned cash income, and self-filed their most recent return using tax software.[9] The participants' average age is 38.86 (*SD* = 10.58), and 62.8 percent of the participants are male. Full demographic information can be found in Table 1.

Because random assignment is partial, I conduct a series of one-way ANOVAs to ensure that the demographics of the sample are not significantly different across the four conditions. No significant differences in gender ($p = 0.35$), age ($p = 0.23$), education ($p = 0.36$), income ($p = 0.17$), political ideology ($p = 0.30$), or risk propensity ($p = 0.62$) are found between conditions indicating that partial random assignment appears to have been successful in reducing demographic differences among the four conditions.[10]

[8] I required that participants had previously completed at least 500 HITs and had an approval rating of at least 96 percent in order to participate. One participant took over four hours to complete the task, but since the pattern of results did not change by removing them, they are left in the sample. The Institutional Review Board at the school where data were collected approved the experiment.

[9] All participants in this study indicated during the screening process that they used traditional filing software to prepare their most recent tax return, making it less likely that autonomy around this method would impact their behavior.

[10] Additionally, because participants in the two *Autonomy* present conditions self-selected into those conditions, I conduct a series of *t*-tests to examine any differences in demographics specifically between the two autonomous cells. Results show no significant differences in gender ($p = 0.87$), age ($p = 0.25$), education ($p = 0.20$), income ($p = 0.16$), political ideology ($p = 0.41$), or risk propensity ($p = 0.28$) between the two *Autonomy* present cells.

Participants overwhelmingly rate the hypothetical scenario as realistic (M = 6.02, SD = 0.91) on a seven-point scale. The mean score on this measure is also significantly higher than the scale midpoint ($p < 0.01$, two-tailed). Participants are paid a flat rate of $2.25, and, on average, take 17.6 minutes to complete the task, resulting in an hourly rate of approximately $7.67.[11] Prior research suggests that $6.00 per hour or more is the preferred rate of MTurk workers (Hunt and Scheetz 2019).

[Insert Table 1 Here]

Independent Variables – Filing Method and Autonomy

The first independent variable, *Filing Method*, is manipulated at two levels: traditional software or pre-filled return system. In the traditional software condition, participants complete their period two tax return using a process that simulates the experience of using commercial tax software. In the pre-filled return system condition, participants' period two returns are prepared for them by the IRS and presented to them for review.[12] Participants can then edit the return before submitting it or submit the return as is. The second independent variable, *Autonomy*, is manipulated at two levels: present or absent. In the present condition, participants are provided a filing method choice (i.e., traditional software or pre-filled return). In the absent condition, participants are aware of both methods, but they are assigned to one or the other (i.e., not provided a choice) in period two.

[11] Providing participants with a flat rate of pay (as opposed to an experimental economics setup) is an intentional design choice that likely biases against finding results because participation pay is not tied to participants' reporting choices within the study. That is, participants have no financial incentive to report aggressively in the study, so any aggressive reporting likely stems from the manipulations or other aspects of the study.

[12] In period one, all participants use traditional software, but they are given a choice between three traditional software. The manipulations occur in period two of the scenario.

Dependent Variable – Taxpayer Aggressiveness

The dependent variable, *Aggressiveness*, is operationalized through cash income reported in year two. Cash income reported is captured when the participant chooses how much cash income to report from a hypothetical pet sitting business they started in the evenings and on weekends. Participants are told due to poor record keeping they are unsure of an exact amount of cash earned but estimate it to be between $6,500 and $10,000 in year one. In year two, participants are told they estimate somewhere between $8,500 and $12,000 was earned. They can choose to report any amount between $0 and $12,000 in year two. Cash income is an appropriate measure given that it is generally not reported by a third party to the IRS, giving individuals significant opportunity to take an aggressive tax position if they choose.

Experimental Procedures

First, participants read a hypothetical scenario that includes information about their earnings for year one (2017). They learn they have earned W-2 wages of $50,700, interest income of $250, dividend income of $500, and cash income of between $6,500 and $10,000 from their pet sitting business.[13] Because of poor record keeping, they are not sure of the exact amount of cash income. They are told that the IRS audits up to 10 percent of returns and those caught under-reporting income are subject to penalty. Providing participants with an audit rate is important to eliminate any game-playing. That is, without the possibility of an audit, participants may be more likely to report no cash income because they know there is no penalty for doing so. In addition, disclosing the audit rate adds realism to the scenario.[14]

[13] While it is difficult to decipher exactly how much of the self-employment income reported in the U.S. is cash income, there were over 20 million Schedule Cs filed in 2022 to report income (or loss) from self-employment according to the Internal Revenue Service filing statistics.

[14] While actual audit rates are likely much less than 10 percent, prior research often uses audit rates much higher than ten percent, including some between 25 and 40 percent (see Alm, Bloomquist, and McKee 2015; Alm, Cherry, Jones, and McKee 2010, and Boylan and Sprinkle 2001). No participants are actually audited in the experiment.

Since all participants indicate in screening questions that they used tax software to self-prepare their last return, they are asked to choose which traditional tax software they prefer for year one. Importantly, this provides all participants with a choice in the first year (i.e., which traditional software they want to use). Their options are TurboTax, TaxSlayer, and TaxAct. Regardless of which one is chosen, they are all taken to the same screen representing mock tax software that simulates actual software and they are asked to manually enter information from a provided W-2, 1099-INT, and 1099-DIV that include the income amounts noted above. Finally, they are asked to indicate the amount of cash income they would like to report. For experimental control, all participants end up in a tax due position regardless of the amount of cash they choose to report.

Next, participants learn that the IRS has created a pre-filled return system where the IRS can complete the individual's tax return using third-party reported information and then send it to the taxpayer for review. The taxpayer can then edit it or submit it as is. Participants are explicitly told that the system would automatically enter income that is third party reported (i.e., via W-2s and 1099s), but any cash income earned would need to be manually entered by editing the pre-filled return before filing it. Participants then learn that in year two (2018), they earned $50,700 of W-2 wages, $250 of interest income, $500 of dividend income, and that they earned between $8,500 and $12,000 of cash income from pet sitting.[15] They are again told that poor record keeping has made it difficult to determine the exact amount of cash they earned. They are also told again that the IRS audits up to 10 percent of returns and those caught under-reporting income are subject to penalty.

[15] In both periods and across all conditions, if participants incorrectly enter W-2, interest, or dividend income, an error message occurs, and they must correct their entry. This design choice was made because 3rd party reporting of these income items makes it very difficult to under report without being caught.

Next, participants are randomly assigned to either the *Autonomy* present or *Autonomy* absent condition. In the present condition, participants choose between using the traditional software or the pre-filled return system.[16] In the *Autonomy* absent condition, participants are not provided a choice between the two filing methods. That is, in the *Autonomy* absent/traditional software condition, they learn that they do not qualify for the pre-filled return system, and they must use the traditional software method, or alternatively, in the *Autonomy* absent/pre-filled condition, they learn that all taxpayers are required to use the pre-filled return system. All participants then complete the mock tax return for year two (using either traditional software or the pre-filled return). Appendix A shows the *Autonomy* manipulation.

Next, participants complete a post experimental questionnaire including manipulation checks. Then, participants answer four questions related to their support for the pre-filled return system, again asked on a one (strongly disagree) to seven (strongly agree) scale. The questions include, "The new IRS pre-filled return system would be useful for taxpayers", "I would like to use the IRS pre-filled return system in the future", "I support giving taxpayers the choice of whether to use the IRS pre-filled return system," and "I support the implementation of an IRS pre-filled return system." These questions could have informative policy implications regarding whether taxpayers would support a pre-filled tax return system under the different conditions. Finally, participants complete a measure of social desirability (based on Strahan and Gerbasi 1972) and a set of demographic questions.[17] Figure 1 depicts the flow of the experiment.

[16] The *Filing Method* choices (i.e., three traditional software options and the pre-filled option) were presented in randomized order to participants.

[17] Because the scenario asks participants about their own decision-making (as opposed to a 3rd person scenario), I measure social desirability to control for the potential that participants respond in a way that is socially desirable rather than how they might actually behave.

[Insert Figure 1 Here]

RESULTS

Manipulation Checks

First, to ensure participants recognize the *Filing Method* condition they are in, they are asked, "When viewing my 2018 tax return (the second one completed) in the scenario, I was required to manually enter all of my own income information from W-2s and 1099s into the tax return," on a one (strongly disagree) to seven (strongly agree) fully labeled Likert scale. The mean score in the traditional *Filing Method* group is 6.10 (*SD* = 1.23) while the mean score in the pre-filled return group is 2.99 (*SD* = 2.14). There is a significant difference in mean scores between groups ($t_{224} = 14.17$, $p < 0.001$) indicating a successful manipulation of *Filing Method*.

Second, as a check on the manipulation of *Autonomy*, participants are asked three questions adapted from Breaugh (1985) regarding perceived autonomy on a one (strongly disagree) to seven (strongly agree) scale. The items are, "I was allowed to decide how to go about getting my tax return done (the methods to use)," "I was able to choose the way to go about my tax return (the procedures to utilize)," and "I was free to choose the methods to use in carrying out my tax return." All items load onto one factor with factor scores of 0.92 or higher. A Cronbach's alpha of 0.96 indicates the measure is highly reliable (Cronbach 1951). I average the three autonomy items together to create the variable *Autonomy_Avg*.[18] The mean score when *Autonomy* is present is 6.11 (*SD* = 0.91) while the mean score in the *Autonomy* absent group is 4.47 (*SD* = 1.95). These means are significantly different between groups ($t_{170} = 8.41$, $p < 0.001$) indicating the manipulation of *Autonomy* was successful.[19]

[18] *Autonomy_Avg* refers to the average score of the three manipulation check questions, while *Autonomy* refers to the dichotomous variable representing whether filing method autonomy was present or absent.
[19] For both manipulations, Levene's test for equality of variances is significant so I report results where equal variances are not assumed.

Descriptive Statistics

Dependent Variable

I measure *Aggressiveness* by the amount of cash income participants report in the second tax-reporting period.[20] Means and standard deviations of *Aggressiveness* by experimental condition are presented in Table 2, Panel A. Overall, I find that *Aggressiveness* ranges from $0 to $12,000.

Test of Hypothesis

First, I confirm the results of prior research by demonstrating a main effect of *Filing Method* on *Aggressiveness*. Table 2, Panel A shows that *Aggressiveness* is higher (i.e., they choose to report less cash income) for individuals who use a pre-filled *Filing Method* (M = $5,506.47, SD = $4,755.46) than for those who use a traditional *Filing Method* (M = $8,322.00, SD = $3,121.01). In Table 2, Panel B, I present results of an ANOVA to confirm the findings of prior research. There is a significant main effect of *Filing Method* on *Aggressiveness* ($F_{1,238}$ = 28.84, $p < 0.01$) confirming the findings in prior research. Simple effects analysis confirms that this effect is present regardless of whether *Autonomy* is present ($p < 0.01$) or absent ($p = 0.02$), providing further support for the main effect of *Filing Method* on *Aggressiveness*.[21]

[Insert Table 2 Here]

[20] *Aggressiveness* is defined such that the less cash income a participant reports, the more aggressive that participant is considered to be.

[21] I also performed the same ANOVA using participants' year one cash reporting choices as the dependent variable to test if differences in reporting choices exist prior to the manipulations. There is no significant main effect for *Filing Method* ($p = 0.88$) or *Autonomy* ($p = 0.70$), and no significant interaction effect ($p = 0.51$). This demonstrates that reporting choice (i.e., *Aggressiveness*) differences did not exist between participant groups prior to the treatments.

The hypothesis predicts that *Autonomy* will weaken the negative effect of *Filing Method* on *Aggressiveness*. Table 2, Panel B shows a significant interaction between *Filing Method* and *Autonomy* on the dependent variable, *Aggressiveness* ($F_{1,238}$ = 1.90, p = 0.03, one-tailed). Figure 2 below depicts the interaction plot, showing that the negative effect of *Filing Method* is weakened when *Autonomy* is present. This provides support for the prediction that *Autonomy* fundamentally changes the relation between *Filing Method* and *Aggressiveness*. A simple effects analysis shows that within the pre-filled condition, participants who were provided a choice and chose the pre-filled filing method report significantly less aggressively than those who were required to use the pre-filled filing method ($6,254.67 vs. $4,601.39, $F_{1,238}$ = 5.531, p = 0.02).

As a robustness test, I collapse the *Autonomy* present cells (pre-filled and traditional) together (n = 121) and compare the mean for *Aggressiveness* of the collapsed group (M = $6,960.21) to the mean of the No *Autonomy* x pre-filled *Filing Method* cell (M = $4,601.39). An independent samples t-test shows a significant difference (t = 3.37, p < 0.01) in *Aggressiveness* between these two groups. This provides additional insight regarding what may happen to overall compliance if individuals had a choice to use the pre-filled system instead of being required to do so. That is, when individuals are allowed to choose to use the pre-filled or traditional *Filing Method*, they report significantly more income than when forced to use the pre-filled method. Overall, the hypothesis is supported.[22] Together with the primary analysis for the hypothesis, this demonstrates that *Autonomy* improves compliance when evaluating only users of the pre-filled system, and it still improves compliance when evaluating users of the pre-filled software and

[22] I also conducted a logistic regression (results untabulated) with a dummy variable, *Evasion*, as the dependent variable. *Evasion* is coded as 1 if the participant reported cash income below the lower bound of the income range, and zero otherwise. The overall pattern of results does not change, suggesting that the results are not driven solely by participants reporting aggressively within the range of income provided. Rather, *Filing Method* is also positively associated with *Evasion*, unless the individual is allowed to choose the pre-filled method.

user who chose the traditional method. This is important because it shows that the positive effect of *Autonomy* is not driven solely by individuals choosing to use the traditional method of filing, as the effect is present when the traditional method is included and not included in the analysis.

[Insert Figure 2 Here]

Supplemental Analysis – *ΔCashReported*

In addition to a between-subjects comparison of year two reporting choices (seen in the ANOVA above), the experimental design also allows for a comparison of reporting decisions in the first period of the study with reporting decisions in the second period of the study via a change variable. I compute this change variable, *ΔCashReported*, by subtracting each participant's period one reporting choice from their period two reporting choice. Since all participants complete their return using traditional tax software in the first period, changes in reporting choices can be attributed to the manipulations introduced before the second reporting period. Table 3, Panel A shows the descriptive statistics for period one reporting choices and *ΔCashReported* by condition.[23]

[Insert Table 3 Here]

Results of this analysis—using *ΔCashReported* as the dependent variable instead of participants year two reporting choice (i.e., *Aggressiveness*)—are largely identical to the main analysis in this study. Table 3, Panel B shows a significant main effect of *Filing Method* on *ΔCashReported* ($F_{1,238} = 36.73$, $p < 0.01$) confirming support for findings in prior research. Once again, a simple effects analysis confirms that the effect is present regardless of whether *Autonomy* is present ($p = 0.003$) or absent ($p < 0.01$). Table 3, Panel B also shows a significant

[23] The period one income range is $6,500 to $10,000 while the period two range is $8,500 to $12,000. Hypothetically, all participants should show a positive *ΔCashReported* because all participants experienced an increase in cash income regardless of experimental condition.

interaction between *Filing Method* and *Autonomy* on the dependent variable, *ΔCashReported* ($F_{1,238}$ = 2.97, p = 0.04, one-tailed). A simple effects analysis shows that within the pre-filled condition, participants who were provided a choice and chose the pre-filled filing method had a significantly more positive change in cash reported between periods than those who were required to use the pre-filled filing method (-$759.24 vs. -$2,070.42, $F_{1,238}$ = 9.15, p < 0.01). I then perform a similar robustness test as with the primary dependent variable and show that the mean difference in *ΔCashReported* between the collapsed *Autonomy* conditions (both pre-filled and traditional) (M =$8.20) compared to the No *Autonomy* x pre-filled *Filing Method* cell (M = -$2,070.42) is significant (t = 3.25, p < 0.01). This provides additional support for the hypothesis.

Additional Analysis – Support for the Pre-Filled System

In this section, I provide results related to the four questions indicating support for the pre-filled filing system answered as part of the post experimental questionnaire. Support for the pre-filled system is measured using the following four statements: "The new IRS pre-filled return system would be useful to taxpayers" (SUP1), "I would like to use the IRS pre-filled return system in the future" (SUP2), "I support giving taxpayers the choice of whether to use the IRS pre-filled system" (SUP3), and "I support the implementation of an IRS pre-filled return system" (SUP4). An exploratory factor analysis indicates that SUP1, SUP2, and SUP4 load on the same factor at 0.75 or higher, and the three-item scale has a Cronbach's alpha of 0.83 indicating acceptable reliability (Cronbach 1951). I average SUP1, SUP2, and SUP4 together to create one measure called *Support*. SUP3 does not significantly load onto the same factor. To test for potential differences in *Support*, I conduct an independent samples *t*-test and find there is no significant difference in *Support* between participants who are provided filing method choice and participants who are not (t_{240} = 0.60, p = 0.55, untabulated). However, post hoc Tukey tests

to a one-way ANOVA show that *Support* in the Choice/Traditional condition (M = 5.05, SD = 1.22) is significantly lower than the Choice/Pre-Filled (M = 5.80, SD = 0.84, $p < 0.01$), No Choice/Traditional (M = 5.67, SD = 1.09, p = 0.02), and No Choice/Pre-Filled (M = 5.54, SD = 1.18, p = 0.09) conditions.[24] However, none of the other conditions are significantly different from one another. This provides some evidence that participants were not pre-disposed to supporting a pre-filled return, and that individual support (or lack of) for the pre-filled system is not likely driving differences between conditions. That is, *Support* seems independent of *Autonomy* such that participants in the two *Autonomy* conditions exhibit differences in *Aggressiveness* while showing similar *Support* for the pre-filled system. Additionally, this does suggest that if a pre-filled system were introduced and made voluntary, garnering support for such a system may be an important factor for policymakers in getting individuals to voluntarily use the system.

Adding *Support* to the main ANOVA analysis as a control variable (and thereby creating an ANCOVA) does not change the overall pattern of results, but *Support* is a significant covariate (F = 6.16, p = 0.01, untabulated). Controlling for *Support* in the ANCOVA strengthens the interaction between *Autonomy* and *FilingMethod* from p = 0.03 (one-tailed) to p = 0.01 (one-tailed). Together, this suggests that the results are primarily driven by *FilingMethod* and *Autonomy* rather than participants' underlying support (or lack of support) for the pre-filled return system.

Additional Analysis – Reactance as a Result of Autonomy Loss

I also measure participants' reactance, defined as a motivational state of arousal driving individuals to engage in negative behavior. Reactance often occurs when autonomy is taken

[24] It was expected that participants who had autonomy and intentionally chose not to use pre-filled return would exhibit lower support for pre-filled returns. This is likely the very reason they chose not to use it.

away (Brehm 1966, Brehm and Brehm 2013, Miron and Brehm 2006). *Reactance* is measured using a one (strongly disagree) to seven (strongly agree) fully labeled scale adapted from Hong and Faedda (1996). The items include, "I became frustrated when I was unable to make free and independent decisions about filing my return," "I became angry when my freedom of choice was restricted," and "IRS regulations triggered a sense of resistance in me." Exploratory factor analysis indicates that all items load on a single factor at 0.89 or higher, and the items explain 90.2 percent of the overall variance in the factor, so I average the three items together to create a single scale score for each participant, labeled *Reactance*. Overall, the three-item scale has a Cronbach's alpha of 0.95 indicating the scale is highly reliable (Cronbach 1951).

Reactance may explain the difference in reporting decisions between participants who chose to use the pre-filled *Filing Method* and those who were forced to use the pre-filled *Filing Method*. To analyze this, I conduct a *t*-test to compare the *Reactance* scores of the two conditions. Untabulated results show that participants in the No choice/Pre-filled condition (M = 3.63, SD = 1.95) demonstrated significantly more *Reactance* ($t_{135} = 3.33$, $p < 0.01$) than participants in the Choice/Pre-filled condition (M = 2.60, SD = 1.69). Because reactance may lead to negative behavior (Brehm 1966, Brehm and Brehm 2013, Miron and Brehm 2006), this may be a plausible explanation for why participants who are forced to use the pre-filled *Filing Method* report less cash income than those who choose to use it.

To further confirm that *Reactance* influences *Aggressiveness*, I test *Reactance* as a mediator between the joint effect of *Filing Method* and *Autonomy*, and *Aggressiveness*. I use PROCESS 4.2, model 8 (Hayes 2017). Using a bootstrapped 90 percent confidence interval based on 10,000 samples, results suggest that when *Autonomy* is present, the conditional indirect effect of *Filing Method* on *Aggressiveness* via *Reactance* is significant and negative (*CIE* = -

0.59, *SE* = 0.35, *CI*90 = -1.17, -0.01), meaning that when *Autonomy* is present individuals demonstrate less *Reactance*, and thereby less *Aggressiveness*. In contrast, when *Autonomy* is absent, *Reactance* does not transmit the effects of *Filing Method* to *Aggressiveness* as demonstrated by a non-significant conditional indirect effect (*CIE* = 0.28, *SE* = 0.34, *CI*90 = -0.28, 0.84). The index of moderated mediation is 740.19 and the confidence interval does not include zero, *CI*90 [57.43, 1509.06], indicating that the indirect effect of *Filing Method* on *Aggressiveness* through psychological *Reactance* is reliably more positive when *Autonomy* is present than when it is absent (see Figure 3).[25] That is, taxpayers in the pre-filled return condition who were provided a choice reported significantly more cash income than those who were not provided a choice, because they experience less psychological *Reactance*. Thus, *Reactance* plays an important role in individuals' *Aggressiveness* in this study.

[Insert Figure 3 Here]

DISCUSSION

With many countries around the world moving towards automated tax return systems and the IRS revoking its non-compete agreement with commercial software producers, pre-filled returns may become a real possibility for U.S. individual taxpayers. Prior research has examined the compliance effects of pre-filled returns. One study finds that pre-filled returns decrease compliance unless taxpayers are provided with cash income estimates (Doxey et al. 2021), and another finds that pre-filled returns increase reporting aggressiveness, but that effect can be mitigated by favorable public opinion about the IRS and the pre-filled system (Schwebke et al. 2023). Importantly, no prior work has examined whether making the system mandatory for

[25] The word positive refers to the reporting of *more* cash income (i.e., lower aggressiveness).

taxpayers or allowing taxpayers the option to use it impacts taxpayer aggressiveness. This study examines whether filing method and autonomy (i.e., the ability to choose between traditional software and the pre-filled system) affect taxpayer aggressiveness, filling that gap in the literature.

First, and consistent with prior research, I confirm that a pre-filled filing method increases taxpayer aggressiveness relative to a traditional software filing method. Second, I find that the presence of filing method autonomy weakens the established negative relation between filing method and compliance. This is in line with theory and prior research on autonomy that demonstrates more positive behaviors when autonomy is present. This is an important finding for policymakers and revenue agencies to consider when introducing new technology. From a compliance standpoint, it may be better for policymakers to provide individuals the choice to use the new technology as opposed to requiring its use.

In a supplemental analysis, I demonstrate that my predictions hold when substituting a change variable, *ΔCashReported*, in the ANOVA as the dependent variable in place of *Aggressiveness*, which only takes into account participants' year two reporting choice. The change variable computes participants' change in reporting choice between periods one and two. Results of the supplemental analysis are largely identical to the main analysis, providing further support for the hypothesis. Results also continue to hold after controlling for differences in participants' support for the pre-filled filing method. Interestingly, individuals who were forced to use the pre-filled filing method showed significantly higher reactance compared to those who voluntarily chose to use it, providing a possible explanation as to why the compliance difference exists between those conditions.

This study makes several contributions to the literature. This study extends previous work on the impact pre-filled returns have on compliance. Prior research shows that pre-filled returns may decrease compliance (Doxey et al. 2021, Schwebke et al. 2023), however it is relatively unknown whether allowing individuals to choose to use a pre-filled system or requiring them to use it impacts compliance. I fill this gap in the literature by demonstrating that filing method autonomy weakens the negative effect of filing method on compliance (i.e., using a pre-filled return decreases compliance).

This study also has important policy implications. As Congress continues to grapple with an overly complex tax code and budget deficit year after year, a more efficient and less burdensome way to file taxes would provide relief to policy makers, the IRS, and taxpayers. However, the introduction of a pre-filled system may have adverse effects on compliance. While prior work shows that favorable public opinion can mitigate those negative effects, this study adds to that by showing that providing taxpayers a choice of whether to enroll in the system can reduce taxpayer aggressiveness relative to requiring taxpayers to use the pre-filled system. Alternatively, forcing individuals to use the pre-filled system could ultimately decrease tax compliance. Overall, these findings provide new insight about the pre-filled tax filing system to policymakers.

This study is not without limitations, providing several interesting avenues for future work. First, this study is specific to U.S. taxpayers and the IRS. It is unclear whether results would hold in other countries and under different tax regimes. Second, while prior research shows that compliance differences exist when software is created by the IRS versus commercial producers (see Brink and Hansen 2020), potentially adding noise to this study, I intentionally chose to compare the use of traditional commercial software and an IRS-authored pre-filled

system. Doing so increases generalizability and external validity around my research question about autonomy. Third, while I attempted to capture many potential covariates that may influence the autonomous conditions, there are inevitably still some factors that are not accounted for. Fourth, it is possible that the results of this study could differ utilizing an experimental economics approach where reporting decisions also affect participants' pay for the study. Fifth, while this study tells participates that up to 10 percent of returns are audited, it is unclear how the real fear of being audited may affect aggressive reporting. Finally, some results may differ if participants who were forced to use traditional software in period two were presented with software other than the one they used in period one.

Future research should continue to investigate the implications of pre-filled tax returns. For example, taxpayer perceptions of the tax authority may change after successful implementation of a pre-filled system, so long term effects of the pre-filled tax system may differ compared to when it is first implemented. Also, taxpayers may find audits fairer in a pre-filled return system. These and other questions will continue to add to the literature and provide policy makers with important insights to the implications of policy choices. Notwithstanding its limitations, this study contributes to our knowledge of the consequences of filing method choice (of lack thereof) if the government were to introduce its own pre-filled tax return system.

REFERENCES

Alm, J., Bloomquist, K.M. and McKee, M., 2015. On the external validity of laboratory tax compliance experiments. *Economic Inquiry*, *53*(2), pp.1170-1186.

Alm, J., Cherry, T., Jones, M. and McKee, M., 2010. Taxpayer information assistance services and tax compliance behavior. *Journal of Economic Psychology*, *31*(4), pp.577-586.

Anderson, S. W., Chang, H. F., Cheng, M. M., and Phua, Y. S., 2017. Getting to know you: Trust formation in new interfirm relationships and the consequences for investments in management control and the collaboration. *Contemporary Accounting Research*, *34*(2), 940-965.

Baard, P.P., Deci, E.L. and Ryan, R.M., 2004. Intrinsic need satisfaction: a motivational basis of performance and weil-being in two work settings 1. *Journal of applied social psychology*, *34*(10), pp.2045-2068.

Baron, J. and Ritov, I., 1994. Reference points and omission bias. *Organizational behavior and human decision processes*, *59*, pp.475-475.

Baron, J. and Ritov, I., 2004. Omission bias, individual differences, and normality. *Organizational Behavior and Human Decision Processes*, *94*(2), pp.74-85.

Boylan, S.J. and Sprinkle, G.B., 2001. Experimental evidence on the relation between tax rates and compliance: The effect of earned vs. endowed income. *Journal of the American Taxation Association*, *23*(1), pp.75-90.

Breaugh, J.A., 1985. The measurement of work autonomy. *Human relations*, *38*(6), pp.551-570.

Brehm, J.W., 1966. A theory of psychological reactance. Academic Press.

Brehm, S.S. and Brehm, J.W., 2013. *Psychological reactance: A theory of freedom and control*. Academic Press.

Brink, W.D. and Hansen, V.J., 2020. The Effect of Tax Authority-Developed Software on Taxpayer Compliance. *Accounting Horizons*, *34*(1), pp.1-18.

Bureau, J. S., Gareau, A., Guay, F., and Mageau, G. A., 2022. Investigating how autonomy-supportive teaching moderates the relation between student honesty and premeditated cheating. *British Journal of Educational Psychology*, *92*(1), 175-193.

California Franchise Tax Board. 2006 *ReadyReturn pilot tax year 2004 study results*. Available at: https://www.ftb.ca.gov/readyreturn/ty04rrfinalreport.pdf. April 2006.

CEF Digital Connecting Europe. No date. Available at: https://ec.europa.eu/digital-building-blocks/wikis/display/CEFDIGITAL/2019/07/31/German+pre-filled+tax+return

Chan, K. H., Lo, A. W., and Mo, P. L. L., 2006. Managerial autonomy and tax compliance: An empirical study on international transfer pricing. *Journal of the American Taxation Association*, *28*(2), 1-22.

Cronbach, L.J., 1951. Coefficient alpha and the internal structure of tests. *psychometrika*, *16*(3), pp.297-334.

Day, L. 2013. How the Maker of TurboTax Fought Free, Simple Tax Filing. Available at: https://www.propublica.org/article/how-the-maker-of-turbotax-fought-free-simple-tax-filing

De Clercq, D., and Brieger, S. A., 2022. When discrimination is worse, autonomy is key: How women entrepreneurs leverage job autonomy resources to find work–life balance. *Journal of Business Ethics*, *177*(3), 665-682.

Doxey, M., Lawson, J., and Stinson, S., 2021. The effects of prefilled tax returns on taxpayer compliance. *The Journal of the American Taxation Association*, *43*(2), 63-85.

Elliott, J., 2019. TurboTax Deliberately Hid Its Free File Page From Search Engines. Available at: https://www.propublica.org/article/turbotax-deliberately-hides-its-free-file-page-from-search-engines.

Fichtner, J., Gale, W., and Trinca, J., 2019. Tax Administration: Compliance, Complexity, and Capacity. Washington, DC: Bipartisan Policy Center. Available at: https://bipartisanpolicy.org/wp-content/uploads/2019/04/TaxAdministration-Compliance-Complexity-Capacity.pdf.

Fochmann, M., Müller, N., and Overesch, M., 2021. Less cheating? The effects of prefilled forms on compliance behavior. *Journal of Economic Psychology*, *83*, 102365.

Fonseca, M. A., and Grimshaw, S. B., 2017. Do behavioral nudges in prepopulated tax forms affect compliance? Experimental evidence with real taxpayers. *Journal of Public Policy & Marketing*, *36*(2), 213-226.

Frischmann, P. J., Shevlin, T., and Wilson, R., 2008. Economic consequences of increasing the conformity in accounting for uncertain tax benefits. *Journal of Accounting and Economics*, *46*(2-3), 261-278.

Gagné, M., 2003. The role of autonomy support and autonomy orientation in prosocial behavior engagement. *Motivation and emotion*, *27*, 199-223.

Goolsbee, A., 2006. The "simple return": Reducing America's tax burden through return-free filing. *The Hamilton Project: Policy Brief no 2006-4*. Available at https://www.brookings.edu/wp-content/uploads/2016/07/200607goolsbee_pb.pdf

Grolnick, W.S. and Ryan, R.M., 1989. Parent styles associated with child'en's self-regulation and competence in school. *Journal of educational psychology*, *81*(2), p.143.

Hayes, A.F., 2017. *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford publications.

Hong, S. M., and Faedda, S., 1996. Refinement of the Hong psychological reactance scale. *Educational and psychological measurement*, *56*(1), 173-182.

Hunt, N.C. and Scheetz, A.M., 2019. Using MTurk to distribute a survey or experiment: Methodological considerations. *Journal of Information Systems*, *33*(1), pp.43-65.

Internal Revenue Service. Return Preparer Office Federal Tax Return Preparer Statistics Available at: https://www.irs.gov/tax-professionals/return-preparer-office-federal-tax-return-preparer-statistics.

Internal Revenue Service, News Release. February 2022. Available at: https://www.irs.gov/newsroom/irs-announces-transition-away-from-use-of-third-party-verification-involving-facial-recognition

Kanat-Maymon, Y., Benjamin, M., Stavsky, A., Shoshani, A., and Roth, G., 2015. The role of basic need fulfillment in academic dishonesty: A self-determination theory perspective. *Contemporary Educational Psychology*, *43*, 1-9.

Kellogg, D., 2015 (April 8). Study: $233.8 billion, 6.1 billion hours lost to rising tax complexity. *National Taxpayers Union Foundation.* Available at: https://www.ntu.org/foundation/detail/study-2338-billion-61-billion-hours-lost-to-rising-tax-complexity.

Manjoo, F., 2015. Would you Let the I.R.S. Prepare Your Taxes? *New York Times.* Available at: https://www.nytimes.com/2015/04/16/technology/personaltech/turbotax-or-irs-as-tax-preparer-intuit-has-a-favorite.html

Miron, A.M. and Brehm, J.W., 2006. Reactance theory-40 years later. *Zeitschrift für Sozialpsychologie*, *37*(1), pp.9-18.

Niemiec, C.P. and Ryan, R.M., 2009. Autonomy, competence, and relatedness in the classroom: Applying self-determination theory to educational practice. *Theory and research in Education*, *7*(2), pp.133-144.

OECD Library. Tax Administration 2013: Comparative Information on OECD and Other Advanced and Emerging Economies. Available at: https://read.oecd-ilibrary.org/taxation/tax-administration-2013_9789264200814-en#page240

Patall, E. A., and Leach, J. K., 2015. The role of choice provision in academic dishonesty. *Contemporary Educational Psychology*, *42*, 97-110.

Pfister, J.A. and Lukka, K., 2019. Interrelation of controls for autonomous motivation: A field study of productivity gains through pressure-induced process innovation. *The Accounting Review*, *94*(3), pp.345-371.

Ritov, I. and Baron, J., 1990. Reluctance to vaccinate: Omission bias and ambiguity. *Journal of behavioral decision making*, *3*(4), pp.263-277.

Ritov, I. and Baron, J., 1995. Outcome knowledge, regret, and omission bias. *Organizational Behavior and human decision processes*, *64*(2), pp.119-127.

Ritov, I. and Baron, J., 1999. Protected values and omission bias. *Organizational behavior and human decision processes*, *79*(2), pp.79-94.

Schwebke, J., Brink, B., Hansen, V. and Kelliher, C., 2023. Pre-Populated Tax Returns: Individual Taxpayer Adoption and the Effect on Compliance. Forthcoming at *Behavioral Research in Accounting.*

Scott, J., 2016. Elizabeth Warren is Right About Pre-Filled Tax Returns. *Forbes*. Available at: https://www.forbes.com/sites/taxanalysts/2016/04/20/elizabeth-warren-is-right-about-pre-filled-tax-returns/?sh=10627a1e8d4f

Sherman, B., 2019. *H.R. 2297 - 116th Congress (2019–2020): Tax Filing Simplification Act of 2019.* Available at: https://www.congress.gov/bill/116th-congress/house-bill/2297

Sherman, B., 2022. *H.R. 8367 - 117th Congress (2021–2022): Tax Filing Simplification Act of 2022.* Available at: https://www.congress.gov/bill/117th-congress/house-bill/8368/text

Stefanou, C.R., Perencevich, K.C., DiCintio, M. and Turner, J.C., 2004. Supporting autonomy in the classroom: Ways teachers encourage student decision making and ownership. *Educational psychologist*, *39*(2), pp.97-110.

Strahan, R. and Gerbasi, K.C., 1972. Short, homogeneous versions of the Marlowe-Crowne social desirability scale. *Journal of clinical psychology*.

Tax Policy Center. Briefing Book: How Could We Improve the Federal Tax System. Available at: https://www.taxpolicycenter.org/briefing-book/what-other-countries-use-return-free-tax-filing.

van Dijk, W. W., Goslinga, S., Terwel, B. W., and van Dijk, E., 2020. How choice architecture can promote and undermine tax compliance: Testing the effects of prepopulated tax returns and accuracy confirmation. *Journal of Behavioral and Experimental Economics*, *87*, 101574.

Walczak, J., 2018. Are pre-filled forms the solution to tax compliance costs?. Available at https://taxfoundation.org/pre-populated-forms-solution-tax-compliance-costs/.

Warren, E., 2017. *S. 912 - 115th Congress (2017-2018): Tax Filing Simplification Act of 2017.* (April 24, 2017). Available at: https://www.congress.gov/bill/115th-congress/senate-bill/912/text

Warren, E., 2022. *S. 4508 - 117th Congress (2021-2022): Tax Filing Simplification Act of 2022.* (July 12, 2022). Available at: https://www.congress.gov/bill/117th-congress/senate-bill/4508

Williams, G.C., Grow, V.M., Freedman, Z.R., Ryan, R.M. and Deci, E.L., 1996. Motivational predictors of weight loss and weight-loss maintenance. *Journal of personality and social psychology*, *70*(1), p.115.

Figure 1: Experimental Procedures

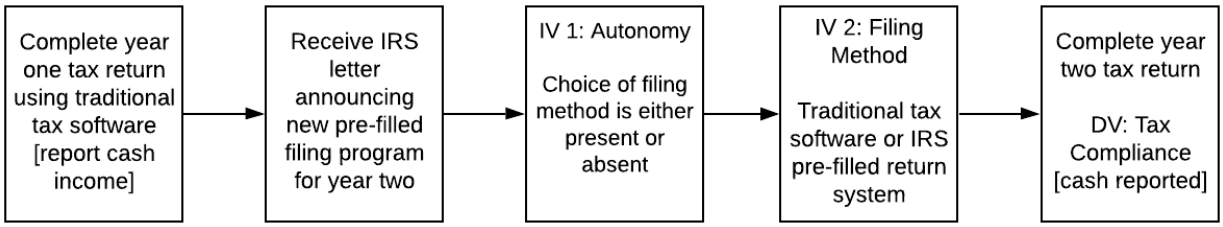
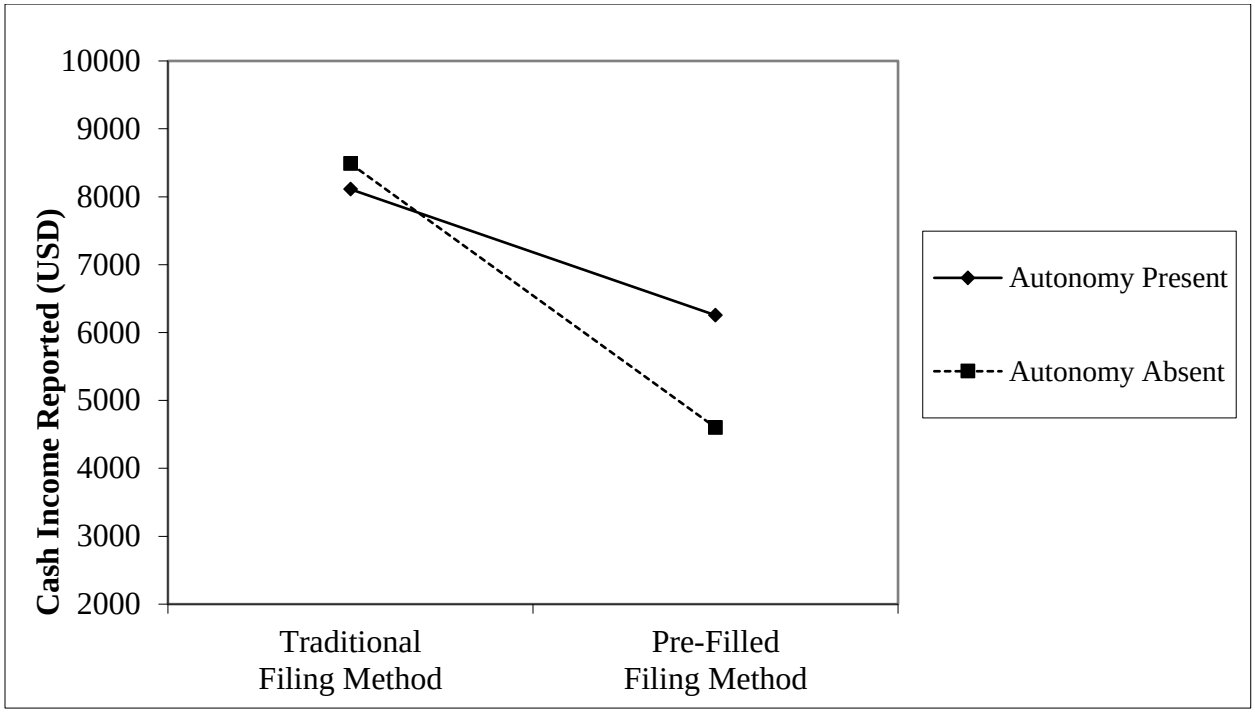
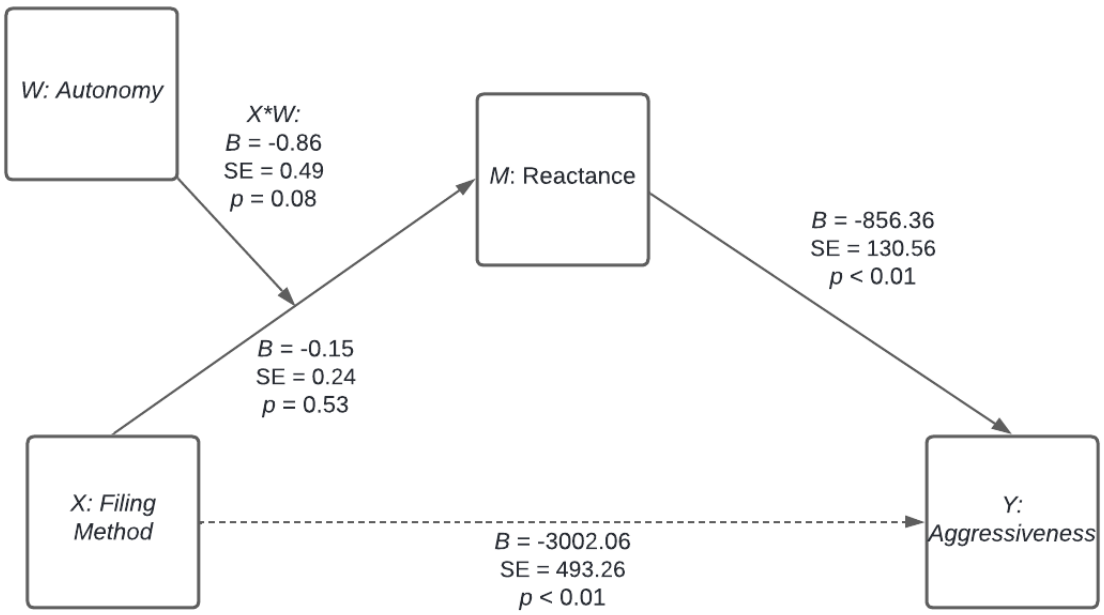


Figure 2: Means for *Aggressiveness* by Experimental Condition (n = 242)



Autonomy Absent represents the conditions in which participants are assigned a filing method rather than being able to choose one.
Autonomy Present represents the conditions in which participants are allowed to choose their filing method.
Traditional *Filing Method* represents the filing method that resembles currently available tax software such as TurboTax, TaxSlayer, TaxAct, etc.
Pre-Filled *Filing Method* represents the filing method in which the return is filled out for the taxpayer by the IRS and the taxpayer chooses to either accept it as is or edit it before filing.
Aggressiveness is the amount of cash income reported by the participant, with a reporting choice closer to zero being more aggressive and a reporting choice closer to $12,000 being less aggressive.

Figure 3: Additional Analysis for *Reactance* and *Aggressiveness*



Autonomy is a dummy variable with one representing the choice condition in the experiment, and zero representing the no choice condition.
FilingMethod is a dummy variable with one representing the pre-filled condition in the experiment, and zero representing the traditional condition.
Reactance is the average score of the reactance questions which measure participants' psychological reactance after the treatment.
Aggressiveness is the amount of cash income reported by the participant, with a reporting choice closer to zero being more aggressive and a reporting choice closer to $12,000 being less aggressive.

Table 1: Demographic Data (n = 242)

Age	
18-21	1.7%
22-34	38.0%
35-44	33.1%
45-54	17.4%
55-64	8.3%
65 +	1.7%
Gender	
Male	62.8%
Female	36.4%
Other	0.4%
Prefer not to answer	0.4%
Average Household Income	
< $24,999	9.9%
$25,000-$49,999	29.3%
$50,000-$74,999	29.8%
$75,000-$99,999	15.3%
>$100,000	14.0%
Prefer not to answer	1.7%
Education	
High School/GED	16.9%
Associate Degree	11.6%
Bachelor's Degree	49.2%
Master's Degree	18.6%
Doctorate	3.7%
Political Ideology	
Liberal	42.6%
Moderate	23.6%
Conservative	32.6%
Prefer not to answer	1.2%

Table 2: Descriptive Statistics and Tests of the Hypothesis (n = 242)

Panel A: Means (*SD*) for *Aggressiveness*

	Filing Method		
Autonomy	**Traditional Software**	**Pre-Filled**	**Total**
Absent	$8,486.86 ($2,808.14) n = 59	$4,601.39 ($4,576.17) n = 62	$6,495.96 ($4,273.16) n = 121
Present	$8,110.54 ($3,502.39) n = 46	$6,254.67 ($4,800.56) n = 75	$6,960.21 ($4,430.55) n = 121
Total	$8,322.00 ($3,121.01) n = 105	$5,506.47 ($4,755.46) n = 137	$6,728.08 ($4,349.75) n = 242

Panel B: ANOVA for *Aggressiveness*

Experimental Condition	**MS**	***df***	***F*-statistic**	***p*-value (one-tailed)**
Autonomy	23,926,747.67	1	1.43	0.12
Filing Method	483,680,608.20	1	28.84	< 0.01
Autonomy x Filing Method	60,443,712.12	1	3.60	0.03
Error	16,773,745.18	238		

Autonomy is a dummy variable with one representing the choice condition in the experiment, and zero representing the no choice condition.
FilingMethod is a dummy variable with one representing the pre-filled condition in the experiment, and zero representing the traditional condition.
Aggressiveness is the amount of cash income reported by the participant, with a reporting choice closer to zero being more aggressive and a reporting choice closer to $12,000 being less aggressive.

Table 3: Descriptive Statistics for Cash Reported in Year One and *ΔCashReported* (n = 242)

Panel A: Means (*SD*) for Cash Reported in Year One and *ΔCashReported*

	Filing Method					
Autonomy	**Traditional Software**		**Pre-Filled**		**Total**	
	Year One	***ΔCash Reported***	**Year One**	***ΔCash Reported***	**Year One**	***ΔCash Reported***
Absent	$6,936.44	$1,550.42	$6,671.81	-$2,070.42	$6,800.84	-$304.88
	($2,248.37)	($1,341.10)	($2,635.19)	($4,595.54)	($2,447.64)	($3,861.05)
	n = 59		n = 62		n = 121	
Present	$6,851.09	$1,259.46	$7,013.91	-$759.24	$6,952.01	$8.20
	($2,686.07)	($2,674.43)	($2,463.86)	($4,206.34)	($2,540.76)	($3,815.94)
	n = 46		n = 75		n = 121	
Total	$6,899.05	$1,422.95	$6,859.09	-$1,352.62	$6,876.43	-$148.34
	($2,437.80)	($2,029.52)	($2,539.10)	($4,419.14)	($2,490.61)	($3833.80)
	n = 105		n = 137		n = 242	

Note: Year One refers to the amount of cash the participant reported in Year 1 of the experiment, prior to any manipulations being introduced. No significant differences in reporting exist between the conditions for Year One (p = 0.88, untabulated). Significant differences in *ΔCashReported* do exist between conditions ($p < 0.01$, untabulated).

Panel B: ANOVA for *ΔCashReported*

Experimental Condition	**MS**	***df***	***F*-statistic**	***p*-value (one-tailed)**
Autonomy	15,272,530.02	1	1.20	0.14
Filing Method	466,677,979.30	1	36.73	< 0.01
Autonomy x Filing Method	37,664,698.13	1	2.97	0.04
Error	12,704,819.73	238		

Autonomy is a dummy variable with one representing the choice condition in the experiment, and zero representing the no choice condition.
FilingMethod is a dummy variable with one representing the pre-filled condition in the experiment, and zero representing the traditional condition.
ΔCashReported is the difference between the amount of cash income a participant reported in the first period and the second period.

Appendix A: Autonomy Manipulation

***Autonomy* Present**

You may choose to utilize the new IRS pre-filled return system if you would like, or you may elect to use one of the traditional tax preparation software. Please select which filing method you would like to use to complete your 2018 tax return.

- TurboTax Software
- TaxSlayer Software
- TaxAct Software
- IRS Pre-Filled Return System (return prepared for you by IRS)

***Autonomy* Absent**

You do **not** qualify to use the new IRS pre-filled return system this year. You will automatically be redirected to utilize the same self-file tax software you chose in the previous year.

OR

The Internal Revenue Service is **requiring** that all taxpayers use its new pre-filled return system starting this year. You will now be redirected to the IRS pre-filled system to complete your return.