

Fairness, legitimacy, and tax compliance

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Abstract

Tyler (2006 [1990]) theorises that perceptions of the legitimacy of a legal authority mediate the influence of fairness on individuals' compliance with the law. We apply Tyler's theory to the tax context to further our understanding of the association between taxpayers' fairness perceptions and compliance. We consider both distributive and procedural fairness. Our experimental results, using data from 389 American taxpayers, suggest that distributive fairness and procedural fairness encourage taxpayers' compliance, and that these fairness effects are additive. Furthermore, we find that perception of legitimacy mediates the relation between each type of fairness and compliance, and, by so doing, increases taxpayers' propensity to pay their taxes.

Key words: distributive fairness, procedural fairness, legitimacy, tax compliance

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1. INTRODUCTION

‘Above all, in a democracy the tax system must be fair and be seen to be fair’ (Brown & Mintz, 2012, 1:2). Fairness is a comparative judgment based on actual or imagined reference points (Folger & Cropanzano, 2001). Individuals who perceive fairness are more likely to be satisfied and tend to be cooperative, whereas individuals who perceive unfairness are more likely to be resentful and tend to be uncooperative (Skarlicki & Folger, 1997). As specifically applied to tax compliance, it is believed that fairness perceptions influence taxpayers’ cooperation with tax authorities and increase their tendency to pay their taxes. This is important because governments are dependent on a high degree of voluntary compliance with tax laws. Enforcement measures to collect income tax are costly and would be essentially unmanageable in the face of large-scale failure to comply.

Two important dimensions of fairness are distributive fairness, which refers to the fairness of outcomes experienced by individuals relative to others, and procedural fairness, which refers to the fairness of the process by which an outcome occurs (Van den Bos, Vermunt & Wilke, 1997).¹ As applied to the tax setting, outcomes could include tax rates, taxable income, allowable deductions, and tax assessed. If a tax outcome is perceived as fair – as compared to ‘referent others’ in similar circumstances – distributive fairness occurs. Procedural fairness relates to the just and even-handed processing of tax returns and/or resolving of disputes.

While prior research provides some support for the relevance of distributive fairness to taxpayers’ compliance, (e.g., Hartner-Tiefenthaler et al., 2012; Kim, Evans & Moser, 2005; Moser, Evans & Kim, 1995; Verboon & Van Dijke, 2007), as well as procedural fairness to tax compliance (e.g., Gobena & Van Dijke, 2016; Murphy, 2005; Murphy, Bradford & Jackson, 2016; Van Dijke & Verboon, 2010; Verboon & Van Dijke, 2012), an integrated understanding of the relative importance and joint influence of procedural and distributive fairness remains outstanding, even though fairness researchers have identified the need for further investigation (Skitka, Winquist & Hutchinson, 2003; Sweeney & McFarlin, 1993). Thus, the first objective of this research is to investigate the influence of both distributive and procedural fairness in influencing tax compliance, their relative importance, and the possible interplay between them. Both dimensions of fairness can occur simultaneously in the assessment of a return or in a tax dispute, but *ex ante* it is not known whether one type of fairness would potentially be more important than another, whether order of receiving different types of fairness information would matter, or whether one type of fairness would enhance or undermine another or act independently of the other. These issues cannot be assessed without incorporating both types of fairness in the same study.

The second objective of this study is to investigate the potential role of legitimacy as a mediator between each of distributive and procedural fairness and tax compliance. In his theory on compliance, Tyler (2006 [1990]) proposes that fairness influences compliance with the law indirectly through its impact on citizens’ perceptions of legitimacy of the legal authority. Legitimacy means that citizens feel obligated to obey

¹ Bies and Moag (1986) also identify interactional fairness as a third dimension of fairness. Interactional fairness refers to interpersonal considerations during an interpersonal encounter, such as courtesy. Prior research (Farrar, Kaplan & Thorne, 2019) has established the influence of interactional fairness on taxpayers’ compliance and is not considered in the scope of our study.

group rules and the decisions of group authorities (Tyler, 1997). Legitimacy also encompasses the extent to which an authority does its job well, i.e., receives a favourable evaluation (Tyler, 1997). In a tax context, Tyler's theory would translate to the idea that taxpayers' experience of procedural fairness (or unfairness) and/or distributive fairness (or unfairness) would impact their perceptions of legitimacy of the tax authority, which would, in turn, influence future compliance with tax laws. Using samples of tax offenders, Murphy (2005) and Murphy et al. (2016) empirically studied the role of procedural fairness and legitimacy on tax compliance, but to our knowledge, no researchers have examined more broadly whether legitimacy perceptions mediate the association between each of distributive fairness and procedural fairness on tax compliance intentions.

To address our research objectives, we conduct an experiment in which 389 taxpayers provide assessments of tax compliance intentions and their perceptions of the legitimacy of the tax authority after reading a tax scenario in which perceptions of distributive fairness and procedural fairness are manipulated. We find that both distributive and procedural fairness significantly influence compliance intentions and that the order of receiving the distributive versus procedural fairness information has no effect on compliance. We find that neither type of fairness is more important than the other in its influence on compliance and that the effects of fairness are additive in that situations having both procedural and distributive fairness result in greater compliance intentions than those lacking one (or both) of these types of fairness. We find that legitimacy fully mediates the relation between both types of fairness and compliance.

Our first contribution to the tax literature is that we provide evidence on the influence of distributive and procedural fairness on tax compliance and their relative and combined effects. Our second contribution is that we shed light on the process through these influences occur, demonstrating the involvement of perceived legitimacy of the tax authority, thereby providing support for Tyler's (2006 [1990]) theory on compliance. To our knowledge no researchers have previously demonstrated the mediating effect of legitimacy on the relationship between distributive fairness and compliance and no researchers have previously used a controlled experiment to study the mediating effect of legitimacy on the relationship between fairness and tax compliance. Finally, we contribute to the tax fairness literature by showing an approach to separating the influence of distributive fairness separate from the favourability of an outcome.² Through this exploration, we increase our understanding of complex factors that encourage taxpayers to voluntarily comply with tax law (see McKerchar, Bloomquist & Pope, 2013).

The remainder of the article is organised as follows. In the next section, we describe the literature and theoretical perspectives pertaining to distributive fairness and procedural fairness, as well as the role of legitimacy in influencing fairness perceptions and compliance. We then formulate hypotheses. Section 3 describes our experiment, while section 4 reports the results. We conclude with a discussion of the implications of our findings for fairness researchers, tax researchers, and tax authorities.

² Prior fairness literature has, at times, confounded the impact of outcome favourability (positive vs. negative outcomes) with distributive fairness (see Skitka et al., 2003).

2. THEORETICAL BACKGROUND AND HYPOTHESES DEVELOPMENT

In this section, we review the fairness and tax literatures for theoretical and empirical evidence regarding the relationship between each of distributive fairness and procedural fairness and tax compliance, and the potential mediating role of legitimacy. We draw on Tyler's (2006 [1990]) theory on compliance that was developed to explain why people obey the law and consider it from a tax law perspective.

2.1 Procedural and distributive fairness and tax compliance

Generally, social psychologists find evidence that compliance is influenced by individuals' views of fairness and unfairness (Tyler, 1997). Judgments about what is fair are at the heart of feelings, attitudes, and behaviours in individuals' interactions with others (Tyler, 1997). People care about fairness because it is a basic human need across social contexts (De Cremer & Blader, 2006). People respond favourably and are more likely to comply in the presence of fairness and are less likely to comply when they perceive unfairness (Skarlicki & Folger, 1997).

Feelings of distributive fairness or unfairness generally arise from a comparison of one's own outcome to the outcome of a referent other and reflects the ideal that outcomes ought to be distributed fairly amongst individuals (for example, see Adams, 1963; 1965; Ferguson et al., 2014; Van den Bos et al., 1997). The tax literature contains a small group of studies that investigate the potential influence of examples of distributive fairness on tax compliance. For example, using an experimental approach (MBA student participants), Moser et al. (1995) studied (in part) the compliance impact of a belief that one's tax rate is higher than some other participants in the experiment (horizontal inequity, which is a form of distributive unfairness). They did not find a difference in compliance between these participants and those who were told that their tax rate was the same as others. They did, however, find that the increases in tax rates (proxying for exchange inequity, which relates to a perceived imbalance between taxes and government services received) affected compliance in the group suffering from horizontal inequity more than those experiencing horizontal equity. In other similar experiments, Trivedi, Shehata and Lynn (2003) found that horizontal inequity sometimes affected compliance and sometimes did not. Kim et al. (2005) found that exchange inequity affected compliance. In a survey, Wenzel (2002) observed an association between general feelings about distributive fairness of the tax system and tax compliance for some forms of tax compliance. In other survey research, Verboon and Van Dijke (2007) and Hartner-Tiefenthaler et al. (2012) found that their measures of distributive fairness (general measure of feelings of distributive fairness and feelings of fairness relating to subsidies of other European Union countries, respectively) were associated with tax compliance. But in another survey-based study, Kirchler, Niemirowski and Wearing (2006) found no significant association of tax compliance with horizontal and vertical fairness, nor with exchange equity.

Although the evidence is mixed, possibly due to these studies utilising differing examples of distributive fairness, we believe there is a sufficient basis to hypothesise a causal relationship between distributive fairness and tax compliance:

H1: *Perceptions of distributive fairness lead to higher taxpayer compliance intentions than do perceptions of distributive unfairness.*

Recall that the construct of procedural fairness relates to perceptions of the fairness of the process leading to an outcome (see Leventhal, 1980; Thibault & Walker, 1975; Van den Bos et al., 1997). The tax literature contains several studies that examine the relationship between various measures of procedural fairness and tax compliance. The survey-based studies of Gobena and Van Dijke (2016; 2017), Murphy (2004; 2005), Murphy, Bradford and Jackson (2016), Murphy, Tyler and Curtis (2009), Porcano (1988), Van Dijke and Verboon (2010), and Verboon and Van Dijke (2011) observed a positive association between procedural fairness and tax compliance. Wenzel (2002) observed a positive association for only one of his measures of compliance. In experimental studies on university students, Van Dijke and Verboon (2010) and Verboon and Van Dijke (2012) found that procedural fairness influenced tax compliance. Thus, there appears to be sufficient basis to hypothesise a causal relationship between procedural fairness and tax compliance:

H2: *Perceptions of procedural fairness lead to higher taxpayer compliance intentions than do perceptions of procedural unfairness.*

While fairness scholars agree that distributive fairness and procedural fairness are distinct constructs (Ambrose & Arnaud, 2005; Greenberg, 1990; Hartman et al., 1999; Konovsky, 2000), there is no scholarly consensus as to how these two types of fairness affect behaviour in combination. Some fairness scholars (in non-tax contexts) state that there is empirical evidence of an interactive impact of procedural fairness and distributive fairness (e.g., Konovsky, 2000; De Cremer, 2005),³ but what they have found instead is an interactive effect of procedural fairness and outcome favourability, rather than an interactive effect of procedural fairness and distributive fairness (see also Brockner, 2002; Brockner & Wiesenfeld, 1996; 2005). As Skitka et al. (2003, p. 314) state, '[c]omparisons of the relative effects of procedural and distributive fairness as currently presented in the literature are often comparisons between the relative power of procedural fairness and outcome favorability'.⁴ In light of this challenge, we develop a distributive fairness manipulation that varies distributive fairness while holding outcome favourability constant to avoid confounding the two constructs.

We are aware of only two tax studies (Porcano, 1988; Wenzel, 2002) that include both distributive fairness and procedural fairness, but neither study considered the potential for an interactive effect of these two types of fairness. We did find a non-tax study that experimentally manipulates both distributive fairness and procedural fairness (Van den Bos et al., 1997). Van den Bos et al. (1997) observed an effect of procedural fairness on participant behaviours, but only when participants did not have information about distributive fairness.

³ Konovsky (2000, p. 504) states, '[i]f the negative event included unfair procedures, this heightens people's sensitivity to the outcomes they received. If a negative outcome was received, this heightens people's sensitivity to the procedures used to determine the outcome. This heightened sensitivity is manifested by the interaction effect of PJ [procedural fairness] and DJ [distributive fairness]'. De Cremer (2005, p. 6) states, '[t]he frequently observed interaction between distributive fairness and procedural fairness will predict employee's cooperation ... Thus, one could predict that procedural fairness matters most when outcomes are unfavorable...'.
⁴ Researchers at times have confused the notions of distributive fairness with outcome favourability. Distributive fairness and outcome favourability are empirically and theoretically distinct constructs (Skitka et al., 2003). In a tax context, distributive fairness refers to a taxpayer's outcome relative to the tax outcomes of others, whereas outcome favourability refers to how favourable or unfavourable a tax outcome is (Wenzel, 2002).

We do not believe that the empirical or theoretical literature provide a sufficient basis to hypothesise on whether there would be an interaction between the two types of fairness. This gap in the literature does not take away the value of learning what their combined effect might be. Rather than stating a hypothesis, we pose a research question, as follows:

RQ: *How do perceptions of distributive fairness and procedural fairness combine to influence taxpayers' compliance?*

2.2 The potential mediating role of legitimacy

Our final two hypotheses consider the role of legitimacy in mediating the association between fairness and taxpayers' compliance. In his theory on compliance, Tyler (2006 [1990]) suggests that taxpayers' motivation to comply with tax laws relates to taxpayers' feelings about the authorities who prescribe and enforce the law. He proposes that citizens' beliefs about the legitimacy of a legal authority (including a tax authority) provide a key motivation for following the laws prescribed by this authority. Turner (2005, p. 8) describes 'legitimate authority' as 'control based on the acceptance by the target of one's right to prescribe their beliefs, attitudes or actions'. Tyler (1997) shows that legitimacy is based on a citizen's obligation to obey an authority as well as the extent to which that authority does its job well. Kirchler, Hoelzl and Wahl (2008) and Wahl, Kastlunger and Kirchler (2010) argue that when a tax authority's power is legitimate, that authority is more likely to be trusted and complied with. Tyler and Fagan (2008) further argue that fairness is an important determinant of perceptions of the legitimacy of that authority: when people perceive fairness, they view legal authorities as more legitimate and entitled to be obeyed, and as a result, people become self-regulating and assume a personal responsibility to follow rules. Therefore, the theory on compliance proposes that citizens' perceptions of the fairness influence their perceptions of the legitimacy of the authority, which, in turn, influences their compliance with the law (Tyler, 2006 [1990]).

In the tax context, two survey-based studies have explored how tax authority legitimacy perceptions may mediate the relationship between procedural fairness perceptions and tax compliance intentions. Murphy (2005) provides evidence of a positive association between perceptions of procedural fairness, legitimacy and compliance, based on self-reports of Australian tax offenders. Subsequently, Murphy et al. (2016) reported on a follow-up survey of the tax offenders, and likewise found evidence that perceived legitimacy may mediate the relationship between procedural fairness and compliance. The fact that all the participants in the Murphy (2005) and the Murphy et al. (2016) studies were tax offenders may affect the generalisability of these results to the general taxpayer population (that is, they are drawing from a sub-population with poor tax compliance). These studies were conducted in more than one wave to provide evidence concerning whether procedural fairness has a causal relationship with tax compliance through legitimacy. Even so, an experiment can provide more conclusive evidence about causation.

It should be noted that Tyler's (2006 [1990]) theory includes impact of *both* procedural fairness and distributive fairness on compliance with the law. However, empirically it is challenging to capture distributive fairness, particularly in survey-based research which accounts for the bulk of the empirical research on Tyler's theory. As a result, theoretical and empirical research relying on Tyler's (2006 [1990]) model has largely abandoned distributive fairness and focused nearly entirely on procedural fairness.

McLean (2020) observes that the result of this turn of events has been a lack of development of Tyler's theory as it relates to distributive fairness. This issue can be seen in Murphy (2005) and Murphy et al. (2016) in that they study procedural fairness only in their test of Tyler's theory.

We extend the work of Murphy (2005) and Murphy et al. (2016) in three ways: 1) we incorporate distributive fairness; 2) we use an experimental approach to provide causal evidence about the influence of both distributive and procedural on taxpayers' compliance through their beliefs in the legitimacy of the tax authority; and 3) we use a broad sample of taxpayers who are not known to be non-compliant. Our remaining hypotheses are:

H3: *Perceptions of tax authority legitimacy mediate the relation between distributive fairness and taxpayers' compliance intentions. Specifically, distributive fairness positively influences perceptions of legitimacy of the tax authority, which is positively associated with compliance intentions.*

H4: *Perceptions of tax authority legitimacy mediate the relation between procedural fairness and taxpayers' compliance intentions; specifically, procedural fairness positively influences perceptions of legitimacy of the tax authority, which is positively associated with compliance intentions.*

3. EXPERIMENT

3.1 Design

Our study utilises a 2 x 2 x 2 between-participants design. Our design fully crosses distributive fairness (fair or unfair), procedural fairness (fair or unfair), and the order in which fairness information is received (distributive first or procedural first). Participants were given a scenario in which they read about a taxpayer and his experiences with the Internal Revenue Service (IRS). The scenario manipulated distributive fairness, procedural fairness, and the order in which fairness information was presented. We manipulated and examined the effect of order in which fairness information was presented because Van den Bos et al. (1997) observed an order effect in a non-tax context.

3.2 Participants

Participants were recruited by a consumer research firm that has a database of 4 million Americans. To ensure that our sample was representative of a typical taxpayer population, we requested our participants be randomly selected using two parameters: gender and age. We restricted our sample participants to adult taxpayers between the ages of 25 and 80, evenly distributed across age groups, with a 50/50 gender split. We requested 50 responses per experimental condition, for a total of 400 taxpayers. Four hundred and eight taxpayers completed the instrument, and of these, 19 responses contained missing information, and were deleted, leaving a final sample of 389 (200 men and 189 women, with an average age of 49.1 years, who had filed tax returns for an average of 26.7 years). Demographic profile statistics are in Table 1.⁵

⁵ We compared our sample against US census data that segmented the US population according to income, education and age. Our sample distribution was similar to that of the US population. For income, we

Table 1: Demographic Profile Statistics

Sample size	n = 389
Gender	
<i>male</i>	n = 200 (51.4%)
<i>female</i>	n = 189 (48.6%)
age	mean = 49.1 years std dev = 14.5 years
years filed a tax return	mean = 27.0 years std dev = 15.7 years
Unpleasant Encounter with IRS?	Yes = 61 (15.7%) No = 328 (84.3%)
Income:	
<i>less than \$25,000</i>	n=61 (15.7%)
<i>between \$25,000 and \$50,000</i>	n=91 (23.4%)
<i>between \$50,001 and \$75,000</i>	n=68 (17.5%)
<i>between \$75,001 and \$100,000</i>	n=75 (19.3%)
<i>greater than \$100,000</i>	n=72 (18.5%)
<i>prefer not to answer</i>	n=22 (5.6%)
Highest level of education completed:	
<i>high school</i>	n = 102 (26.2%)
<i>junior college diploma</i>	n = 33 (8.5%)
<i>college degree</i>	n = 138 (35.5%)
<i>graduate degree</i>	n = 103 (26.5%)
<i>other</i>	n = 13 (3.3%)
Tax preparer	
<i>Taxpayer</i>	n = 190 (48.8%)
<i>Taxpayer's spouse/partner</i>	n = 28 (7.2%)
<i>Paid preparer</i>	n = 145 (37.3%)
<i>Other</i>	n = 26 (6.7%)

checked 'Income and Poverty in the United States: 2013' (DeNavas-Walt & Proctor, 2014, p. 23). Our sample was underweighted in the under USD 25,000 and in the greater than USD 100,000 categories by about 7%, and overweighted in the USD 75,000 – USD 100,000 category by about 7%. For education, we checked 'Educational Attainment in the United States: 2014' (Census, 2014). Our sample was overweighted in graduate education by about 15%. Neither of these differences appear to significantly affect the results, since neither income nor education are significant covariates.

3.3 Experimental procedures

Participants received an email invitation from the firm to participate in a questionnaire about income taxes and were assigned a unique user ID and password provided by the firm, ensuring they could complete only one questionnaire, and were incentivised by a point system specific to the firm. After being randomly assigned to experimental conditions, participants read a scenario and answered questions pertaining to the dependent variable, as well as other questions about potential control variables (social norms, detection likelihood, whether the participant had ever had an unpleasant encounter with an IRS agent), and demographic information (age, gender, number of years filing a tax return, tax preparer, education, and income).

In all versions of the scenario, the taxpayer received an unfavourable outcome, in which a deduction was denied, since fairness perceptions are more likely to be activated in the presence of unfavourable outcomes (Mullen, 2007; Rutte & Messick, 1995). We were careful to distinguish the favourability of the outcome from the distributive fairness of that outcome (see Skitka et al., 2003), since we manipulated distributive fairness by having the taxpayer's unfavourable outcome compared with referent others (outcomes of other, similar taxpayers).

Initially, participants read the following:

Below is a brief scenario about a taxpayer named Jamie and his experiences with the Internal Revenue Service (IRS). Please read it carefully, as you will be asked some follow-up questions. We would like to know what you would do if you were Jamie.

Next, participants were given a scenario to read. Common to all scenarios was the following:

Jamie is a small business owner. Last year, he had a lengthy and frustrating dispute with the IRS concerning a tax deduction. In the end Jamie was disappointed to find out that he was not allowed to claim the full deduction.

Participants were then given information about distributive fairness followed by procedural fairness, or procedural fairness followed by distributive fairness, depending on the experimental condition for order. In the distributively fair condition, participants read the following: *Jamie believed that his tax result was fair compared to other situations he had recently heard of.* In the distributively unfair condition, participants read the following: *Jamie believed that his tax result was unfair compared to other situations he had recently heard of.*⁶ In the procedurally fair condition, participants read the following: *He believed that the IRS process to resolve the dispute was fair.* In the procedurally unfair condition, participants read the following: *He believed that the IRS process to resolve the dispute was unfair.*⁷

⁶ We used the term 'tax result' as a synonym for 'tax outcome' to reflect the notion of distributive fairness referring to the fairness of the tax outcome. This wording was successfully tested in several pre-tests.

⁷ To improve the flow, we added the following continuums or adverbs before the distributive or procedural manipulations: 'even so', 'also', and 'at the same time'. For example, in the experimental condition which contained distributive unfairness followed by procedural fairness, the scenario stated, 'Jamie believed that his tax result was unfair compared to other situations he had recently heard of. At the same time, he believed that the IRS process to resolve the dispute was fair'.

In this study, we directly manipulate the fairness perceptions in our scenario rather than by utilising specific examples of outcomes/processes, as doing so may lead to differing participant perceptions about the degree of fairness involved. This approach also minimises the risk that providing a specific example of distributive or procedural fairness would obscure interpretation of the results and/or the extent to which they generalise. For distributive fairness, there is empirical evidence that taxpayers respond differently, depending on the specific example utilised in the study (e.g., Kim et al., 2005; Moser et al., 1995; Trivedi et al., 2003). We made the information about distributive fairness as similar as possible to the type of not-very-specific information that may be available about other taxpayer situations. For procedural fairness, there is empirical evidence that taxpayers respond differently, depending on the type of specific procedural operationalisation (Worsham, 1996).

The next screen contained questions about compliance intentions, in which participants read the following:

This year Jamie's income included some cash earnings. Jamie knows that it is more difficult for the IRS to find out about cash income.

3.4 Dependent variable: compliance

Compliance was measured using the average scores of a four-item scale. Participants responded using a 7-point Likert scale (where 1=strongly disagree and 7=strongly agree). The items were, 1) *Under the circumstances, Jamie might not report all of his cash earnings on his tax return*; 2) *Jamie will not declare all the cash to the IRS*; 3) *Jamie is unlikely to report all his cash earnings to the IRS*; and 4) *Jamie would be tempted to not report all of his cash receipts on his tax return*. The Cronbach's alpha of this scale is 0.86, which is excellent (Nunnally, 1978). We reverse-coded this variable; therefore, higher scores indicate higher compliance intention and lower scores indicate lower compliance intention.

3.5 Mediating variable

Legitimacy was measured using the average scores of a two-item scale, based on Murphy (2005), which is adapted from Tyler (1997).⁸ The items were as follows: 1) *Jamie's circumstances would lead him to believe that the IRS does its job well*; and 2) *Jamie's circumstances would lead him to feel that it is important to follow the IRS's rules*. The Cronbach's alpha of this scale is 0.77, which is good (Nunnally, 1978).

3.6 Control variables

We controlled for several socio-economic variables which have been used in prior tax compliance research. Specifically, we asked demographic questions about gender, age, work experience, number of years filing a tax return, tax preparer, education, and income, consistent with other tax compliance studies (e.g., Bobek et al., 2007; Marriott, Randal & Holmes, 2013). We also controlled for social norms and measured social

⁸ Tyler (1997, p. 337) notes that there are three elements of legitimacy: the willingness to voluntarily accept decisions, obedience toward the rules/laws, and favourable evaluations of authorities. Murphy (2005) developed two legitimacy scales adapted for the tax context, corresponding to the second and third elements of legitimacy identified by Tyler (1997). As both scales had reliability scores less 0.7 (Nunnally 1978), we developed a hybrid scale. Pre-testing revealed that the two-item measure we use in this research had the higher and acceptable reliability score of 0.77.

norms as the average score of two items, adapted from Bobek et al. (2013), using a 7-point Likert scale as above, as follows: 1) *It is morally wrong to engage in tax evasion behavior*; and 2) *My close friends believe it is wrong to engage in tax evasion behavior*. The Cronbach's alpha of this measure was 0.79, which is good (Nunnally, 1978). We also controlled for the possibility that a respondent may have been influenced by a previous unpleasant encounter with a tax authority employee by asking a binary question, *Have you ever had an unpleasant encounter with an IRS agent?* In sum, there are nine control variables.

4. RESULTS

4.1 Manipulation checks

We performed manipulation checks for procedural and distributive fairness independent variables, using a 7-point Likert scale (where 1=strongly disagree and 7=strongly agree). The manipulation check for distributive fairness was, *Jamie was satisfied with last year's tax result compared to other tax situations*. This manipulation check was supported ($F=82.1$, $p<0.01$), and in the expected direction.⁹ The manipulation check for procedural fairness was, *Jamie was satisfied with the IRS process to resolve last year's tax dispute*. This manipulation check was supported ($F=109.1$, $p<0.01$), and in the expected direction.¹⁰ These results indicate the manipulations were effective.

4.2 Hypothesis tests relating to fairness and compliance

We performed a simple analysis of variance (ANOVA) on the manipulated variables with the dependent variable, compliance intentions. We found that compliance intentions were influenced by both distributive fairness ($F=7.53$; $p<0.01$) and procedural fairness ($F=6.85$; $p<0.01$). Order was not significant ($F=0.712$; $p=0.40$). We did not find an interaction between distributive fairness and procedural fairness. A comparison of means shows that compliance intentions were higher when circumstances are fair, and lower when the circumstances are unfair, as expected. This trend was similar regardless of order of the fairness information. Table 2 presents the means and Figure 1 graphs the fairness effects (the means are averaged over both orders of presentation).

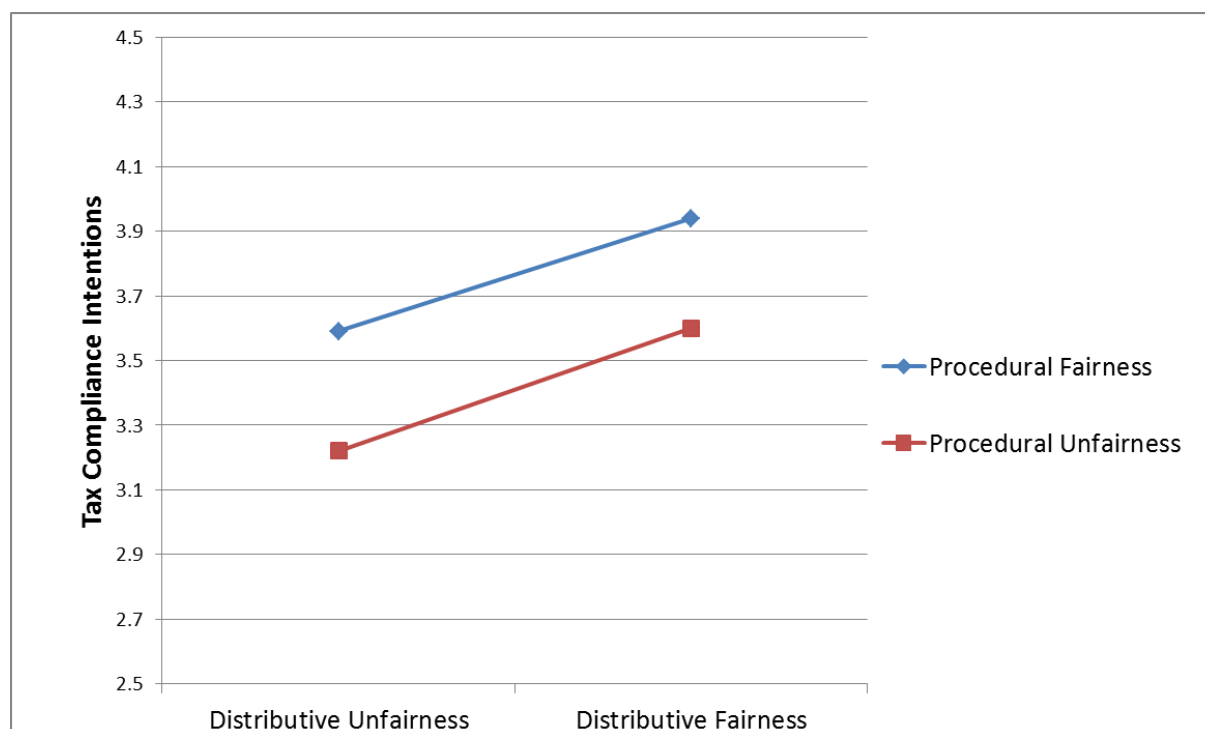
Table 2: Compliance Intentions: Cell Means and Standard Deviations

		DISTRIBUTIVE		Total
		Fair	Unfair	
PROCEDURAL	Fair	3.94 (1.43)	3.59 (1.50)	3.77 (1.47)
	Unfair	3.60 (1.37)	3.22 (1.08)	3.41 (1.24)
Total		3.77 (1.41)	3.41 (1.32)	3.59 (1.38)

⁹ Participants in the lower distributive fairness condition responded with a mean score of 2.99/7, and participants in the higher distributive fairness condition responded with a mean score of 4.61/7.

¹⁰ Participants in the lower procedural fairness condition responded with a mean score of 2.81/7, and participants in the higher procedural fairness condition responded with a mean score of 4.69/7.

Fig. 1: Influence of Procedural Fairness and Distributive Fairness on Compliance Intentions



We find that neither type of fairness dominated. Mean compliance intentions in the condition where distributive fairness exists and procedural fairness does not exist (3.60) is the same as in the condition where procedural fairness exists and distributive fairness does not exist (3.59) ($t=0.04$; $p=0.97$). We also find evidence that it may be important whether or not there are multiple types of fairness versus one type of fairness versus no fairness. The highest compliance intentions value of 3.94 occurs when the situation is both procedurally fair and distributively fair. We find that this level of compliance is (marginally) significantly higher than the level of compliance when one type of fairness exists (either procedurally fair/distributively unfair or vice versa) ($t=1.97$, $p=0.051$). Similarly, compliance is significantly higher when one type of fairness exists (either distributive or procedural) than when the situation is both distributively and procedurally unfair ($t=2.47$; $p < 0.05$).¹¹ Thus it would seem that increments in fairness/unfairness have significant consequences for compliance intentions.

Incorporating the nine control variables, we performed an analysis of covariance (ANCOVA). The dependent variable was compliance intentions. The fixed factors were

¹¹ To assess these effects, we used contrast coding over the four conditions that manipulated distributive and procedural fairness. Both orders of presentation of fairness information are included in each of these conditions because order was not significant in the analysis. The conditions are as follows: condition 1: situation is both procedurally and distributively unfair; condition 2: situation is distributively unfair and procedurally fair; condition 3: situation is distributively fair and procedurally unfair; condition 4: situation is distributively fair and procedurally fair. For the first test the contrast coding was 0, -1, -1, 2 and for the second test it was -2, 1, 1, 0.

our manipulated variables, distributive fairness, procedural fairness and order of presentation. Covariates were the control variables described above and our proposed mediating variable, legitimacy. Results are reported in Table 3.¹² We found significant main effects of procedural fairness and distributive fairness on compliance intentions ($p < 0.05$ in both cases), and no significant interaction effect between them ($p=0.99$). Order of presentation of procedural fairness versus distribution fairness did not significantly influence compliance intentions ($p=0.40$). We also found that legitimacy perceptions, social norms, previous unpleasant experiences with the tax authority, and number of years that tax returns had been filed all had significant effects on compliance intentions in our analysis ($p < 0.01$ in each case).

Table 3: Test of Between-Subject Effects

ANCOVA of Distributive Fairness, Procedural Fairness, and Order on Compliance Intentions				
	SS	Df	MS	F-value
Distributive Fairness	8.30	1	8.30	4.80 *
Procedural Fairness	8.58	1	8.58	4.97 *
Order	1.24	1	1.24	0.72
Distributive Fairness x Procedural Fairness	0.01	1	0.01	0.99
Distributive Fairness x Order	0.08	1	0.08	0.05
Procedural Fairness x Order	5.92	1	5.92	3.43
Distributive Fairness x Procedural Fairness x Order	0.10	1	0.10	0.06
Social Norms	14.13	1	14.13	8.18 *
Unpleasant Encounter with IRS	16.30	1	16.30	9.44 *
Years Filed	6.98	1	6.98	4.04 *
Legitimacy	10.60	1	10.60	6.13 *
Detection Likelihood	3.56	1	3.56	2.06
Age	0.08	1	0.08	0.05
Gender	0.30	1	0.30	0.17
Tax Preparer	1.48	1	1.48	0.86
Education	0.14	1	0.14	0.08
Income	0.02	1	0.02	0.01
* - indicates a significant result at the 0.05 level of significance (two-tailed)				
Adjusted R-squared = 0.087				

Our findings provide evidence that perceptions of distributive fairness and procedural fairness influence taxpayer compliance, thereby supporting H1 and H2. Because there was no interaction, we answer our research question (RQ1) by finding that perceptions

¹² We include legitimacy as a covariate for completeness but the results as presented do not change significantly when legitimacy is excluded from the ANCOVA.

of distributive fairness and procedural fairness act independently and do not interact to influence taxpayers' compliance intentions.

4.3 Hypotheses tests of the mediating effect of legitimacy

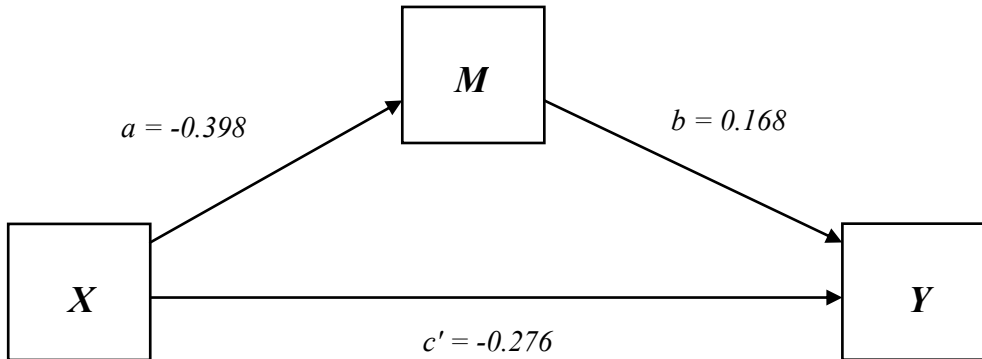
We also hypothesised that perceptions of legitimacy would mediate the relation between fairness and compliance (H3 and H4). We observed, in a simple ANOVA using legitimacy as dependent variable, that both procedural fairness and distributive fairness significantly influence perceptions of legitimacy ($F=16.42$; $p < 0.001$ and $F = 12.64$, $p < 0.001$, respectively).

We applied the Hayes (2018) mediation analysis approach to assess mediation. This involved testing a simple mediation model, in which a causal antecedent variable (distributive fairness or procedural fairness) influences an outcome (compliance intentions) through a single intervening variable (legitimacy).¹³

Distributive fairness: H3 considers the role of legitimacy in the association between distributive fairness and compliance. From a simple mediation analysis conducted using ordinary least squares path analysis, distributive fairness indirectly influenced compliance intentions through its effect on perceived legitimacy of the tax authority. As can be seen in Table 4a, taxpayers in the condition where distributive unfairness occurred assessed IRS legitimacy to be lower than did participants in the condition where distributive fairness occurred ($a = -0.398$). Taxpayers who perceived that the tax authority was legitimate expressed a stronger intention to be compliant ($b = 0.168$). A bias-corrected bootstrap confidence interval for the indirect effect ($ab = -0.067$) based on 10,000 bootstrap samples was entirely below zero (-0.146 to -0.013), which is evidence of an indirect effect of distributive fairness on compliance through legitimacy. There was also evidence that distributive fairness influenced compliance independently of its effect on legitimacy ($c' = -0.276$), such that taxpayers who perceived distributive unfairness were less likely to be compliant than taxpayers who perceived distributive fairness. Consequently, H3 is supported.

¹³ Hayes (2018, pp. 113-117) explains why the traditional mediation analysis approach of Baron and Kenny (1986) should be abandoned.

Table 4a: Model Coefficients for Distributive Fairness and Legitimacy Mediation Analysis

								
Antecedent	Consequent							
	M (Legitimacy)				Y (Compliance)			
		Coeff.	SE	p-value		Coeff.	SE	p-value
X (Distributive Fairness)	<i>a</i>	-0.398	0.129	<.001	<i>c'</i>	-0.276	0.137	.045
M (Legitimacy)		--	--	--	<i>b</i>	0.168	0.054	.002
Constant		2.227	0.645	<.001		3.455	0.332	<.01
	R ² = 0.243 F (10, 378) = 12.158, p<.001				R ² = 0.106 F (11, 377) = 4.048, p<.001			
The indirect effect of X (Distributive Fairness) on Y (Tax Compliance Intentions) is negative (-0.067) and significant (a bootstrap confidence interval based on 10,000 bootstrap samples was entirely below zero (-0.146 and -0.013)), which suggests that Distributive Fairness is significantly associated with Tax Compliance Intentions when taxpayers perceive that the tax authority is legitimate.								
Note: the above analysis is conducted using the same nine covariates as shown in Table 3 (social norms, unpleasant encounter with IRS, years filed, detection likelihood, age, gender, tax preparer, education, and income). The influence of the covariates is not shown above to streamline the presentation of the results. The results above do not differ significantly when the covariates are excluded.								

The results in Table 4a include the influence of all nine covariates reported in Table 3. Excluding the covariates does not significantly change the results as presented above.

Procedural Fairness: H4 considers the role of legitimacy on the association between procedural fairness and compliance. From a simple mediation analysis conducted using ordinary least squares path analysis, procedural fairness indirectly influenced compliance intentions through its effect on perceived legitimacy of the tax authority. As can be seen from Table 4b, taxpayers who perceived procedural unfairness assessed

legitimacy of the IRS to be lower than did participants who perceived that procedures were fair ($a = -0.656$), and taxpayers who perceived that the tax authority was legitimate expressed a stronger intention to be compliant ($b = 0.155$). A bias-corrected bootstrap confidence interval for the indirect effect ($ab = -0.102$) based on 10,000 bootstrap samples was entirely below zero (-0.206 to -0.024), which is evidence of an indirect effect of procedural fairness on compliance through legitimacy. There was also evidence that procedural fairness influenced compliance independently of its effect on legitimacy ($c' = -0.298$), such that taxpayers who perceived procedural unfairness were less likely to be compliant than taxpayers who perceived that IRS procedures were fair. Consequently, H4 is also supported.

Table 4b: Model Coefficients for Procedural Fairness and Legitimacy Mediation Analysis

<pre>graph LR; X[X] -- "a = -0.656" --> M[M]; M -- "b = 0.155" --> Y[Y]; X -- "c' = -0.298" --> Y;</pre>								
Antecedent	Consequent							
	M (Legitimacy)				Y (Compliance)			
		Coeff.	SE	p-value		Coeff.	SE	p-value
X (Procedural Fairness)	a	-0.656	0.126	<.001	c'	-0.298	0.139	.033
M (Legitimacy)		--	--	--	b	0.155	0.055	.005
Constant		2.500	0.620	<.001		2.380	0.677	<.001
	R ² = 0.277 F (10, 378) = 14.445, p<.001				R ² = 0.107 F (11, 377) = 4.099, p<.001			
The indirect effect of X (Procedural Fairness) on Y (Tax Compliance Intentions) is negative (-0.102) and significant (a bootstrap confidence interval based on 10,000 bootstrap samples was entirely below zero (-0.206 and -0.024)), which suggests that Procedural Fairness is significantly associated with Tax Compliance Intentions when taxpayers perceive that the tax authority is legitimate.								
Note: the above analysis is conducted using the same nine covariates as shown in Table 3 (social norms, unpleasant encounter with IRS, years filed, detection likelihood, age, gender, tax preparer, education, and income). The influence of the covariates is not shown above to streamline the presentation of the results. The results above do not differ significantly when the covariates are excluded.								

The results in Table 4b include the influence of all nine covariates reported in Table 3. Excluding the covariates does not significantly change the results as presented above.

4.4 Robustness checks

We also conducted Kruskal-Wallis tests to determine if our main effects of each dimension of fairness are robust to an ordinal rather than interval interpretation of our data. A Kruskal-Wallis H test showed that there was a statistically significant difference in tax compliance intentions between levels of distributive fairness, $\chi^2(1) = 6.154$, $p = 0.013$, with a mean rank compliance score of 209.06 for high distributive fairness and 180.87 for low distributive fairness. A Kruskal-Wallis H test also showed that there was a statistically significant difference in tax compliance intentions between levels of procedural fairness, $\chi^2(1) = 6.411$, $p = 0.011$, with a mean rank compliance score of 208.99 for high procedural fairness and 180.20 for low procedural fairness. These results are consistent with our main ANCOVA in Table 3.

To provide additional evidence of the robustness of our findings of independent effects of each of distributive fairness and procedural fairness, we performed Wilcoxon Mann-Whitney tests in which we compared the effects of each level of distributive fairness (high and low) on the dependent variable (tax compliance intentions) at each level of procedural fairness (high and low). We did not find any significant differences at the 0.05 level of significance (two-tailed). We also performed Wilcoxon Mann-Whitney tests in which we compared the effects of each level of procedural fairness (high and low) on the dependent variable (tax compliance intentions) at each level of distributive fairness (high and low). We again did not find any significant differences at the 0.05 level of significance (two-tailed). These findings provide some assurance that tax compliance intentions for one dimension of fairness do not differ according to levels of the other dimension of fairness. These findings are consistent with our main ANCOVA in Table 3, as we did not find a significant interaction effect.

Finally, our ANCOVA is also supported by conventional regression analysis (not tabulated) that show that both main effects hold with and without the nine covariates.

5. DISCUSSION AND CONCLUSION

A high degree of compliance with tax law is essential for governments to provide services to citizens and to govern them. Tyler's (2006 [1990]) theory on compliance proposes that citizens' perceptions of fairness influence their willingness to obey the law and that this influence is mediated by their perceptions of the legitimacy of the legal authority. While Tyler's theory has been empirically tested in the tax and other contexts with respect to procedural fairness, it has not been tested with respect to distributive fairness. Previously, this theory has also not been tested by means of a controlled experiment, making causation difficult to establish. Also, the influence of distributive and procedural fairness on tax compliance has not previously been considered in the same experiment even though both can occur in a tax context. In the current research, we address these gaps in the literature. We believe our findings may be useful for tax authorities as well as tax and fairness researchers.

Our experiment on American taxpayers manipulates perceptions of distributive fairness and procedural fairness. We find that the two types of fairness significantly influence compliance intentions and that the order of receiving this information has no effect. We find that procedural and distributive fairness have an equal and additive effect on

compliance, with a procedurally and distributively unfair situation resulting in the lowest compliance, a procedurally or distributively fair situation resulting significantly higher compliance, and a procedurally and distributively fair situation resulting the highest compliance intentions.¹⁴ This finding suggests that degrees of fairness are perceived by taxpayers and impact their willingness to comply with tax authorities. It may be that when an individual is faced with information about more than one instance of fairness/unfairness, consolidation of this information may involve a heuristic based on number of fairnesses/unfairnesses¹⁵ and this is something that could be explored in future research.

Further, we found evidence that both distributive and procedural fairness influence compliance through their impacts on perception of the legitimacy of the tax authority. To the best of our knowledge, this is the first study to demonstrate the impact of distributive fairness on compliance through the mediating effect of legitimacy perceptions. While previous correlational studies have identified that perceived legitimacy of a legal authority mediates the relationship between procedural fairness and compliance with the law (e.g., Tyler 2003; 2006 [1990]; Tyler & Lind, 1992; Tyler & Degoe, 1995), our research extends these findings and contributes to the tax literature on legitimacy by providing evidence that legitimacy mediates the influence of both procedural fairness and distributive fairness on compliance. Thus, we contribute the first distributive fairness related empirical support for Tyler's (2006 [1990]) theory of compliance.

Our findings have several implications for tax authorities. Our findings suggest and reinforce that tax authorities should ensure that their procedures are perceived as fair, and that taxpayers' outcomes are consistent across taxpayers. Doing both may result in greater compliance than demonstrating only one of these forms of fairness. If a tax authority creates situations that are procedurally fair but distributively unfair, or vice versa, compliance may suffer as compared to situations that are both procedurally and distributively fair. Tax authorities should also note the importance of taxpayer perceptions of their legitimacy in terms of compliance. Compliance may be enhanced when efforts are made to improve these perceptions.

Our results show that perceptions of legitimacy are improved if distributive fairness and procedural fairness are improved. The clearest implication is that tax authorities should be procedurally and distributively fair. But it is also important for taxpayers to know that fairness has occurred, so tax authorities could perhaps consider initiating explicit communication efforts to reinforce that tax outcomes are fair across taxpayers and the fairness of processes are important to the IRS. Consideration could also be given to providing communications that may improve taxpayer confidence in the legitimacy of the tax authority directly and to combat social media misinformation that may undermine the legitimacy of the tax authority.

In our analysis, some of our control variables were significantly associated with tax compliance (social norms and years filed were positively associated and previous unpleasant encounters with IRS were negatively associated). Further research in these

¹⁴ The order in which distributive information was presented relative to procedural information did not significantly impact compliance intentions.

¹⁵ We thank one of our reviewers for this idea.

areas may also provide additional useful information to help tax authorities understand factors that influence compliance.

As with all research, our study has several limitations. The primary limitation in our study is that our manipulation of distributive fairness was intentionally generic. This design choice was done to make our findings broadly generalisable but in so doing may undermine our ability to provide insight into the applicability of our findings for a specific operationalisation of distributive fairness. We encourage future research into the strength and effect of specific operationalisations of distributive fairness dimensions that may be found and applied in real world settings. Another limitation is that our participants were American taxpayers. While we believe the results of our studies should be of interest to an international audience, the findings of the study may not be generalisable beyond US taxpayers. We encourage further research using taxpayers from other countries to address the issue of generalisability. Third, a limitation of experimental research is that generalisability is predicated upon the specific manipulations used in an experiment. Finally, due to the sensitive nature of tax compliance, it is possible that respondents' responses were biased. We attempted to mitigate this concern by assuring respondents of anonymity and by asking what they thought a hypothetical taxpayer would do, rather than what they themselves would do. Prior research indicates that respondents project their same feelings and attitudes when asked indirect questions instead of direct questions (Fisher, 1993), and that vignettes can minimise the effects of social desirability bias (Hughes & Huby, 2004).

As noted above, future research can consider how different operationalisations of distributive fairness and procedural fairness influence compliance behaviour. For instance, Leventhal (1980) identified several procedural fairness criteria which, in the tax context, may have unique influences on taxpayer behaviour (Farrar et al., 2013; Worsham, 1996). It would be useful for tax policy-makers to know which specific procedural and distributive criteria are most influential for taxpayers in encouraging compliance, especially as tax authorities are increasingly turning to taxpayer charters and tax ombudsman offices to handle taxpayer disputes over procedural and distributive matters. The psychological processes underlying voluntary tax compliance are complex and insufficiently understood. There is much to learn about this important issue.

6. REFERENCES

- Adams, J 1963, 'Toward an understanding of inequity', *Journal of Abnormal and Social Psychology*, vol. 67, no. 5, pp. 422-436.
- Adams, J 1965, 'Inequity in social exchange', in Berkowitz, L (ed.), *Advances in experimental social psychology* (vol. 2), Academic Press, New York, pp. 267-299.
- Ambrose, M & Arnaud, A 2005, 'Are procedural justice and distributive justice conceptually distinct?', in Greenberg, J & Colquitt, J (eds), *Handbook of organizational justice*, Erlbaum Associates, Mahwah, NJ, pp. 59-84.
- Baron, R & Kenny, D 1986, 'The moderator-mediator variable distinction in social psychological research—conceptual, strategic, and statistical considerations', *Journal of Personality and Social Psychology*, vol. 51, no. 6, pp. 1173-1182.

- Bies, R & Moag, J 1986, 'Interactional justice: Communication criteria of fairness', in Lewicki, R, Sheppard, B & Bazerman M (eds), *Research on negotiations in organizations* (vol. 1), JAI Press, Greenwich, CT, pp. 43-55.
- Bobek, D, Hatfield, R & Wentzel, K 2007, 'An investigation of why taxpayers prefer refunds: A theory of planned behavior approach', *Journal of the American Taxation Association*, vol. 29, no. 1, pp. 93-111.
- Bobek, D, Hageman, A & Kelliher, C 2013, 'Analyzing the role of social norms in tax compliance behavior', *Journal of Business Ethics*, vol. 115, no. 3, pp. 451-468.
- Brockner, J & Wiesenfeld, B 1996, 'An integrative framework for explaining reactions to decisions: Interactive effects of outcomes and procedures', *Psychological Bulletin*, vol. 120, no. 2, pp. 189-208.
- Brockner, J 2002, 'Making sense of procedural fairness: How high procedural fairness can reduce or heighten the influence of outcome favorability', *Academy of Management Review*, vol. 27, no. 1, pp. 58-76.
- Brockner, J & Wiesenfeld, B 2005, 'How, when, and why does outcome favorability interact with procedural fairness?', in Greenberg, J & Colquitt, J (eds), *Handbook of organizational justice*, Erlbaum Associates, Mahwah, NJ, pp. 525-553.
- Brown, R & Mintz, J 2012, 'The Big Picture', in Kerr, H, McKenzie, K & Mintz J (eds), *Tax policy in Canada*, Canadian Tax Foundation, Toronto, pp. 1:1 – 1:34.
- Census 2014, 'Educational attainment in the United States: 2014 – Detailed Tables', US Census Bureau, Current Population Survey, 2014 Annual Social and Economic Supplement. Available at: <http://www.census.gov/hhes/socdemo/education/data/cps/2014/tables.html>.
- De Cremer, D 2005, 'Procedural and distributive justice effects moderated by organizational identification', *Journal of Managerial Psychology*, vol. 20, no. 1/2, pp. 4-13.
- De Cremer, D & Blader, S 2006, 'Why do people care about procedural fairness? The importance of belongingness in responding and attending to procedures', *European Journal of Social Psychology*, vol. 36, no. 2, pp. 211-228.
- DeNavas-Walt, C & Proctor, B 2014, 'Income and poverty in the United States: 2013', Current Population Reports, US Census Bureau, 2014 Annual Social and Economic Supplement. Available at: <https://www.census.gov/content/dam/Census/library/publications/2014/demo/p60-249.pdf>.
- Farrar, J, Donnelly, M & Dhaliwal, S 2013, 'Procedural aspects of tax fairness: A content analysis of Canadian tax jurisprudence', *Journal of Legal Tax Research*, vol. 11, no. 2, pp. 21-37.
- Farrar, J, Kaplan, S E & Thorne, L 2019, 'The effect of interactional fairness and detection on taxpayers' compliance intentions', *Journal of Business Ethics*, vol. 154, no. 2, pp. 167-180.
- Ferguson, J, Ellen, P & Bearden, W 2014, 'Procedural and distributive fairness: Determinants of overall price fairness', *Journal of Business Ethics*, vol. 121, no. 2, pp. 217-231.
- Fisher, R 1993, 'Social desirability bias and the validity of indirect questioning', *Journal of Consumer Research*, vol. 20, no. 2, pp. 303-315.

- Folger, R & Cropanzano, R 2001, 'Fairness theory: Justice as accountability', in Greenberg, J & Cropanzano, R (eds), *Advances in organizational justice*, Stanford University Press, Stanford, pp. 1-55.
- Greenberg, J 1990, 'Organizational justice: Yesterday, today, and tomorrow', *Journal of Management*, vol. 16, no. 2, pp. 399-432.
- Gobena, L & Van Dijke, M 2016, 'Power, justice, and trust: A mediated moderation analysis of tax compliance among Ethiopian business owners', *Journal of Economic Psychology*, vol. 52, no. 1, pp. 24-37.
- Gobena, L & Van Dijke, M 2017, 'Fear and caring: Procedural justice, trust, and collective identification as antecedents of voluntary tax compliance', *Journal of Economic Psychology*, vol. 62, no. 1, pp. 1-16.
- Hartman, S, Yrle, A & Galle, W 1999, 'Procedural and distributive justice: Examining equity in a university setting', *Journal of Business Ethics*, vol. 20, no. 4, pp. 337-351.
- Hartner-Tiefenthaler, M, Kubicek, B, Kirchler, E, Rechberger, S & Wenzel, M 2012, 'Perceived distributive fairness of European transfer payments and EU-taxes in Austria, the Czech Republic, and the United Kingdom', *Applied Psychology: An International Review*, vol. 61, no. 3, pp. 454-478.
- Hayes, A 2018, *Introduction to mediation, moderation, and conditional process analysis*, 2nd edn, Guilford Press, New York.
- Hughes, R & Huby, M 2004, 'The construction and interpretation of vignettes in social research', *Social Work and Sciences Review*, vol. 11, no. 1, pp. 36-51.
- Kim, C, Evans, J & Moser, D 2005, 'Economic and equity effects on tax reporting decisions', *Accounting, Organizations and Society*, vol. 30, no. 7/8, pp. 609-625.
- Kirchler, E, Niemirowski, A & Wearing, A 2006, 'Shared subjective views, intent to cooperate and tax compliance: Similarities between Australian taxpayers and tax officers', *Journal of Economic Psychology*, vol. 27, no. 4, pp. 502-517.
- Kirchler, E, Hoelzl, E & Wahl, I 2008, 'Enforced versus voluntary compliance: The "slippery slope" framework', *Journal of Economic Psychology*, vol. 29, no. 2, pp. 210-225.
- Konovsky, M 2000, 'Understanding procedural justice and its impact on business organizations', *Journal of Management*, vol. 26, no. 3, pp. 489-511.
- Leventhal, G 1980, 'What should be done with equity theory? New approaches to the study of fairness in social relationships', in Gergen, K, Greenberg, M & Willis, R (eds), *Social exchange: Advances in theory and research*, Plenum Press, New York, pp. 27-55.
- Marriott, L, Randal, J & Holmes, K 2013, 'Tax experiments in the real world', *eJournal of Tax Research*, vol. 11, no. 2, pp. 216-244.
- McLean, K 2020, 'Revisiting the role of distributive justice in Tyler's legitimacy theory', *Journal of Experimental Criminology*, vol. 16, no. 2, pp. 335-346.
- McKerchar, M, Bloomquist, K & Pope, J 2013, 'Indicators of tax morale: An exploratory study', *eJournal of Tax Research*, vol. 11, no. 1, pp. 5-22.

- Moser, D, Evans, J & Kim, C 1995, 'The effects of horizontal and exchange inequity on tax reporting decisions', *The Accounting Review*, vol. 70, no. 4, pp. 619-634.
- Mullen, E 2007, 'The reciprocal relationship between affect and perceptions of fairness', in Törnblom, K & Vermunt, R (eds), *Distributive and procedural justice: Research and social implications*, Ashgate, Burlington, VT, pp. 15-37.
- Murphy, K 2004, 'The role of trust in nurturing compliance: A study of accused tax avoiders', *Law and Human Behavior*, vol. 28, no. 2, pp. 187-209.
- Murphy, K 2005, 'Regulating more effectively: The relationship between procedural justice, legitimacy, and tax non-compliance', *Journal of Law and Society*, vol. 32, no. 4, pp. 562-589.
- Murphy K, Tyler, T & Curtis, A 2009, 'Nurturing regulatory compliance: Is procedural justice effective when people question the legitimacy of the law?', *Regulation and Governance*, vol. 3, no. 1, pp. 1-26.
- Murphy, K. Bradford, B & Jackson, J 2016, 'Motivating compliance behavior among offenders: Procedural justice or deterrence?', *Criminal Justice and Behavior*, vol. 43, no. 1, pp. 102-118.
- Nunnally, J 1978, *Psychometric theory*, McGraw-Hill, New York.
- Rutte, C & Messick, D 1995, 'An integrated model of perceived unfairness in organizations', *Social Justice Research*, vol. 8, no. 3, pp. 239-261.
- Skarlicki, D & Folger, R 1997, 'Retaliation in the workplace: The roles of distributive, procedural, and interactional fairness', *Journal of Applied Psychology*, vol. 82, no. 3, pp. 434-443.
- Skitka, L, Winkler, J & Hutchinson, S 2003, 'Are outcome fairness and outcome favorability distinguishable psychological constructs? A meta-analytic review', *Social Justice Research*, vol. 16, no. 4, pp. 309-341.
- Sweeney, P & McFarlin, D 1993, 'Workers' evaluations of the "ends" and the "means": An examination of four models of distributive and procedural justice', *Organizational Behavior and Human Decision Processes*, vol. 55, no. 1, pp. 23-40.
- Thibault, J & Walker, L 1975, *Procedural justice: A psychological analysis*, Erlbaum Associates, Hillsdale, NJ.
- Trivedi, V, Shehata, M & Lynn, B 2003, 'Impact of personal and situational factors on taxpayer compliance: An experimental analysis', *Journal of Business Ethics*, vol. 47, no. 3, pp. 175-197.
- Turner, J 2005, 'Explaining the nature of power: A three-process theory', *European Journal of Social Psychology*, vol. 35, no. 1, pp. 1-22.
- Tyler, T 1997, 'The psychology of legitimacy: A relational perspective on voluntary deference to authorities', *Personality and Social Psychology Review*, vol. 1, no. 4, pp. 323-345.
- Tyler, T 2003, 'Procedural justice, legitimacy, and the effective rule of law', *Crime and Justice*, vol. 30, pp. 283-357.
- Tyler, T 2006 [1990], *Why people obey the law*, Princeton University Press, Princeton.
- Tyler, T & Lind, E 1992, 'A relational model of authority in groups', in Zanna, M (ed.), *Advances in experimental social psychology* (vol. 25), Academic Press, New York, pp. 115-191.

- Tyler, T & Degoe, P 1995, 'Collective restraint in a social dilemma situation: The influence of procedural justice and community identification on the empowerment and legitimacy of authority', *Journal of Personality and Social Psychology*, vol. 69, no. 3, pp. 482-497.
- Tyler, T & Fagan, J 2008, 'Legitimacy and cooperation: Why do people help the police fight crime in their communities?', *Ohio State Journal of Criminal Law*, vol. 6, no. 1, pp. 231-275.
- Van den Bos, K, Vermunt, R & Wilke, H 1997, 'Procedural and distributive justice: What is fair depends more on what comes first than on what comes next', *Journal of Personality and Social Psychology*, vol. 72, no. 1, pp. 95-104.
- Van Dijke, M & Verboon, P 2010, 'Trust in authorities as a boundary condition to procedural fairness effects on tax compliance', *Journal of Economic Psychology*, vol. 31, no. 1, pp. 80-91.
- Verboon, P & Van Dijke, M 2007, 'A self-interest analysis of justice and tax compliance: How distributive justice moderates the effect of outcome favorability', *Journal of Economic Psychology*, vol. 28, no. 6, pp. 704-727.
- Verboon, P & Van Dijke, M 2011, 'When do severe sanctions enhance compliance? The role of procedural fairness', *Journal of Economic Psychology*, vol. 32, no. 1, pp. 120-130.
- Verboon, P & Van Dijke, M 2012, 'The effect of perceived deterrence on compliance with authorities: The moderating influence of procedural justice', *International Journal of Criminology and Sociology*, vol. 1, pp. 151-161.
- Wahl, I, Kastlunger, B & Kirchler, E 2010, 'Trust in authorities and power to enforce tax compliance: An empirical analysis of the "slippery slope framework"', *Law and Policy*, vol. 32, no. 4, pp. 383-406.
- Wenzel, M 2002, 'The impact of outcome orientation and justice concerns on tax compliance: The role of taxpayers' identity', *Journal of Applied Psychology*, vol. 87, no. 4, pp. 629-645.
- Worsham, R 1996, 'The effect of tax authority behavior on taxpayer compliance: A procedural justice approach', *The Journal of the American Taxation Association*, vol. 18, no. 2, pp. 19-39.

APPENDIX

EXPERIMENTAL INSTRUMENT

Introduction

Below is a brief scenario about a taxpayer named Jamie and his experiences with the Internal Revenue Service (IRS). Please read it carefully, as you will be asked some follow-up questions. We would like to know what you would do if you were Jamie.

Common information

Jamie is a small business owner. Last year, he had a lengthy and frustrating dispute with the IRS concerning a tax deduction. In the end Jamie was disappointed to find out that he was not allowed to claim the full deduction.

Wordings for fairness manipulations

[Distributively fair then Procedurally fair]

Even so, Jamie believed that his tax result was fair compared to other situations he had recently heard of. Also, he believed that the IRS process to resolve the dispute was fair.

[Procedurally fair then Distributively fair]

Even so, Jamie believed that the IRS process to resolve the dispute was fair. Also, he believed that his tax result was fair compared to other situations he had recently heard of.

[Distributively unfair then Procedurally fair]

Jamie believed that his tax result was unfair compared to other situations he had recently heard of. At the same time, he believed that the IRS process to resolve the dispute was fair.

[Procedurally fair then Distributively unfair]

Jamie believed that the IRS process to resolve the dispute was fair. At the same time, he believed his tax result was unfair compared to other situations he had recently heard of.

[Distributively fair then Procedurally unfair]

Even so, Jamie believed that his tax result was fair compared to other situations he had recently heard of. At the same time, he believed that the IRS process to resolve the dispute was unfair.

[Procedurally unfair then Distributively fair]

Even so, Jamie believed that the IRS process to resolve the dispute was unfair. At the same time, he believed his tax result was fair compared to other situations he had recently heard of.

[Distributively unfair then Procedurally unfair]

Jamie believed that his tax result was unfair compared to other situations he had recently heard of. Also, he believed that the IRS process to resolve the dispute was unfair.

[Procedurally unfair then Distributively unfair]

Jamie believed that the IRS process to resolve the dispute was unfair. Also, he believed that his tax result was unfair compared to other situations he had recently heard of.

Tax Compliance Intentions

This year Jamie's income included some cash earnings. Jamie knows that it is more difficult for the IRS to find out about cash income.

Please read the following statements and indicate your level of agreement by clicking on the appropriate response (7-point Likert scale, 1 = strongly disagree; 7 = strongly agree).

- 1) Under the circumstances, Jamie might not report all of his cash earnings on his tax return.
- 2) Jamie will not declare all the cash to the IRS.
- 3) Jamie is unlikely to report all his cash earnings to the IRS.
- 4) Jamie would be tempted to not report all of his cash receipts on his tax return.

Detection

- 1) If Jamie did not report all his cash income, the IRS would find out.

Legitimacy of the IRS

- 1) Jamie's circumstances would lead him to believe that the IRS does its job well.
- 2) Jamie's circumstances would lead him to feel that it is important to follow the IRS's rules.

7. MANIPULATION CHECKS

Please indicate your level of agreement with the following statements (7-point Likert scale, 1 = strongly disagree; 7 = strongly agree).

DISTRIBUTIVE FAIRNESS

1. Jamie was satisfied with last year's tax result compared to other tax situations.

PROCEDURAL FAIRNESS

1. Jamie was satisfied with the IRS process to resolve last year's tax dispute.

Comprehension checks.

1. Was Jamie's tax result last year fair or unfair compared to other tax situations he knew of? [fair / unfair]
2. Was the IRS process to resolve last year's dispute fair or unfair? [fair / unfair]

Demographic questions

- 1) Your gender: Male Female
- 2) Have you ever had an unpleasant encounter with an IRS agent? Yes No
- 3) Your present age: _____ years
- 4) For approximately how many years have you filed an income tax return?

- 5) Who usually prepares your tax return? I do my spouse paid preparer
other
- 6) Please indicate your highest level of education completed:

High School
Junior College Diploma
College degree
Graduate degree
Other

7) Please indicate your approximate annual income:

- less than \$25,000
- between \$25,000 and \$50,000
- between \$50,001 and \$75,000
- between \$75,001 and \$100,000
- ≥ \$100,000
- Prefer not to answer

8a) It is morally wrong to engage in tax evasion behavior. (7-point Likert scale, 1 = strongly disagree; 7 = strongly agree).

8b) My close friends believe it is wrong to engage in tax evasion behavior. (7-point Likert scale, 1 = strongly disagree; 7 = strongly agree).

9. Was the scenario about Jamie's tax situation easy to understand? (Please comment if you want to)