Written Communications and Taxpayers’ Compliance: An Interactional Fairness Perspective

Jonathan Farrar and Linda Thorne*

PRÉCIS
Les administrations fiscales communiquent avec les contribuables principalement par écrit. Des études antérieures ont montré que le contenu des communications écrites des administrations fiscales peut avoir une incidence sur l’observation de loi par les contribuables en faisant appel à l’équité interactionnelle. L’équité interactionnelle désigne la qualité du traitement des particuliers par une figure d’autorité et comporte deux dimensions : le ton et l’information. Dans ses communications écrites, une administration fiscale communique, par mégarde ou délibérément, tant un ton que de l’information. À l’aide d’une expérience menée auprès de 287 contribuables, nous avons examiné l’effet des deux dimensions sur l’observation de la loi par les contribuables. Nous avons constaté qu’il y a une relation entre le ton et l’information, et que l’observation est plus élevée lorsque le niveau d’information est élevé et que le ton utilisé est autoritaire. Nous avons aussi remarqué que l’information a un effet positif sur l’observation. Nos résultats peuvent donc être utiles aux administrations fiscales en les aidant à rédiger des communications écrites qui incitent les contribuables à observer la loi.

ABSTRACT
Written communication is the primary means used by tax authorities to communicate with taxpayers. Prior research shows that the content of written communications by tax authorities can influence taxpayers’ compliance by appealing to interactional fairness. Interactional fairness refers to the quality of treatment that individuals receive from an

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authority figure and has two dimensions, tone and information. In written communications from a tax authority, inadvertently or by design, both tone and information are conveyed. In our study, we examine the impact of both dimensions on taxpayers’ compliance through an experiment involving 287 taxpayers. We find an interaction between tone and information, such that compliance is highest in the presence of high information and an authoritative tone. We also find that compliance is positively associated with information. Our findings have practical implications for tax authorities in determining how best to use written communications to encourage taxpayers’ compliance.

KEYWORDS: COMMUNICATIONS ■ COMPLIANCE ■ FAIRNESS ■ PSYCHOLOGICAL ASPECTS ■ TAX ADMINISTRATION

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INTRODUCTION

In 2013-14, the Canada Revenue Agency (CRA) lost an estimated $16 billion to non-compliance.1 Tax evasion costs governments worldwide an estimated US$3.1 trillion annually, more than 5 percent of world gross domestic product.2 Although deterrence strategies, such as audits and sanctions, are commonly used to thwart tax non-compliance, they are very costly, and tax authorities are continually looking for cost-effective alternatives. Prior research suggests encouraging taxpayers’ perceptions of fairness can be a cost-effective approach to encouraging compliance.3

The use of written communications with taxpayers is increasing in response to government budget cuts. Written communication is the most widely used form of communication by tax authorities and is on the rise, as tax authorities scale back the size of their office networks and the number of face-to-face interactions declines. For example, in Canada, the CRA closed all of its payment and inquiry service counters in 2013, and discontinued face-to-face outreach sessions, while continuing to issue 129 million pieces of personalized taxpayer correspondence annually. In the United States, in 2011, more than 75 percent of audits of individual taxpayers were conducted via correspondence rather than face-to-face.

A substantial stream of research has investigated how fairness-based approaches can be used to encourage voluntary taxpayer compliance. This research has provided significant insights, showing, in particular, that taxpayers’ perceptions of the fairness of tax procedures and the fairness of assessed taxes generally strengthen taxpayers’ compliance. However, organizational justice research has identified another type of fairness, interactional fairness, which refers to the quality of the treatment provided to individuals by authority figures. Interactional fairness comprises two distinct dimensions, interpersonal fairness and informational fairness. Interpersonal fairness refers to the extent to which decision makers are subject to authoritative versus respectful treatment or tone in their communications with authority figures, whereas informational fairness refers to the extent to which decision makers receive adequate explanations from authority figures. Research indicates that decision

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makers’ cooperation is positively associated with interactional fairness. Thus, an interactional fairness perspective may be useful for gaining insight into how written communications can be used to encourage taxpayers’ compliance.

Two studies provide support for the importance of interpersonal fairness in written communications from tax authorities. Doyle et al.\(^\text{11}\) showed that respect or information, and both respect and information together, included in written reminders prompted taxpayers to file their tax returns on time. Similarly, Wenzel\(^\text{12}\) showed that the inclusion of either respectful tone or information in a tax authority’s letters results in higher payment of interim tax bills by taxpayers. However, neither study established which combination of dimensions is most effective, nor did these studies specifically examine taxpayers’ reporting compliance.

In any letter from a tax authority, inadvertently or by design, a particular tone and some amount of information is conveyed. Nevertheless, it remains to be established how both dimensions combine to influence taxpayers’ compliance, and which combination of dimensions results in the highest level of compliance by taxpayers.\(^\text{13}\) Understanding how both dimensions of interactional fairness work together in tax authorities’ letters to influence taxpayers’ compliance is important, since this approach offers tax authorities a cost-effective alternative to sanctions and audits.\(^\text{14}\)

We use an experiment that specifically investigates wording identified in a CRA study\(^\text{15}\) to examine how tone and information jointly influence taxpayers’ compliance. An experiment allows us to manipulate the relevant factors of interest while eliminating or controlling for other factors outside the scope of our study. In our experiment, 287 Canadian taxpayers responded to a tax scenario. The scenario described a taxpayer filing his tax return and subsequently receiving a letter (a notice of assessment) from the CRA. As hypothesized, our findings suggest that information is positively associated with taxpayers’ compliance, and that tone and information


\(^\text{13}\) More broadly, given recent litigation involving CRA officials, interactional fairness is of increasing concern to tax authorities. See John Bevacqua, “Suing Canadian Tax Officials for Negligence: An Assessment of Recent Developments” (2013) 61:4 Canadian Tax Journal 893-914.

\(^\text{14}\) Tax authorities in Ireland and the United Kingdom are considering revisions to wording in written communications with taxpayers. See Irish Government Economic and Evaluation Service, Behavioural Economics (Dublin: IGEES, October 2014); and United Kingdom, Cabinet Office Behavioral Insights Team, Applying Behavioral Insights To Reduce Fraud, Error and Debt (London: Cabinet Office, February 2012).

\(^\text{15}\) Sage Research Corporation, Attitudes Towards Collection and Request To File Letters: Final Report Prepared for Canada Revenue Agency (Burlington, ON: Sage Research, 2011). This study is described in more detail below under the heading “Development of Hypotheses.”
interact to affect taxpayers’ compliance. Surprisingly, we fail to find a positive association between compliance and the dimension of tone on its own; however, our findings suggest that an authoritative tone combined with high information content maximizes taxpayers’ compliance.

Several contributions emerge from our findings. First, we extend the work conducted by Wenzel and Doyle et al. to contribute to the tax literature on the fairness-compliance association by experimentally identifying the joint impact of tone and information on taxpayers’ compliance. Our findings show that an authoritative tone reinforces the positive impact of information on compliance and a respectful tone undermines it. Thus, we refine the understanding of what aspects of tone may be perceived by taxpayers as appropriate in tax authority letters. Second, we contribute to the broader fairness literature by being the first to provide empirical insight into the interplay of the two fairness dimensions (tone and information) underlying the effect of interactional fairness on cooperative behaviour. Third, through our research design we isolate the impact of deterrence from information and highlight the importance of information and explanation for taxpayers’ compliance. Finally, we make a practical contribution of interest to the tax authority by identifying how tone and information can be employed in written communications to encourage taxpayers’ compliance.

The remainder of this article is organized as follows. In the next section, we conduct a literature review and formulate our hypotheses. We then describe our experiment and report our results. We conclude with a discussion of the implications of our findings.

DEVELOPMENT OF HYPOTHESES

While there is limited research on how either of the two dimensions of interpersonal fairness, in combination or in isolation, influence taxpayers’ compliance, prior research involving large field studies provides valuable insights into the impact of tax authorities’ written communications on taxpayers’ cooperative behaviour. One large field study conducted by Hasseldine et al.\textsuperscript{16} compared the rate of compliance for British taxpayers who received one of five different letters from the tax authority with the compliance rate for a control group that did not receive a letter. All groups that received letters had a higher level of reporting of taxable income than the control group. The highest rates of compliance were found in the three groups that received letters with information about detection, including one that described the probability of an audit, a second that described the possible penalties associated with a failed audit, and a third that warned that an audit was likely. Lower rates of compliance were found in the groups that received a letter that included

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respectful normative appeals. This study shows the importance of written communication by the tax authority, and also suggests the importance of the two dimensions of interactional fairness, tone and information, in written communications as factors influencing taxpayers’ cooperation.

In another field experiment, Blumenthal et al.17 examined whether normative appeals embedded in a letter from the tax authority influenced reporting compliance. These letters contained a neutral tone and normative appeals for payment. One-third of the taxpayers were sent a letter identifying the importance of tax dollars for state programs; one-third were sent a letter suggesting that the majority of taxpayers were compliant; and one-third received no letter. There were no significant differences in the rates of compliance between the three groups of taxpayers. However, a more recent study shows that normative appeals are effective in encouraging taxpayers’ cooperation. Hallsworth et al.18 conducted a field experiment involving British taxpayers to determine factors that influence timely tax payments. Reminder letters included messages pertaining to social norms and moral duties. Hallsworth et al. found that reminder letters increased taxpayers’ payments, and concluded that the framing of information included in written communications from tax authorities influences taxpayers’ propensity to cooperate.

Only one study, a large field study, has specifically considered how tone influences taxpayers’ responses. Wenzel19 specifically tested and found that written letters containing respectful language, rather than a control letter with neutral language, increased taxpayers’ propensity to make interim tax payments. Wenzel concluded that a respectful tone reinforced the importance of interactional fairness, and of tone in particular, for taxpayers’ cooperation. Following Wenzel, we argue that when tax authorities are respectful and polite, perceptions of interactional fairness are increased, and consequently, we posit that taxpayers will be more cooperative and more compliant with respectful communications as compared to authoritative communications. This discussion leads to our first hypothesis:

**Hypothesis 1:** A respectful tone in written communications will result in higher compliance than an authoritative tone.

Several studies have specifically examined how the informational dimension included in written communications influences taxpayers’ cooperation. Wenzel’s study provides insight into the impact of information included in written communications on the propensity of taxpayers to make interim tax payments. Wenzel compared the

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19 Supra note 12.
responses of taxpayers who were sent a letter containing explicit information about its contents and purpose with those of taxpayers who received a control letter without this information, and found a significantly greater rate of compliance by taxpayers who received the additional information. Similarly, Alm et al.\textsuperscript{20} conducted a laboratory experiment that examined the impact of tax authority-provided information on reported income compliance. In the high information condition, respondents were given the opportunity to receive information pertaining to the computation of their individual tax liabilities, while the remaining respondents were not given the opportunity to receive this information. Respondents in the high information condition reported significantly more income than respondents in the low information condition, a finding that suggests that providing information can directly and positively affect reporting compliance.

In another field study that examined the effect of the inclusion of information in written communications from the tax authority on taxpayers’ cooperation, Perez-Truglia and Troiano\textsuperscript{21} sent reminder letters to delinquent taxpayers. Letters included information about financial penalties or shaming, or both. Perez-Truglia and Troiano found that delinquent taxpayers were most likely to pay their tax debts when they received the letter that provided information regarding financial penalties and shaming simultaneously. This finding again provides support for the importance of information for taxpayers’ cooperation.

Empirical tax research indicates that the provision of more information by the tax authority appears to increase taxpayers’ cooperation, a finding that is consistent with an interactional fairness perspective. According to that perspective, the provision of information by authorities increases perceptions of fairness, since it provides a rationale for the process and/or outcome of the authorities’ actions, and to the extent that those actions are seen to be fair, taxpayers’ cooperation increases.\textsuperscript{22} Therefore, we anticipate that this behaviour extends to taxpayers’ compliance. This discussion leads to our second hypothesis:

**Hypothesis 2:** Information included in written communications is positively associated with taxpayers’ compliance.

Our final hypothesis considers the joint impact of the two dimensions of interpersonal fairness: tone and information. In practice, although not necessarily by design, letters from authorities vary in degree of tone and information simultaneously, and consequently interpersonal fairness (tone) and informational fairness


\textsuperscript{22} Greenberg, supra note 10, at 98, makes this point.
(information) interact to affect behaviour. There is some evidence from the fairness literature that suggests that dimensions of fairness interact with each other.\textsuperscript{23} However, we are unaware of any study that provides definitive insight into how they jointly interact in written communications to influence taxpayers’ compliance.

The joint impact of tone and information in written communications by tax authorities was investigated in a recent study conducted for the CRA.\textsuperscript{24} The study assessed taxpayer reactions to proposed wording in a collection letter sent to taxpayers who owed a tax debt. Using suggested wording from focus group participants, the study showed that taxpayers were sensitive to the tone of individual words (such as “please” or “still”), preferred a friendlier tone, and preferred to have more information included in the written communication provided by the CRA (such as information about payment options and information about arrears interest). Although the CRA study did not experimentally investigate the impact of these items on compliance, it suggests that taxpayers respond favourably to increased levels of information and are favourably sensitive to a respectful tone in written communications.

One academic study in the tax domain considers both dimensions of interactional fairness in written communications from the tax authority, providing some insight into how these two dimensions may jointly interact to influence compliance. Doyle et al.,\textsuperscript{25} in cooperation with the Irish tax authority, examined the effect of tax authorities’ written communications when taxpayers were sent letters reminding them to file tax returns that had not been submitted by a tax-filing deadline. In this study, three groups of taxpayers were each sent one of three reminder letters, and a fourth group received no letter. One letter incorporated a more authoritative tone; one letter incorporated respectful language and an explanation describing why the letter was being sent; and one letter was the standard letter then in use, which contained a less authoritative tone with an explanation. Doyle et al. found that all groups of taxpayers who received a written letter from the tax authority were more likely to file a delinquent tax return than taxpayers who received no letter. However, there were no significant differences in submission rates among the three groups who received letters. Thus, this study found that tone and information, alone and in combination, influenced taxpayers’ compliance, but failed to distinguish which combination was likely to result in the highest level of taxpayers’ compliance. Consequently, the


\textsuperscript{24} Supra note 15.

\textsuperscript{25} Supra note 11.
combined impact of tone and information on taxpayers’ compliance remains to be empirically examined.26

To hypothesize the joint impact of tone and information on taxpayers’ compliance, we turn to Greenberg, who suggests that individuals are most likely to respond favourably to authorities when tone is respectful and information is high.27 This discussion leads to the following hypothesis:

Hypothesis 3: Tone will moderate the relation between information and tax compliance. Specifically, the effect of information on tax compliance will be stronger where the tone of the communication is respectful than where the tone is authoritative.

METHODOLOGY

Experimental Design

We employ a $2 \times 2$ [(tone: respectful, authoritative) $\times$ (information: high, low)], fully crossed-between-subjects design.

Participants

Participants were Canadian taxpayers recruited from a consumer research firm that has a database of 200,000 Canadians. To ensure that our sample was representative of a typical taxpayer population, we requested that our participants be randomly selected using two parameters, gender and age. We restricted our sample participants to taxpayers between the ages of 18 and 80, evenly distributed across age groups, and with a 50/50 gender split. All respondents were from the same province (Ontario). Once we had received 330 responses,28 the study was terminated. Of the 330 responses received, 43 were incomplete, leaving us with a sample of 287. The demographic profile of the sample is shown in table 1.

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27 Supra note 10, at 93.

28 We received 330 responses to ensure that we had adequate power and that our sample would be representative of the Canadian population. The most recent Canadian data on income levels published by Statistics Canada report the following distribution of the population by income group: less than $25,000, 40.9 percent; $25,000-$50,000, 28.7 percent; $50,000-$75,000, 15.3 percent; $75,000-$100,000, 7.7 percent; and more than $100,000, 7.4 percent. “Individuals by Total Income Level by Province and Territory” (www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/famil105a-eng.htm) (data for 2013). Our sample approximately reflects this distribution. Also, the median age in Canada in 2014 was 41.7: Index Mundi, “Canada Demographics Profile 2014” (www.indexmundi.com/canada/demographics_profile.html). In our sample, it was 38.0 (mean 39.7). Therefore, on the basis of age and income, our sample appears to reasonably represent the Canadian population.
TABLE 1  Demographic Profile Statistics

<table>
<thead>
<tr>
<th>Sample size</th>
<th>n = 287</th>
</tr>
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Gender
- Male | n = 136 (47.4%) |
- Female | n = 151 (52.6%) |

Age
Mean = 40.3 years
Standard deviation = 14.8 years

Ever had a problem with the tax authority
- Yes | n = 37 (12.9%) |
- No | n = 250 (87.1%) |

Income
- Less than $25,000 | n = 94 (32.8%) |
- $25,000-$50,000 | n = 73 (25.4%) |
- $50,001-$75,000 | n = 53 (18.5%) |
- $75,001-$100,000 | n = 38 (13.2%) |
- Greater than $100,000 | n = 29 (10.1%) |

Highest level of education completed
- High school | n = 74 (25.7%) |
- Community college | n = 61 (21.3%) |
- Undergraduate degree | n = 80 (27.9%) |
- Graduate degree | n = 59 (20.6%) |
- Other | n = 13 (4.5%) |

Political orientation
- Very conservative | n = 19 (6.6%) |
- Moderately conservative | n = 44 (15.3%) |
- Slightly conservative | n = 26 (9.1%) |
- Middle of political spectrum | n = 98 (34.1%) |
- Slightly liberal | n = 37 (12.9%) |
- Moderately liberal | n = 42 (14.6%) |
- Very liberal | n = 21 (7.4%) |

Experimental Procedures
Potential participants received an e-mail invitation from the consumer research firm to participate in a questionnaire about income taxes. Individuals willing to participate in the experiment clicked on a web link and were automatically directed to one of the experimental conditions. Respondents had a unique user identifier and password provided by the firm, which ensured that they could not respond to a survey more than once. Participants were offered an incentive based on a point system specific to the firm. Participants received 33 “NetPoints” for completing the survey, which could be redeemed for cash or prizes once the total number of NetPoints reached a certain threshold (similar to an air travel points incentive program).

29 Participants received 33 “NetPoints” for completing the survey, which could be redeemed for cash or prizes once the total number of NetPoints reached a certain threshold (similar to an air travel points incentive program).
In Canada, as in many other countries, taxpayers are responsible for initiating the preparation and the filing of their tax return, and must submit any payment due to the tax authority. In Canada, after a taxpayer’s tax return has been filed, the CRA initiates a notice of assessment, which is a written letter sent to taxpayers acknowledging receipt of the tax return and either agreeing or disagreeing with the taxpayer’s initial submission. Thus, the primary form of written communication between the tax authority and taxpayers in Canada is the notice of assessment. Included in the notice of assessment is the amount of taxes owing or refundable, if any. A notice of assessment can be sent and received at any time during the calendar year.

Our experiment required participants to determine whether they would report cash income, which is not subject to third-party tax reporting and thus gives taxpayers an opportunity to be non-compliant without detection. The experiment started with participants reading a scenario that involved a fictitious taxpayer (“Jason Burgher”) who purportedly received a notice of assessment from the CRA in which the CRA disagreed with his initial submission. After reading the scenario, participants were instructed to click on a link, which would open the notice of assessment, and then after reading the notice of assessment, complete follow-up questions, which included manipulation checks and demographic questions. (To increase realism, the “notice of assessment” viewed by participants mimicked the typography, format, and general content of an actual notice of assessment issued by the CRA.) For participants assigned to the high information condition, further information as to the reason for the disagreement was provided at the bottom of the letter. This information was omitted for participants in the low information condition. For participants assigned to the respectful tone condition, the notice of assessment began, “Dear Taxpayer, Thank you for filing your tax return,” while for those assigned to the authoritative tone condition, the notice of assessment omitted that wording and included the phrase “If you are still confused.” The wording for all experimental conditions and a sample of one notice of assessment are reproduced in the appendix to this article.

Dependent Variable
Consistent with the findings of the US Internal Revenue Service (IRS) that taxpayers report all or no cash income, and based on the results of our pretests that showed that reporting of income was binary, we used a binary dependent variable. Participants learned that Jason received $5,000 in cash for work that he did on the side and were asked how much of the $5,000 in cash he was more likely to report. Participants could choose either “none of it (0%)” or “all of it (100%).”

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30 This approach is consistent with other tax compliance studies. See, for example, Cindy Blanthorne and Steven Kaplan, “An Egocentric Model of the Relations Among the Opportunity To Underreport, Social Norms, Ethical Beliefs, and Underreporting Behavior” (2008) 33:7-8 Accounting, Organizations and Society 684-703.

Independent Variables

We employed two independent variables in this analysis: tone (respectful versus authoritative) and information (high versus low). We specifically chose to manipulate tone using words or phrases that had been identified in the CRA study described above.32 Participants assigned to the respectful condition saw an introductory phrase, “Dear Taxpayer,” along with the instruction to “please” call the CRA with any questions. (According to the findings in the CRA study, these terms were perceived as respectful.) The letters to participants assigned to the authoritative tone condition contained the term “still” in its follow-up instructions, and did not include “Dear Taxpayer” and “please.” (We used the word “still” because respondents in the CRA study found that it had an authoritative quality.)

For the two information conditions, participants assigned to the high information condition read that the tax return was revised to reflect the total of allowable donation receipts submitted by the taxpayer, whereas participants assigned to the low information condition were given no explanation for the revised outcome.

Control Variables

We controlled for four demographic variables: age, gender, income, and education.33 We also controlled for political orientation, deterrence, and whether or not the participant had ever had a problem with the tax authority.34 Also, since prior research suggests that the favourability of an outcome can bias perceptions of interpersonal and informational fairness, we controlled for the outcome on the notice of assessment.35

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32 Supra note 15.


34 McGowan suggests that tax attitudes are influenced by taxpayers’ political orientation; therefore, we controlled for political orientation using the measure developed by Chin, Hambrick, and Treviño. See John R. McGowan, “The Effect of Political Affiliation on Taxpayers’ Attitudes Toward Alternative Tax Systems” (2000) 22:1 Journal of the American Taxation Association 111-28; and M.K. Chin, Donald C. Hambrick, and Linda K. Treviño, “Political Ideologies of CEOs: The Influence of Executives’ Values on Corporate Social Responsibility” (2013) 58:2 Administrative Science Quarterly 197-232. We controlled for deterrence using the measure developed by Wenzel, which is a composite score of individual responses to four punitive outcomes and the likelihood of their occurrence: see Michael Wenzel, “The Impact of Outcome Orientation and Justice Concerns on Tax Compliance: The Role of Taxpayers’ Identity” (2002) 87:4 Journal of Applied Psychology 629-45. We also asked whether or not the participant ever had a problem with the tax authority, since this circumstance may have biased fairness perceptions.

In the initial scenario, participants were told that when Jason filed his tax return, his calculations showed that he had neither a balance owing nor a refund; however, when participants read the notice of assessment, some learned that the taxpayer was getting a refund (of $800), while others learned that the taxpayer owed money ($800).36

**Manipulation Effectiveness**

We performed manipulation checks for tone and information. Our manipulation check for tone asked participants to rate their agreement with the statement “The CRA treated Jason respectfully.” Our manipulation check for information asked participants to rate their agreement with the statement “In the Notice of Assessment, the CRA justified its actions.” All statements were measured with 7-point Likert scales, with 1 being “strongly agree” and 7 being “strongly disagree.” Tone ($F = 3.63, p = 0.05$) and information ($F = 3.79, p = 0.05$) manipulation checks were supported.37

**RESULTS**

To test our hypothesis, we used binary logistic regression analysis, since our dependent variable and independent variables are dichotomous.38 We used dummy variables of “0” for the “unfair” conditions (authoritative, low information) and “1” for the “fair” conditions (respectful, high information). We also used dummy variables of “0” for 0 percent compliance, and “1” for 100 percent compliance. We entered all independent variables and control variables simultaneously. Regression results are reported in table 2.39

We first examine our interaction hypothesis (“H3”).40 This hypothesis posits that there is an interaction effect between tone and information in influencing taxpayers’

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36 In our study, binary control variables were coded as follows: tax owing (0) and tax refund (1); female gender (0) and male gender (1); and problem with tax authority as “no” (0) and “yes” (1).

37 We tested our manipulation checks through a simple analysis of variance (ANOVA) that tested whether there was a significant difference in the respective manipulations for respondents assigned to the different conditions.


39 We first checked for multicollinearity using the tolerance and VIF (variance inflation factor) statistics, and found no evidence of multicollinearity in the logistic regression model. The model fit statistics indicate an acceptable fit to the data, given that the Hosmer-Lemeshow statistic ($\chi^2 = 4.42, p = 0.82$) is not significant. We also inspected the standardized residuals and deviance statistics (Cook’s distance). No standardized residuals exceeded 3, and no Cook’s distance exceeded 1—results that also indicate an acceptable model fit. See Andy Field, *Discovering Statistics Using SPSS*, 3d ed. (Thousand Oaks, CA: Sage Publications, 2009), at 264-312.

40 The protocol of testing interactions before total effects is discussed in Scott E. Maxwell and Harold D. Delaney, *Designing Experiments and Analyzing Data: A Model Comparison Perspective*, 2d ed. (New York: Taylor and Francis, 2004), at 370-76.
compliance, and that the effect of information on tax compliance will be stronger for a respectful tone than for an authoritative tone. Support for the first part of this hypothesis is indicated by a significant interaction term between tone and information in relation to compliance. As shown in table 2, panel A, the interaction term is significant (Wald $\chi^2 = 4.30, p = 0.04$), confirming the presence of a significant interaction between tone and information, at the 5 percent level of statistical significance.

The second part of H3 is that the effect of information on tax compliance will be stronger for a respectful tone than for an authoritative tone. As shown in table 2, panel A, the interaction term (tone by information) is negative ($\beta = -1.25$), which suggests the relationship between tone and information is contrary to our prediction. Thus, we have only partial support for H3. We present a graph of the interaction in figure 1. Figure 1 shows an ordinal interaction.\(^4\)

Since we have an ordinal interaction, we can also interpret hypotheses 1 (H1) and 2 (H2). H1 predicts a total effect of respectful tone in written communications on taxpayers’ compliance, and H2 predicts a total effect of information in written

\(^4\) In ordinal interactions, lines in a graph will not be parallel, nor will they cross.
communications on taxpayers’ compliance. Support for both hypotheses would be indicated by a significant Wald test value. As shown in table 2, panel A, the Wald test value for tone is 0.02 ($p = 0.89$), and the Wald test value for information is 4.85 ($p = 0.03$). Therefore, only $H_2$ is supported. Consequently, there is a significant total effect of information in written communications on taxpayers’ compliance, which suggests the importance to tax authorities of providing adequate explanations in their written correspondence with taxpayers.

To further assist in the interpretation of the results, we conduct additional statistical analysis of the proportion of individuals being compliant in each experimental condition, as shown in table 3, panel A. The experimental condition with the greatest proportion of compliant individuals was the high information, authoritative tone condition, which is also depicted by the graph of the interaction in figure 1. Thus, our results suggest that compliance is optimized when taxpayers receive an explanation with high information content combined with an authoritative tone.

To provide additional insight into our findings, we examine the odds ratio for each condition, as shown in table 3, panel B. The odds of the occurrence of an event is the probability that the event will occur divided by the probability that the event will not occur. When the tone is authoritative and information is low, the odds of compliance are 0.093.\(^{42}\) However, when the tone is authoritative and information is

\[42\text{ Calculated as } e^{-2.38}.\]
high, the odds of compliance are 0.239, an increase of 159 percent, as a result of the presence of additional information.\textsuperscript{43} Furthermore, when the tone is respectful and information is low, the odds of compliance are 0.087, and when the tone is respectful and information is high, the odds of compliance are 0.065, a decrease of 35 percent.\textsuperscript{44} The latter result shows that respectful tone undermines the impact of high information on compliance.

The only significant control variable was deterrence, suggesting that taxpayers’ perceptions of deterrence are relevant to their compliance decision. The outcome control variable was not significant, suggesting that the interactive effect of tone and information did not vary according to outcome.\textsuperscript{45}

**IMPLICATIONS AND CONCLUSIONS**

Tax authorities have the ability to shape and influence the content of written communications at very little cost. Furthermore, tax authority letters are likely to play a role in taxpayers’ perceptions of interactional fairness through the kind of language employed as well as the content of the communication. A better understanding of tax authority-to-taxpayer written communications is important because tax authorities, either unwittingly or by design, appeal to taxpayers’ perceptions of interactional fairness through their choice of tone and information, and those perceptions have an impact on taxpayers’ compliance.

Our research adopts an interactional fairness perspective to experimentally test 287 taxpayers on how two dimensions of a tax authority’s communications—tone

\begin{table}[h]
\centering
\caption{Compliance Across Experimental Conditions}
\begin{tabular}{lcc}
\hline
 & Low information & High information \\
\hline
Authoritative tone & 42.9\% (30/70) & 57.6\% (38/66) \\
Respectful tone & 38.5\% (30/78) & 37.0\% (27/73) \\
\hline
\end{tabular}
\end{table}

\begin{table}[h]
\centering
\caption{Odds of reporting 100\% of cash income}
\begin{tabular}{lcc}
\hline
 & Low information & High information \\
\hline
Authoritative tone & 0.093 & 0.239 \\
Respectful tone & 0.087 & 0.065 \\
\hline
\end{tabular}
\end{table}

\textsuperscript{43} Calculated as $e^{-2.38} + 0.95$. The odds of compliance are $e^{0.95}$—that is, 2.59 times as much, or an increase of 159 percent.

\textsuperscript{44} Calculated as $e^{-2.38} - 0.06$ and $e^{-2.38} - 0.06 + 0.95 - 1.25$, respectively. The odds of compliance are $e^{0.95 - 1.25} = e^{-0.3}$—that is, 0.74 times as much, or a decrease of 35 percent.

\textsuperscript{45} As a sensitivity analysis, we ran the regression without the outcome control variable and obtained the same main effect of information (Wald $\chi^2 = 4.82, p = 0.03$) and significant interaction effect of tone and information (Wald $\chi^2 = 4.32, p = 0.04$). Thus, our results do not vary significantly according to whether taxpayers have a refund outcome or a balance owing outcome.
and information—affect taxpayers’ income reporting after receiving a tax notice in which the tax authority disagreed with the tax return submitted by the taxpayer. Our results show that information is positively associated with compliance, and that there is a significant interaction between tone and information, such that providing an authoritative tone reinforces the positive impact of information on compliance. For optimal compliance, tax authorities should provide taxpayers with thorough explanations, using a tone that is authoritative. Our results suggest that information is of paramount importance to taxpayers, and the manner in which this information is conveyed is also influential.

Our research extends existing studies that have indirectly examined the effect of tone or information in a tax authority letter on taxpayers’ cooperative responses by specifically considering and comparing the combined impact of tone and information on taxpayers’ reporting compliance. Surprisingly, our results failed to show that a respectful tone in written communications will result in higher compliance than an authoritative tone. Upon careful review, prior research appears to compare written communications that use a respectful tone with those that use a neutral tone. Thus, our research is the first to experimentally evaluate taxpayer’s compliance under an authoritative condition compared with a respectful condition, and our findings suggest that an authoritative tone originating from the tax authority will result in higher compliance than a respectful tone. Consistent with prior research, our experiment reinforces the importance of information in taxpayer correspondence, and by adopting a fairness perspective, our results suggest that tax authorities may be viewed as fair if they provide explanations, and by so doing, enhance taxpayers’ compliance. From a theoretical perspective, our research is the first to jointly consider and provide empirical evidence of the interplay between tone and information on taxpayers’ compliance. Our study extends prior empirical research by providing insight into the joint interplay of these factors on compliance, and contributes to the broader justice research on interactional fairness by identifying the interactive impact of these factors. Furthermore, because we specifically control for deterrence and outcome in our research design, we tease apart the impact of deterrence, outcome, and information on compliance to show that explanation results in greater taxpayers’ compliance.

There are several limitations to our study. First, the results from this research are specifically tested on Canadian taxpayers using procedures and manipulations reflective of the Canadian tax system, and therefore their application to other taxation environments should be undertaken with care. Second, as with all self-reported research, it is possible that subjects were not completely honest about their income reporting decision. Even though our informed consent assured participants that our study was anonymous and in no way affiliated with the CRA, participants may have altered their responses if they were concerned that the CRA would review their responses. However, to mitigate a possible social desirability bias, we asked subjects

46 Hasseldine et al., supra note 16, and Perez-Truglia and Troiano, supra note 21.
in the scenario what they thought another taxpayer would do, rather than what they themselves would do. Finally, we assumed that the reporting decision was made at the time the letter was received, consistent with other experimental studies that measure the dependent variable at the time of the manipulation, but in practice, there may be a longer delay between the time of the receipt of the letter and the reporting decision. Future research could investigate this possibility further. Future research could also consider how different measures of the dependent and independent variables may influence findings, and researchers could investigate whether our findings hold across other modes of tax authorities’ communication, such as telephone calls and face-to-face communication. Future research is also needed to consider the effectiveness of other operationalizations of tone and, for example, to compare neutral, authoritative, and respectful tones.

Tax compliance is a complicated phenomenon. It requires a multifaceted policy approach that considers deterrence as well as other aspects of human behaviour. Tax researchers have adopted several theoretical perspectives to study ways of encouraging tax compliance and preventing tax evasion. The deterrence approach to tax compliance suggests that taxpayers’ income reporting decisions are a function of tax rates, audit probability, and penalty rates, and that taxpayers will maximize their expected utility of the evasion gamble. Prior research has established that tax authority letters can be used to promote taxpayers’ compliance when they include normative appeals or threats of sanctions. Nevertheless, appeals to taxpayers’ ethical beliefs, social norms, tax morale, and perceptions of fairness may be more palatable and cost-effective means to influence taxpayers’ behaviour, and specifically taxpayers’ voluntary compliance.

47 See, for example, Alm et al., supra note 20.
52 See Bobek et al., supra note 33.
53 Tax morale is the intrinsic willingness to pay taxes. See Molero and Pujol, supra note 7.
APPENDIX  EXPERIMENTAL INSTRUMENT

Background
Jason Burgher is an employee. He is married with one child. Each year he donates money to some charities.

Jason prepared and filed his 2013 income tax return on time. His calculations showed he had neither balance owing nor refund.

Several weeks later, Jason received a “Notice of Assessment” from the Canada Revenue Agency (CRA). The Notice of Assessment is a letter that the CRA sends to all taxpayers after processing their returns.

To read Jason’s Notice of Assessment, you will have to click on a link that will open a new browser window. Please read the Notice of Assessment carefully, as you will be asked about 15 follow-up questions. When you are done reading the Notice of Assessment, please minimize or exit from the browser window. You will be returned to this screen.

When you are ready to see the Notice of Assessment, please click here and read it carefully.

If you have read the Notice of Assessment, please press ‘Next’ to continue.

Respectful Tone/High Information
Dear Taxpayer,

Thank you for filing your income tax return. Our review of your income tax return for the year 2013 shows that you (get a refund of $800/owe $800). Your tax return has been revised to reflect the total of allowable charitable donation receipts you submitted.

If you have any questions about your assessment, please call our Enquiries service at 1-800-959-8281.

Respectful Tone/Low Information
Dear Taxpayer,

Thank you for filing your income tax return. Our review of your income tax return for the year 2013 shows that you (get a refund of $800/owe $800).

If you have any questions about your assessment, please call our Enquiries service at 1-800-959-8281.

Authoritative Tone/High Information
(You get a refund of $800/You owe $800). Your tax return has been revised to reflect the total of allowable charitable donation receipts you submitted.

If you are still confused, call 1-800-959-8281.
Authoritative Tone/Low Information
(You get a refund of $800/You owe $800).
If you are still confused, call 1-800-959-8281.

Sample of a Hypothetical Notice of Assessment, Illustrating Respectful Tone and High Information Conditions

Note: This illustration is a wholly fictitious form created for the purposes of the study. The taxpayer is a fictitious person. No part of the information shown below was provided or reviewed by, or used with the approval of, the CRA.

Table:

<table>
<thead>
<tr>
<th>Line</th>
<th>Description</th>
<th>$ Amount on previous assessment</th>
<th>$ Revised amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>435</td>
<td>Total payable</td>
<td>7,478</td>
<td>6,678</td>
</tr>
<tr>
<td></td>
<td>Change to tax payable</td>
<td></td>
<td>CR 800</td>
</tr>
<tr>
<td></td>
<td>(Revised subtotal - Previous subtotal)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Balance from this reassessment</td>
<td></td>
<td>CR 800</td>
</tr>
<tr>
<td></td>
<td>Refund</td>
<td></td>
<td>CR 800</td>
</tr>
</tbody>
</table>

Explanation of changes and other important information

Dear Taxpayer,

Thank you for filing your income tax return. Our review of your income tax return for the year 2013 shows that you get a refund of $800. Your tax return has been revised to reflect the total of allowable charitable donation receipts you submitted.

If you have any questions about your assessment, please call our Enquiries service at 1-800-959-8281.