



# Behavioral Insights on Business Taxation: Evidence from Two Natural Field Experiments

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**Abstract.** This paper presents the findings of two natural field experiments that were conducted in collaboration with the Australian Taxation Office (ATO). The first experiment tests the effect of changes to letters on businesses paying the correct amount of tax. The second experiment consists of two parts. The first part aims to raise awareness of the relevance of tax debt payment by changing internal guidelines used by field auditors. The second part focuses on studying the effect of changing the phone script used by desk auditors to facilitate payment arrangements and simplifying a follow-up letter. While the first experiment had no effects on any of the outcome measures considered, the results of the second experiment indicate that changing the phone script of desk auditors and simplifying the letter reduced the proportion of default assessments raised by the ATO by 69 percent, suggesting that businesses are responsive to certain types of nudges.

**JEL-Classification:** C93, H25, H26

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## 1 Introduction

Tax non-compliance is a serious concern to governments worldwide.<sup>1</sup> Outstanding tax debt payments undermine the ability of governments to provide public services and pose a threat to the perceived fairness of the tax system. According to the latest Internal Revenue Service (IRS) estimates for the years 2008 to 2010, the average annual tax gap in the US amounted to \$458 billion – 18.3 percent of the total revenue owed (IRS, 2016). Despite substantial collection efforts of the IRS, a considerable part of this tax liability will never be paid. Even in countries with a relatively small population like Australia, collectable tax debt is \$19.5 billion annually (ATO, 2015). The major share of this amount can be attributed to businesses who often owe more than twice as much as individual taxpayers (Ariel, 2012). Businesses and self-employed persons have more opportunities to evade taxes because they are less often subject to tax deducted at the source of their payments and to third party reporting (Thomas, 2013). As a consequence, only about half of business non-compliance is detected (Kamleitner et al., 2012). Business taxpayers have also been found to have a lower *tax morale*, ie. a lower intrinsic willingness to meet their tax obligations, than individual taxpayers (Torgler, 2007). Other studies find no difference in tax morale between business owners and employees in terms of personal norms regarding tax honesty, but a greater share of business owners admits to have evaded tax payments (Ahmed and Braithwaite, 2005). Consequently, business taxpayers constitute a highly relevant target group for tax collectors trying to increase voluntary tax compliance.

Despite the substantial contribution of business taxpayers to government revenue, research on the behavioral foundations of business tax compliance is rather scarce (Hallsworth, 2014; Gangl et al., 2014; Arcos-Holzinger and Biddle, 2016) for three main reasons: First, due to its nature, it is difficult to observe tax non-compliance. In the face of potential punishment, evading taxpayers will try to conceal their actions and are unlikely to respond correctly even in anonymous surveys (Slemrod, 2016). This behavior is even more likely for businesses because there may be more than one person responsible for filing. Second, most tax administrations refrain from engaging in field evaluations testing the effect of alternating policies to improve compliance behavior. Third, most trial research on tax behavior focuses on one intervention

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<sup>1</sup>Our understanding of tax non-compliance comprises both willful and inadvertent avoidance of tax obligations. Our study only allows us to observe the outcome but not the taxpayers' intent (Slemrod, 2007).

only rather than analysing multiple approaches to influence the same decision process. Randomized controlled field experiments have emerged only very recently as a tool to investigate tax compliance (Wenzel and Taylor, 2004; Dwenger et al., 2016). Most of these experiments have focused on individual taxpayers, while business taxpayers remain understudied (Gangl et al., 2014; Hallsworth, 2014; Ariel, 2012).

To fill this gap, this paper presents the results of two natural field experiments that target business tax compliance. The field experiments were designed and implemented in collaboration with the Australian Taxation Office (ATO), the main tax collecting body in Australia. The participating businesses were not aware of the experimental nature of the interventions and outcome measures are actual tax return data. With this setup, our study aims to generate “external validity at the highest level”, which Wenzel and Taylor (2004) pose for field experiments in the tax context. Field experiments (or trials) are randomized studies that are conducted in real-world settings. Gerber and Green (2012) point out that lab and field experiments are two ends of a spectrum, with four criteria that can be used to distinguish them. The trial described here meets the external validity requirement on all four of these dimensions: Authenticity (whether the treatment used closely approximates the types of interventions that are likely to occur in the real world), Participants (whether the members of the treatment and the control group resemble the actors who would normally encounter these interventions), Context (whether the settings within which the subjects receive the intervention are similar to the context of interest), and Outcomes (whether the outcomes being measured resemble the outcomes of theoretical or practical interest).

The ATO is responsible for collecting most Commonwealth taxes from individuals and businesses, including income tax, Goods and Services Tax (GST), Superannuation Guarantee and Higher Education Loan Programme (HELP). Taxation in Australia is based on self-assessment combined with payment and enforcement systems. Businesses are required to report their tax obligations and entitlements to the ATO by lodging a quarterly (or monthly, depending on turnover) business activity statement (BAS). The payment of outstanding tax liabilities is subject to specified time schedules. While the majority of taxpayers pay their taxes on time, challenges in the economy, trade debts, issues with business solvency and, potentially, administrative and compliance factors, all contribute to delays and failures in tax payment.

The results presented in this paper are based on two trials that were conducted together

with the ATO in 2016 during the start phase of an ongoing research project. The first trial – the *BAS Revision Trial* – focuses on businesses paying the correct amount of tax. If transactions vary considerably from normal business activity, businesses may receive a personalized letter from the ATO asking them to review their BAS and to notify the ATO if an error occurred. The aim of the trial was to test the effect of changes to this letter on response rates of taxpayers, the timing of payments and the amount of payments of liabilities. The interventions were: (1) changing due dates, (2) addressing social norms, (3) using a different color, and (4) inducing a warm glow by informing taxpayers about tax-deductible donations. Each intervention involved a single change in letter content or style.

The second trial studies compliance with employer obligations (the *Employer Obligations Trial*). Employers in Australia have to transfer money into different government funds to fulfil their tax and superannuation obligations. Field auditors and desk auditors of the ATO regularly conduct payment conversations with business taxpayers and send out a notice of audit to check compliance with employer obligations. The trial consists of two parts. The first part assesses the effect of changing internal guidelines used by field auditors to raise awareness of the relevance of tax debt payments. The new guidelines apply several techniques to make the most important features of a successful auditing process more salient. The second part focuses on studying the effect of simplifying a letter and changing the phone script of desk auditors to offer taxpayers a direct connection to an ATO officer to work out a suitable payment plan. Study outcomes include debt collection measures, the duration of case cycles, and information about whether a default assessment was raised by the ATO during the audit (an indicator that taxpayers did not comply with their filing obligation).

The empirical findings of the *BAS Revision Trial* indicate that none of the four treatments had a significant effect on any of the outcome measures considered in our analysis. Several factors may be responsible for this result. First, the differences between treatment and control letters were relatively small. Second, the sample size (up to 589 observations in each treatment and control group) may have been too small to detect an effect. Third, despite these limitations, it is possible that businesses are simply not very responsive to this type of intervention. While researchers have recently found significant effects of nudges on the behavior of individual taxpayers (Hallsworth et al., 2017; Bott et al., 2014), we still know very little about behavioral responses of businesses.

A different picture emerges in the *Employer Obligations Trial*. We find that changing internal guidelines used by field auditors (first treatment) has no effect on any of the outcomes considered. In contrast, we find that simplifying a letter and changing the phone script used by desk auditors (second treatment) reduces the proportion of default assessments raised by the ATO substantially by 69 percent. The effect remains significant even when we control for observed characteristics. Overall, the results suggest that our treatments led to some improvement, indicating that businesses are responsive to nudges that facilitate compliance behavior.

The remainder of this paper is structured as follows. Section 2 briefly reviews the related literature on field experiments in the area of tax compliance. Section 3 presents the research design, data collection, and results of the first trial. Section 4 does the same for the second trial. Section 5 concludes and discusses our findings.

## 2 Field Experiments on Tax Compliance

Academic research in tax evasion and enforcement has “exploded” since the beginning of the new millennium (Slemrod, 2016). Random field experiments have emerged recently, in addition to studies that make use of the wider availability of administrative tax records, as a crucial methodology for identifying effects on taxpayer behavior (Hallsworth, 2014). In a field experiment, researchers randomly assign control and treatment conditions to agents acting in real-world situations. This approach offers the prospect of isolating the causal effect of a treatment (List and Metcalfe, 2014) while at the same time advancing the understanding of theoretically derived hypotheses in a real-world setting.

Interventions tested in previous tax compliance trials can be classified into two categories.<sup>2</sup> Traditionally, tax evasion has been explained by a deterrence model: Risk-averse taxpayers make a decision about tax evasion by comparing the costs (which depend on the probability of being detected and the legal punishment) to the benefits (Allingham and Sandmo, 1972). Interventions that make the probability of detection and the severity of punishment more salient are called “deterrence interventions”. More recently, researchers have started to apply behavioral insights to tax (non-)compliance. This so-called “non-deterrence approach” emphasizes

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<sup>2</sup>In addition to the empirical literature based on results from field trials, there is a considerable amount of research making use of survey data in order to shed light on the complex issue of business tax compliance (see, for example, Ahmed and Braithwaite, 2005; Gangl et al., 2013; Tan and Liu, 2016; Woodward and Tan, 2015).

that social norms, perceptions of fairness, tax morale, and the provision of public goods play an important role in decision-making processes of taxpayers (for an overview see Hallsworth, 2014). Interventions that make use of changes in the “choice architecture” (Thaler and Sunstein, 2008), e.g. by framing information differently, addressing social norms or simplifying background information, fall into this category.

The widespread adoption of the deterrence model of regulation by administrations is mirrored by the empirical evidence. An extensive amount of work has been done evaluating deterrence strategies. Almost all existing experimental studies from the field suggest that approaches making the probability of detection and the severity of punishment more salient are successful in improving tax compliance (Coleman, 1997; Slemrod et al., 2001; Wenzel and Taylor, 2004; Wenzel, 2006; Hasseldine et al., 2007; Iyer et al., 2010; Kleven et al., 2011; Fellner et al., 2013; Harju et al., 2014; Gangl et al., 2014; Perez-Truglia and Troiano, 2015; Dwenger et al., 2016; Dyreng et al., 2016).<sup>3</sup> A review by Kirchler et al. (2010) puts attention to the fact that while the deterrence effects of increased fines alone seem to be weak, several findings indicate that a combination of fines and audits are effective in increasing tax compliance. Some studies also point to the phenomenon that deterrence approaches may backfire for certain subgroups of taxpayers. Slemrod et al. (2001), for instance, find that while a letter informing taxpayers that they had been selected for an audit increased reported income among low- and middle-income earners, the letter had the opposite effect on high-income earners with high evasion possibilities. Mendoza et al. (2017) find that there is a U-shaped relationship between auditing level and tax compliance: Compliance increases until a certain auditing level is reached, and decreases beyond that level. While the majority of deterrence research focuses on individual taxpayers, first evidence suggests that businesses are also responsive to interventions that increase the salience of audit probabilities (Harju et al., 2014; Gangl et al., 2014).<sup>4</sup>

The other strand of the experimental tax compliance literature focuses on non-deterrence interventions, in particular on social norms and moral appeals (Schwartz and Orleans, 1967;

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<sup>3</sup>In Iyer et al. (2010), two deterrence treatments show no significant effect but the authors conclude that the treatments are effective because they find a significant effect of the pooled treatments on tax compliance.

<sup>4</sup>A related literature on tax compliance is emerging in low- and middle-income countries (see, for example, Castro and Scartascini, 2015; Pomeranz, 2015; Ortega and Scartascini, 2015; Khan et al., 2016; Del Carpio, 2013; Shimeles et al., 2017). The findings of these studies cannot be easily transferred to high-income countries like Australia because distrust in governmental structures and a low capacity of enforcing regulations are crucial drivers of non-compliance in these countries.

McGraw and Scholz, 1991; Blumenthal et al., 2001; Torgler, 2004; Wenzel and Taylor, 2004; Wenzel, 2005a; Coleman, 2007; Hasseldine et al., 2007; Fellner et al., 2013; Torgler, 2013; Bott et al., 2014; Dwenger et al., 2016; Hallsworth et al., 2017). Many previous studies do not find an effect of moral persuasion or an emphasis of social norms on the behavior of individual taxpayers (Blumenthal et al., 2001; Torgler, 2004; Wenzel, 2005a; Fellner et al., 2013). Only a few recent studies discover an effect of addressing social norms. Hallsworth et al. (2017), for instance, run a Randomized Controlled Trial (RCT) with 200,000 taxpayers in the United Kingdom and find that informing people that they belong to the minority of taxpayers who have not paid their taxes on time significantly decreased the time to payment of the outstanding liability. Bott et al. (2014) show that moral appeals seem to affect taxpayers in Norway who had been identified by the tax collector as being likely to underreport their income. After receiving a moral appeal, the reported average foreign income in the treatment group doubled compared to the control group. Similar results of moral appeals have been found earlier by Schwartz and Orleans (1967) and Hasseldine et al. (2007). In contrast, Dwenger et al. (2016) show that in the case of a zero-audit-probability for church taxes in the German state of Bavaria, baseline compliers increase their compliance after receiving social and monetary rewards, whereas baseline non-compliers reduce their compliance even more. Similarly, interventions informing taxpayers about public services that are being funded by their taxes indicate that such an approach may also backfire (Torgler, 2013).

Despite the vast amount of research targeting individual taxpayers, we still know very little about the potential reactions of business taxpayers to non-deterrence interventions. This is unfortunate because it appears likely that business taxpayers are quite different from individual taxpayers. Businesses may have several actors with varying degrees of responsibility for the tax filing process, making it harder to relate to personal factors (Ariel, 2012). Moreover, while individual taxpayers often receive a refund when filing their tax return, the majority of businesses does not (Thomas, 2013). These differences between individual and business taxpayers may have important implications for tax compliance rates.

Field trial evidence on business tax compliance within the non-deterrence framework is limited and the results are rather mixed. We are aware of only two studies that examine business tax compliance in this framework.<sup>5</sup> Wenzel (2006) evaluates reminder letters of the

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<sup>5</sup>Additionally, preliminary work by the Irish Office of the Revenue Commissioners (2017) indicates that a social norms letter to taxpayers with an outstanding value-added tax debt increased engagement with the



ATO to businesses who failed to file their BAS in time. In an RCT with about 2,000 cases, two treatment letters were compared to a control letter. The two treatment letters were designed to provide additional information to taxpayers (informational letter) or to assure taxpayers that they were not suspected of being deliberately dishonest and to express sympathy and understanding (interpersonal letter). Both treatment letters lead to a higher probability of businesses filing within the deadline communicated in the letters compared to the control letter. In contrast, the findings of Ariel (2012), which are based on about 700 businesses in the treatment group and about 2,900 businesses in the control group, do not suggest that moral persuasion leads to an improvement in business tax compliance in Israel. The results even indicate that targeting businesses with moral persuasion can have adverse effects: After receiving a letter that emphasized the societal consequences of not paying taxes, businesses in the treatment group asked for significantly higher deductions than businesses in the control group. Overall, the limited evidence on business tax compliance in a non-deterrence framework highlights a need for further research.

We contribute to the emerging literature on tax compliance in several ways. First, we provide systematic evidence on the effectiveness of a range of interventions, which allows us to draw inferences about policies that are likely to work in similar contexts. Tax administrators have “too often” (Wenzel and Taylor, 2004) relied on unsystematically gathered intelligence and untested assumptions about the regulated behavior of taxpayers. Also the ATO refrained from randomly assigning taxpayers to a non-treatment group in the past because of potential revenue losses associated with certain interventions (Braithwaite, 2005). Second, our findings are based on actual administrative tax records of businesses in Australia. Prior research on business tax compliance has focused predominantly on qualitative statements and theoretical considerations. Third, we advance the tax compliance literature by applying non-deterrence concepts to businesses rather than individuals. We cannot simply assume that businesses are as responsive to interventions in a non-deterrence framework as individual taxpayers. Finally, we provide pioneering evidence on the role of simplification as an effective tool for improving business tax compliance. Our findings also add to the existing doubt in the literature regarding the effectiveness of nudges like social norms when targeting business tax compliance.

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agency to arrange payment.

### 3 BAS Revision Trial

Businesses in Australia collect the Goods and Services Tax (GST) for the government. They are required to report their tax obligations and entitlements to the ATO by filing a monthly or quarterly BAS. Businesses receive a letter from the ATO asking them to review their GST claim if the transactions they report deviate substantially from normal business activity. The *BAS Revision Trial* tested four modified versions of the original letter incorporating behavioral insights. On 12 November 2015, the ATO sent out 2,938 letters to four treatment groups and a control group. Randomization was based on a random variable generator in Stata, using a random choice of the underlying seed. The data collection for the trial ended in February 2016, and de-identified data were made available by the ATO after the registration of the trial in the AEA RCT Registry on 24 February 2016 (AEARCTR-0000833, <https://www.socialscienceregistry.org/trials/833>). The analysis of the trial data used in this paper received Human Ethics approval from the ANU (ethics protocol number 2016/029, title: *Testing the Effect of Tax Office and Taxpayer Interactions on the Integrity of Refund Claims*).

#### 3.1 Interventions

The interventions of the *BAS Revision Trial* are: (1) *Timing*: changing the due date from 30 November 2015 to 14 December 2015, (2) *Social Norms*: changing the heading of the letter from “You need to review your GST refund” to “Our tax system works because people do the right thing”, (3) *Color*: changing the color of heading and subheading from blue to orange, and (4) *Warm Glow*: informing taxpayers about tax deductible donations. Each intervention involved a single change in letter content or style. Sample letters are included in Appendix A.

In a grey-shaded box, taxpayers were informed that their GST refund claim may be incorrect and they were asked to review their records and revise any claims by the given due date. The *Timing* treatment allowed two additional weeks of time for filing a revision. Previous work has identified timing of interventions as an influential factor guiding subsequent behavior (see, for example, the “Easy, Attractive, Social and Timely” (EAST) framework of the Behavioral Insights Team in Great Britain (Hallsworth, 2014)). For businesses that are required to put effort into revising their BAS, changing the due dates may have two opposing effects. On one hand, extending the deadline reduces time pressure. A longer time frame might be more realistic and therefore increase the number of businesses that manage to file a revision. On

the other hand, a deadline that is further away may decrease the feeling of urgency and reduce salience of the letter, thereby reducing the number of businesses reviewing their BAS.

Appeals to social norms have been shown to have a positive effect in various domains, including individual tax compliance (see Bobek et al., 2013, for an overview), energy conservation (Ferraro et al., 2011; Seyranian et al., 2015; Tiefenbeck et al., 2013) and charitable giving (Frey and Meier, 2004; Martin and Randal, 2008). The literature distinguishes between two different types of social norms: *descriptive* norms referring to what is commonly done and *injunctive* norms referring to what is commonly approved. While the former usually exert an “magnetic pull of the typical response” (Cialdini et al., 1991) motivating individuals by providing evidence as to what others do and therefore will likely be an effective and adaptive action, things are less clear with injunctive norms. Within one society mutually exclusive norms can co-exist (e.g. a norm for getting involved and a norm of minding one’s own business), thus there might be several responses to a specific injunctive norm. Nevertheless, research has shown that at a given time an individual’s actions are likely to comply with the norm that is currently salient. This remains true also when the individual personally holds contradicting norms (Cialdini et al., 1991). Feelings of guilt and shame make non-compliance to the prevalent norm costly, even when a violation of the norm is not detected by others (Wenzel, 2005b). Previous studies found higher tax compliance when supporting social norms were salient during the decision-making process (Arcos-Holzinger and Biddle, 2016). The aim of our *Social Norms* treatment is to increase the salience of the injunctive norm to “do the right thing” to make the tax system work, specifically to comply with the ATO’s request to check the BAS and lodge a revision if an error occurred.

The third treatment, changing the color of heading and subheading from blue to orange, may increase the sense of urgency and thereby contribute to a higher compliance rate. The change in layout was inspired by evidence suggesting that certain colors make messages more salient and may increase response rates (Edwards et al., 2009). Unfortunately, the color treatment tested as part of this trial is not very strong because the ATO was only willing to agree to a rather small change in layout. In fact, the ATO even sent out a version of the letter with less changes than agreed upon without informing us in advance.

Our last treatment aims to test whether providing information about the possibility of charitable giving can trigger a warm glow feeling. Theoretical models suggest that individuals

can either contribute to a public good because they are purely altruistic or because they derive utility from giving per se, which is referred to as “warm glow” (Andreoni, 1990). Work by Ariely (2008) demonstrates that individuals behave differently depending on whether they apply social or market norms. It is likely that charitable donations are linked to an emotional state in which individuals make decisions according to social norms. If our treatment triggers such an association, then taxpayers may also be more inclined to do “the right thing” with regards to compliance. However, it is conceivable that the provision of information about charitable donations has an opposing effect if taxpayers interpret the message as having a choice between donating to charity or paying money to the tax office. If such a mechanism is at play, then the treatment letter could potentially reduce compliance.

### 3.2 Empirical Strategy and Data

Our analysis is based on estimating separate regression models to compare the outcome measures of members of one of the four treatment groups to those of the control group. Each of the four analysis samples includes  $N_t$  members of treatment group  $t$ ,  $t = 1, 2, 3, 4$ , and  $N_0$  members of the control group. Given this setup, the general strategy for studying the effect of treatment  $t$  on an outcome measure of interest is to estimate the following model:

$$Y_i^t = \beta_0^t + \beta_1^t T_i^t + \varepsilon_i^t, \quad i = \underbrace{1, 2, \dots, N_0}_{\text{control group}}, \underbrace{N_0 + 1, N_0 + 2, \dots, N_0 + N_t}_{\text{treatment group } t}, \quad t = 1, 2, 3, 4, \quad (1)$$

where  $Y_i^t$  refers to one of the outcome measures of taxpayer  $i$ .  $T_i^t$  is the treatment indicator for the comparison of treatment group  $t$  and the control group, and  $\varepsilon_i^t$  is the model error term. The parameter of interest is  $\beta_1^t$ , the (unconditional) average treatment effect on the treated. The sample sizes of the treatment and control groups are:  $N_0 = 589$ ,  $N_1 = 585$ ,  $N_2 = 589$ ,  $N_3 = 588$ ,  $N_4 = 587$ . However, most of our regression models are based on subsamples because our outcome measures include missing values.

We use the following continuous outcome measures in our analysis: (i) The total amount of payments made by the taxpayer after 12 November 2015, (ii) the net amount of GST on the original BAS minus the amount declared on the revised BAS, (iii) the revised net amount of all taxation items (including GST, withholding tax associated with certain payments to employees and other taxes declared on the BAS). We also use binary outcome measures indicating whether

(iv) a revision was lodged by the taxpayer, whether (v) the GST amount declared on the revised BAS was in favor of the ATO or (vi) the taxpayer or (vii) whether there was no change after the revision, and variables indicating whether (viii) the net amount of all taxation items declared on the BAS was in favor of the ATO or (ix) the taxpayer or (x) whether there was no change after the revision. Finally, two count data variables are used as outcomes measures: (xi) the number of payments made by the taxpayer after 12 November 2015 and (xii) the number of days until the first payment was received from the taxpayer after 12 November 2015.

In addition to equation (1), we estimate separate models including a set of control variables. Given the notation above, these models may be summarized by the following equation:

$$Y_i^t = \gamma_0^t + \gamma_1^t T_i^t + X_i^t \gamma_2^t + \eta_i^t, \quad i = 1, 2, \dots, N_0 + N_t, \quad t = 1, 2, 3, 4, \quad (2)$$

where  $X_i^t$  is a vector of control variables and  $\eta_i^t$  is the model error term. The parameter  $\gamma_1^t$  is the (conditional) average treatment effect after controlling for  $X_i^t$ . The data provided by the ATO include a number of potential control variables (see Appendix C for a complete list).

Table 1 reports the means of these variables and the  $p$ -values that refer to the comparison of means between treatment and control groups. Roughly half of the sample consists of businesses that are categorized as “small and medium enterprises” based on their annual aggregated turnover between AUD 2 million and AUD 250 million. About 43% to 48% of each subsample is made up of “micro enterprises” with an aggregated annual turnover below the threshold of AUD 2 million. Only a few of these micro enterprises consist of self-employed individuals (about 5% in each subsample). The majority of businesses in our sample are registered as companies or trusts. Based on an ATO classification, about 35% of businesses in each treatment group have a “high risk” of engaging in tax evasion or not complying with their lodgement requirements.

The numbers in Table 1 also reveal that most of the means do not differ significantly between treatment and control groups, indicating that the random assignment of taxpayers to treatment and control groups was highly effective. Significant differences at a 1% level are only observed in three cases. Specifically, members of treatment group 3 are slightly less likely to belong to the agricultural sector than members of the control group. Moreover, members of treatment group 4 are slightly less likely to belong to a trust and to reside in Queensland than members of the control group. In total, there are 11 cases in which sample means of treatment

and control groups differ significantly at a 5% level and we consider the corresponding variable groups in equation (2) to control for these differences. Unfortunately, we are unable to include total profit/loss information in our conditional model when comparing treatment group 3 to the control group because of insufficient observations.

[Table 1 about here.]

In the following, we use a linear regression model as a starting point to estimate equations (1) and (2). To account for the non-linear nature of some of our outcome measures, we estimate Probit models for binary dependent variables and Poisson regression models for count data variables. We also perform a survival analysis to study differences in the number of days until the first payment was received between treatment and control groups.

### 3.3 Results

Table 2 presents the average treatment effects obtained from a linear regression model including control variables. The estimates reveal that the four treatments had no significant effect on any of the outcome measures considered in our analysis, suggesting that changes in due dates, social norms, a different color and a warm glow induced by the provision of information about tax-deductible donations had no effect on how businesses behaved.

[Table 2 about here.]

Estimating equation (2) without control variables does not change our results qualitatively. The results are not presented here and are available from the authors on request. Instead, we present the estimated marginal effects of a binary Probit model including control variables in Table 3. (We do not present the results without control variables because they are almost identical to the OLS estimates.) The estimates in Table 3 do not differ qualitatively from those presented in Table 2, indicating that our findings do not depend on the functional form of the regression model.

[Table 3 about here.]

Table 4 includes the marginal effects of a Poisson regression model including control variables. (Again, we do not present the results without control variables because they are almost

identical to the OLS estimates.) The Poisson regression results confirm that there are no significant effects of the four treatments on the number of payments made by the taxpayer and the number of days until the first payment was received.

[Table 4 about here.]

We also perform a survival analysis of the number of days until the first payment was received from the taxpayer. In all cases, log-rank tests for the equality of survivor functions indicate that differences in survivor functions of treatment and control groups are not statistically significant, suggesting that the four treatments had no effect on the number of days until the first payment was received. The  $p$ -values associated with the log-rank tests were larger than 0.3 in all cases, indicating that the differences in survivor functions are insignificant, even at a 30% level.

In sum, we find no evidence for an effect of the four treatments on any of the outcome variables considered in our analysis. Several factors may be responsible for this result. First, the differences in treatment and control letters were rather small as the ATO had already made use of behavioral insights (albeit in a non-experimental setting) to change the form of the letters. For example, the control letter is almost identical to the letter in which the color was changed in a few places. Even though research indicates that compliance is affected by apparently small details such as timing, framing, and visual presentation (Hallsworth, 2014), the nudges may have been too small to actually induce a behavioral change.

Second, the relatively small sample size leads to imprecise estimates, which makes it difficult to detect significant effects. Power calculations indicate that our full sample would have allowed us to detect a 3.5-percentage point increase in the proportion of revisions lodged by the taxpayer (given 80% power and a significance level of 5%). Detecting an increase by, say, 2-percentage points would have required a much larger sample (about 8,000 observations in total).

Despite these limitations, it is possible that businesses are simply not very responsive to this type of intervention. Up to now there is not much evidence on behavioral responses in the context of business taxation. Our findings suggest that non-deterrence interventions, such as timing and framing, may not be effective when targeting businesses. The following section presents the results of a second trial, which focuses on a different set of interventions.

## 4 Employer Obligations Trial

In addition to their tax obligations, businesses in Australia have to contribute to their employees' superannuation funds, collect pay as you go (PAYG) withholding amounts from certain payments made, and report fringe benefit tax (FBT). The ATO regularly checks whether these employer obligations are met. Field auditors and desk auditors conduct payment conversations with businesses and send out a notice of audit to check compliance with employer obligations. The first part of the *Employer Obligations Trial* involves changes to the internal guidelines of field auditors. The second part of the trial tests the effect of simplifying a letter in combination with changes to the phone script used by desk auditors. The phone scripts and the first page of the treatment and the control letter are provided in Appendix B. Random assignment of auditors to treatment and control group is based on a random variable generator in Stata, using a random choice of the underlying seed. The trial started on 29 February 2016. De-identified data were made available by the ATO after the registration of the trial in the AEA RCT Registry on 14 July 2016 (AEARCTR-0000838 (<https://www.socialscienceregistry.org/trials/838>)). The trial data used in this paper received Human Ethics approval from the ANU (ethics protocol number 2016/375, title: *Testing the Effect of Tax Office and Client Interactions on the Meeting of Employer Obligations*).

### 4.1 Interventions

The first part of the *Employer Obligations Trial* focuses on changes in guidelines used by field auditors for payment conversations. The intervention draws on international experience including a development in tax collection and debt recovery called *Payment Thinking*, pioneered by the Swedish Tax Agency (OECD, 2014; STA, 2005) and based on seminal work on tax compliance (Braithwaite, 2003). *Payment Thinking* is a unified approach to tax collection that is viewed as a part of all activities of the tax agency. A critical element of the approach is to target taxpayers with outstanding obligations with the right intervention at the right time. Motivated by this approach, the intervention replaces internal guidelines of the ATO business line "Employer Obligations" by guidelines of another business line ("Indirect Tax") to raise awareness of the relevance of tax debt payments.

Even though the new guidelines are considerably longer (22 pages versus 14 pages), they allow for an easier reading: the document is well-structured and emphasizes the most important



aspects of the field auditing process right in the beginning. For example, the new guidelines state very early that “the ultimate goal of payment conversations is to obtain payment in full”, whereas the old guidelines “hide” this information in a subsection on page 6. While the old guidelines elaborate with great detail on many specific steps during the auditing process, the new guidelines take a more pragmatic approach. They point out the purpose and the background of the auditing process in the beginning and then provide information on specific cases of the process on a less detailed level. The aim of this simplification is to make the most important aspect of the auditing process more salient. Moreover, by providing examples of successful payment conversations with taxpayers in the appendix, the new guidelines target the availability heuristic, a mental strategy that gives highly accessible features a stronger influence on decisions, while less accessible information is largely ignored (Kahneman, 2003). As people are more likely to memorize examples than information that is provided in a general manner (Daschmann and Brosius, 1999), the new guidelines aim to facilitate the application of successful auditing strategies. The complete guideline documents are too long to be presented here. They are included in the analysis plan of the trial.

The second part of the trial focuses on desk audits. Desk auditors may contact businesses when they detect outstanding employer obligations and send a “notice of audit“ as follow-up letter. Two changes were made to this procedure: First, the phone script of auditors of the treatment group was modified to offer taxpayers a direct connection (“warm transfer”) to an ATO officer to work out a suitable payment plan. Offering a warm transfer during phone conversations is consistent with the *Payment Thinking* approach, which emphasizes the importance of the timing of interventions. The offer may also increase the taxpayer’s perception of being treated fairly and respectfully by the tax authority, which in turn may improve compliance (Wenzel, 2006; Gangl et al., 2013). Second, the follow-up letter was simplified. In contrast to the control letter, which consists of five tightly written pages, the treatment letter summarizes the most important issues on the first page and presents further information in an appendix. Recent research in the UK has linked the simplification of letters and official documents to improvements in outcomes, including compliance behavior (Behavioural Insights Team, 2015, 2016).

## 4.2 Empirical Strategy and Data

To ascertain the effects of the two parts of the trial, we estimate separate regressions for our samples of field and desk auditors. Auditors of both groups were randomly assigned to treatment and control groups and each auditor worked on several (typically 5-6) cases. To account for the inclusion of cases that were treated by the same auditor, we report standard errors that were clustered at the auditor level. A potential problem of the trial design is the possibility of systematic assignment of auditors to their cases. For example, our results would be biased if more experienced auditors would have been assigned to more difficult cases. In order to examine this possibility, we asked all auditors to take part in a small survey to provide information about their gender, level of education and the number of years of auditor experience. Unfortunately, we only received responses from 24 auditors (16 field and eight desk auditors). However, when studying the relationship between auditor characteristics and variables that are expected to be associated with the difficulty of a case (including the amount owed at the start of the case, the income of the firm and the number of employees), we find no evidence of systematic assignment.

Our analysis is based on treatment and control comparisons of the cases that field and desk auditors completed during the study period. Our general strategy for studying the effect of a treatment on an outcome measure of interest is to estimate the model

$$Y_i^d = \delta_0^d + \delta_1^d T_i^d + \nu_i^d, \quad i = \underbrace{1, 2, \dots, N_0^d}_{\text{treatment group 1}}, \underbrace{N_0^d + 1, \dots, N_0^d + N_1^d}_{\text{control group 1}}, \quad d = 0, 1, \quad (3)$$

where  $d$  is an indicator variable that takes on the value 1 if a case belongs to a desk auditor, and 0 otherwise.  $T_i^d$  is the treatment indicator and  $\nu_i^d$  is the model error term.  $\delta_1^d$  denotes the (unconditional) average treatment effect on the treated. We consider the following outcome measures: (i) the amount collected during the audit, (ii) the amount owed by the taxpayer after the case is closed, (iii) a variable indicating whether the ATO lodged an overdue default assessment (reflecting that taxpayers did not comply with their filing obligations), and (iv) the number of days of the case cycle.

We also estimate separate models for field and desk auditors including a set of control

variables:

$$Y_i^d = \lambda_0^d + \lambda_1^d T_i^d + Z_i^d \lambda_2^d + \omega_i^d, \quad i = 1, 2, \dots, N_0^d + N_1^d, \quad d = 0, 1, \quad (4)$$

where  $Z_i^d$  denotes the set of control variables and  $\omega_i$  is the error term. The parameter  $\lambda_1^d$  is the (conditional) average treatment effect on the treated after controlling for  $Z_i^d$ . Appendix C includes a list of the potential control variables provided by the ATO. Table 5 shows the baseline characteristics of the treatment and control groups for both field and desk auditors. The large majority of businesses audited by field auditors were micro enterprises (88% in the control group and 91% in the treatment group). The average number of employees differs between businesses in the treatment group (23.0) and the control group (10.7) but the difference is not statistically significant. While the total business income of businesses in the treatment and in the control group is about the same, the average amount owed at the start of the trial is somewhat larger in the control group (AUD 54,829) than in the treatment group (AUD 39,014). Again, this difference is not significant.

Within the sample of businesses addressed by the desk auditing process, a similar picture emerges with respect to the classification of businesses: the vast majority are micro enterprises (93% of the control group and 89% of the treatment group). The average number of employees varies between about 5 (treatment group) and 9 (control group). The amount owed at the start of the auditing process lies on average between AUD 32,287 (control group) and AUD 22,767 (treatment group) indicating a lower level of outstanding tax debt payments than in the sample of businesses handled by field auditors. Differences in observed characteristics between the two analysis samples of field and desk auditors may be attributed to the ATO's use of desk audits in situations where businesses are categorized as low-risk taxpayers and where field audits are difficult because of the geographical location of a business.

The  $p$ -values in Table 5 reveal that differences in characteristics between treatment and control group are largely insignificant, with the exception of three cases: differences in the share of arts and recreation services in the sample of cases handled by field auditors, differences in the share of accommodation and food services as well as in the share of professional, scientific and technical services in the sample of cases handled by desk auditors. Consequently, we include industry indicators as control variables in our conditional model.

[Table 5 about here.]

We use a linear regression model to estimate equations (3) and (4). Moreover, we examine the consequences of using binary Probit models to estimate the marginal effects of the treatment indicators on the outcome variable indicating whether the ATO lodged an overdue default assessment. Finally, we estimate a Poisson regression model to study the effect of the treatments on the number of days of the case cycle.

### 4.3 Results

The findings presented in Table 6 suggest that changing internal guidelines used by field auditors (Treatment 1) has no significant effect on any of the outcome variables. The estimates associated with the desk audit (Treatment 2) reveal that the proportion of default assessments raised by the ATO during the audit declined by 69% relative to the control group. The observed difference between treatment and control group is only based on 94 observations but it is statistically significant (at a 5% level) and the 20.7 percentage point gap is substantial. The ATO raises a default assessment when taxpayers do not comply with a request despite being contacted several times. The consequences of a default assessment are severe: an administrative penalty of 75% of the tax owed under that assessment applies. If taxpayers still fail to comply, then prosecution by the ATO can lead to a criminal conviction. ATO auditors determine in advance whether a particular case yields sufficient debt collection opportunities to justify the expected costs because of the high expenses associated with the process.

[Table 6 about here.]

Our results demonstrate that the provision of assistance in phone conversations and the simplification of a follow-up letter led to a substantial decline in the proportion of default assessments, suggesting that businesses are responsive to certain nudges. (Default assessments were raised in 30% of the cases of the control group, whereas the corresponding proportion of the treatment group is only 9.3%.) We obtain an even larger and more significant estimate of the difference when we include control variables in our model. It is important to note that the small sample size is a major limitation of the study and we only observe significant effects because the observed differences between treatment and control group are considerable.

## 5 Conclusion and Discussion

This paper presents the results obtained from two natural field experiments that were conducted in collaboration with the Australian Taxation Office (ATO). The first trial was designed to test the effect of four non-deterrence interventions (modified versions of a letter that the ATO sends to businesses if their reported transactions vary considerably from normal business activity) on response rates, the timing of payments and the amount of payments of liabilities. Our empirical findings reveal that the four treatments (timing, social norms, change in color, warm glow) did not have a significant effect on any of the outcome measures considered in our analysis.

The aim of the second trial was to improve internal procedures and engagement strategies with taxpayers. The trial consists of two parts. The first part assesses the effect of changing internal guidelines used by field auditors to raise awareness of the relevance of tax debt payments. The second part focuses on studying the effect of changing the script that desk auditors use for phone conversations and simplifying a follow-up letter to businesses. Outcome variables include debt collection measures, the duration of case cycles, and a variable indicating whether a default assessment was raised by the ATO during the audit (which happens when businesses do not comply with their filing obligations and means high fines for the affected taxpayer).

We find that changing the guidelines of field auditors has no effect on any of the outcomes considered. In contrast, changing the phone script of desk auditors to facilitate the establishment of payment arrangements and simplifying the follow-up letter reduced the proportion of default assessments raised from 30% to 9.3%. This translates into a 69% reduction effect. The observed difference between treatment and control group is only based on 94 observations but the observed gap is statistically significant and robust with regard to the inclusion of relevant control variables.

Overall, our findings indicate that some nudges are effective in improving business tax compliance while others are not. The null results from the *BAS Revision Trial* may partly be due to a small sample size. However, a power analysis indicates that the pooled effect – if there is one – cannot be larger than 3.5 percentage points. This suggests that small and medium size businesses do not seem to be very responsive to nudges that address personal factors. For example, incorporating the injunctive social norm “Our tax system works because

people do the right thing” into the reminder letter had no significant effect on the behavior of business taxpayers. This finding is consistent with the recent stream of literature on injunctive norms. While Cialdini et al. (1991) demonstrate that injunctive norms have a greater impact on individuals than descriptive norms in various situations, recent field experiments on tax compliance suggest otherwise. The null result of the injunctive norm treatment in our study is in line with findings by Ariel (2012), the only previous study that uses moral persuasion messages to target business tax compliance. Many other studies on individual tax compliance also do not find a significant effect of social norms. In contrast, the most recent field study by Hallsworth et al. (2017) targeting individual taxpayers documents a positive effect of both types of social norms. Nevertheless, the authors also point out that descriptive norms seem to have a larger impact than injunctive norms in the context of tax compliance.

In contrast, the large effect observed in the *Employer Obligations Trial* sheds light on the type of interventions motivated by behavioral insights that may potentially increase business tax compliance. Businesses appear to act “more rationally” than individuals for structural reasons (businesses may have more than one person who is responsible for tax filing and are less likely to be affected by individual decisions than individual taxpayers). Consequently, interventions that aim to reduce friction costs for businesses appear to be most promising when targeting compliance behavior. Our study indicates that changing the phone script of desk auditors to help setting up a payment arrangement and simplifying the follow-up letter facilitates the compliance behavior of businesses in our sample, which largely consist of micro enterprises with a maximum turnover of AUD 2 million per year. When thinking about future avenues for research in this domain, behavioral economists could go back to an early 20th century-insight from Kurt Lewin (which Daniel Kahneman calls “the best idea I ever heard in psychology” (Dubner, 2017)). In his model of “planned change”, Lewin (1947) points out that people’s behavior is driven by two external forces: a driving force and a restraining force. When both forces are in equilibrium, this determines the behavior of an individual. While it is nowadays popular to focus on what incentives could be created to “drive” behavior in a certain direction, another approach might be equally if not more powerful: reducing the restraining forces by asking “What can I do to make the desired behavior easier?”. Recent work by the Behavioral Insights Team on simplification confirms the validity of this approach in different policy domains (Behavioural Insights Team, 2014). Hence, our recommendation

to tax authorities and researchers is to identify those areas in which barriers may prevent businesses from compliant behavior, and to apply behavioral insights in these areas.

Two limitations of our study are worth highlighting. First, the changes to the letter made in the *BAS Revision Trial* were rather small. It is quite possible that recipients did not recognize the box that provided information on tax deductible donations or that they did not notice the coloring of the letter design. The treatment intensity was constrained by the ATO during the trial due to risk aversion. For example, the ATO rejected the proposal to test a social norms message of the type “X out of Y taxpayers file their revision on time”, which could have been compared to the work of Hallsworth et al. (2017). Similar constraints were imposed on color changes (the ATO refused to use red but accepted the use of orange). Finally, some of the changes that had been agreed were simply not implemented without further consultation. Practical constraints resulting from the collaboration with external partners appear to be common (see, e.g. List, 2011).

Second, both field experiments suffer from small sample sizes, which may lead to an underpowered study design. The effects of the second part of the *Employer Obligations Trial* are only significant because of their substantial magnitude. Again, the ATO was risk-averse and initially refrained from applying the treatments to a larger sample of businesses. However, the trial results have highlighted the relevance of collecting sufficiently large samples and could change the ATO’s position. During a third trial that we could implement as part of our ongoing research collaboration, we were able to collect larger samples. Hence, our insignificant results turned out to have some merit from a practical point of view. Overall, both limitations highlight the restraining forces under which researchers operate when running field experiments in collaboration with real-life institutions.

In general, more systematic business tax compliance research is needed. Not understanding the broader implications of business tax non-compliance is associated with severe societal and administrative costs (Ariel, 2012). We therefore welcome that tax administrators are increasingly open to running RCTs to evaluate the effects of policy changes on the real-world behavior of taxpayers. This development should be supported by governments and institutional representatives alike to derive a sound base of empirical insights into the effectiveness of different approaches to increase voluntary tax compliance.

## Tables and Figures

TABLE 1: BASELINE CHARACTERISTICS – TRIAL I

	Control		Treatment 1		<i>p</i> -value	Treatment 2		<i>p</i> -value	Treatment 3	
	Mean	<i>N</i>	Mean	<i>N</i>		Mean	<i>N</i>		Mean	<i>N</i>
2014/15: Number of										
BAS lodged	6.667	589	6.419	585	0.299	6.796	589	0.595	6.835	588
BAS with net GST payable	2.114	589	2.144	585	0.846	2.190	589	0.635	2.233	588
GST refunds lodged	4.553	589	4.275	585	0.252	4.606	589	0.831	4.602	588
BAS with amount payable	2.314	547	2.407	541	0.592	2.456	542	0.424	2.631	550
BAS with net refund	4.256	589	3.986	585	0.246	4.297	589	0.865	4.230	588
2014/15: Total net amount										
GST payable	193,602	589	150,074	585	0.256	158,854	589	0.364	136,893	588
GST refundable	-524,315	589	-386,481	585	0.137	-466,218	589	0.561	-431,213	588
Payable	251,480	589	205,994	585	0.330	219,379	589	0.504	206,486	588
Refundable	-455,156	589	-323,012	585	0.074	-411,054	589	0.605	-375,798	588
High risk score	0.355	589	0.354	585	0.972	0.355	589	1.000	0.354	588
Accounting method: Cash	0.416	589	0.402	584	0.637	0.413	589	0.906	0.427	588
Lodgement tax period <sup>†</sup>	80.1	589	82.2	585	0.536	84.3	589	0.251	85.2	588
Days between lodgements	40.4	589	41.3	585	0.546	38.5	589	0.241	38.1	588
Lodgement method										
Business Portal	0.309	589	0.244	585	0.013	0.284	589	0.339	0.264	588
Corporate Data Capture	0.122	589	0.130	585	0.692	0.143	589	0.303	0.155	588
Electronic Lodgement Service	0.311	589	0.344	585	0.230	0.321	589	0.707	0.327	588
Electronic Service Delivery	0.059	589	0.036	585	0.058	0.053	589	0.613	0.034	588
Tax Agent Portal	0.144	589	0.186	585	0.052	0.148	589	0.869	0.160	588
Other	0.054	589	0.060	585	0.685	0.053	589	0.897	0.061	588
Lodgement cycle GST										
Annually	0.031	589	0.038	585	0.506	0.053	589	0.058	0.053	588
Monthly	0.304	589	0.297	585	0.809	0.328	589	0.380	0.320	588
Quarterly	0.666	589	0.665	585	0.983	0.620	589	0.101	0.628	588



TABLE 1 (CONTINUED)

	Control		Treatment 1			Treatment 2			Treatment 3		
	Mean	<i>N</i>	Mean	<i>N</i>	<i>p</i> -value	Mean	<i>N</i>	<i>p</i> -value	Mean	<i>N</i>	<i>p</i> -value
Market segment											
Micro enterprise	0.428	589	0.474	585	0.116	0.448	589	0.481	0.451	588	0.430
Not for profit enterprise	0.085	589	0.085	585	0.972	0.073	589	0.450	0.082	588	0.840
Small/Medium enterprise	0.484	589	0.441	585	0.141	0.475	589	0.771	0.463	588	0.465
Other	0.003	589	0.000	585	0.158	0.003	589	1.000	0.005	588	0.653
Client type											
Company	0.457	589	0.463	585	0.822	0.501	589	0.129	0.476	588	0.503
Individual	0.049	589	0.050	585	0.979	0.054	589	0.693	0.037	588	0.319
Partnership	0.132	589	0.154	585	0.295	0.124	589	0.663	0.139	588	0.725
Superannuation fund	0.024	589	0.024	585	0.985	0.017	589	0.410	0.037	588	0.174
Trust	0.338	589	0.309	585	0.298	0.304	589	0.212	0.310	588	0.299
State											
Australian Capital Territory	0.024	589	0.014	585	0.202	0.007	589	0.017	0.010	588	0.072
New South Wales	0.260	589	0.251	585	0.739	0.263	589	0.895	0.270	588	0.679
Northern Territory	0.002	589	0.007	585	0.176	0.007	589	0.179	0.009	588	0.101
Queensland	0.178	589	0.156	585	0.297	0.204	589	0.266	0.190	588	0.589
South Australia	0.049	589	0.065	585	0.246	0.058	589	0.518	0.058	588	0.513
Tasmania	0.019	589	0.012	585	0.350	0.017	589	0.826	0.010	588	0.223
Victoria	0.258	589	0.280	585	0.390	0.284	589	0.326	0.267	588	0.728
Western Australia	0.139	589	0.149	585	0.643	0.107	589	0.092	0.129	588	0.616
Industry											
Services	0.306	589	0.349	585	0.115	0.324	589	0.490	0.340	588	0.205
Agricultural	0.188	589	0.173	585	0.482	0.165	589	0.285	0.131	588	0.007
Construction	0.170	589	0.157	585	0.562	0.166	589	0.876	0.162	588	0.705
Transport, comms, utilities	0.046	589	0.048	585	0.870	0.039	589	0.563	0.036	588	0.380
Financial, insurance	0.107	589	0.084	585	0.176	0.104	589	0.850	0.112	588	0.772
Manufacturing	0.044	589	0.038	585	0.572	0.053	589	0.497	0.043	588	0.891
Mining	0.005	589	0.014	585	0.127	0.007	589	0.705	0.015	588	0.081
Retail and wholesale trade	0.119	589	0.133	585	0.455	0.134	589	0.430	0.156	588	0.061
Other	0.015	589	0.005	585	0.084	0.008	589	0.282	0.005	588	0.082

TABLE 1 (CONTINUED)

	Control		Treatment 1		<i>p</i> -value	Treatment 2		<i>p</i> -value	Treatment 3		<i>p</i> -value
	Mean	<i>N</i>	Mean	<i>N</i>		Mean	<i>N</i>		Mean	<i>N</i>	
Income tax return lodged											
2011-12	0.596	589	0.583	585	0.651	0.587	589	0.767	0.614	588	0.52
2012-13	0.650	589	0.615	585	0.215	0.620	589	0.276	0.662	588	0.68
2013-14	0.694	589	0.665	585	0.280	0.659	589	0.191	0.704	588	0.71
2014-15	0.742	589	0.692	585	0.059	0.705	589	0.152	0.726	588	0.54
2015-16	0.081	589	0.079	585	0.857	0.083	589	0.916	0.078	588	0.85
Total business income											
2011-12	8,848,597	351	8,661,203	341	0.912	12,460,393	346	0.244	8,522,519	361	0.82
2012-13	8,443,833	383	8,558,430	360	0.938	11,364,095	365	0.107	8,400,651	389	0.97
2013-14	10,448,734	409	7,883,035	389	0.326	11,573,349	388	0.704	8,451,914	414	0.45
2014-15	8,877,988	437	8,295,525	405	0.688	10,187,145	415	0.427	8,418,841	427	0.74
2015-16	12,517,915	48	12,110,402	46	0.950	10,693,910	49	0.776	16,119,142	46	0.61
Total business expenses											
2011-12	8,351,272	351	8,706,727	341	0.835	11,765,857	346	0.219	8,736,567	361	0.80
2012-13	8,047,993	383	8,025,750	360	0.988	10,264,440	365	0.184	8,335,249	389	0.85
2013-14	7,835,371	409	7,782,429	389	0.969	10,548,663	388	0.116	8,516,642	414	0.61
2014-15	8,232,163	437	8,231,392	405	1.000	12,058,769	415	0.174	8,593,934	427	0.79
2015-16	13,003,543	48	10,809,845	46	0.732	14,792,311	49	0.820	18,451,685	46	0.46
Total profit/loss											
2011-12	497,325	351	-45,524	341	0.218	694,536	346	0.623	-214,048	361	0.09
2012-13	395,839	383	532,680	360	0.688	1,099,655	365	0.081	65,402	389	0.29
2013-14	2,613,363	409	100,607	389	0.251	1,024,685	388	0.486	-64,728	414	0.21
2014-15	645,825	437	64,133	405	0.154	-1,871,624	415	0.254	-175,093	427	0.01
2015-16	-485,628	48	1,300,558	46	0.087	-4,098,401	49	0.373	-2,332,543	46	0.20

Note: *p*-values refer to the comparison of means between each treatment group and the control group.

† Days between the original BAS lodgement date and the last BAS lodgement date.

TABLE 2: TREATMENT EFFECTS (OLS) – TRIAL I

	Treatment 1	Treatment 2	Treatment 3	Treatment 4
Total amount of payments by the taxpayer after 12/11/2015	-59,799 (70,799) [450]	13,867 (79,778) [455]	-57,221 (71,122) [456]	-65,073 (77,500) [446]
Net amount of GST: original minus revised BAS	27,773 (37,978) [86]	19,385 (40,769) [89]	26,627 (41,751) [80]	-38,842 (60,382) [87]
Revised net amount of all taxation items on BAS	20,727 (35,694) [86]	3,148 (38,914) [89]	16,048 (38,673) [80]	-54,987 (58,921) [87]
Revision was lodged by taxpayer	0.004 (0.015) [1174]	0.007 (0.015) [1178]	-0.005 (0.015) [1177]	0.001 (0.015) [1176]
GST revision in favor of ATO	-0.046 (0.105) [86]	0.132 (0.105) [89]	0.111 (0.113) [80]	-0.034 (0.105) [87]
GST revision in favor of client	0.015 (0.095) [86]	-0.068 (0.086) [89]	-0.063 (0.093) [80]	0.061 (0.098) [87]
No change after GST revision	0.031 (0.109) [86]	-0.064 (0.104) [89]	-0.048 (0.110) [80]	-0.027 (0.109) [87]
Revision of all taxable items in favor of ATO	-0.027 (0.108) [86]	0.148 (0.106) [89]	0.089 (0.114) [80]	-0.035 (0.108) [87]
Revision of all taxable items in favor of client	0.025 (0.098) [86]	-0.028 (0.093) [89]	-0.009 (0.101) [80]	0.100 (0.103) [87]
No change after revision in amount of all taxable items	0.002 (0.105) [86]	-0.121 (0.094) [89]	-0.079 (0.101) [80]	-0.065 (0.102) [87]
Number of payments by taxpayer after 12/11/2015	0.201 (0.154) [1174]	0.313 (0.170) [1178]	0.115 (0.154) [1177]	-0.043 (0.160) [1176]
Number of days until first payment by the taxpayer after 12/11/2015	0.052 (1.469) [450]	-0.112 (1.443) [455]	1.528 (1.527) [456]	1.100 (1.463) [446]

*Note:* Coefficients obtained from a linear regression model including control variables. Standard errors in parentheses. Number of observations in brackets.

TABLE 3: TREATMENT EFFECTS, BINARY OUTCOME VARIABLES (PROBIT) – TRIAL I

	Treatment 1	Treatment 2	Treatment 3	Treatment 4
Revision was lodged by taxpayer	0.004 (0.015) [1174]	0.007 (0.016) [1160]	-0.005 (0.015) [1177]	0.001 (0.016) [1147]
GST revision in favor of ATO	-0.046 (0.103) [86]	0.131 (0.101) [89]	0.109 (0.108) [80]	-0.034 (0.102) [86]
GST revision in favor of client	0.015 (0.094) [86]	-0.067 (0.084) [89]	-0.067 (0.095) [76]	0.058 (0.095) [86]
No change after GST revision	0.030 (0.107) [86]	-0.064 (0.102) [89]	-0.046 (0.107) [80]	-0.029 (0.105) [86]
Revision of all taxable items in favor of ATO	-0.027 (0.106) [86]	0.147 (0.101) [89]	0.087 (0.110) [80]	-0.035 (0.105) [86]
Revision of all taxable items in favor of client	0.026 (0.096) [86]	-0.028 (0.091) [89]	-0.012 (0.102) [76]	0.099 (0.098) [86]
No change after revision in amount of all taxable items	0.002 (0.103) [86]	-0.119 (0.091) [89]	-0.083 (0.097) [80]	-0.067 (0.099) [86]

*Note:* Marginal effects obtained from a binary probit model including control variables. Standard errors in parentheses. Number of observations in brackets.

TABLE 4: TREATMENT EFFECTS, COUNT DATA (POISSON REGRESSION) – TRIAL I

	Treatment 1	Treatment 2	Treatment 3	Treatment 4
Number of payments by taxpayer after 12/11/2015	0.202 (0.160) [1174]	0.315 (0.172) [1178]	0.113 (0.150) [1177]	-0.045 (0.156) [1176]
Number of days until first payment by taxpayer after 12/11/2015	0.052 (1.466) [450]	-0.112 (1.440) [455]	1.530 (1.538) [456]	1.096 (1.467) [446]

*Note:* Marginal effects obtained from Poisson regression model including control variables. Robust standard errors in parentheses. Number of observations in brackets.

TABLE 5: BASELINE CHARACTERISTICS – TRIAL II

	Control 1		Treatment 1		<i>p</i> -value	Control 2		Treatment 2
	Mean	<i>N</i>	Mean	<i>N</i>		Mean	<i>N</i>	Mean
Amount owed at start	54,829	79	39,014	115	0.347	32,287	37	22,767
Number of employees	10.7	87	23.0	122	0.444	8.5	39	5.2
Total business income	589,167	66	592,904	94	0.987	669,165	28	493,580
Market segment								
Not for profit enterprise	0.023	88	0.024	125	0.952	0.000	40	0.019
Micro enterprise	0.875	88	0.912	125	0.384	0.925	40	0.889
Small/medium enterprise	0.102	88	0.064	125	0.311	0.075	40	0.093
Industry								
Agriculture, Forestry and Fishing	0.057	88	0.024	125	0.215	0.075	40	0.093
Mining	0.011	88	0.000	125	0.233	0.000	40	0.000
Manufacturing	0.068	88	0.064	125	0.904	0.025	40	0.037
Construction	0.182	88	0.208	125	0.638	0.175	40	0.093
Wholesale Trade	0.057	88	0.040	125	0.569	0.000	40	0.037
Retail Trade	0.045	88	0.056	125	0.733	0.150	40	0.167
Accommodation and Food Services	0.114	88	0.152	125	0.423	0.075	40	0.241
Transport, Postal and Warehousing	0.114	88	0.056	125	0.126	0.075	40	0.130
Financial and Insurance Services	0.023	88	0.032	125	0.688	0.025	40	0.019
Rental Hiring and Real Estate Services	0.023	88	0.016	125	0.723	0.025	40	0.037
Professional, Scientific and Technical Services	0.091	88	0.128	125	0.401	0.175	40	0.000
Administrative and Support Services	0.091	88	0.072	125	0.618	0.050	40	0.019
Public Administration and Safety	0.000	88	0.008	125	0.402	0.000	40	0.019
Education and Training	0.011	88	0.024	125	0.505	0.000	40	0.037
Health Care and Social Assistance	0.023	88	0.024	125	0.952	0.050	40	0.000
Arts and Recreation Services	0.034	88	0.000	125	0.037	0.000	40	0.000
Other Services	0.057	88	0.096	125	0.300	0.100	40	0.074

*Note:* *p*-values refer to the comparison of means between treatment and corresponding control group.

TABLE 6: TREATMENT EFFECTS – TRIAL II

	Unconditional		Conditional	
	Treatment 1	Treatment 2	Treatment 1	Treatment 2
OLS				
Amount collected during the audit	-7,795 (7,047) [213]	-13,327 (13,807) [94]	-7,262 (6,753) [213]	-9,887 (11,749) [94]
Amount owed by taxpayer after case is closed	-51,182 (36,440) [110]	-40,498 (43,012) [56]	-43,915 (29,624) [110]	-30,553 (31,307) [56]
ATO lodged overdue assessment	-0.025 (0.028) [213]	-0.207* (0.087) [94]	-0.027 (0.032) [213]	-0.225** (0.074) [94]
Days of the case cycle	1.792 (10.439) [182]	5.332 (8.383) [93]	2.335 (10.020) [182]	5.456 (7.840) [93]
Probit (marginal effects)				
ATO lodged overdue assessment	-0.024 (0.027) [213]	-0.195* (0.075) [94]	-0.037 (0.027) [177]	-0.187* (0.075) [94]
Poisson (marginal effects)				
Days of the case cycle	1.795 (10.448) [182]	5.370 (8.461) [93]	2.216 (11.316) [127]	5.300 (7.949) [63]

*Note:* Robust standard errors (presented in parentheses) were clustered at the auditor level. Number of observations in brackets. \*  $p < 0.05$ , \*\*  $p < 0.01$ .

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## TRIAL I: TREATMENT 1

<p>     </p> <p>&lt;Title&gt; &lt; First Name&gt; Surname&gt;          &lt;Address line 1&gt;          &lt;Address line 2&gt;          &lt;Address line 3&gt;          &lt;CITY&gt; &lt;STATE&gt; &lt;POSTCODE&gt;</p>	 <p><b>Australian Government</b>  <b>Australian Taxation Office</b></p> <p>Our reference:          Phone:          ABN:</p> <p>12 November 2015</p>
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## You need to review your GST refund

- › Your GST refund claim may be incorrect
- › Review your records and revise any claims by 14 December 2015

Dear <First name><Sir/Madam>

Your goods and services tax (GST) refund has been selected for review. Our data modelling indicates that your refund claim may be incorrect. You need to review your GST refund for the tax period from <tax period from> to <tax period to>.

### What you need to do

Check the amounts reported on your activity statement and compare these with the information and calculations you used in preparing your activity statement. Specific areas you may want to review include:

- › incorrect transposition of figures
- › invoices that do not include GST
- › private expenses that may have been included.

If you haven't made an error or omission, you don't need to do anything further. Please keep your GST records handy as we can ask for further information to confirm your claim.

If you have made an error or omission, please revise your activity statement by 14 December 2015, and no penalties will apply. You will, however, need to pay any GST and interest owing.

We appreciate your cooperation in paying the right amount of GST to support important services in your <state><territory>.

Yours <sincerely><faithfully>

<Deputy Commissioner's Name>  
 Deputy Commissioner of Taxation


**FIND OUT MORE**

To find out more about correcting activity statement errors, go to [ato.gov.au](http://ato.gov.au) and search for 'Correct an instalment or business activity statement'.

If you have any questions, please phone **[phone number]** between 8.00am and 6.00pm, Monday to Friday.



## TRIAL I: TREATMENT 3

<p>     </p> <p>&lt;Title&gt; &lt; First Name&gt; Surname&gt;          &lt;Address line 1&gt;          &lt;Address line 2&gt;          &lt;Address line 3&gt;          &lt;CITY&gt; &lt;STATE&gt; &lt;POSTCODE&gt;</p>	 <p><b>Australian Government</b>  <b>Australian Taxation Office</b></p> <p>Our reference:          Phone:          ABN:</p> <p>12 November 2015</p>
--	---

## You need to review your GST refund

- › Your GST refund claim may be incorrect
- › Review your records and revise any claims by 30 November 2015

Dear <First name><Sir/Madam>

Your goods and services tax (GST) refund has been selected for review. Our data modelling indicates that your refund claim may be incorrect. You need to review your GST refund for the tax period from <tax period from> to <tax period to>.

**What you need to do**

Check the amounts reported on your activity statement and compare these with the information and calculations you used in preparing your activity statement. Specific areas you may want to review include:

- › incorrect transposition of figures
- › invoices that do not include GST
- › private expenses that may have been included.

If you haven't made an error or omission, you don't need to do anything further. Please keep your GST records handy as we can ask for further information to confirm your claim.

If you have made an error or omission, please revise your activity statement by 30 November 2015, and no penalties will apply. You will, however, need to pay any GST and interest owing.

We appreciate your cooperation in paying the right amount of GST to support important services in your <state><territory>.

Yours <sincerely><faithfully>


<Deputy Commissioner's Name>  
 Deputy Commissioner of Taxation

**FIND OUT MORE**

To find out more about correcting activity statement errors, go to [ato.gov.au](http://ato.gov.au) and search for 'Correct an instalment or business activity statement'.

If you have any questions, please phone **[phone number]** between 8.00am and 6.00pm, Monday to Friday.

## TRIAL I: TREATMENT 4



**Australian Government**  
Australian Taxation Office

|||||  
 <Title> < First Name> Surname>  
 <Address line 1>  
 <Address line 2>  
 <Address line 3>  
 <CITY> <STATE> <POSTCODE>

Our reference:  
 Phone:  
 ABN:  
 12 November 2015

## You need to review your GST refund

- › Your GST refund claim may be incorrect
- › Review your records and revise any claims by 30 November 2015

Dear <First name><Sir/Madam>

Your goods and services tax (GST) refund has been selected for review. Our data modelling indicates that your refund claim may be incorrect. You need to review your GST refund for the tax period from <tax period from> to <tax period to>.

### What you need to do

Check the amounts reported on your activity statement and compare these with the information and calculations you used in preparing your activity statement. Specific areas you may want to review include:

- › incorrect transposition of figures
- › invoices that do not include GST
- › private expenses that may have been included.

If you haven't made an error or omission, you don't need to do anything further. Please keep your GST records handy as we can ask for further information to confirm your claim.

If you have made an error or omission, please revise your activity statement by 30 November 2015, and no penalties will apply. You will, however, need to pay any GST and interest owing.

We appreciate your cooperation in paying the right amount of GST to support important services in your <state><territory>.

Yours <sincerely><faithfully>

<Deputy Commissioner's Name>  
Deputy Commissioner of Taxation

FIND OUT MORE

To find out more about correcting activity statement errors, go to [ato.gov.au](http://ato.gov.au) and search for 'Correct an instalment or business activity statement'.

If you have any questions, please phone **[phone number]** between 8.00am and 6.00pm, Monday to Friday.

DID YOU KNOW?

Many charities rely on the generosity of supporters for some or all of their funding. All donations of \$2 or more are tax deductible.

For more information, go to [ato.gov.au](http://ato.gov.au) and search for 'Gifts and donations'.



## Appendix B – Trial II: Phone Script and Letters

### TRIAL II: CONTROL 2A (DESK AUDIT TELEPHONE SCRIPT)

(...) “As at today, there is a debt on <you><your clients> account for the \$<amount>, which may increase as a result of this audit. I need to make you aware of this and the payment options available to <you><your client> to pay this debt”. (...)

(...) “If <you><your client> are unable to pay this amount in full, a payment plan may be an option. If <you><your client> would like to know more about this option, contact our Debt area on [phone number] or visit the ato.gov.au website.” (...)

### TRIAL II: TREATMENT 2A (DESK AUDIT TELEPHONE SCRIPT)

#### CLIENT

(...) “As at today, there is a debt on your account for the \$<amount>, which may increase as a result of this audit. I need to make you aware of this and the payment options available to you to pay this debt. If you are unable to pay this amount in full, an interim payment plan may be an option.

You can call the right area of the ATO on [phone number] between 8.00am and 6.00pm weekdays. If you explain your circumstances and you’re trying to do the right thing, we’re committed to helping you where possible. The officer you speak to will need to know more about your financial situation and your circumstances so they can work with you to set up a payment plan that is manageable for you. I can transfer you now.” (...) (warm transfer to Debt Early Intervention)

#### TAX AGENT

(...) “As at today, there is a debt on your clients account for the \$<amount>, which may increase as a result of this audit. I need to make you aware of this and the payment options available to your client to pay this debt. If your client is unable to pay this amount in full, an interim payment plan may be an option.

Your client can call the right area of the ATO on [phone number] between 8.00am and 6.00pm weekdays. If your client explains their circumstances and your client is trying to do the right thing, we’re committed to helping your client where possible. The officer your client speaks to will need to know more about their financial situation and their circumstances so they can work with your client to set up an interim payment plan that is manageable for your client.” (...)

## TRIAL II: CONTROL 2B

**Confirmation of your employer obligations audit**

Dear <Recipient title, Recipient surname OR Sir/Madam>

As discussed on <DD Month CCYY> with you [or] your tax representative, we are checking your compliance with your employer obligations.

*[Delete options in table that are not required.]*

Pay as you go (PAYG) withholding	<DD Month CCYY> to <DD Month CCYY>
Super guarantee (SG)	<DD Month CCYY> to <DD Month CCYY>

We will check that you have:

- correctly withheld the PAYG withholding amounts from salary, wages and other payments
- correctly reported the withheld amounts to us in your activity statement, and
- complied with your super guarantee obligations.

*[Insert only if there is an existing tax liability]*

Our records show you have an existing tax debt. We will discuss payment of this debt during the audit.

**PAYG withholding**

The amounts reported by your employees in their <CCYY> and ><CCYY> tax returns are more than the amounts you reported to us.

**[\*Include one of the following options, delete those not applicable\*]**

*[Option 1 - Insert for overdue activity statements and FTN cases]*

We discussed your overdue activity statement<s>. The overdue activity statement<s> should be lodged by the date<s> shown in the enclosed form. If you have other activity statements that fall due during the audit period, you need to lodge these on time.

If you don't lodge it [or] them by the date<s> shown in the enclosed form<s>, we may without further notice, determine the PAYG withholding amount<s> you withheld based on information available to us. You will be liable to a penalty equal to 75% [or] 90% of the amount<s> withheld.

*[Option 2 - Insert for under-notified cases]*

We discussed the under-notified PAYG withholding amount<s> you reported to us. You need to lodge <a> revised activity statement<s> to correct this for the period<s> and by the date<s> shown in the enclosed form.

*[Option 3 - Insert for overdue PAYG payment summary statement]*

As discussed, your overdue PAYG payment summary statement for <CCYY> and <CCYY> financial years should be lodged by <DD Month CCYY>. If you have other payment summary statements that fall due during the audit period, you need to lodge these on time.

**[\*End of options\*]**

**Superannuation guarantee**

**[\*Include one of the following options, delete those not applicable\*]**

*[Option 1 - Select where SG non-compliance is not confirmed]*

If you have not complied with your superannuation guarantee obligations for the period <SG POR start date> to <SG POR end date>, you are liable for the superannuation guarantee charge (SGC) and additional SGC, by way of penalty, up to 200% of the SGC.

You need to immediately lodge a *Superannuation guarantee charge statement – quarterly* and pay the SGC to us. If you lodge the statement<s> we may reduce the penalty to 25% of the SGC. For further information about how to complete and lodge SGC statements, go to our website, [ato.gov.au/super/superforemployers](http://ato.gov.au/super/superforemployers).

If you don't lodge the statement<s>, we may without further notice, issue <a> default SGC assessment<s> based on information available to us. You will then be liable to additional SGC, by way of penalty, up to 200% of the SGC.

## TRIAL II: TREATMENT 2B

Will <ReturnUnclaimedAddressBarCode>

<Title> <First Name> <Middle Name> <Surname>  
 <Suffix><Organisation>  
 <Address Line 1>  
 <Address Line 2>  
 <LOCALITY> <STATE> <POSTCODE>  
 <COUNTRY>

Reply to: <address>

Our reference: <our reference>  
 Contact officer: <Contact officer>  
 Phone: <phone number>  
 Fax: <fax number>  
 <Case ID>: <Case Id>  
 <ABN>: <ABN>  
 <Letter date>

#### Notice of audit - employer obligations

Dear <Title ><Surname><Sir/Madam>

We are checking your compliance with your employer obligations as discussed with <you><your tax representative> on <DD Month CCYY>.

We will check that you have:

- correctly withheld the PAYG withholding amounts from salary, wages and other payments
- correctly reported PAGW withholding amounts to us in your activity statement, and
- complied with your super guarantee obligations.

**[Insert only if there is an existing tax liability]**

Our records show you have an existing tax debt. We will discuss payment of this debt with you during the audit.

#### What you need to do

By <DD Month CCYY>	Complete and send the enclosed <b>Employer obligations audit form</b> to us
By <DD Month CCYY>	Lodge the documents shown in the enclosed <b>Lodgment Planner</b>

If you have any questions, please phone **XXXXXXX** between 8.00am and 5.00pm, Monday to Friday and ask for <Compliance officer name> on extension <Compliance officer extension number>.

Yours <sincerely><faithfully>

<Deputy Commissioner's Name>  
 Deputy Commissioner of Taxation

cc. <taxpayer><tax representative>

## Appendix C – List of Control Variables

### Trial I

Potential control variables:

- The total number of business activity statements lodged in the 2014 - 2015 financial year
- The number of net GST payable business activity statements in the 2014 - 2015 financial year
- The number of net GST refunds lodged in the 2014 - 2015 financial year
- The number of net payable business activity statements (if any) in the 2014 - 2015 financial year
- The number of net refund business activity statements (if any) in the 2014 - 2015 financial year
- The total net GST payable (if any) in the 2014 - 2015 financial year
- The total amount of net GST refundable in the 2014 - 2015 financial year
- The total net payable amount (if any) in the 2014 - 2015 financial year
- The total net refund amount (if any) in the 2014 - 2015 financial year
- A variable indicating the risk group (high or low risk) based on a risk score of the ATO
- A variable indicating the accounting method used - Cash or non-cash (accrual)<sup>6</sup>
- Days between the original business activity statement lodgement date and the last business activity statement lodgement date
- Days between lodgements
- Variables indicating the lodgement method<sup>7</sup>
- Variables indicating the lodgement cycle for GST reporting (monthly, quarterly or annual)
- Market segment based on an internal ATO definition<sup>8</sup>
- Client type (Company, Individual, Partnership, Superannuation Fund, Trust)
- State

<sup>6</sup><https://www.ato.gov.au/Business/GST/Accounting-for-GST-in-your-business/Choosing-an-accounting-method/>

<sup>7</sup>The method in which the business activity statements and revisions were lodged by enterprises. TAP - Tax Agent Portal (exclusive lodgement medium available to tax agents). BP - Business Portal (Electronic lodgement via exclusive business portal). CDC - Corporate Data Capture (Paper lodgement). TAP-BSP - BAS Agent Portal (Extension of the Tax Agent portal but for BAS agents). ESD - Electronic Service Delivery (Being phased out). ATO Online - internet lodgement via ATO Online services. GOV Reports - Tax Agent software (non ATO). OTH - Internal. Xero Practice manager Tax - Lodged via Xero 'cloud' based accounting software.

<sup>8</sup>NFP - Not for profit enterprise; the NFP segment is made up of non-profit organisations including tax exempt institutions, registered charities, health and community service organisations and non-profit companies. MIC - Micro enterprise, Economic groups and single entities with an annual turnover less than \$2 million. SME - Small/Medium enterprise, Economic groups and single entities with an annual turnover greater than \$2 million and less than \$250 million. LGE - Large market enterprise, economic groups and single entities with an annual turnover greater than \$250 million.

- Industry code based on Australian and New Zealand Standard Industrial Classification (ANZSIC)<sup>9</sup>
- Variables indicating whether an income tax return was lodged in the financial years 2010 - 2011, 2011 - 2012, 2012 - 2013, 2013 - 2014, 2014 - 2015
- The total business income for the financial years 2010 - 2011, 2011 - 2012, 2012 - 2013, 2013 - 2014, 2014 - 2015
- The total business expenses for the financial years 2010 - 2011, 2011 - 2012, 2012 - 2013, 2013 - 2014, 2014 - 2015
- The total profit or loss for the financial years 2010 - 2011, 2011 - 2012, 2012 - 2013, 2013 - 2014, 2014 - 2015

## **Trial II**

Potential control variables:

- Amount owed by the taxpayer at the start of the case (manual entry)
- Number of employees
- Total business income
- Market segment (not for profit, micro, small/medium, large)
- Industry code based on Australian and New Zealand Standard Industrial Classification (ANZSIC)

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<sup>9</sup><http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/1292.0.55.0022006?OpenDocument>