

Carrots, Sticks, Sole Proprietors, and Tax Accountants

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Paying taxes is a social and institutional practice that relies on accounting and entails accountability (Lamb, 2001). As examples of regulatory processes, tax systems in western economies primarily rely on the notion of voluntary compliance by taxpayers, but, importantly, the threat of possible audit also serves to “encourage” this voluntary tax compliance (Braithwaite, 2003). Audits, however, are not without cost to tax administrations and are not optimal for many taxpayers. Hence, alternative strategies to improve taxpayer compliance are needed.

In order to provide guidance to tax policymakers, experimental researchers have begun to examine alternative options aimed at increasing tax compliance. One experimental approach that has been widely used to encourage attitude and behavior change in general, and in tax reporting also, has been the use of persuasion-based laboratory experiments (Eagly and Chaiken, 1993). Persuasive communications in the tax arena might rely on grounds of morality, educational outreach (Kaplan, Newberry, and Reckers, 1997), or the use of formal/informal sanctions (Violette, 1989). While all research involves tradeoffs, one important issue that researchers have had to face in this area is the difficulty of obtaining access to “real” taxpayers—with virtually all prior studies using vignettes and hypothetical reporting scenarios. The present study combines the use of persuasive communications with actual taxpayer reporting, thanks to the cooperation of the Inland Revenue (IR) in the United Kingdom (UK).

The paper contributes to tax compliance research by using a controlled field experiment to analyze the effect on actual tax reporting behaviors of sole proprietors. Change in sales (turnover) and net profit over a 2-year period are examined after the taxpayer receives one of five letters. Thus, we tested the comparative efficacy of five alternative treatments, including a simple offer of assistance (a small carrot), a citizenship approach, a threat of audit (a moderate stick), a threat of an audit and possible penalties (a larger stick), and, finally, one treatment where the audit was preselected prior to the filing of the taxpayer’s tax return (a very large stick). These letters are tested using a

between-subjects design with a nationwide sample of over 7,300 U.K. sole proprietor taxpayers who for 2 consecutive tax years reported a turnover level just low enough, under a fixed threshold (£15,000), to qualify for a simplified format of tax reporting allowing them to reduce their costs of compliance.

Our results show strong evidence of a significant overall treatment effect for all five treatments. Specifically, when we measure the proportions of taxpayers who reported increases in turnover (i.e., over the £15,000 threshold that disallows simplified reporting) and increases in net profit, there are significant differences for every treatment group. Because the impact of the letter on the taxpayer could be mitigated if the tax return is not self-prepared (Blumenthal and Christian, 2004), we separately analyze sole proprietors who prepared their own returns versus those who engaged a tax accountant. While the effects differ by type of preparer, the overall effects are still quite strong for both groups.

An important contribution of this study is that tax agencies responsible for audit enforcement should consider more widespread use of communicating the possibility of an audit directly to sole proprietor taxpayers. Such written communications could take the form of either an increased threat of audit or, subject to other factors, notification of a certain audit. Moreover, the impact of normative appeals is also shown to be effective. The study also provides further evidence on reporting behavior effects associated with the use of a tax accountant. While significant effects were found even for taxpayers who were professionally represented, the communications strategy described in the field experiment was especially effective for those taxpayers who did not purchase the services of a tax accountant. For these taxpayers, the burden of increased effort to comply and the increased cost of an audit and possible penalties rests solely on their shoulders.

The remainder of this paper is organized as follows. The next section outlines prior literature. The third section describes the design and implementation of the field experiment and the rationale for the treatment groups. The fourth section presents the empirical tests for an overall treatment effect and tests for evidence of a differential impact. Concluding remarks and limitations appear last.

Prior Literature

There is extensive literature on the global problem of tax noncompliance. Researchers from disciplines such as economics (Andreoni, Erard, and Feinstein, 1998), sociology (McBarnet, 2003), accounting (Kaplan, Reckers, and Roark, 1988), law (Smith and Kinsey, 1987), and psychology (Webley, Robben, Elffers, and Hessing, 1991) have all tackled the problem. These

studies focus on the reporting behaviors of taxpayers and issues for tax authorities in ensuring compliance. Auditing taxpayers with low reported incomes may not be cost-effective as the tax revenue ultimately collected could be below the cost to the state of auditing the taxpayer (i.e., from the state's view, costs exceed benefits). Thus, as the U.K. Better Regulation Task Force recently noted, alternative approaches to securing compliance with regulations must be considered (BRTF, 2003).

While no study has used a case study method similar to Preston (1989) and Pentland and Carlile (1996), several prior studies have used the alternative approach of persuasive communication to analyze tax reporting effects. The research methods used have included personal interviews (Grasmick and Scott, 1982; Schwartz and Orleans, 1967), telephone surveys (Hite, 1997), mail questionnaires (Hasseldine and Kaplan, 1992; Hite, 1989; Porcano and Price, 1993; Wartick, 1994), and laboratory experiments (Jackson and Jaouen, 1989; Kaplan, Newberry, and Reckers, 1997; McGraw and Scholz, 1988, 1991; Roberts, 1994; Violette, 1989).

Table 1 documents these prior persuasion studies and the range of dependent variables that have been measured. These include tax attitudes, attribution of others' intended compliance, hypothetical compliance behavior, future intentions to comply, and actual compliance behavior.

The first study published in this area was Schwartz and Orleans (1967). Using field interviews, they asked their subjects several open-ended questions, which they reported as either "sanction questions" or as "conscience questions." After comparing actual tax return information for the treatment groups with tax return information for a control group, they found that the conscience appeal manipulation had a stronger effect ($p < .10$) on increasing reported income than the manipulation that focused on legal sanctions.

While most of the studies in Table 1 have focused on the effects of communicating some type of "sanctions," an exception was provided by Hite (1989) who tested the effect of communicating "positive" information on taxpayer attitudes, thus shifting the focus from "sticks" to "carrots."

All but one study has been limited to written messages. The exception was Roberts (1994) who investigated whether taxpayer attitudes toward fairness and compliance could be manipulated using three 30-second videos containing factual information—one of which included a moral appeal. His results indicated that 30-second public service announcements were effective in improving viewers' attitudes toward the fairness of the U.S. Federal income tax, although only students' (not jurors') compliance attitudes were influenced. This suggests that carefully targeted mass media advertising is a potentially effective method for improving the public's perceptions of tax fairness and attitudes toward compliance.

Table 1--Summary of extant research using persuasive communications		
<i>Author(s)/year/ method/D.V.</i>	<i>Subjects/manipulations/ controls used</i>	<i>Primary finding</i>
Schwartz & Orleans (1967) field interviews DV: normative attitudes; actual compliance (UI)	173 adults; 7-11 questions on legal sanctions, conscience appeal. Control group	conscience appeal was more effective than legal sanctions
Grasmick & Scott (1982) field interviews DV: past evasion; intended evasion	401 adults; 1 question each on threat of guilt, threat of stigma, treat of legal sanctions	Threat of guilt was most effective
McGraw & Scholz (1988; 1991) Lab. experiment DV: noncompliance Attitudes	154 adults (Long Island); 30 minute video on normative information, personal consequences information. Control group	No main effect was significant
Jackson & Jaouen, (1989) Lab: experiment DV: noncompliance Attitudes	66 adults (jurors, CO); Essay on conscience appeal, penalties. Control group	No main effect was significant
Hite (1989) Mail experiment DV: opinions on IRS services	230 adults (Kansas) Short brochure on IRS service, sanctions. Control group	Emphasis on service influenced taxpayer opinions
Violette (1989) Lab. experiment DV: hypothetical compliance (UI)	205 students (AZ, ME); Essay on legal sanctions, informal sanctions, and both Control group	Legal sanctions increased compliance
Hasseldine & Kaplan (1992) Mail experiment DV: hypothetical compliance (UI)	199 adults (New Zealand); Essay on legal sanctions, informal sanctions conscience appeal Control group	Informal sanction message increased compliance

Porcano & Price (1993) Mail experiment DV: hypothetical compliance (UI)	178 adults (Chicago & Cincinnati); Within-subjects design. Subjects given 8 penalty types	Social stigma improves compliance
McLenny (1994) Lab. experiment DV: attribution of others' intended compliance (OD/UI)	253 graduate students; Essay on conscience appeal, sanction threat. Control group	No main effect was significant
Roberts (1994) Lab. Experiment DV: fairness attitudes; compliance attitudes.	216 students; 223 jurors; 30 second video on cognitive approach, affective approach. Control group	Videos improved tax fairness attitudes; students' compliance attitudes
Wartick (1994) Mail experiment DV: perceived	243 adults (univ. staff); Cognitive referent outcome (Hi/low) Knowledge of legal intent (Yes/no)	Reasons for a tax law change affects fairness
Hite (1997) Telephone survey DV: noncompliance Attitudes; intended compliance (UI)	434 adults (Mid-West); Verbal message on moral ploy, vertical equity. Control group	Moral ploy effective
Kaplan et al (1997) Lab. experiment DV: others' hypothetical compliance	98 MBA students; Conscience appeal, sanctions, morality measured. Control group	Morality moderates sanctions approach
Blumenthal et al (2001) Field experiment DV: actual compliance	46,773 MN taxpayers; Two normative appeals Control group	Conscience appeals not supported
Slemrod et al (2001) Field experiment DV: actual compliance	22,368 MN taxpayers; Increased audit ('closely examined') group. Control group	Support for low/middle incomes – Sched. C/F

Key:

- DV: Dependent Variable
 UI: Underreporting income behavior
 OD: Overstating deduction behavior

More recently, Blumenthal, Christian, and Slemrod (2001) mailed two different normative appeals to two groups of Minnesota State income taxpayers. The first was structured around a “support valuable services” theme, while the second was based on a “join the compliant majority” approach. After statistical comparison with a control group, they concluded that neither normative appeal had a significant impact on reported income or tax liability. In contrast to that result, Slemrod, Blumenthal, and Christian (2001) analyzed the effect of a sanction-based letter to a sample of taxpayers stating that their 1994 income tax returns would be “closely examined” by the Minnesota Department of Revenue. Their analysis of low- and middle-income taxpayers did reveal some significant increases, from 1993 to 1994, of taxable income and Federal tax liability for “high opportunity” taxpayers—defined as those filing a Schedule C or F in 1993 (indicating business or farm income) and who paid Minnesota estimated tax.

Experiment Design and Administration

A Structural Opportunity for Tax Evasion

The tax administration in the U.K. has developed quite differently from the U.S. experience (James and Nobes, 2004). For example, the U.K. relies extensively on withholding tax which is sufficiently comprehensive so that only about a third of taxpayers are required to file a return each year, and it was not until 1997 that the main elements of self-assessment took effect for those who do have to file returns. In 1990, the tax reporting requirements of “small businesses” were simplified in order to ease their compliance costs. Previously, even the smallest business was expected to itemize all revenues and expenses in a full income statement. At present, individuals and partnerships trading with an annual turnover of less than £15,000 are required to provide only three figures with respect to their business—turnover (sales in U.S. terminology), allowable deductions, and net profit.

It is this feature of the U.K. tax system that provides a unique aspect to work reported here. Although the threshold has remained at £15,000 since 1992, the proportion of sole proprietors reporting turnover below that level has risen substantially. For instance, there were 3,100,310 self-employment returns with 1,159,070 (37.4 percent) below the £15,000 threshold for 1996/97. For 1997/98, there were 2,952,100 self-employment returns, yet the number below the turnover threshold had grown to 1,344,090 (45.5 percent).

Why did the percentage of self-employment returns with revenue below £15,000 increase? One obvious possibility is that large numbers of these taxpayers understate turnover to reduce their tax bills, while at the same time reducing their compliance costs by providing only three-line account details,

rather than itemizing line-by-line accounts. While the original purpose of the simplified filing requirement was to reduce compliance costs for very small businesses, the threshold has led to a behavioral response that may be indicative of tax evasion as these businesses are “high opportunity” taxpayers. Slemrod (2004) recently reviewed the literature on tax compliance costs and observed that, while small businesses tend to exhibit high compliance costs relative to larger businesses, they are also among the least compliant with particularly low voluntary compliance levels. Such a finding makes sole proprietors with sales of £14,000-£15,000 an ideal U.K. sample for a controlled field experiment.

Rationale for Experimental Treatments

Over the last decade, western tax agencies have become more concerned about customer service (e.g., IRS, 2001). The same is true for the U.K. Inland Revenue (Inland Revenue, 2004), and one of its key underlying philosophies is to promote an “enabling” culture in the organization.¹ In effect, this means giving attention to helping their “customers” (still referred to as ‘taxpayers’ hereafter) file their tax returns correctly. Accordingly, Letter One in the present study was designed to let the taxpayer know that the Inland Revenue’s records showed that the taxpayer had filed in the £14,000-£15,000 bracket for the consecutive years of 1999 and 2000. The letter also reminded the taxpayer that, if the turnover for 2001 rose above £15,000, then he or she would have to complete the extra pages of the tax return. The “enabling” treatment letter (see the Appendix) offered assistance by stating:

The Inland Revenue wants to make it easier for you to make a complete and accurate return. We are here to give you advice and support if you need it.

Prior empirical evidence, discussed by Blumenthal, Christian, and Slemrod (2001) is rather inconclusive on the efficacy of normative appeals. Yet as Bardach (1989, p. 66) notes, even small increases in tax compliance resulting from a conscience appeal may well net a tax gain running into the billions. This, coupled with an interest by the U.K. Blair Government in the notion of citizenship, prompted the second treatment letter. This normative appeal letter combined elements of the two letters used by Blumenthal, Christian, and Slemrod (2001). That is, while the treatment was compressed, it contained both a “Support Valuable Services” element, as well as a “Join the Compliant Majority” element. The citizenship treatment (Letter Two, see Appendix) was as follows:

Most people in this country pay their proper taxes. But even small mistakes by a lot of people can add up to a lot of lost

tax and, therefore, less money available for public spending on things like hospitals, schools and pensions.

Prior theory and empirical results suggest that an increased audit threat will decrease evasion, and “if p equals one, any rational taxpayer will report his or her true income” (italics in original, Slemrod et al., 2001, p. 458).² Accordingly, three sanction-based letters were designed. One of those, Letter Three, simply acknowledged that the IR would be increasing the number of audits for the current year. The letter stated the following:

*The Inland Revenue is substantially increasing the number of enquiries into the tax returns of people who have previously reported a turnover just below £15,000 in successive years. Your 2001 return may be one of those chosen for enquiry.*³

Letter Four included a statement on penalties. It added, “If we find that a return is incorrect, we may charge financial penalties as well as collecting any unpaid tax.” For the fifth group (the “preselected audit” treatment), the penalty reference used in Letter Four was replaced with the sentence: “Your 2001 return has already been chosen for enquiry.” Thus, for this treatment, taxpayers should be highly motivated to report their true incomes.

In sum, this study examines the effectiveness of five communication ploys on increasing levels of reported turnover and net profit by sole proprietors in the U.K. Based on prior literature, the effectiveness of the service and citizenship strategies has received mixed support, while the audit and penalty studies tend to report more consistent effects. Consequently, our study tests the general null hypothesis that taxpayers significantly increase reported turnover and net profit after receiving written communications from the taxing agency relative to a control group that does not receive any comparable written communication.

Selection of Actual Taxpayer Sample

While this study could have tested the experimental treatments just outlined in a laboratory setting, experimentalists in accounting must judge the tradeoffs involved in their research design choices (Libby, Bloomfield, and Nelson, 2002, pp. 793-805). As most of the studies in Table 1 correctly acknowledge, a limitation of using a laboratory or student sample is that the effects isolated may not generalize from the experiment to the target setting. We were able to overcome this limitation by enlisting the cooperation of the U.K. Inland Revenue.

The initial stage in sample selection was to select those taxpayers from the population that had reported turnover on their tax returns of between £14,000 and £15,000 for the 2 consecutive years of 1999 and 2000. The following screening criteria were imposed before a taxpayer was randomly

assigned to one of the five treatment groups or to the control group. (Taxpayers assigned to the control group did not receive a letter from the IR.) First, a case was deleted if a completed 2001 return had already been received (very early filers). Second, the case was deleted if the taxpayer was shown as deceased. Third, the case was deleted if the taxpayer was currently subject to an audit enquiry. Finally, the case was deleted if the taxpayer was subject to a Foot and Mouth exclusion.⁴

The selection process resulted in 7,307 taxpayers spread across the control group (2,485 taxpayers) and five treatment groups as follows: enabling--1,013; citizenship--1,040; increased audit--1,082; audit/penalties--1,019 and preselected audit--668.⁵ The use of sole proprietors is analogous to the Schedule C (trade or business income) or F (farming) taxpayers used in the Minnesota State experiment who were "closely examined" in Slemrod et al. (2001, p. 462). That study tested only 57 low-income/high opportunity taxpayers and 429 medium income/high opportunity taxpayers in its final sample.

Results

Overall Treatment Effects for Turnover

The original premise of this study was that the existence of the £15,000 threshold might be inducing behavioral effects among sole proprietors. Our initial analysis tests the proportion of sole proprietors who increased their 2001 reported turnovers to above the £15,000, which would disqualify them from the simplified reporting. This information is shown in Panel A of Table 2. The baseline control group did not receive any treatment letter and simply filed their tax returns in the usual manner. Overall, 39.7 percent of the control group met the threshold, despite reporting turnover of under £15,000 in 1999 and 2000. Chi-square tests showed significant differences between the control group and each of the five treatment groups, which had between 43 percent and 56 percent meeting the threshold, compared to 39.7 percent for the control group. In addition to examining the proportion who reported above the threshold after a treatment letter, we repeated the test for an overall treatment effect using a difference-in-difference approach to examine the average increase in reported turnover between the 2000 and 2001 tax years (Slemrod et al., 2001).

Panel B of Table 2 shows the mean increase in turnover split by control and treatment group. Thus, the average increase in turnover from the 2000 return to the 2001 return for the control group was £516. Using Analysis of Variance (ANOVA) to compare the mean increase of each treatment group versus the control group, the enabling group (mean increase of 476) did not statistically differ from the control group, but the citizenship result was mar-

Table 2--Treatment effects for turnover

Panel A: % of each group reporting turnover > £15,000 threshold in 2001

<i>Treatment group</i>	<i>Tax accountant?</i>		<i>All</i>
	<i>No</i>	<i>Yes</i>	
Control	29.9	44.7	39.7
Enabling	34.0*	46.8	43.0**
Citizenship	39.9***	47.2	44.8***
Increased audit	50.0***	55.3***	53.8***
Audit / penalties	52.5***	58.4***	56.4***
Preselected audit	54.2***	53.5***	53.7***

Panel B: 2001-2000 turnover (mean changes in £)

<i>Treatment group</i>	<i>Tax accountant?</i>		<i>All</i>
	<i>No</i>	<i>Yes</i>	
Control	-44	800	516
Enabling	-78	706	476
Citizenship	257	872	670
Increased audit	463**	1040	872**
Audit / penalties	938***	1516***	1322***
Preselected audit	1879***	987	1258***

*, **, *** Chi-square (for Panel A) or ANOVA (for Panel B) of treatment group versus control group significant at $p < .10$, $p < .05$, $p < .01$, respectively.

ginally significant at $p < .10$ (mean increase of 670). Taxpayers in the sanction-based groups (increased audit; audit/penalties; preselected audit) all reported significantly more increases in turnover than the control group taxpayers ($p < .05$) with respective mean increases of £872, £1322, and £1258.

Use of a Tax Accountant

Following the work of several authors (e.g., Erard, 1993; Hite and Hasseldine, 2003), it is possible that a treatment letter might have a differential impact for some subgroups of the sample. In particular, these studies highlight the role of tax accountants and infer that a treatment letter, especially one containing a

sanctions message, may induce taxpayers to seek out professional tax advice. Unfortunately, data provided by the UK Inland Revenue do not allow a direct investigation of any change in the use of a tax accountant, but we are able to analyze the treatment effects separately by whether taxpayers were represented by an accountant.

Panel A of Table 2 indicates that, for the control groups, only 29.9 percent of nonrepresented taxpayers (self-preparers) exceeded the £15,000 the threshold compared to 44.7 percent for those who were represented by a tax accountant. For those using a tax accountant, all of the sanction-based letters had a significant impact with 53 percent to 58 percent reporting above the threshold compared to 44.7 percent for the control group. For the paid-preparer returns, the enabling and citizenship letters did not significantly differ from the control group, as the respective percentages of returns exceeding the threshold for simplified reporting were only 46.8 percent and 47.2 percent. In contrast, all five letters significantly differed from the control group (29.9 percent) for the self-prepared returns. Those reporting above the threshold ranged from 34 percent to 54 percent for the comparable treatment groups.

Panel B of Table 2 presents means for the change in turnover from 2000 to 2001 split by whether an accountant was used. The significant results for the sanctions-based treatments (Letters 3, 4, and 5) extend to taxpayers who are not represented by a tax accountant. For those taxpayers who are represented by a tax accountant, only Letter 4 (audit/penalties) shows a significant difference (mean increase of £1,516 versus £800 for control group). This result is consistent with prior literature (e.g., Anderson and Cuccia, 2000) finding that penalties affect tax practitioner's judgments. After all, if a penalty is assessed, it implies wrongdoing which, in many cases, the tax accountant could have prevented with further inquiry. An audit, on the other hand, could indirectly represent increased fees for the tax accountant. Hence, the effect of the audit letter is mitigated for tax returns prepared by a tax accountant.

Treatment Effects for Net Profit

Aside from compliance on the income side of the equation, sole proprietors could have overstated expenses to decrease their actual tax liabilities. Accordingly, Table 3 presents information for the control and treatment groups on the changes in reported net profit from 2000 to 2001.

Panel A of Table 3 shows 51.5 percent of the baseline control group increased their reported net profit from 2000 to 2001. Chi-square tests showed significant differences between the control group and the treatment groups. These differences are significant for the citizenship and sanction-based letters--irrespective of whether a tax accountant was used. For those in the

Table 3--Treatment effects for net profit

 Panel A: % of each group reporting an increase in net profit (2001-2000)

<i>Treatment group</i>	<i>Tax accountant?</i>		<i>All</i>
	<i>No</i>	<i>Yes</i>	
Control	48.9	52.9	51.5
Enabling	57.2***	52.1	53.6
Citizenship	54.0*	58.4***	56.9***
Increased audit	57.0***	60.2***	59.2***
Audit / penalties	63.9***	60.8***	61.8***
Preselected audit	66.5***	61.9***	63.3***

 Panel B: 2001-2000 net profit by group (mean changes in £)

<i>Treatment group</i>	<i>Tax accountant?</i>		<i>All</i>
	<i>No</i>	<i>Yes</i>	
Control	35	293	206
Enabling	136	307	257
Citizenship	-26	581**	382*
Increased audit	319*	487*	438**
Audit / penalties	690***	751***	731***
Preselected audit	1569***	718***	976***

*, **, *** Chi-square (for Panel A) or ANOVA (for Panel B) of treatment group versus control group significant at $p < .10$, $p < .05$, $p < .01$, respectively.

enabling group, 57.8 percent of self-prepared returns showed a significant increase in net profit compared to 48.9 percent of the control group.

When monetary levels of net profit are analyzed (in Panel B), the sanctions-based treatment groups exhibit large increases (between £438 and £976) in net profit relative to the average increase for the control group of £206 ($p < .05$). The enabling treatment was not effective, but the citizenship manipulation was (mean increase of 382, $p < .10$) - particularly for taxpayers who employed a tax accountant (mean increase of 581, $p < .05$).

Although the differences on number of net profit increases (61.9 percent) and average amount of net profit increases (£718) were significant between taxpayers using an accountant in the preselected audit group and the

control group, the mean increase in turnover was not significantly different from the control group (mean increase in turnover of £987 versus £800 per Table 2, Panel B.) This result is consistent with Hite and Hasseldine (2003). They found that audited U.S. tax returns with tax practitioner assistance had more audit adjustments on deduction items than on income items. Given the increased likelihood of errors on expenses, the audit threat most likely increased the attention tax accountants gave to properly deducting allowable expenses, which resulted in the effect on net profit.

Comparison between Increased Audit and Preselected Audit Treatments

It is of practical, and theoretical, interest to ascertain whether there are significant differences in turnover and net profit between the treatment conditions for the increased threat of audit versus the preselected audit condition. The mean increase in sales turnover of £1258 for the preselected audit group (shown in Table 2, Panel B) was marginally different from the increased threat group mean of £872 (F-stat = 2.617, $p = .053$). For net profit, the mean increase of the preselected audit group of £976 (Table 3, Panel B) was significantly higher than the mean increase of the increased threat of audit group of £438 (F-stat = 12.387, $p = .000$).

This analysis, however, needs to be split by tax accountant use. The differences for those who did use an accountant were not significantly different for turnover or net profit. In contrast, for those taxpayers who were not represented by a tax accountant, the differences were highly significant between the effect of possible audit versus pre-selected audit (Letter 3 versus Letter 5). Taxpayers who were preselected for audit reported significantly higher increases in turnover (£1879 versus £463; F-stat = 8.928, $p = .003$) and net profit (£1569 versus £319; F-stat = 19.180, $p = .000$) than those taxpayers who simply received an increased threat of audit letter. The implication is that greater compliance is induced when preselected for an audit, but, realistically, the government cannot afford to audit a high percentage of returns. Hence, the most economical solution is some sort of audit reminder, or combined audit and penalty, to encourage compliance, as those methods tended to increase the frequency and amount of reported net profits. Especially relevant is the significantly higher mean turnover (1322) and mean net profit (731) when reinforcing potential penalties (Letter 4) is included as part of the communication strategy relative to only communicating an increased audit risk with respective means of 872 and 438 ($p < .05$).

Discussion and Conclusion

This paper presents the results of a national controlled field experiment examining the effects of alternative written communications on tax reporting behavior in the U.K. Apart from the use of a field experiment, we extend prior literature by testing five treatment conditions, including an offer of assistance (Letter 1), a citizenship approach (Letter 2), and three sanctions-based approaches. In effect, Letter 1 also serves as a baseline to indicate the compliance effect of “any contact” from the tax agency.

Increasing the compliance of sole proprietors is no easy task, and, as Slemrod et al. (2001) note, there is a dearth of large-scale controlled field experiments in this area. Yet combining a persuasive communications approach with a field experiment should provide useful information to tax policymakers. The experiment reported in this paper is the first to be conducted using actual U.K. taxpayers, and we draw several main conclusions.

First, even though the taxpayers in the five treatment groups received only one letter from the Inland Revenue during the 2001 tax return filing season,⁶ all five approaches were effective at significantly increasing the proportion of sole proprietors reporting above the £15,000 turnover threshold for simplified tax reporting.

Second, consistent with prior economic models of tax evasion, the sanctions-based approaches appear to have induced taxpayers to report increased turnovers and net profits (relative to the control group). These increases in turnover and net profits for the increased threat of audit group were not as large as the increases for those taxpayers who were actually preselected for audit on their self-prepared returns. However, threat of audit combined with potential penalties led to significantly higher increases in turnover and net profits than did mentioning only the audit risk.

Third, for paid-preparer returns, all three of the sanction-based letters increased the relative number of returns that reported turnover levels above the simplified reporting threshold. However, when measuring the mean increase in turnover, we found that taxpayers using a tax accountant tended to report a significant increase only in the audit/penalties treatment. One possibility for the lack of significance in the other treatment groups for this monetary variable is that taxpayers who use an accountant conceal turnovers from their own accountants. Interestingly, the results on average turnover are in stark contrast with the results on average net profit. Slemrod et al. (2001, p. 477) note that tax accountants are able to claim allowable deductions more effectively, even after the tax yearend. Hence, for those using a paid preparer, net profits might have been more malleable than turnover, and, therefore, the treatments were more effective on net profit than on turnover. When examin-

ing U.S. audited tax returns, Hite and Hasseldine (2003) reported that adjustments were significantly more frequent on deduction items than on income items. Given that deductions are more prone to errors, the treatments may have prompted tax accountants to increase their scrutiny of allowable deductions.

For self-prepared returns, all treatments increased the proportions of sole proprietors reporting turnovers above the threshold for simplified reporting and for increasing the number of returns reporting any increase in net profit. However, the average monetary levels for turnover and net profit only significantly differed for the sanction-based treatments.

Taking the above findings together, it would appear that a particularly important subgroup for whom persuasive communications would likely be very effective are sole proprietors who prepare their own tax returns, as every treatment had some effect on their reporting behaviors. This is evident from the proportions of treatment group taxpayers (ranging from 34 percent to 54 percent), who self-prepare and who met the £15,000 threshold in 2001, compared to 29.9 percent for their comparison control group (see Table 2, Panel A). It is also evident from the proportions of self-preparers in the treatment groups who increased their net profits (ranging from 54 percent to 67 percent), compared to 49 percent for their control group. In other words, regarding the frequency of reporting increased turnover and net profits, the simplistic ploys for enabling and citizenship led to significantly higher reporting percentages for the sole proprietors who did not use a tax accountant (see Table 3, Panel A). For the monetary dependent variables, both paid-preparer returns and self-preparer returns were significantly influenced by the sanction-based letters on the mean increase in reported net profits. In sum, the findings suggest that controlled field experiments can indeed be a useful addition to future policy-oriented tax accounting research.

Endnotes

¹ One of the Inland Revenue's five Public Service Agreement targets relates to improvements in its customer service ratings (Inland Revenue, 2004).

² Note that p represents the probability of an audit.

³ Note that an "enquiry" is in fact a tax audit.

⁴ Due to an outbreak of Foot and Mouth disease in the U.K. in the 2001 tax year, it was decided to exclude any affected taxpayers from the study—due to the suffering the farmers were already enduring.

⁵ The lower number of taxpayers in the preselected audit treatment group was due to the Department's insistence to commit resources and actually

audit these taxpayers. Thus, it was not an idle threat, and the audits are continuing at the time of writing.

⁶ The U.K. tax return filing season lasts for the 9 months from early April to the end of January.

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Appendix: Letter from Tax Agency and Treatment

Dear (name of taxpayer inserted)

You will recently have received your Self-Assessment tax return for 2001. Self-employed people with a turnover under £15,000 only need to complete boxes 3.24 to 3.26 of the Self-Employment pages of the return instead of giving the more detailed information required for most businesses. Our records show that your turnover was just below £15,000 for both years 1999 and 2000. This means that your turnover for 2001 may take you above £15,000 and, if so, you will need to complete the extra pages of the return this year.

Letter 1: “Enabling” Treatment

The Inland Revenue wants to make it easier for you to make a complete and accurate return. We are here to give you advice and support if you need it.

Letter 2: “Citizenship” Treatment

Most people in this country pay their proper taxes. But even small mistakes by a lot of people can add up to a lot of lost tax and, therefore, less money available for public spending on things like hospitals, schools, and pensions.

Letter 3: “Increased Audit” Treatment

The Inland Revenue is substantially increasing the number of enquiries into the tax returns of people who have previously reported a turnover of just below £15,000 in successive years. Your 2001 return may be one of those chosen for enquiry.

Letter 4: “Audit/Penalties” Treatment

The Inland Revenue is substantially increasing the number of enquiries into the tax returns of people who have previously reported a turnover of just below £15,000 in successive years. Your 2001 return may be one of those chosen for enquiry. If we find that a return is incorrect, we may charge financial penalties as well as collecting any unpaid tax.

Letter 5: “Pre-selected Audit” Treatment

The Inland Revenue is substantially increasing the number of enquiries into the tax returns of people who have previously reported a turnover of just below £15,000 in successive years. Your 2001 return has already been chosen for enquiry.

Followon paragraph for Letters 2 - 5

Because of this, we want to remind anyone who needs help with his or her return that we can give advice and support to get it right. When you fill in your 2001 return or give information to any accountant or agent who might assist you in completing it, please take care to ensure that you report all your income and claim only those deductions to which you are entitled.

If you have any problems completing your tax return for 2001, you can speak to your accountant or agent, or contact our support staff at the office shown below, and we will give you all the help that we can. (address/phone number of local office inserted)

Yours sincerely,
(Signature of Area Director)