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# **The Minnesota Income Tax Compliance Experiment: Replication of the Social Norms Experiment**

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## **Abstract**

This reports the results of a follow-up experiment conducted to validate an earlier experiment showing that if taxpayers overestimate the prevalence of tax evasion, their compliance can be increased by informing them about the true rate of cheating. Tax compliance, therefore, is influenced partly by social conformity with perceived social norms. The experiments were done by the Minnesota Department of Revenue in 1995 and 1996, but only the first experiment has been publicly reported to date (Coleman, 1996).

In 1995 the Minnesota Department of Revenue conducted several experiments to evaluate alternative strategies for increasing voluntary compliance with the individual income tax. The strategies included: (1) an increased examination and audit rate of tax returns *with prior notice to taxpayers*; (2) enhanced customer service; (3) redesign of the standard tax form; and (4) two types of letters mailed to taxpayers with messages on the importance of voluntary compliance. Each experiment involved a randomized design and selection of control and treatment groups. Because Minnesota's income tax form starts directly from pertinent information on the federal income tax form, the experimental results apply to federal taxes as well as state taxes. Coleman (1996) reports the results of the experiments. One of the letter experiments has attracted significant attention in intervening years—the social norms letter, as it has been called. (See, among others, Kahan, 2001, 2002; Sunstein, 2001; Lederman, 2003). Because of the positive results of this part of the experiment, the Department of Revenue did a second randomized controlled experiment with this letter in 1996 to check on the validity of the first experiment. Before now, however, results of the experiment were never reported to the public.

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In the initial experiment, the social norms letter had a small yet statistically significant effect on increasing the amount of income reported and taxes paid from 1994 to 1995 by those receiving the letter compared to their control group. The message in the letter was designed to correct the erroneous perception of many taxpayers that cheating on taxes is common. A telephone survey by the University of Minnesota in 1993, as reported in the St. Paul Pioneer Press (March 23, 1994), found that 27 percent of respondents estimated that over 50 percent of taxpayers underreported their income by \$500 or more, while another 22 percent of respondents estimated that the percentage of tax cheaters was between 21 and 50 percent. These perceptions are much greater, however, than known rates of tax cheating. The key paragraph in the letter counters this misperception:

According to a recent public opinion survey, many Minnesotans believe that other people routinely cheat on their taxes. This is not true, however. Audits by the Internal Revenue Service show that people who file tax returns report correctly and pay voluntarily 93 percent of the income taxes they owe.

The expected effect of this message was that taxpayers reading it would learn that the social norm to pay taxes is stronger and more prevalent than they might have believed. Research on social conformity shows that people will tend to adjust their own behavior to a perceived social norm. As more people do a specific type of behavior, other people will be influenced to see that behavior as correct and follow along (see Coleman, 2007, for a review). The Australian National Office in conjunction with Australian National University has conducted like experiments on taxpayers with similar results (Wenzel, 2001a and 2001b).

### Design and Results of the First Experiment

In the initial experiment, the letter was mailed to about 20,000 people randomly selected from Minnesota tax filers in 1993 who were full-year residents and for whom federal tax data was available; amended returns were not included. A similar group of 20,000 tax filers was randomly selected to be the control group. After the experiment, the

differences in reported income and taxes paid from tax year 1993 to tax year 1994 were compared between the letter and control groups. The final numbers in each group were about 17,000 in each group, owing to loss of cases for various reasons such as failure to file by the date of the analysis (November 1995), moving out of state, death, incorrect social security numbers, and so forth. Furthermore, analysis was restricted to people whose filing status did not change over the two years. This eliminated the potential problem of how to account for differences in income when people married or divorced during the experiment.

Statistical analysis using a nonparametric Wilcoxon<sup>2</sup> test showed a statistically significant increase in federal taxable income in the letter group compared to the control group ( $p = .075$ ), as well as in total federal positive income (income before deductions) ( $p = .04$ ), and state taxes owed ( $p = .06$ ). Dollar amounts were adjusted for inflation. A nonparametric test was used because parametric tests lacked power to detect or accurately estimate the changes, which were subject to quite a large variation in taxpayers' incomes, with some having extreme increases or decreases. For example, the mean change in federal taxable income for the group receiving the letter was \$2,390 but with a standard deviation of \$79,182.

### Replication of the Experiment

The positive results of the social norms experiment were somewhat unanticipated by the department but so noteworthy that it decided it would be worth the cost and effort to replicate the same letter experiment in the following year. Was the first result a statistical fluke or could it inform changes in compliance methods? The department was looking to increase voluntary compliance because appropriations for auditing were always limited, and auditing was an expensive way to achieve increased compliance. It also seemed likely that many taxpayers who underreport income would never be discovered by auditing, so other methods are needed to increase their compliance.

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<sup>2</sup> The Wilcoxon test involves a comparison of ranks in the combination of the two sample groups with the null hypothesis that there is no shift of rank of one group relative to the other.

The research plan was to divide randomly the original control group into two groups: one to continue on as a control group, the other to receive the social norms letter for the experiment. In addition, half of the group who had received the first letter was randomly selected to receive the second letter as well. Thus there were now four research groups: the control group, a group that received the letter for the first time in the second experiment, a group that received the letter in the first experiment but no additional letter, and a group that received two letters. The four groups were about the same size. The focus of the experiment was on the first two groups, but the others offered some interesting possibilities to examine.

The results of the second experiment confirmed the results of the first experiment. The letter had a modest positive effect on the group who received it compared to the control group. The size of the control group was 8,550 and the treatment group 8,537; again, those cases with a change in filing status were deleted. Adjusted for inflation, the median change in federal taxable income was \$1,206 for the control group and \$1,411 for the letter group; median changes in state taxes paid were \$71 and \$86, respectively. This may seem like a small gain, but one might compare it to the cost of sending out a letter—about \$1.

A nonparametric median test was used to test for statistically significant differences between the groups in the amount of change in the median from tax year 1994 to tax year 1995. Statistical analysis confirmed that the letter group reported a greater increase in median federal taxable income than the control group ( $p = 0.008$ ) and a greater increase in median state taxes paid ( $p = .0045$ ). A modest positive effect was also observed when comparing the control group to the group that got two letters, one in each experiment.

A comparison of taxpayers who got two letters, one in each experiment, with those who received only the letter in the first experiment showed no statistically significant difference between the two groups along the same measures of income and taxes (median

test,  $p = .81$ ). One might infer that a “reminder” letter in this situation did not further enhance compliance.

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