Teaching the Tax Code: 
Earnings Responses to an Experiment with EITC Claimants*

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Abstract

This paper tests whether providing information about the Earned Income Tax Credit (EITC) amplifies the program’s effects on labor supply. We conducted a randomized experiment with 43,000 EITC claimants at H&R Block in which tax preparers gave simple, personalized information about the EITC schedule to half of their clients. Tracking subsequent earnings behavior, we find substantial heterogeneity in treatment effects across the 1,300 tax professionals who assisted the clients involved in the experiment. Half of the tax professionals, whom we term “compliers,” induced treated clients to increase their EITC refunds by choosing an earnings level closer to the peak of the EITC schedule. Clients treated by complying tax professionals are 10% less likely to have very low incomes than control group clients. The remaining tax preparers generate insignificant changes in EITC amounts but increase the probability that their clients have incomes high enough to reach the phase-out region. Treatment effects are stronger among the self-employed, but are also substantial among wage earners, suggesting that information provision induced real labor supply responses. When compared with other policy instruments, information has large effects: complying tax preparers generate the same labor supply response along the intensive margin as a 33% expansion of the EITC program, while non-complying tax preparers induce the same response as a 5% tax rate cut.

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1 Introduction

A central assumption in the literature on tax and transfer policy is that individuals are fully informed about government policies relevant for their choices. In this paper, we test this assumption using a field experiment with Earned Income Tax Credit (EITC) clients at H&R Block. The EITC is the largest cash transfer program for low income families in the United States. One of its major goals is to increase labor supply and earnings among low-income working households. A prerequisite for achieving this goal is that clients understand how the EITC program changes their incentives to work. Survey evidence indicates, however, that the marginal incentive structure of the EITC is not well understood by eligible tax filers. Most low-income families have heard about the EITC and know that working is associated with getting a tax refund check when they file their taxes. But very few recipients know whether working more would increase or reduce their EITC amount (Liebman 1998, Romich and Weisner 2002), perhaps because its incentive structure is complex. Benefit levels are a non-linear function of earnings – initially rising with earnings, then remaining constant, and then coming back down to zero – and vary substantially with family characteristics (see Figure Ia). Moreover, individuals get little feedback about how their behavior affects their EITC refund, as the tax refund is typically received several months after the labor supply decisions that determine the size of the credit are made.

The lack of information could potentially explain why the EITC induces very small responses along the intensive margin (hours worked and earnings), despite generating substantial increases in labor force participation (Hotz and Scholz 2003). To test this hypothesis, we conducted a randomized experiment that provided simple information about the EITC to eligible tax filers and tracked the effect of this intervention on their subsequent earnings behavior. The experiment was implemented at 119 H&R Block offices in the Chicago metro area in 2007. H&R Block is the largest tax preparer in the U.S., and approximately 40% of its clients are eligible for the EITC. The experimental population comprised approximately 43,000 tax filers who (a) received EITC payments at one of the 119 H&R Block offices when filing taxes in 2007 and (b) had one or more dependents. Half of these 43,000 clients were randomly selected to receive a two minute explanation about how the EITC works by the

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1 An alternative hypothesis is that individuals are inelastic on the intensive margin, and that tax filers choose not to acquire information about the tax code because they anticipate that it will not affect their behavior.
tax professional assisting them with their return. Tax professionals were trained to use three tools to explain the EITC to tax filers: a verbal description, a graph showing the shape of the EITC as a function of earnings, and a table listing the EITC parameters in a simple form (see Exhibit 1 below). Each tax filer was also given a tailored message emphasizing the implications of his/her marginal incentives conditional on his/her location in the EITC schedule. For example, clients in the phase-in region were told, “It pays to work more!”

We view our treatment as changing perceptions of marginal incentives around the tax filer’s current location. Existing survey evidence indicates that most EITC recipients know the size of their current EITC refund, but underestimate the extent to which it varies with their earnings. Our information treatment alters perceptions of the slope of the EITC schedule around the tax filer’s location. If perceptions are updated toward the true EITC schedule, we hypothesize that tax filers will change their behavior to increase their EITC refunds. Such behavioral responses should generate a more concentrated earnings distribution around the peak of the EITC schedule.

We evaluate the effects of the intervention using data from tax returns filed in 2007 (“year 1”) and 2008 (“year 2”). Approximately 72% of the clients in the treatment and control groups returned to H&R Block to file their taxes in the post-treatment year, allowing us to conduct a panel study of the effects of the information treatment on earnings. We begin with a simple analysis of treatment effects in the full sample. We find weak evidence that EITC amounts are higher in the treatment group ($p = 0.07$). We do not detect a statistically significant difference in the earnings distributions between the treatment and control groups. Recognizing that these comparisons of aggregate means could mask heterogeneous responses, we then examine the heterogeneity of treatment effects across tax professionals (the H&R Block employees who prepare taxes for clients). We expected treatment effects to vary substantially by tax professional for two reasons. First, the 1,461 tax professionals who implemented the experiment were trained in a decentralized manner by senior H&R Block employees, leading to variations in training. Second, many tax professionals felt that it was in their clients’ best interest to try to work and earn more irrespective of the EITC’s incentive effects. These tax professionals framed the phase-out message as an encouragement to work more because the loss in EITC benefits is relatively small.\footnote{During focus groups, several tax preparers argued that clients should always be encouraged to work more}
We first document that there is significant heterogeneity across tax professionals in mean treatment effects on EITC amounts using a non-parametric F test. To characterize the nature of this heterogeneity, we follow the methodology of Duflo et al. (2006). In particular, we divide tax professionals into two groups: “complying” and “non-complying.” To construct these groups, we first define a simple measure of the concentration of the earnings distribution in year 2—the fraction of returning clients with “middle” incomes (between $7,000 and $15,400). For each tax filer $i$, we define his tax professional as a complier if she has a higher fraction of other clients (excluding client $i$) with middle income in the treatment group than the control group. Intuitively, from the perspective of client $i$, complying tax professionals are those who increase the concentration of the earnings distribution for other clients. Critically, because we exclude client $i$ when defining his tax professional’s compliance, there is no correlation between client $i$’s outcome and his tax professional’s compliance under the null hypothesis that all tax professionals had zero treatment effects.

For clients of complying tax professionals, who account for half of the sample, the information treatment increases EITC amounts and the concentration of the earnings distribution significantly. Complying tax professionals raise their treated clients’ EITC refund by $68 on average ($p < 0.01$), relative to a mean of approximately $2,400. They reduce the probability that their treated clients have low incomes (below $7,000) by 1.4 percentage points relative to a base of 15% ($p < 0.01$). Information provision leads to an especially dramatic accentuation of bunching around the first kink in the EITC schedule among the self-employed. The larger treatment effects for the self-employed are likely due to greater flexibility and reporting effects (as there is no third-party reporting of self-employment income). Importantly, however, we also find a significant increase in the concentration of the distribution of wage earnings. Since it is difficult to manipulate wage and salary income (as it is reported on W-2 forms by employers), this finding suggests that the informational intervention induced “real” changes in labor supply behavior. All of these changes in the distributions of earnings and EITC amounts for clients of complying tax professionals are visually evident in density plots, and are statistically significant under non-parametric Kolmogorov-Smirnov tests. In summary, the evidence for the compliers supports the hypothesis that intensive-margin labor supply responses to the

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because, “you lose $2 of EITC benefits for every $10 you earn, but come out ahead by $8 and possibly become eligible for other credits, so it still pays to work.”
EITC are attenuated by a lack of information.

For clients of non-complying tax professionals, the information treatment causes no detectable change in EITC amounts. However, non-complying tax professionals increase their treated client’s incomes by $250 (1.5%) on average ($p < 0.05$). As a result, clients treated by non-complying tax professionals are 1.7 percentage points more likely to be in the phase-out range of the EITC schedule ($p < 0.05$), which is why they do not have significant increases in their EITC refunds. Although we cannot be certain about the mechanism through which non-complying tax professionals induced their clients to increase earnings, one possibility is that they simply used the information to encourage clients to aim for a high level of earnings rather than maximize their EITC refunds. Consistent with this interpretation, we find that non-complying tax professionals do not have a significant effect on reported self-employment income and only affect wage earnings.

The changes in behavior induced by the information treatment are modest in absolute terms, but substantial when compared with the effects of other policy instruments on intensive margin labor supply. Existing studies suggest an upper bound on the intensive margin elasticity of earnings with respect to the net-of-tax rate of 0.25. Using this elasticity, a simple calibration shows that complying tax professionals generate the same labor supply response along the intensive margin as a 33% expansion of the EITC. Non-complying tax professionals increase earnings by an amount equivalent to the behavioral response to a 5% tax rate cut. These calibrations suggest that information and advice are inexpensive ways to influence behavior: the cost of providing information was $5 per EITC claimant in our study, whereas the average per-capita cost of expanding the EITC by 33% would be $800.

In addition to the literature on the EITC, which we discuss in greater detail in section 2, our analysis builds on and relates to a rapidly growing literature on the importance of information and salience for choices in other contexts. Most of these recent studies show that providing information can have substantial responses on short-run decisions. For example, Hastings and Weinstein (2007) show that providing information on average test scores induces low income families to choose higher performing schools. Chetty, Looney, and Kroft (2008) show that the salience of commodity taxes in the store affects the immediate demand for grocery products. Kling et al. (2008) show that providing information on out-of-pocket costs for Medicare drug prescription plans makes recipients to switch to lower cost plans. A few
recent studies have shown that providing incentives can also generate changes in behavior in the longer run. Jensen (2008) shows that providing information to students in the Dominican Republic on the returns to schooling reduced dropout rates in subsequent years among some subgroups. Nguyen (2008) conducts a similar experiment in Madagascar and shows that information on returns to education increases subsequent test scores.

Our analysis contributes to this literature by showing that information is important in labor supply behavior, which is one of the most important long-term decisions made by households and is a central element for the design of tax and transfer policy. Our results also underscore the power of suggestion: advice about how one should respond to incentives shapes long-term behavioral responses above and beyond the pure provision of objective information. In this sense, our results mirror the education literature that documents substantial teacher effects (e.g., Rockoff 2004): learning and behavior are shaped not just by the material written in textbooks or the tax code but also by the people who teach that material.

The remainder of the paper is organized as follows. Section 2 provides background on the EITC and tax filing procedures and the existing literature on the effects of the program. Section 3 describes the experimental design and data. Results are presented in Section 4. Section 5 presents a simple calibration to evaluate the size of information treatment effects relative to EITC expansions or tax rate changes. We conclude in section 6 by discussing the implications of our results for policy and future research.

2 Background on the EITC

2.1 Program Structure

The EITC is a refundable tax credit administered through the income tax system. Originally introduced in 1975, the EITC was significantly expanded in the 1980s and 1990s (Hotz and Scholz 2003; Meyer and Holtz-Eakin 2002). After a large expansion from 1993 to 1996, the EITC schedule has generally been stable and adjusted only for inflation.\(^3\) In 2006, the latest year for which statistics are available, 23 million tax filers received a total of $44.4 billion in EITC payments (Internal Revenue Service 2008, Table 2.5).

Eligibility for the EITC depends on earnings – defined as wage and salary income and

\(^3\)The only schedule change has been the modest extension of the plateau and phase-in regions for married joint filers since 2002 ($1,000 in 2002-2004, $2,000 in 2005-2007, and $3,000 in 2008).
self-employment income – and the number of qualifying children. Qualifying dependents for EITC purposes are relatives who are under age 19 (24 for full time students) or permanently disabled, and reside with the tax filer for at least half the year.\textsuperscript{4}

Figure Ia displays the EITC amount as a function of earnings for single and joint tax filers with zero, one, or two or more qualifying dependents in 2007. EITC amounts increase substantially with the number of dependents, but the shape of the schedule as a function of earnings is the same in all three cases. EITC amounts first increase linearly with earnings, then plateau over a short income range, and are then reduced linearly and eventually phased out completely. Since the EITC amounts for tax filers with no dependents are very small (maximum of $428), we excluded them from our experiment, focusing only on individuals with one or more dependents.

In the phase-in region, the subsidy rate is 34 percent for taxpayers with one child and 40 percent for taxpayers with two or more children. In the plateau (or peak) region, the EITC is constant and equal to a maximum value of $2,853 and $4,716 for tax filers with 1 and 2+ children, respectively. In the phase-out region, the EITC amount decreases at a rate of 15.98\% for one child, and 21.06\% for two or more children. The EITC is entirely phased-out at earnings equal to $33,241 and $37,783 for single filers with 1 and 2+ dependents, respectively.\textsuperscript{5} If the tax filer has other income in addition to earnings (such as unemployment benefits), EITC amounts are calculated based both on earnings and on total income, and the actual EITC amount is the minimum of the two numbers. Finally, tax filers with investment income above $2,900 are ineligible for the EITC. See IRS Publication 596 (Internal Revenue Service 2007) for complete details on program eligibility and rules.

2.2 Claiming the EITC: Administrative Procedures

The EITC is administered through the individual income tax system. To claim the EITC, families must file an income tax return that includes an EITC schedule. Tax filing occurs between January 1 and April 15 of the following calendar year. The EITC is received in a single payment as part of the tax refund shortly after filing. Because of the substantial refunds from the EITC and other credits, most low income families file as soon as they receive the

\textsuperscript{4} Only one tax filer can claim an eligible child; for example, in the case of non-married parents, only one parent can claim the child.

\textsuperscript{5} For married filing jointly, the plateau and phase-out regions of the EITC are extended by $2,000.
required forms from employers and other payers, typically in late January or early February.\footnote{There is an option to receive the EITC in advance during the year through the paycheck, but take-up of this option is extremely low (less than 2%). See Government Accountability Office (2007) and Jones (2008).}

According to the 2004 public use microdata on tax returns, 74\% of families receiving the EITC (with children) use paid tax preparers to file their returns. The largest company in the market for paid tax preparation in the United States is H&R Block. H&R Block has about 13,000 offices located throughout the United States and employs over 100,000 tax professionals during the tax filing season. H&R Block currently prepares about 12\% of all individual tax returns in the U.S. A substantial fraction of these returns are for EITC claimants, as over half of H&R Block’s individual clients have an adjusted gross income (AGI) below $35,000.

To file their taxes, clients come to an H&R Block office with relevant documents such as their W2 wage income forms. The client sits with a “tax professional” – the term used to refer to H&R Block employees who prepare tax returns – in front of a computer running the H&R Block Tax Preparation Software (TPS). TPS consists of a series of screens corresponding to the various steps in tax return preparation. At each screen, the tax professional asks questions or inputs information from the forms brought in by the client. The tax preparation process takes about 30 to 45 minutes to complete for a typical EITC client.

2.3 Existing Evidence and Perceptions of EITC

There is a large empirical literature estimating the effects of the EITC on labor supply and earnings. Hotz and Scholz (2003) and Eissa and Hoynes (2006) provide comprehensive surveys. A number of studies have found strong evidence that the EITC increases labor force participation – the extensive margin response.\footnote{See e.g., Eissa and Liebman (1996), Meyer and Rosenbaum (2001). Eissa and Hoynes (2004) present complementary evidence of extensive-margin responses in the opposite direction: the labor force participation rate of married women in the phase-out region of the schedule falls slightly when the EITC was expanded. We expect that this extensive-margin response has a small impact on our results because 91\% of the individuals are single in our sample.} However, there is little evidence that the EITC leads to a change in labor supply for those already in the labor market – the intensive margin. Most studies find no effects of the EITC on hours of work (see e.g., Meyer and Rosenbaum 1999 and Rothstein 2007). Using tax return data, Saez (2009) finds clear evidence of bunching of EITC recipients at the first kink of the EITC schedule – where the phase-in ends and the plateau starts – for recipients reporting self-employment income. However, there is no bunching for recipients who do not report any self-employment income, who account for
89% of the individuals in our dataset.

The contrast between the strong responses along the extensive margin and small or zero responses along the intensive margin could be explained by a lack of information about the structure of the EITC (Liebman 1998, Hotz and Scholz 2003, p. 182). To respond along the extensive margin, families only need to know that working is associated with a large tax refund. In contrast, responding along the intensive margin requires knowledge about the non-linear marginal incentives created by the three ranges of the EITC displayed in Figure Ia. Surveys of low income families and in-depth interviews of EITC claimants show that there is widespread knowledge about the EITC's existence, but little knowledge about the structure of the EITC (Ross Phillips 2001, Olson and Davis 1994, Romich and Weisner 2002, Smeeding, Ross Phillips, and O'Connor 2002, Maag 2005). These interviews indicate that 60-90% of low income families have heard about the EITC and know that it is a tax refund for working. However, very few individuals know about the non-linear “bell shape” of the EITC as a function of earnings and are aware of the location of the kink points.

The lack of knowledge about the EITC’s structure is striking given that the program parameters have been quite stable for more than a decade. However, it is not surprising in view of the information currently available about the program. To our knowledge, prior to our experiment, the graphical depiction of the EITC schedule shown in Figure Ia could only be found in academic papers. Official Internal Revenue Service publications provide tables that show exact EITC amounts as a function of income and other characteristics, but do not summarize the EITC phase-in, peak, and phase-out structure in a simple and transparent way. The IRS does not provide personalized advice directly to tax filers and can only distribute comprehensive booklets that cover all possible contingencies. This obligation makes it impossible for the IRS to highlight the features of the tax code most relevant for a particular taxpayer. In addition, none of the existing commercial tax preparation software describes

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8The bunching at the first kink for those who report self-employment income shows that some tax filers know about the EITC structure, but the lack of bunching in the rest of the population suggests that such knowledge is limited to this small group.

9Among the 42 families interviewed by Romich and Weisner (2002), 90% had heard of the EITC, but only two families knew that they needed to earn a certain amount to maximize their credit. One of those two families aimed at reporting self employment earnings in order to maximize the credit (p. 378).

10For example, the official IRS publication on the EITC intended for the public (Internal Revenue Service, 2007, Publication 596) is 57 pages long and never explicitly mentions the key slope parameters of the credit. The publication simply states the EITC amounts in the form of a 7 page table that has 4,770 entries.
the EITC structure or marginal incentives explicitly.

We conclude from the existing literature that EITC recipients known the mean value of their current EITC refund amount, but perceive the schedule to be “flatter” on average than the actual schedule. To characterize the nature of the misperception more precisely, let $EITC^p(z)$ denote the individual’s perceived EITC refund at an earnings level of $z$ and $EITC(z)$ denote the actual EITC refund at that level of earnings. Let $s^p(z)$ denote the perceived local slope of the EITC schedule and $s(z)$ denote the actual slope. The existing survey evidence suggests that an individual with earnings $z$ perceives the relationship between his level of earnings and his EITC refund to be

$$EITC^p(z) = EITC(z_0) + (1 + s^p(z))(z - z_0) \tag{1}$$

where $|s^p(z)| < |s(z)|$. Figure Ib illustrates the perceived budget constraint in (1) is illustrated for two tax filers, one in the phase-in range and one in the phase-out range. These misperceptions about marginal incentives motivate our question of whether improving knowledge (updating $s^p(z)$) could amplify the impacts of the EITC on intensive-margin labor supply.\textsuperscript{11}

3 Experimental Design

We implemented the information-provision experiment in 119 H&R Block offices in the Chicago metropolitan area during the 2007 tax filing season (January 1 to April 15). Clients at these offices who received an EITC with at least one eligible child were randomly assigned into the treatment or control group. Assignment was based on the last 2 digits of the Social Security Number of the primary filer. The probability of treatment assignment was 50 percent. The control group followed the standard tax preparation procedure using the TPS software described above. In the standard preparation procedure, a screen notifies the tax filer of his/her EITC amount if he/she is eligible for the EITC. This screen does not explain the structure of the EITC, although a few tax professionals do discuss the EITC in greater detail with their clients at this stage.\textsuperscript{12}

\textsuperscript{11}There is similar evidence that people are not fully informed about many other aspects of income tax schedules. See Fujii and Hawley (1988) for evidence from the United States, Brown (1968) for the United Kingdom, Bises (1990) for Italy, and Brannas and Karlsson (1996) for Sweden.

\textsuperscript{12}For example, a few tax preparers mentioned during training sessions that they sometimes sketch a graph similar to that displayed on Figure 1 to explain the EITC to their clients.
The new EITC information materials delivered by tax professionals to clients in the treatment group were tested and developed in a series of steps. We began by interviewing 12 single mothers with recent work experience in the welfare office of San Francisco county in early October 2006. All 12 had filed tax returns in the past and almost all had heard about the EITC, but none knew about or had seen the graphical depiction of how the EITC varies with earnings. The interviewees found the graphical presentation of the EITC reasonably easy to understand and felt that it made the key features of the EITC very salient. Furthermore, most of the mothers recognized the value of this information for their work decisions and found the take-home messages sensible.\footnote{For example, one of the interviewees suggested that we visit her housing complex to distribute this information more widely, because her neighbors and friends would find it useful in making overtime and part-time work decisions.}

We refined the information materials in a focus group with 15 experienced H&R Block tax professionals and local managers in the Chicago area in late October 2006. Finally, H&R Block’s internal staff and legal team edited and approved all the materials used in the experiment. The process described below is the final procedure that resulted from the collaborative effort between the researchers and H&R Block. Note that in all official tax forms as well as in H&R Block materials, the EITC is referred to as the EIC (Earned Income Credit). We follow this convention in the information treatment materials described below.

### 3.1 Information Treatment Procedure

For the treatment group, two special “EIC information” screens are displayed automatically in TPS at the end of the tax preparation process.\footnote{This screen appears immediately after all the tax information has been entered and the tax refund and liability had been calculated. It appears just before the final settlement screen where the client chooses among the possible refund and payment options.} The first screen prompts the tax professional to begin the EIC explanation they were trained to provide and introduces the client to the information outreach program. This introductory screen is shown in Appendix Exhibit 1a for the case of a single filer with two or more dependents, the case on which we focus below for concreteness. The screen displays the EIC amount the tax filer is getting and describes the goal of the outreach effort, namely to help the client understand how the EIC depends on earnings. The second EIC information screen is displayed in Appendix Exhibit 1b for a tax filer in the increasing range of the EIC. This screen provides the key EIC information relevant
to the tax filer’s case, which the tax professional uses to explain the program to the client.

The central element of the explanation procedure is an “EIC handout” paper form that the tax professional fills out with the client and uses as a visual aid to explain the program. There are four “EIC handout” forms based on the tax filer’s marital status and dependents: single vs. joint filer and one vs. two or more dependents. Exhibit 1 shows the EIC handout for the case of a single filer with two or more dependents. The tax professional uses the information on the computer screen to fill in the blanks on the form in the following four steps.

First, the tax professional fills in the income that the tax filer earned in 2006 and the corresponding EIC amount the tax filer is getting in his/her tax refund. Second, the tax professional draws a dot on the graph illustrating the location of his client on the schedule. He then uses the graph to explain the link between earnings and the EIC amount.

In the third step, the tax professional circles the range of the schedule that the client is in – increasing, peak, or decreasing – and provides a simple take-home message corresponding to that range. This take-home message serves as a gentle suggestion about the implications of the information for labor supply decisions. In the increasing range, the message is “Suppose you earn $10 an hour, then you are really making $14 an hour. It pays to work more!” In the peak range, the message is “Your earnings are maxing-out the EIC amount.” In the decreasing range, the message is “If you earn $10 more, your EIC is reduced by $2.10. Earning more reduces your EIC, but you may qualify for additional tax credits.”

An important aspect of the decreasing range message deliberately downplays the work disincentive created by the EITC in the phaseout region. The message took this form because many managers and tax professionals at H&R Block felt strongly that it was in the best interest of tax filers to work and earn more.\textsuperscript{15} Indeed, many tax professionals pitched the message verbally as “You lose $2 of your EIC credit when you earn $10 more, but you still come out ahead by $8 and potentially become eligible for other credits, so working more pays off.” The fact that many tax professionals pushed clients to aim for a high level of earnings – irrespective of the EITC’s marginal incentives – appears to have important effects on the empirical results.

In the fourth step, the tax professional circles the relevant range in the table which displays

\textsuperscript{15}In some cases, other credits such as the non-refundable portion of the child tax credit can indeed increase with earnings in the EITC phaseout range, mitigating the implicit tax on work.
the exact parameters for the EITC. This table provides an alternative method of showing exactly how far the claimant can change his/her earnings before hitting the threshold for the next range. Tax professionals were trained to spend the most time on whichever of the three methods the client appeared to understand best – the verbal, graphical, or tabular descriptions. Hence, the time spent on each of the four steps differed across clients depending on their preferences and skills.

After this information explanation is provided and the tax return process is completed, TPS automatically prints an “EIC printout” page that reproduces the information filled out in the handout. Appendix Exhibit 2 displays an example of the EIC printout. This page is printed at the same time as the tax return and inserted at the top of the packet given to the client to take home. The client is reminded by the tax professional that this information may prove useful when making earnings-related decisions later in the year. The purpose of the printout is to present the EITC information in a clean, accurate format. The temporary handout used to explain the program is kept by the tax professional.

Finally, to reinforce the treatment, H&R Block sent a letter summarizing the EITC information to all treatment-eligible clients in August 2007. Appendix Exhibit 3 displays an example of this letter.

As with most provisions of the tax code, EITC ranges are mechanically indexed for inflation and therefore differ slightly across the base year and subsequent year. Since our goal was to inform tax filers about the EITC parameters relevant for their subsequent labor supply decisions, the table and graph display the EITC parameters for 2007 earnings and the corresponding EITC that would be received when filing in 2008 (the post-treatment year). The classification of tax filers into the 3 groups – increasing, peak, and decreasing – was also based on the 2007 EITC parameters. As a result, a tax filer who was at the very beginning of the peak range would actually be presented with the increasing scenario that would apply were he/she to have the same level of nominal income in 2007. Similarly, a tax filer at the very beginning of the decreasing range would be presented with the peak scenario. Since the IRS inflation rate applied from tax year 2006 to 2007 was relatively small (3.9%), only 4% of taxpayers were located at a point where their current range differed from their predicted range for the following year. Note that the phase-in and phase-out rates were unchanged across the years.
3.2 Tax Professional Behavior

The effects of the experiment depend critically on the knowledge and behavior of the tax professionals. There were 1,461 tax professionals involved in the experiment, each of whom had 29 clients in our sample (including treatment and control) on average. We trained approximately 100 “office leaders” (senior tax professionals) in November 2006 ourselves, who then trained during December 2006 the rest of the tax professionals. The training described the general goal of the outreach effort, why the experimental design required giving information to only half the clients, and explained the changes to the TPS system that would be introduced. A series of case studies with hypothetical clients were used to illustrate various scenarios and how standardized explanations should be provided in the four steps. Field observations in January 2007 confirmed that the EIC information screens and printouts were working as planned and that tax professionals were implementing the experiment as trained.

In pilot sessions, we found that a minimum time of two minutes was required for a coherent explanation of the EITC. To give tax professionals an incentive to administer the information treatment carefully to eligible clients, each tax professional was offered $5 for each eligible client with whom they spent at least two minutes on the EIC information screens (with time tracked by the software). If the tax professional attempted to exit the information screens before two minutes elapsed, the TPS system displayed a warning, “Does your client understand the explanation of how the EIC impacts their tax return?” The system then allowed the tax professional to go back and continue his explanation, resuming the two minute clock. Tax professionals who spent less than two minutes on the information screens did not receive any compensation for that client. Figure II displays a histogram of seconds spent by tax professionals on the EITC screens. There is a clear spike at 120 seconds (denoted by the vertical line), showing that most tax professionals understood and responded to the compensation structure. The average time spent on the screen conditional on reaching the 120 seconds is 3.5 minutes.

Overall, 73% of tax filers whom we intended to treat were treated for at least two minutes. A substantial fraction of the variance in compliance rates is explained by office fixed effects, presumably due to variations in training. Most offices had very high compliance. However,

\[16\] The powerpoint slides and case studies used for training are available from the authors upon request.
one large office had a two-minute treatment rate of 6%, 11 percentage points below the next lowest office. We believe this exceptionally low treatment rate arose from a failure to hold the planned training sessions. Since the treatment was effectively not implemented at this office, we exclude it from the analysis below.\(^\text{17}\)

The decision to offer a 2+ minute EITC explanation to eligible clients may have depended on the client’s interest in the information. Since a client’s interest is not random, we follow standard practice in the experimental literature and estimate “intent-to-treat” effects – comparing outcomes of those eligible and ineligible to receive the information explanation.

To supplement the statistics on compliance rates, we directly assessed the tax professionals’ reactions to the experiment using a survey of the tax professionals at the end of the tax season. See Appendix Exhibit 4 for the survey instrument. To obtain candid responses, the surveys identified offices but not individual tax professionals within those offices. 78% of the 119 offices sent back completed surveys, yielding a total of 785 survey responses. 88% of the tax professionals who responded to the survey thought that the EITC information should be offered again in the future.\(^\text{18}\) 81% of surveyed tax professionals thought that the EITC experiment pilot helped their own understanding of how the EITC credit works. This shows that our outreach effort did provide new information about the structure of the EITC beyond what is normally provided in the tax preparation procedure at H&R Block.\(^\text{19}\) When asked about client interest, 37% of tax professionals said that “most” (> 75%) of their clients were interested in the information explanation. 38% of the tax professionals said that “many” (25 to 75%) clients were interested, while 25% of tax professionals felt that few (<25%) of their clients were interested. We conclude from these surveys that most tax professionals were enthusiastic about the experiment and thought it was a valuable service for their clients, suggesting that the information treatment was implemented satisfactorily.

\(^\text{17}\) Including the office does not change our qualitative results but, unsurprisingly, slightly reduces the precision of the estimates.

\(^\text{18}\) In the written feedback section, many tax professionals commented that it would be good to offer the information explanations to all EITC recipients in the future instead of only half of them.

\(^\text{19}\) Tax professionals who went through our training process may have offered better explanations on the EITC to tax filers in the control group as well. To minimize such contamination effects, we emphasized repeatedly in training that it was critical not to give any extra information to the clients who were not selected for treatment for the purpose of the study. Any remaining contamination effects would attenuate our treatment effect estimates.
3.3 Hypothesis

Our general hypothesis is that the provision of information and advice by tax professionals will induce clients to change their earnings behavior. More specifically, tax professionals who implement our information treatment as intended should update their clients’ perceptions toward the true EITC schedule, shifting $s^p$ toward $s$ in equation (1). This change in perceptions of marginal incentives rotates the perceived budget set as shown in Figure 1b, generating substitution effects but no income effects. Such substitution effects should increase earnings for tax filers who would have been in the phase-in range absent the treatment, leave earnings unchanged for those in the peak, and decrease earnings for tax filers in the phase-out.

One natural method of testing this prediction is to ask whether incomes rise for tax filer’s who were in the phase-in region in the base year and fall for those in the phase-out in the base year. This strategy effectively uses base-year income as a proxy for the (counterfactual) level of year 2 income absent the treatment. The problem with this approach is that incomes are very unstable across years for low-income individuals. The standard deviation of residual income growth in our sample is 62% after controlling for a cubic in base-year income, self-employment status, and number of dependents. Because of this high level of income volatility, many tax filers who are initially in the phase-in region move to the peak or phase-out regions in the next year even in the control group. The inability to predict tax filers’ locations in the EITC schedule in the post-treatment year makes it difficult to sign the direction in which income should shift for a given tax filer.

In view of the instability problem, we take an alternative approach to testing for substitution effects that does not rely on base year income as a proxy for counterfactual year 2 income. Our strategy is to compare the unconditional distributions of earnings and EITC amounts in the treatment and control groups. In particular, we test two hypotheses: (1) the distribution of earnings for treated clients in more concentrated around the peak of the EITC schedule (i.e., treated clients are less likely to have very low and very high incomes); and (2) treated clients get larger EITC refunds on average than control clients.
4 Results

4.1 Data and Descriptive Statistics

Our analysis of the experimental results is based on anonymous statistical compilations prepared by H&R Block in accordance with applicable laws. These compilations were constructed from data extracted from tax returns filed in 2007 and 2008 and from supplemental information collected by H&R Block during the implementation of the experiment in 2007.

Table I shows descriptive statistics for the treatment and control groups. The means of all of the base year variables are similar in the treatment and control groups. None of the mean differences are significant at the 5 percent level, confirming that randomization was successful. The mean earnings in the year prior to the experiment (the “base year”) in the full sample is $16,600. Earnings are the sum of wage earnings and self-employment income. Average wage earnings are $15,900. Average self-employment income is only $700 (about 4.2% of total earnings), and 11% of tax filers report positive self-employment income. The mean EITC amount in the base year is $2,470. About 60% of the claimants have two or more dependents in the base year, and 63% report two or more dependents in the post-treatment year. There is no differential change in the number of dependents in the control and treatment groups, indicating that the treatment did not induce tax filers to change the number of dependents they claim.

In order to examine distributional outcomes, throughout the paper we divide the income distribution into three bins: low incomes (below $7000), middle incomes ($7000 to $15,400), and high incomes (above $15400). The upper threshold $15,400 is chosen as start of the EITC phase-out range; the lower threshold is chosen to divide the remaining interval into two equal-sized bins. By this classification, 14% of the sample is “low income”, 33% is “middle income”, and 51% is “high income.” Our qualitative results are not sensitive to variations in these cutoffs (moving the cut points up or down by $2,000).

The bottom row of Table I shows the return rates. The average return rate is around 72%. The return rate is 0.85% lower in the treatment group, a small but marginally significant difference. We explore the pattern of return rates further in Figure III, which plots mean

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20 More precisely, positive self-employment income was measured as having positive self-employment taxes. No self-employment taxes are due if self-employment income is below $400. 11% of tax filers have self-employment income above $400.
return rates by $1,000 base-year earnings bins in the treatment and control groups. The
average return rates track each other very closely, showing that attrition patterns are not
systematically affected by treatment and are not correlated with the take-home message that
the client received. We therefore believe that our comparisons between the treatment and
control groups are unlikely to be affected by selective attrition concerns.

4.2 Full Sample Results

We begin our empirical analysis with a simple comparison of the EITC amount and earnings
distributions across the treatment and control groups. Row 1 of Table II report p values
for Kolmogorov-Smirnov (KS) tests for differences in the empirical cdf’s of several variables
in the full sample. Column 1 shows that there is a marginally significant difference in the
distribution of EITC amounts between the treatment and control group (p = 0.07). Column
2 shows that the difference between the income distributions is statistically insigniﬁcant.21
Visual examination of the empirical income and wage earnings distributions (not reported)
reveals no sharp differences between treatment and control, consistent with the results of the
KS tests. We also ﬁnd no robust evidence of differences between treatment and control when
estimating mean treatment effects using OLS regressions, as discussed below. In sum, the full
sample does not exhibit systematic differences between the treatment and control groups.

4.3 Heterogeneity in Treatment Effects Across Tax Professionals

As described above, we expect substantial heterogeneity in treatment across the 1,461 tax
professionals involved in the experiment because of variations in training and willingness to
convey the take-home messages we proposed. Such heterogeneity across tax professionals
could potentially be masked in the full sample. We begin our analysis of treatment effect
heterogeneity across tax professionals using a standard F-test. Let i = 1, ..., N index clients
and p = 1, ..., P index tax professionals. Let ΔEITC_i denote the change in the EITC amount
(from year 1 to year 2) for client i. Let tpi_p denote an indicator variable for whether client i
is served by tax professional p and treat_i denote an indicator for whether the client is in the
treatment group. We implement the F-test using a regression of the following form:

\[ \Delta \text{EITC}_i = \sum_{p=1}^{P} \theta_p t_{i,p} + \sum_{p=1}^{P} \beta_p \text{treat}_i \times t_{i,p} + \varepsilon_i \]

21We discuss columns 3 and 4 of this table in section 4.4.
We test the null hypothesis that the coefficients on the interactions of the treatment and tax professional indicators are all zero ($\beta_p = 0$ for all $p$). This constitutes a non-parametric test for whether there are any tax professionals who induce a significant difference in EITC amounts between their treated and control clients. The null hypothesis that $\beta_p = 0$ for all $p$ is rejected with $p < 0.01$, indicating that some tax professionals induce significant treatment effects on EITC amounts.

The remainder of the paper focuses on characterizing the magnitudes and patterns of heterogeneity in treatment effects. We begin by developing a method of identifying “complying” tax professionals who are most likely to have implemented the treatment as planned and thereby induced significant changes in behavior.

**Definition of Compliers.** Since we do not directly observe how tax professionals explained the information to clients, we use an indirect outcome-based method to identify “complying” tax professionals. For each tax filer $i$, we define his tax professional as a complier if she has a higher fraction of other clients (excluding client $i$) with middle income in the treatment group than the control group. Intuitively, from the perspective of a given client $i$, his tax professional complies with the intention of the experiment if she increases the concentration of the earnings distribution for her other clients. The remaining “non-complying” tax professionals, who may have failed to provide information or may have encouraged clients to disregard the small EITC incentives and simply maximize earnings.

Three important points should be noted about this definition of compliance. First, because client $i$ himself is excluded when defining his tax professional’s compliance, there is no correlation between client $i$’s outcome and his tax professional’s compliance under the null hypothesis that all tax professionals had zero treatment effects. A proof of this simple result is given in the Appendix. To see the intuition, suppose a placebo treatment is randomly assigned to individuals, with no information provided to anyone. Define “complying” and “non-complying” tax professionals for each client as above. In this case, “complying” and “non-complying” are effectively randomly assigned, as the placebo treatment has no influence on year 2 earnings. Therefore, the sample of clients with a “complying” tax professional are simply a random subsample of the initial sample. Within that subsample, individual treatment status remains randomly assigned and hence should have no impact on outcomes.

Second, the definition of complying tax professionals is client-specific, as excluding a par-
ticular client might shift a given tax professional from the complying to the non-complying category (and vice-versa). This creates a correlation in the error terms for clients served by the same tax professional, as similar clients will tend to either all be excluded or included in the “complying” group. We account for this problem by clustering all standard errors by tax professional. To check this method of computing standard errors, we also calculated robust p-values for each regression we run using the following permutation method. We first generate a placebo treatment randomly (with 50% probability) and recompute complying vs. non-complying tax professional status for each tax filer using this placebo treatment variable. We then estimate the regression specification using the placebo treatment in lieu of the actual treatment to obtain a placebo coefficient. This process is repeated 2000 times to generate a distribution of placebo coefficients. Finally, the robust p-value for the actual treatment effect is computed using the empirical cdf of the placebo coefficients. We find that the difference between the permutation-based robust p-values and the p-values from regressions with clustered standard errors is less than 0.02 for every test statistic reported below.\footnote{Since there is no natural counterpart to clustering for the Kolmogorov-Smirnov tests in Table II, we report the permutation-based p values in that table.} This placebo analysis also corroborates that our method of identifying complying tax professionals does not induce any artificial correlations between treatment and outcomes.

Finally, note that our definition of compliance is one of many possible definitions. In our main analysis, we classify tax professionals into different groups based on a binary earnings outcome (middle income) that captures the concentration of the earnings distribution in a simple manner. In section 4.5, we show that our results are robust to the following variations in the definitions of compliance: (1) using a continuous measure of tax professional compliance instead of a binary classification; (2) using alternative client outcome measures such as the EITC amount (instead of the middle income indicator); and (3) controlling for base year characteristics of clients to classify tax professionals based purely on changes in client outcomes.

\textit{Graphical Evidence and Non-Parametric Tests.} Figure IV plots the density of post-treatment income for clients with complying tax professionals. The dashed blue line is for clients in the control group and the solid red line is for clients in the treatment group. Panel A is for the sample of clients with 1 dependent and Panel B for those with two or more dependents. The red vertical lines mark the cutoffs for the phase-in and phase-out regions for
each case, and the EITC schedule is shown in orange. In both panels, there is greater mass in
the treated group near the first kink point of the EITC schedule than there is in the control
group. Conversely, there are fewer treated clients in the phase-out range.

The increased concentration in the earnings distribution increases EITC amounts for
treated clients. This result is confirmed by the KS test reported in the second row of Column
1 of Table II. The null hypothesis that there are no differences in EITC amounts between
treated and control clients is rejected with $p < 0.01$ for complying tax professionals. Note that
the KS test does not detect a statistically significant difference between the income distribu-
tions in the treatment and control groups for complying tax professionals, as shown in Column
2. This is not surprising, since the KS test has greatest power in detecting uniform shifts
in the distribution rather than changes in concentration.\footnote{The KS test statistic is the maximum absolute difference between the empirical cdf’s. A rightward shift of a given percentage produces a larger maximum change in the CDF than an increase in concentration that leads to the same mean percentage change in the distribution above and below the median. In this sense, the KS test has more power in detecting shifts.}

We show below that parametric estimators based on comparisons of means do show highly significant differences between the income distributions in Figure IV.

Figure V compares the earnings distributions for clients of complying tax professionals with
those for clients of non-complying tax professionals. Panel A is for clients in the treatment
group and Panel B is for the control group. Both panels show the 1 dependent case; results
are similar for the 2+ dependents group (not reported). As would be expected given random-
ization of treatment, there is little difference between the earnings distributions in the control
group for compliers vs. non-compliers.\footnote{The differences between the means of the base year variables in the treatment and control groups are also insignificant within the complying and non-complying tax professional subsamples, as in Table 1.} There is, however, a substantial difference between
the earnings distributions in the treatment group. The earnings distribution for clients of
compliers has substantially more mass around the peak of the EITC schedule. Comparing
the dashed blue curves for non-compliers across the two panels (which have the same scaling),
it is evident that the earnings distribution for clients treated by non-compliers is shifted to-
ward the right, placing more clients in the phase-out range and thereby reducing their EITC
refunds. This shift in earnings distributions in the non-complying treatment group relative
to the control group is borne out by the KS tests reported in row 3 of Table II. There is a sig-
nificant difference ($p < 0.05$) in the distribution of both EITC amounts and earnings between
treatment and control clients of non-complying tax professionals.

Figure V explains why we detect no treatment effects in the full sample: the compliers and non-compliers shift the earnings distribution in opposite directions, generating little change in the full sample. The complying tax professionals induced behavioral responses consistent with the two specific hypotheses described in section 3.3. Non-complying tax professionals did not generate a behavioral response consistent with EITC incentives, instead pushing more of their clients into the phase-out range. One potential explanation for this response is that the non-compliers are tax professionals who framed the EITC incentive effects as being small relative to the benefits of earning a higher income, which we anticipated might occur based on feedback prior to the experiment. Irrespective of the reason that non-compliers fail to induce the expected response, it is clear that tax professionals are able to influence their clients’ earnings behavior by providing information and advice. To quantify the size of the behavioral responses, we now quantify mean treatment effects with the complier and non-complier subgroups.

Mean Treatment Effects. Table III presents estimates of mean treatment effects for several outcomes and subsamples using OLS regressions of the form

\[ y_i = \alpha + \beta \text{treat}_i + \gamma X_i + \varepsilon_i \] (2)

where \( y_i \) is a year 2 outcome, \( \text{treat}_i \) is defined as an indicator for being eligible for the treatment, and \( X_i \) is a vector of year 1 covariates. The coefficient of interest, \( \beta \), can be interpreted as an intent-to-treat estimate. Each column of Table III considers a different outcome or set of covariates, and each row considers a different subsample. Each coefficient listed in the table is from a separate regression. We report standard errors clustered by tax professional in parentheses and t-statistics in square brackets.\(^{25}\)

The dependent variable in columns 1 and 2 is the difference between the client’s EITC amount in the post-treatment and pre-treatment years. Columns 3-6 measure changes in the income distribution. The dependent variable in columns 3 and 4 is an indicator for having “middle income” ($7,000 to $15,400) in year 2. In column 5 it is a “low income” indicator (<$7,000) and in column 6 a “high income” indicator (> $15,400). Finally, column 7 considers the mean change in earnings from year 1 to year 2. In columns 2 and 4-7, we include

\(^{25}\)The number of observations is the same for all regressions in each row and is reported only once per row in square brackets.
the following vector of base year covariates \( X \): earnings, earnings squared, wage earnings, indicator for married filing jointly, and number of qualifying children (1 vs. 2 or more).

Row 1 of Table III shows treatment effect estimates for the full sample. Consistent with the non-parametric tests discussed above, in the full sample we do not detect robust differences in EITC amounts or earnings distribution across the treatment and control groups. Most of the coefficients are small and statistically insignificant. The two variables in which there is some evidence of a treatment effect are the mean change in EITC amounts ($24 higher on average in the treatment group) and the likelihood of low income (0.6 percentage points lower in the treatment group). These effects are marginally significant \( (p < 0.1) \).

Row 2 repeats the same analysis for the subsample of clients served by complying tax professionals. Column 1 shows that clients treated by complying tax professionals increase their EITC amounts by $67 more than control group clients of the same tax professionals. Controlling for base year observables does not affect this coefficient significantly, as would be expected in a randomized experiment. Column 3 shows that treated clients are 2.90 percentage points more likely to report middle income than control clients within the sample of complying tax professionals. Column 4 shows that this estimate is also not significantly affected by controlling for base year characteristics. Columns 5 and 6 show that treated clients are less likely to have both low incomes and high incomes, indicating that the complying tax professionals use the information to push clients toward the peak. The effect on low incomes is particularly substantial: the probability of having an income below $7,000 falls by 1.5 percentage points relative to a base of 15% \( (p < 0.01) \). Column 7 shows that the treatment does not induce a significant change in mean earnings from year 1 to year 2. The finding is consistent with an increase in concentration rather than a shift of the earnings distribution, and underscores the importance of investigating moments beyond means with non-linear budget sets (Bitler, Gelbach, and Hoynes 2006).

Row 3 considers the non-complying tax professionals. Clients given the information treatment by these tax professionals experience a modest and statistically insignificant reduction of $32 (column 2) in their EITC amounts relative to their peers in the control group. This is because non-complying tax professionals reduce their treated clients’ probability of having middle income by 2.15 percentage points (column 4), shifting clients away from the region of the EITC schedule where refunds are maximized. The majority of this shift comes from the
fact that non-compliers increase the probability that their treated clients locate in the phase-out region of the schedule: the probability of having high income is 1.7 percentage points higher in the treatment group relative to the control (column 6). As a result, the earnings of treated clients rise by $250 more on average than control clients of non-compliers (column 7). These results confirm the density plots in Figure V: non-compliers shift the earnings distribution to the right and increase the likelihood of high incomes. The mean of the coefficients in rows 2 and 3 roughly corresponds to the coefficients in row 1, explaining why we do not detect robust treatment effects in the full sample.

Finally, in rows 4 and 5, we directly compare the treatment effects for complying and non-complying tax professionals. We estimate a model analogous to (2) on the full sample, interacting all the variables with an indicator for having a complying tax professional. Row 4 reports the coefficient on the interaction of the treatment and complier indicators, which is simply the difference in the coefficients reported in rows 3 and 4. Under the null hypothesis of no treatment effects for all tax professionals, this “difference in difference” estimate would be zero. Contrary to the null, all of the coefficients reported in row 4 are statistically significant. Clients treated by complying tax professionals experience approximately a $90 larger increase in their EITC refund on average relative to clients treated by non-complying tax professionals. Clients treated by compliers are also substantially more likely to have middle income and less likely to have high and low incomes than those treated by non-compliers. Finally, clients treated by compliers have on average $420 lower growth in earnings than clients treated by non-compliers. These results highlight the substantial amount of treatment effect heterogeneity across tax professionals.

The heterogeneity in treatment effects that we have documented could come from two potential sources. One natural interpretation – which is the one we have suggested thus far – is that tax professionals implemented the information treatment in different ways, leading to different outcomes. An alternative view is that the variation in treatment effects is not caused by differences in tax professionals’ behavior but instead by variations in the set of clients that different types of tax professionals had. Our experiment randomized the information treatment within tax professional but did not randomize clients across tax professionals. There are variations in base year client characteristics across tax professionals: for instance, some tax professionals tend to have slightly higher income clients while others tend to have more
clients with self-employment income. If there is heterogeneity in treatment effects along client characteristics – for instance if certain income groups are more responsive to the treatment – then the variation in treatment effects across tax professionals could simply reflect client heterogeneity.

In row 5 of Table III, we explore the source of the treatment effect heterogeneity by adding interactions of the vector of base year controls with the treatment dummy to the specifications in row 4. In this specification, the coefficient on the interaction of the treatment and complier indicators can be interpreted as the effect of having a complying tax professional, holding fixed observable base year characteristics. We find that all seven coefficients in row 5 are very similar to the corresponding coefficients in row 4, indicating that the heterogeneity in treatment effects is not driven by observable heterogeneity in client characteristics. The heterogeneity in treatment effects could nevertheless be driven by unobservable heterogeneity in treatment effects across clients. For instance, some tax professionals might tend to attract patient clients who are interested in learning new information, and thus exhibit larger treatment effects. While we cannot rule out such unobserved heterogeneity, we believe that the sharp differences in treatment effects across complying and non-complying tax professionals are likely to be driven by the tax professionals, particularly since many clients simply go to the first tax professional who is available when they arrive at their office (Duflo et al. 2006). Regardless of the source of heterogeneity, the results in Table III show that the intervention did induce significant changes in earnings behavior across certain subgroups of clients. Hence, we view the evidence as supporting our general hypothesis that information and advice affect earnings behavior.

4.4 Self-Employment vs. Wage Income Responses

We now explore the extent to which the treatment effects documented above are driven by changes in self-employment income vs. wage earnings. This distinction is crucial to determine whether the experiment had “real” effects on labor supply behavior or simply led to income reporting effects in order to maximize EITC refunds.

Self-Employment Income. We examine the self-employment income response by focusing on the subsample of tax filers with positive self-employment income in base year. Note that these tax filers may also have additional wage earnings beyond their business income. Figure VI
shows the effect of the treatment on the distribution of year 2 earnings for clients of complying tax professionals. Panel A is for clients with 1 dependent and Panel B is for those with 2+ dependents.

The control group exhibits clear bunching at the first kink point of the EITC schedule, the lowest earnings level at which one obtains the maximum refund. This is consistent with the findings of Saez (2009), who documents bunching at the first kink point among EITC recipients with self-employment income in IRS microdata. The degree of bunching is substantially amplified in the treatment group. The treated group is less likely to report both a very low earnings level and a very high earnings level, showing that the information induced tax filers to target the peak as predicted. Note that the EITC schedules differ across the 1 and 2+ dependent cases: the peak region begins at $8,390 in Panel A and $11,790 in Panel B. The movement of the point of amplified bunching precisely with the first kink point constitutes particularly sharp evidence complying tax professionals influenced their treated clients’ reported earnings.26

Columns 1 and 2 of Table IV quantify the mean treatment effects for tax filers with positive self-employment income in the base year. This table has the same structure as Table III. Row 1 shows that there is some evidence of an increase in EITC amounts, and stronger evidence of an increase in the concentration of the earnings distribution, in the sample of self-employed individuals. The estimates in row 2 for clients of complying tax professionals confirm the sharp results in Figure VI. Complying tax professionals increased their treated clients’ EITC amounts by almost $130 relative to the control group, and increased the probability that they have middle income by 7 percent. These treatment effects for the self-employed are twice as large as those reported in the full sample (Table III, row 2). In contrast, row 3 shows that non-complying tax professionals induce no significant treatment effects in their self-employed clients’ EITC amounts or earnings distributions. Visual examination of the earnings distributions for self-employed clients of non-complying tax professionals (not shown) confirm these results: the degree of bunching at the first kink in the treatment and control groups is very similar. Rows 4 and 5 confirm that there are substantial differences in year 2 outcomes between clients treated by compliers and non-compliers, even after controlling for

26 Figures for non-complying tax pros, omitted for sake of space, do not show the same pattern: the bunching spike is actually slightly higher in the control group for those with one dependent and only marginally lower for those with two or more dependents.
observed client heterogeneity.

Wage Earnings. We now turn to the effects of the treatment on the distribution of wage earnings (excluding self-employment income). Figure VI plots year 2 wage earnings distributions for clients of complying tax professionals (analogous to Figure IV for total income). Panel A is for clients with 1 dependent; Panel B is for clients with 2+ dependents. Both panels show an increase in mass around the first kink point for treated clients. This increase in mass is not as large as the change in the distribution of total income (Figure IV), confirming that part of the treatment effect is driven by the self-employment margin.

As in our analysis of total income, we conduct non-parametric Kolmogorov-Smirnov tests for changes in the distribution of wage earnings. The increased concentration in the wage earnings distribution acts to increase the EITC amounts due to the wage component of income. Column 3 of Table II reports the results of KS tests for a difference between treatment and control in the distribution of wage-based EITC amounts – that is, the EITC refund clients would get if they had only their reported wage income and zero self-employment income. In the full sample (row 1), we detect no differences between the wage-based EITC amounts in the treatment and control groups. However, in the subsample of clients with complying tax professionals (row 2), the KS test rejects the null of identical distributions across treatment and control clients with $p < 0.01$. Column 4 shows that there is no detectable change in the distribution of wage earnings between the treatment and control even in the subsample of complying tax professionals. This mirrors the results obtained for the income distribution. It is again due to the KS test’s lack of power in detecting changes in the concentration of distributions, as we establish below by estimating mean treatment effects.

Figure VII compares the wage earnings distributions for clients of complying tax professionals with those for clients of non-complying tax professionals (analogous to Figure V for total income). Panel A shows wage earnings distributions the treatment group, while Panel B shows the same for the control group. There is little difference between the distributions in the control group, as expected. In the treatment group, clients of complying tax professionals are clearly more likely to have wage earnings that place them near the first kink of the EITC.

\footnote{It is not profitable to directly examine the effect of the treatment on the distribution of self-employment income because self-employment income constitutes too small a fraction of total income. The predicted change in self-employment income is highly dependent on the client’s wage earnings. This is why we chose to analyze total earnings in a subsample of individuals with positive self-employment income in the base year to understand the self-employment response.}
Comparing the dashed curves across the two panels (which have the same scaling), we see that clients given the information treatment by non-complying tax professionals are more likely to have wage earnings that place them in the phase-out range. The KS tests in row 3 of Table II confirm that the information treatment shifts the wage earnings distribution for clients of non-complying tax professionals. There is a significant difference ($p < 0.01$) between treatment and control in the distribution of both wage-based EITC amounts and the distribution of wage earnings.

We quantify the changes in wage earnings behavior by estimating mean treatment effects in columns 3 and 4 of Table IV. In column 3, the dependent variable in the change in the wage-based EITC amount from year 1 to year 2. In column 4, the dependent variable is an indicator for “middle wage earnings” in year 2, defined as having wage earnings between $7,000 and $15,400 in year 2. Row 1 shows that there is no significant difference between the treatment and control groups in either of these measures in the full sample. Row 2 shows that clients treated by complying tax professionals have a $48 increase in their wage-based EITC amounts relative to control clients ($p < 0.05$). These treated clients are also 1.9 percentage points more likely to have middle wage earnings, relative to a base of 25% ($p < 0.05$). Non-complying tax professionals, in contrast, reduce their treated clients’ probabilities of having middle wage earnings by 2.45 percentage points because they push their clients into the phase-out range. As a result, they reduce their treated clients’ wage-based EITC amounts by $55$ ($p < 0.05$). Finally, rows 4 and 5 confirm that there are highly significant ($p < 0.01$) differences in year 2 outcomes between clients treated by compliers and non-compliers, even after controlling for observed client heterogeneity.

The results from the decomposition of earnings into self-employment and wage income can be summarized as follows. Complying tax professionals induce their treated clients to change both their wage earnings and self-employment income in order to maximize their EITC refunds. Non-complying tax professionals induce an increase in wage earnings but no change in self-employment income. These patterns are consistent with the interpretation proposed above: compliers provided information on the true EITC incentives, while non-compliers used the information treatment to emphasize that the benefits of earning a higher income always outweigh the incentive effects of the EITC. In particular, the finding that non-compliers induce no change in reported self-employment income is consistent with the view that they
did not use the information to explain how to maximize EITC refunds. Conversely, the fact that compliers induce stronger responses in self-employment income – which is easier to manipulate via reporting effects – than wage income suggests that they emphasized the behaviors relevant for maximizing the EITC refund.

Because self-employment income is a small fraction of total income, the patterns of treatment effects on the wage earnings distribution are remarkably similar to those for the total income distribution. For complying tax professionals, the treatment effect on wage-based EITC amounts accounts for 83% (48.48/58.05) of the treatment effect on total EITC amounts. The change in the probability of middle wage earnings is 73% (1.88/2.57) of the change in the probability of middle income, indicating that the increase in the concentration of the income distribution is largely driven by an increase in the concentration of wage earnings around the peak. Likewise, the changes in income for treated clients of non-complying tax professionals can be entirely accounted for by changes in the wage earnings distribution.

We conclude that the information treatment induced significant changes in wage earnings behavior. Wage earnings are generally difficult to manipulate because of double-reporting by employers. The most recent official compliance study by the Internal Revenue Service (1996, Table 3, page 8) found that less than 1% of wage earnings is misreported on individual income tax returns. Moreover, the finding that clients treated by non-compliers are more likely report wage earnings that place them in the phase-out region and thereby reduce their EITC amounts cannot be due to manipulation, as such manipulation would only make the client lose money. Hence, although we cannot definitively rule out reporting effects through collusion between employees and employers on W-2 forms, the evidence suggests that the intervention induced “real” labor supply responses and not merely accounting changes to take advantage of the tax system.

4.5 Sensitivity Analysis: Definition of Compliance

Our results rely critically on the distinction between complying and non-complying tax professionals. In Table VI, we assess the robustness of our results to the definition of “compliance.” We focus on two dependent variables: changes in total EITC amounts (row 1) and changes in wage-based EITC amounts (row 2). We estimate variants of the interaction specifications estimated in row 4 of Table III:
where \( tpcompliance_i \) is a measure of the tax professional’s compliance. In the analysis above, we defined \( tpcompliance_i \) as an indicator for whether the tax professional’s other clients (excluding \( i \)) are more likely to have middle income in the treatment group relative to the control group. As a reference, column 1 in Table VI recalls the coefficients obtained using this definition (shown in columns 1 and 3 of Table III).

In column 2, we use a different client outcome – the year 2 EITC amount – to define the compliance variable. For client \( i \), the tax professional is defined as “complying” if, excluding client \( i \), the average year 2 EITC amount of her treatment clients is higher than the average year 2 EITC amount of her control clients. The point estimates using this alternative definition are quite similar to those in column 1 and are statistically significant with \( p < 0.05 \). The loss of precision relative to the estimates in column 1 may be due to the substantial variance in EITC amounts across clients, which in turn creates noise in the compliance variable.

In columns 3 and 4, we use continuous measures of tax professional compliance instead of dividing tax professionals into two distinct categories. For client \( i \), define \( tpcompliance_i \) as the tax professional’s mean treatment effect on a year 2 outcome of interest excluding client \( i \) himself. For instance, with the middle income indicator outcome, \( tpcompliance_i \) is the fraction of treated clients who have middle income minus the fraction of control clients who have middle income, excluding client \( i \). A problem with the continuous measure is that it is very noisy, particularly in the tails of the distribution. Since each tax professional has only 15 treated and 15 control clients on average, there is substantial variance in the compliance measures. For example, some tax professionals who have a small number of clients happen to have 100% of their treated clients with middle income and 0% of their control clients with middle income, generating an extreme compliance measure of 100%. To deal with these outliers, we drop observations that have a continuous \( tpcompliance_i \) measure below the 1st or above the 99th percentile in columns 3 and 4.

Column 3 reports estimates using the continuous version of the middle income outcome, while column 4 uses the continuous version of the EITC amount outcome introduced in Column 2. The estimates show that more compliant tax professionals generate significantly greater
increases in their treated clients’ EITC amounts. In interpreting the magnitudes of these coefficients, it is useful to note that the standard deviation of the continuous middle income compliance variable is 18%. The corresponding standard deviation for the EITC amount compliance variable is $600. Hence, a one standard deviation increase in the degree of compliance is estimated to raise the treatment effect on the EITC amount by $31 for the middle income measure and by $26 for the EITC amount measure of compliance. The considerable loss of precision in the continuous specification relative to the binary specifications appears to be driven by noise in the tails. Further trimming – e.g. dropping or winsorizing the observations with values of tpcompliance\textsubscript{i} below the 5th or above the 95th percentile – increases the precision of the estimates.

Finally, in columns 5 and 6, we control for base year characteristics of clients when defining tax professional effects. In these specifications, the tpcompliance\textsubscript{i} variable is effectively defined based on the tax professional’s effects on changes in behavior rather than levels of year 2 outcomes. We define tpcompliance\textsubscript{i} by estimating a regression analogous to (2) using all clients of client \textit{i}’s tax professional except client \textit{i} himself. The regression including the standard set of base year controls: income, income squared, wage earnings, marital status, and dependents. The tpcompliance\textsubscript{i} measure is the estimated treatment effect from this regression. As above, we trim outliers, dropping the 1% largest and smallest values.

Column 5 reports estimates using the continuous version of the middle income outcome with base year controls, and column 6 reports the same for the EITC outcome. For completeness, these specifications include the base year controls and their interactions with the tpcompliance\textsubscript{i} variable, as in Column 2 of Table III. The estimates imply that a one standard deviation increase in tpcompliance\textsubscript{i} increases the treatment effect on the EITC amount by $21 for the middle income measure and by $49 for the EITC amount measure of compliance. Although there is some variation in the magnitude of the estimates with the continuous measures of compliance, the qualitative pattern is robust: more compliant tax professionals induce larger treatment effects on total and wage-based EITC amounts.

Reassuringly, “placebo” treatments never produce significant effects for any of the definitions of tax professional compliance in Table VI. That is, robust p values computed using a permutation method are nearly identical to the p values reported in the table. We conclude that our baseline results are not very sensitive to the definition of tax professional compliance.
5 Calibration of Magnitudes

In this section, we benchmark the magnitudes of the information treatment effects relative to the effects of conventional policy instruments such as an expansion of the EITC program or changes in tax rates. We calibrate the changes in the behavior that would be caused by changes in marginal incentives using estimates of the intensive margin labor supply elasticity from the existing literature. As discussed in section 2, most studies find insignificant effects of EITC expansions on hours of work for those already in the work force. Our reading of the literature suggests that an elasticity of \( e = 0.25 \) is an upper bound for the intensive elasticity of earnings.\(^{28}\) Since complying and non-complying tax professionals generate qualitatively different behavioral responses, we present separate calibrations for each case.

*Complying tax professionals.* Clients treated by complying tax professionals respond in a manner consistent with what would be expected to occur when the EITC program is expanded. We therefore calculate the percentage expansion in the EITC that would be required to produce the same change in earnings behavior as the information treatment.

Let \( t^i \) denote the EITC phase-in rate (\( t^i = 0.4 \) for filers with two or more dependents and \( t^i = 0.34 \) for those with one dependent). Let \( t^d \) denote the phase-out rate (\( t^d = 0.21 \) for two or more dependents, \( t^d = 0.16 \) for one dependent). Expanding the EITC program by \( \Delta \) percent would increase the net-of-tax rate from \( 1 + t^i \) to \( 1 + t^i(1 + \Delta) \) in the phase-in range and decrease the net-of-tax rate from \( 1 - t^d \) to \( 1 - t^d(1 + \Delta) \) in the phase-out range. To calibrate how these changes would affect earnings behavior, we use a standard specification of utility as a function of consumption \((c)\) and labor \((l)\) that produces a constant net-of-tax elasticity:

\[
u(c, l) = c - \frac{l^{1+1/e}}{1 + 1/e},
\]

where \( e = \frac{d \log l}{d \log 1 - t} \) denotes the elasticity of labor supply with respect to the net-of-tax rate. Note that there are no income effects with this quasi-linear utility specification, so labor supply is a function purely of the marginal tax rate.

In the phase-in range, if the earnings level under the existing EITC program is \( z_0 \), earnings after the \( \Delta \) percent EITC expansion would be

\[
z^i_{\Delta} = z_0 \cdot \left[ (1 + t^i(1 + \Delta))/(1 + t^i) \right]^e \simeq z_0 \cdot \left( 1 + e \cdot \Delta \cdot \frac{t^i}{1 + t^i} \right).
\]

\(^{28}\) Saez’s (2009) analysis of bunching at the kink points of the EITC schedule implies an intensive margin elasticity for the EITC population of at most 0.15, with most of this effect driven by the self-employed.
Symmetrically, in the phase-out range, if earnings under the existing EITC are equal to \( z_0 \), earnings after the \( \Delta \) percent EITC expansion would be

\[
z^d_{\Delta} = z_0 \cdot \left( \frac{(1 - t^d(1 + \Delta))}{(1 - t^d)} \right)^e \simeq z_0 \cdot \left( 1 - e \cdot \Delta \cdot \frac{t^d}{1 - t^d} \right)
\]

To find the \( \Delta \) that generates responses comparable to those estimated in the data, we focus on our estimate of the change in the EITC amount induced by the information treatment. For complying tax professionals, we estimate that the information treatment increased the average EITC amount by \( \Delta EITC = $58 \) (Table III, column 2, row 2). To derive a comparable measure for the effect of a \( \Delta \) percent EITC expansion, we calculate the increase in the EITC amount under the initial (pre-expansion) schedule, which is the relevant measure for comparisons of behavioral responses. The change in earnings behavior in the phase-in range \((z^\Delta - z_0)\) increases the pre-expansion EITC amount by

\[
\Delta EITC^i = t^i \cdot (z^\Delta - z_0) \simeq z_0 \cdot e \cdot \Delta \cdot \frac{(t^i)^2}{1 + t^i}
\]

Likewise, in the phase-out range, the change in earnings \((z^d - z_0)\) increases the pre-expansion EITC amount by:

\[
\Delta EITC^d = -t^d \cdot (z^\Delta - z_0) \simeq z_0 \cdot e \cdot \Delta \cdot \frac{(t^d)^2}{1 - t^d}
\]

Let \( \lambda^i \) and \( \lambda^d \) denote the fraction of the EITC claimants in the phase-in and phase-out regions respectively. Let \( \bar{z}^i \) and \( \bar{z}^d \) denote the average earnings in the phase-in and phase-out regions. The mean effect of the EITC expansion on EITC amounts under the initial schedule is:

\[
\Delta EITC \simeq \Delta \cdot e \cdot \left[ \lambda^i \cdot \bar{z}^i \cdot \frac{(t^i)^2}{1 + t^i} + \lambda^d \cdot \bar{z}^d \cdot \frac{(t^d)^2}{1 - t^d} \right]
\]

(4)

In our sample, \( \lambda^i = .28 \), \( \lambda^d = .53 \), \( \bar{z}^i = $6,600 \), \( \bar{z}^d = $23,300 \), \( t^i = 0.37 \) (the average of 40% and 34%), and \( t^d = 18.5\% \) (the average of 21% and 16%). With \( \Delta EITC = $58 \) and \( e = .25 \), solving equation (4) yields \( \Delta = 33\% \). That is, a 33% expansion in the federal EITC would be required to generate the same labor supply responses along the intensive margin as the information treatment implemented by complying tax professionals.

Non-complying tax professionals. The information treatment as implemented by non-complying tax professionals led to a pure increase in earnings, which is consistent with a reduction in perceived tax rates rather than change in perceptions of the EITC schedule. We
therefore calculate the percentage reduction in tax rates that would produce an increase in earnings equal to the treatment effect estimate of $247 (Table III, column 7, row 3).

The EITC claimants in our sample face an average marginal tax rate of approximately \( t = 10\% \) and have average earnings of \( z = $16,500 \). A reduction in \( t \) by \( \Delta t \) would generate a change in earnings \( \Delta z \) of

\[
\frac{\Delta z}{z} = e \cdot \frac{\Delta t}{1 - t}.
\]

With \( \Delta z = $247 \) and \( e = .25 \), solving equation (5) yields \( \Delta t = 5.4\% \). That is, a 5.4 percentage point reduction in marginal tax rates would be required to generate the same labor supply responses along the intensive margin as the information treatment implemented by complying tax professionals.

These calculations should be viewed as rough order-of-magnitude estimates given the highly stylized nature of the calibration and the standard errors in the treatment effect estimates. Nevertheless, the calibrations do show that achieving similar changes in behavior through changes in program parameters would be an order-of-magnitude more expensive: the information treatment cost $5 per client, whereas expanding the EITC by 33% would cost $800 per eligible claimant. Hence, although the treatment effects are not very large in absolute terms, they are substantial in comparison with the responses that can be generated on the intensive margin by standard policy instruments. The reason is that labor supply behavior on the intensive margin is fundamentally inelastic (perhaps because of hours constraints or frictions). Thus, all interventions have relatively modest absolute effects on this margin of behavior.

One should be cautious in drawing normative conclusions from these calibration results. Even though information may be a more cost-effective way of changing behavior than changes in incentives, a social planner’s limited resources may be better spent on expanding the EITC program rather than providing information, for three reasons. First, the provision of transfers has redistributional value independent of its impacts on behavior. Second, the expansion of the EITC would substantially increase labor supply through the participation margin. Finally, the provision of information could potentially increase deadweight costs by increasing the distortions in intensive-margin behavior.\(^{29}\)

\(^{29}\)See Chetty, Kroft, Looney (2008) for a theoretical analysis of the efficiency costs of taxation when individuals are uninformed about tax policies.
6 Conclusion

This paper has reported the results of an experiment with 43,000 EITC claimants at H&R Block that tested the effects of information on labor supply responses to the EITC. We found evidence of significant but heterogeneous responses to the information treatment across H&R Block tax professionals. Half of the tax professionals increase their treated clients’ EITC amounts and the concentration of their wage earnings distribution around the peak of the EITC schedule. The remaining tax professionals do not induce a significant change in EITC amounts, but increase their clients’ probabilities of having high wage earnings that place them in the phase-out range. We speculate that this heterogeneity in treatment effects arises from the different ways in which tax professionals used the information to advise their clients.

It may be surprising that a two to three minute information explanation can have substantial effects on labor supply behavior over the subsequent year. We believe that this treatment had significant effects because it combined simple information provision with advice from an expert exactly at a moment when individuals are thinking about taxes. It is also important to note that the treatment effects we observe are modest in absolute terms; they are large only in comparison with intensive margin responses to other policies.

Our results have implications for empirical work on the effects of taxes and transfers and for optimal tax and transfer policy design. From a positive perspective, the results show that the effects of taxes and transfer programs depend critically on their information and salience. Such factors should be included as an explanatory variable in empirical estimation of behavioral responses. Responses to government policies cannot be used to recover structural parameters of individuals’ preferences without modelling perceptions. For example, it may be very misleading to use an elasticity estimate from one program to predict responses to changes to another program with different information characteristics. Similarly, the long-run effects of policies could be very different from the effects of short-run changes in policy parameters since information about small changes may diffuse slowly.

From a normative perspective, the results imply that informational considerations are central to the optimal design of tax and transfer policies. Recent studies in behavioral public economics have begun to characterize optimal policies when agents do not have full information and optimize imperfectly relative to government policies (Liebman and Zeckhauser (2004);
These studies take the level of information as exogenous rather than endogenously determined by policy. The present study shows that information provision can be a powerful policy tool because perceptions about taxes and transfers can be modified at a low cost. The results suggest, for instance, that high phase-in rates coupled with low phaseout rates over a long range could maximize the impact of the EITC on work effort. Such a structure would make the benefits of working in the phase-in region most salient, and permit the work disincentives in the phaseout region to be framed as negligible. More generally, the optimal design of tax policies may differ considerably from standard prescriptions when optimal program parameters and information structures are studied in combination.

Finally, as in the literature on teacher effects, the results of this study call for exploration of the characteristics that make different tax professionals teach the tax code differently. Such research holds the promise of offering greater insight into the reasons that important decisions are sensitive to small amounts of information and advice.
Appendix Proof

Index tax professionals by \( p = 1, \ldots, P \) and clients by \( i = 1, \ldots, I \). Each tax professional \( p \) serves a set \( I_p \) of clients. For a client \( i \) served by tax professional \( p \), denote by \( I_{p,-t} \) the set of other clients (excluding \( i \)) served by tax professional \( p \). Let \( T_i = 0, 1 \) denote the intent-to-treat status of client \( i \). The set \( I_{p,-t} \) is partitioned into two sets of clients: those who were treated \((T_j = 1)\) and those not treated \((T_j = 0)\). Denote these two sets by \( I^1_{p,-t} \) and by \( I^0_{p,-t} \). Formally, for \( t = 0, 1 \), \( I^t_{p,-t} = \{ j \in I_{p,-t} | T_j = t \} \). Denote by \( y_{i,p} \) an outcome such as earnings reported in year 2. Let \( m_{i,p} \) denote an indicator for whether client \( i \) of tax professional \( p \) has “middle income” (earnings between \$7,000 and \$15,400) in year 2.

For a given outcome \( y \), there are two potential outcomes: \( y^0_{i,p} \) if the client is in the control group \( T_i = 0 \) and \( y^1_{i,p} \) if the client is in the treatment group \( T_i = 1 \). We only observe \( y^T_{i,p} \). For a given client \( i \) served by tax professional \( p \), we define complying status \( C_{i,p} \) as follows: \( C_{i,p} = 1 \) if \( \sum_{j \in I^1_{p,-t}} m_{j,p} / |I^1_{p,-t}| > \sum_{j \in I^0_{p,-t}} m_{j,p} / |I^0_{p,-t}| \) and \( C_{i,p} = 0 \) otherwise.

Definition: there are no treatment effects along outcome \( y \) iff \( y^1_{i,p} = y^0_{i,p} \) for all \((i,p)\).

**Theorem 1** Suppose there are no treatment effects along outcomes \( y \) and \( m \). Then

1. \( C \) and \( y \) are independent variables.
2. \( E[y_{i,p}|C = 1, T = 1] = E[y_{i,p}|C = 1, T = 0] \) and \( E[y_{i,p}|C = 0, T = 1] = E[y_{i,p}|C = 0, T = 0] \), i.e., the average outcome \( y \) is the same in expectation across treatment and control clients within the sample of compliers and also within the sample of non-compliers.
3. \( E[y_{i,p}|C = 1, T = 1] = E[y_{i,p}|C = 0, T = 1] \) and \( E[y_{i,p}|C = 1, T = 0] = E[y_{i,p}|C = 0, T = 0] \), i.e., the average outcome \( y \) is the same in expectation across complying and non-complying cases within the sample of treated clients and also within the sample of non-treated clients.

**Proof:**

1. Suppose there are no treatment effects along outcome \( m \). Then \( m^1_{i,p} = m^0_{i,p} \) for all \((i,p)\). By definition, \( C_{i,p} = 1 \) if \( \sum_{j \in I^1_{p,-t}} m_{j,p} / |I^1_{p,-t}| > \sum_{j \in I^0_{p,-t}} m^0_{j,p} / |I^0_{p,-t}| \). Therefore, \( C_{i,p} = 1 \) if \( \sum_{j \in I^1_{p,-t}} m^0_{j,p} / |I^1_{p,-t}| - \sum_{j \in I^0_{p,-t}} m^0_{j,p} / |I^0_{p,-t}| > 0 \).

The partition \( I^1_{p,-t}, I^0_{p,-t} \) depends solely on \( T_j \) for \( j \in I^0_{p,-t} \cup I^1_{p,-t} \). Because treatment \( T \) is randomly assigned, any outcome of individual \( i \) such as \( m_{i,p} \) or \( y_{i,p} \) must be independent of
Outcomes $m_{i,p}$ or $y_{i,p}$ are independent of $I_{p,-i}^1$ and $I_{p,-i}^0$. Therefore outcomes $m_{i,p}$ or $y_{i,p}$ are independent of $C_{i,p}$.

(2) Recognizing that $y_{ip}^1$ is independent of $C_{i,p}$, we have

$$E[y_{ip}|C = 1, T = 1] = E[y_{ip}^1|C = 1, T = 1] = E[y_{ip}^1|T = 1]$$

We then have $E[y_{ip}^1|T = 1] = E[y_{ip}^1|T = 0]$ because $T$ is randomly assigned and $E[y_{ip}^1|T = 0] = E[y_{ip}^0|T = 0]$ because there are no treatment effects. Finally, because $C$ is independent of $y_{ip}^0$,

$$E[y_{ip}^0|T = 0] = E[y_{ip}^0|C = 1, T = 0] = E[y_{ip}|C = 1, T = 0].$$

The proof for the case of $C = 0$ is identical.

(3) This follows from the following set of equalities:

$$E[y_{ip}|C = 1, T = 1] = E[y_{ip}^1|C = 1, T = 1] = E[y_{ip}^1|T = 1]$$

$$= E[y_{ip}^1|C = 0, T = 1] = E[y_{ip}|C = 0, T = 1]$$

where we use the fact that $C$ and $y_{ip}$ are independent in the second and fourth equality. QED
References


## TABLE I
### Means of Base-Year Variables by Treatment Eligibility

<table>
<thead>
<tr>
<th>Variable:</th>
<th>Control [N=21,193]</th>
<th>Treatment [N=20,809]</th>
<th>Difference (2) - (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
</tr>
<tr>
<td>Income ($), N=21,193</td>
<td>16,586.97</td>
<td>16,623.97</td>
<td>37.28</td>
</tr>
<tr>
<td></td>
<td>(59.63)</td>
<td>(60.58)</td>
<td>[0.45]</td>
</tr>
<tr>
<td>Wage Earnings ($), N=21,193</td>
<td>15872.49</td>
<td>15912.74</td>
<td>40.25</td>
</tr>
<tr>
<td></td>
<td>(65.38)</td>
<td>(66.08)</td>
<td>[0.43]</td>
</tr>
<tr>
<td>EITC amount ($), N=21,193</td>
<td>2,478.34</td>
<td>2,465.31</td>
<td>-13.03</td>
</tr>
<tr>
<td></td>
<td>(8.52)</td>
<td>(8.62)</td>
<td>[-1.06]</td>
</tr>
<tr>
<td>Percent Self Employed, N=21,193</td>
<td>11.40%</td>
<td>11.18%</td>
<td>-0.22%</td>
</tr>
<tr>
<td></td>
<td>(0.218)</td>
<td>(0.218)</td>
<td>[-0.67]</td>
</tr>
<tr>
<td>Percent Low Income, N=21,193</td>
<td>14.30%</td>
<td>14.69%</td>
<td>0.39%</td>
</tr>
<tr>
<td></td>
<td>(0.240)</td>
<td>(0.245)</td>
<td>[1.12]</td>
</tr>
<tr>
<td>Percent Middle Income, N=21,193</td>
<td>34.28%</td>
<td>33.97%</td>
<td>-0.31%</td>
</tr>
<tr>
<td></td>
<td>(0.326)</td>
<td>(0.328)</td>
<td>[-0.71]</td>
</tr>
<tr>
<td>Percent Upper Income, N=21,193</td>
<td>51.41%</td>
<td>51.34%</td>
<td>-0.07%</td>
</tr>
<tr>
<td></td>
<td>(0.343)</td>
<td>(0.347)</td>
<td>[-0.15]</td>
</tr>
<tr>
<td>Percent Married, N=21,193</td>
<td>9.53%</td>
<td>9.40%</td>
<td>-0.13%</td>
</tr>
<tr>
<td></td>
<td>(0.202)</td>
<td>(0.202)</td>
<td>[-0.49]</td>
</tr>
<tr>
<td>Percent with 2 or more</td>
<td>59.29</td>
<td>59.29</td>
<td>0.00</td>
</tr>
<tr>
<td>dependents in Year 1, N=21,193</td>
<td>(0.3370)</td>
<td>(0.3406)</td>
<td>[-0.00]</td>
</tr>
<tr>
<td>Percent with 2 or more</td>
<td>63.68</td>
<td>64.11</td>
<td>0.43</td>
</tr>
<tr>
<td>dependents in Year 2, N=21,193</td>
<td>(0.4082)</td>
<td>(0.4137)</td>
<td>[0.45]</td>
</tr>
<tr>
<td>Percent Return in Year 2</td>
<td>72.57%</td>
<td>71.72%</td>
<td>-0.85%</td>
</tr>
<tr>
<td></td>
<td>(0.306)</td>
<td>(0.312)</td>
<td>[-1.95]</td>
</tr>
</tbody>
</table>

Notes: All variables are base year (year 1) values except last two rows. Standard errors clustered by tax professional reported in parentheses; t-statistics in square brackets. Income is defined as the sum of wage income and self-employment income. Self employed is a binary variable defined as having positive self-employment income (irrespective of other wage earnings). Low income is defined as earnings below $7,000; middle income is defined as earnings between $7,000 and $15,400; and upper income is defined as earnings above $15,400. Treatment group includes all tax filers we intended to treat.
### TABLE II
Kolmogorov-Smirnov Tests of Treatment Effects on Distributions

<table>
<thead>
<tr>
<th>Dependent Variable:</th>
<th>Δ EITC Amount Distribution (1)</th>
<th>Earnings Distribution (year 2) (2)</th>
<th>Δ EITC Wage Amt. Distribution (3)</th>
<th>Wage Distribution (year 2) (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Full Sample [N = 30,303]</td>
<td>0.074</td>
<td>0.217</td>
<td>0.273</td>
<td>0.277</td>
</tr>
<tr>
<td>(2) Complying Tax Professionals [N = 15,395]</td>
<td>0.005</td>
<td>0.153</td>
<td>0.005</td>
<td>0.270</td>
</tr>
<tr>
<td>(3) Non-Complying Tax Professionals [N=14,534]</td>
<td>0.045</td>
<td>0.008</td>
<td>0.010</td>
<td>0.010</td>
</tr>
</tbody>
</table>

Notes: This table reports p values from two-sample Kolmogorov-Smirnov (KS) tests for equality of various distributions across treated and control group clients. In column 1, the variable considered is the change in EITC amount from year 1 to year 2; column 2: year 2 income (wage earnings plus self-employment income); column 3: the change in EITC amount computed based solely on wage earnings; and column 4: wage earnings in year 2. The first row is for the full sample. The second row considers clients served by "complying" tax professionals, while the third row considers those served by "non-complying" tax professionals. A given tax filer i's tax professional is defined as a "complier" if she has a higher fraction of other clients (excluding client i) with middle income (between $7,000 and $15,400) in the treatment group than the control group. P values are computed using a permutation algorithm as follows. We generate a placebo treatment randomly (50% probability) and recompute the KS test statistic based on this placebo treatment. This exercise is repeated 2000 times to generate a distribution of KS statistics. The p-values reported in the table are the percentile where the original KS statistics (for the true treatment) fall within the empirical distribution of the 2000 placebo KS statistics.
### TABLE III
Treatment Effects on EITC Amounts and Earnings Distribution

<table>
<thead>
<tr>
<th>Dependent Variable:</th>
<th>Δ EITC Amt. ($) w/ Controls</th>
<th>Δ EITC Amt. ($) w/ Controls</th>
<th>Middle Inc. (%) w/ Controls</th>
<th>Middle Inc. (%) w/ Controls</th>
<th>Low Inc. (%) w/ Controls</th>
<th>High Inc. (%) w/ Controls</th>
<th>Δ Earnings ($) w/ Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Full Sample</td>
<td>24.02</td>
<td>17.17</td>
<td>0.100</td>
<td>0.37</td>
<td>-0.61</td>
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<tr>
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<td>[14.06]</td>
<td>[0.54]</td>
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<td>[0.34]</td>
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<td></td>
<td>[1.63]</td>
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<td>[0.19]</td>
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</tr>
<tr>
<td>(2) Complying Tax Professionals</td>
<td>67.26</td>
<td>58.05</td>
<td>2.90</td>
<td>2.57</td>
<td>-1.46</td>
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<tr>
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<td>(21.09)</td>
<td>(20.46)</td>
<td>(1.04)</td>
<td>(0.87)</td>
<td>(0.49)</td>
<td>(0.75)</td>
<td>(123.66)</td>
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<tr>
<td></td>
<td>[2.19]</td>
<td>[2.84]</td>
<td>[2.78]</td>
<td>[2.96]</td>
<td>[-3.02]</td>
<td>[-1.47]</td>
<td>[-1.40]</td>
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<tr>
<td>(3) Non-Complying Tax Professionals</td>
<td>-27.96</td>
<td>-32.28</td>
<td>-3.11</td>
<td>-2.15</td>
<td>0.45</td>
<td>1.71</td>
<td>247.26</td>
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<tr>
<td>[N=14,534]</td>
<td>(21.83)</td>
<td>(20.40)</td>
<td>(1.07)</td>
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<td>(0.52)</td>
<td>(0.77)</td>
<td>(119.87)</td>
</tr>
<tr>
<td></td>
<td>[-1.28]</td>
<td>[-1.58]</td>
<td>[-2.91]</td>
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<td>[-0.85]</td>
<td>[2.23]</td>
<td>[2.06]</td>
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<tr>
<td>(4) Compliers vs. Non-Compliers (2) - (3)</td>
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<td>90.33</td>
<td>6.01</td>
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<td>(1.55)</td>
<td>(0.76)</td>
<td>(1.25)</td>
<td>(180.20)</td>
</tr>
<tr>
<td></td>
<td>[3.00]</td>
<td>[2.99]</td>
<td>[3.17]</td>
<td>[3.04]</td>
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<tr>
<td>(5) Compliers vs. Non-Compliers</td>
<td>89.74</td>
<td>89.78</td>
<td>4.68</td>
<td>4.70</td>
<td>-1.90</td>
<td>-2.81</td>
<td>-421.74</td>
</tr>
<tr>
<td>Controlling for Heterogeneity in Treatment Effects by Client Observables</td>
<td>(30.21)</td>
<td>(30.27)</td>
<td>(1.55)</td>
<td>(1.55)</td>
<td>(0.76)</td>
<td>(1.25)</td>
<td>(180.68)</td>
</tr>
<tr>
<td>[N=29,929]</td>
<td>[2.97]</td>
<td>[2.97]</td>
<td>[3.02]</td>
<td>[3.03]</td>
<td>[-2.49]</td>
<td>[-2.25]</td>
<td>[-2.33]</td>
</tr>
</tbody>
</table>

Notes: Standard errors clustered by tax professional reported in parentheses; t-statistics in square brackets; number of observations is reported for each row. Each coefficient is from a separate regression. Columns show treatment effects on various year 2 outcomes – cols 1,2: change in EITC amount from year 1 to year 2; cols 3-4: middle income indicator (earnings between $7,000 and $15,400); col. 5: low income indicator (earnings below $7,000); col. 6: high income indicator (earnings above $15,400); col. 7: change in earnings from year 1 to year 2. Columns 2 and 4-7 include the following base year variables as controls: earnings, earnings squared, wage earnings, married filing jointly dummy, and number of qualifying children (1 vs. 2 or more). In row (1), each outcome variable is regressed on a treatment dummy in the full sample of tax filers who returned in year 2. The treatment group includes all tax filers we intended to treat. Row (2) limits the sample to complying tax professionals, and row (3) limits the sample to non-complying tax professionals. See notes to Table II for definition of complying tax professionals. Row (4) reports the difference in treatment effects between complying and non-complying tax professionals, which equals the difference in coefficients between rows 3 and 4. We regress each outcome variable on the treatment indicator, an indicator for having a complying tax professional, and the interaction of the two indicators. The coefficient on the interaction is reported. In columns 2 and 4-7, we also include interactions of the base year control variables with the complying tax professional indicator. Row (5) reports the difference in treatment effects between complying and non-complying tax professionals controlling for heterogeneity in treatment effects by client observables. This specification adds interactions of the base year controls with the treatment indicator to the specifications in row 4. Again, the coefficient on the treatment x complying tax professional interaction effect is reported.
<table>
<thead>
<tr>
<th>Dependent Variable:</th>
<th>Δ EITC Amt. ($) w/ Controls</th>
<th>Middle Inc. (%) w/ Controls</th>
<th>Δ Wage-Based EITC Amt. ($) w/ Controls</th>
<th>Mid Wage (%) w/ Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Full Sample</td>
<td>66.10</td>
<td>3.93</td>
<td>1.75</td>
<td>-0.14</td>
</tr>
<tr>
<td></td>
<td>(43.21)</td>
<td>(1.57)</td>
<td>(14.96)</td>
<td>(0.47)</td>
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<td></td>
<td>[1.53]</td>
<td>[2.51]</td>
<td>[0.12]</td>
<td>[-0.29]</td>
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<tr>
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<td>[N=3,150]</td>
<td>[N=30,303]</td>
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<tr>
<td>(2) Complying Tax Professionals</td>
<td>128.92</td>
<td>6.98</td>
<td>48.48</td>
<td>1.88</td>
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<td></td>
<td>(59.69)</td>
<td>(2.40)</td>
<td>(21.07)</td>
<td>(0.78)</td>
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<td></td>
<td>[2.16]</td>
<td>[2.91]</td>
<td>[2.30]</td>
<td>[2.41]</td>
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<td>[N=1,630]</td>
<td>[N=15,395]</td>
<td>[N=15,395]</td>
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<tr>
<td>(3) Non-Complying Tax Professionals</td>
<td>-27.47</td>
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<td>-54.55</td>
<td>-2.45</td>
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<td>(64.87)</td>
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<td>(0.85)</td>
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<td>[-2.88]</td>
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<td>[N=1,495]</td>
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<td>[N=14,534]</td>
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<tr>
<td>(4) Compliers vs. Non-Compliers (2) - (3)</td>
<td>156.40</td>
<td>6.80</td>
<td>103.03</td>
<td>4.33</td>
</tr>
<tr>
<td></td>
<td>(89.25)</td>
<td>(3.50)</td>
<td>(31.09)</td>
<td>(1.38)</td>
</tr>
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<td></td>
<td>[1.75]</td>
<td>[1.94]</td>
<td>[3.31]</td>
<td>[3.13]</td>
</tr>
<tr>
<td></td>
<td>[N=3,125]</td>
<td>[N=3,125]</td>
<td>[N=29,929]</td>
<td>[N=29,929]</td>
</tr>
<tr>
<td>(5) Compliers vs. Non-Compliers</td>
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<td>6.64</td>
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<td>4.33</td>
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<td>Controlling for Heterogeneity in</td>
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<td>(3.50)</td>
<td>(31.12)</td>
<td>(1.38)</td>
</tr>
<tr>
<td>Treatment Effects by Client Observables</td>
<td>1.81</td>
<td>1.90</td>
<td>3.31</td>
<td>3.13</td>
</tr>
<tr>
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<td>[N=3,125]</td>
<td>[N=3,125]</td>
<td>[N=29,929]</td>
<td>[N=29,929]</td>
</tr>
</tbody>
</table>

Notes: Standard errors clustered by tax professional reported in parentheses; t-statistics in square brackets; number of observations is reported for each regression in square brackets. Columns show treatment effects on various outcomes -- col. 1: change in EITC amount from year 1 to year 2; col. 2: indicator for middle income (between $7,000 and $15,400) in year 2; col. 3: change in wage-based EITC amount (EITC computed based solely on wage earnings) from year 1 to year 2; col. 4: middle wage income (wage earnings between $7,000 and $15,400) in year 2. Estimates in cols. 1 and 2 are for tax filers with positive self-employment income in year 1. Estimates in cols. 3 and 4 are for the full sample. As in Table 3, row (1) reports the treatment effects in the full sample, row (2) restricts the sample to clients of complying tax professionals, and row (3) to non-complying tax professionals. Row (4) estimates the difference in treatment effects between complying and non-complying tax professionals. Row (5) estimates the difference in treatment effects between complying and non-complying tax professionals, controlling for heterogeneity in treatment effects by base year characteristics of clients. All regressions control for base year earnings, earnings squared, wage earnings, marital status, and number of children. See notes to Table III for details of regression specifications. See notes to Table II for definition of complying tax professionals.
## TABLE V

### Robustness to Definition of "Complying" Tax Professionals

<table>
<thead>
<tr>
<th>Outcome variable used for compliance definition</th>
<th>Middle Income EITC Amount</th>
<th>Middle Income EITC Amount</th>
<th>EITC Amount</th>
<th>Middle Income EITC Amount</th>
<th>EITC Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Binary vs. continuous compliance classification</td>
<td>Binary No</td>
<td>Binary No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Controls for base year in outcome and compliance def.</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
</tr>
</tbody>
</table>

(1) Δ EITC Amt. ($)  
95.21  
87.94  
173.92  
0.044  
127.94  
0.101  

[3.00]  
[40.93]  
[87.68]  
[0.029]  
[92.61]  
[0.038]  

[N=29,929]  
[N=29,929]  
[N=29,351]  
[N=29,362]  
[N=29,346]  
[N=29,353]  

(2) Δ Wage-Based EITC Amt ($)  
103.03  
99.58  
227.58  
0.050  
182.88  
0.091  

[3.10]  
[40.32]  
[88.04]  
[0.029]  
[91.47]  
[0.038]  

[N=29,929]  
[N=29,929]  
[N=29,351]  
[N=29,362]  
[N=29,346]  
[N=29,353]  

Notes: Standard errors clustered by tax professional reported in parentheses; t-statistics in square brackets; number of observations is reported for each regression in square brackets. This table explores the sensitivity of the results to the definition of "complying" tax professionals. Each coefficient listed is from a separate regression of the form shown in equation (3) in the text, which includes the treatment indicator, measure of tax professional compliance, and the interaction of the two variables. Each column of the table reports the coefficient on the interaction between different tax professional compliance variables and the treatment indicator. The dependent variable in row (1) is the change in EITC amount from year 1 to year 2. The dependent variable in row (2) is the change in the wage-based EITC amount from year 1 to year 2. In all columns, the complying tax professional variable is defined for each client by excluding that client himself. Column 1 recalls the results from Table III (row 4, col. 1) and Table 5 (row 4, col. 3) where the complying tax professional variable is defined as a binary variable based on the middle income indicator. In column 2, the complying tax professional variable is defined instead as a binary variable equal to one for tax professionals whose other clients treated in year 1 have a larger EITC amount in year 2 than other control clients. In column 3, the complying tax professional variable is defined as a continuous variable equal to the fraction of other clients treated in year 1 who have middle income in year 2 (between $7,000 and $15,400) minus the fraction of other control clients in year 1 who have middle income in year 2. In column 4, the complying tax professional variable is defined as a continuous variable equal to the average EITC amount in year 2 of other clients treated in year 1 minus the average EITC amount in year 2 of other clients in the control group in year 1. Finally, columns 5 and 6 replicate the definitions in 3 and 4, but define the continuous measure of treatment effects on other clients using a regression that controls for the following base year observables: earnings, earnings squared, wage earnings, married filing jointly dummy, and number of qualifying children. We also control for the same base year variables and their interaction with the compliance variable when estimating the regressions in columns 5 and 6.
FIGURE I
The Earned Income Tax Credit Schedule

a) EITC Amount as a Function of Earnings

- Subsidy: 40%
- Subsidy: 34%
- Phase-out tax: 21%
- Phase-out tax: 16%

Panel A depicts the EITC amount as a function of annual earnings in 2006. The EITC amount varies by marital status and number of qualifying children as shown. Panel B contrasts the actual EITC schedule for a single tax filer with 2+ children with our model of the perceived schedule based on existing survey evidence. The perceived schedules are drawn for individuals with two levels of earnings, one in the phase-in and one in the phase-out range. Each individual accurately perceives the level of his EITC refund, but underestimates the extent to which variations in earnings affect the size of his EITC. If implemented as intended, the information treatment should rotate the perceived EITC schedules (dashed red lines) toward the actual EITC schedule (solid yellow line) by clarifying the actual linkage between EITC amounts and earnings.
FIGURE II
Time Spent Explaining the EITC to Clients Eligible for Treatment

NOTE—This figure is a histogram of the time spent (in seconds) by tax professionals on explaining the EITC to clients eligible for the information treatment. Time spent was recorded by the tax preparation software. The vertical line at 120 seconds depicts the threshold above which tax professionals received $5 of compensation (per client) for explaining the EITC. The histogram is based on 20,809 observations. Each bin represents an interval of 3 seconds.
NOTE—This figure plots the fraction of base year clients who returned to H&R Block to file their taxes in year 2. Each point represents the average return rate in a $1000 bin. The return rates are plotted separately for the treatment (solid red line) and control groups (dashed blue line).
FIGURE IV
Year 2 Earnings Distributions: Complying Tax Professionals

NOTE–These figures plot kernel densities of year 2 (post-treatment) income (sum of wage earnings and self-employment income) for the sample of individuals filing with a “complying” tax professional. A given tax filer i’s tax professional is defined as a “complier” if she has a higher fraction of other clients (excluding client i) with middle income (between $7,000 and $15,400) in the treatment group than the control group. The solid red curve shows the income distribution for the treatment group; the dashed blue curve shows the income distribution for the control group. Panel A is for tax filers with 1 qualifying dependent for EITC purposes in the base year, while panel B is for tax filers with 2 or more qualifying dependents. Each panel also shows the relevant EITC schedule (on the left y-axis). The vertical lines mark the boundaries between the phase-in, peak, and phase-out ranges of the EITC.
NOTE—These figures plot kernel densities of year 2 (post-treatment) income (sum of wage earnings and self-employment income) for tax filers with one dependent. The solid red curve shows the income distribution for individuals filing with a “complying” tax professional; the dashed blue curve shows the income distribution for individuals filing with a “non-complying” tax professional. See notes to Figure IV for the definition of “complying” tax professionals. Panel A is for the sample of individuals in the treatment group, while panel B is for the sample of individuals who were in the control group. Each panel also shows the relevant EITC schedule (on the left y-axis). The vertical lines mark the boundaries between the phase-in, peak, and phase-out ranges of the EITC.
FIGURE VI
Year 2 Earnings Distributions for Self-Employed Clients of Complying Tax Professionals

NOTE—These figures plot kernel densities of year 2 (post-treatment) income (sum of wage income and self-employment income) for tax filers who (a) had positive self-employment earnings in the base year and (b) filed with a complying tax professional. See notes to Figure IV for the definition of “complying” tax professionals. The solid red curve shows the income distribution for the treatment group; the dashed blue curve shows the income distribution for the control group. Panel A is for the sample of individuals with one dependent, while panel B is for the sample of individuals with two or more dependents. Each panel also shows the relevant EITC schedule (on the left y-axis). The vertical lines mark the boundaries between the phase-in, peak, and phase-out ranges of the EITC.
NOTE—These figures plot kernel densities of year 2 wage earnings (excluding self-employment income) for the sample of individuals filing with a “complying” tax professional. See notes to Figure IV for the definition of “complying” tax professionals. The solid red curve shows the wage earnings distribution for the treatment group; the dashed blue curve shows the wage earnings distribution for the control group. Panel A is for tax filers with one dependent, while panel B is for tax filers with two or more dependents. Each panel also shows the relevant EITC schedule (on the left y-axis). The vertical lines mark the boundaries between the phase-in, peak, and phase-out ranges of the EITC.
FIGURE VIII
Year 2 Wage Earnings Distributions: Complying vs. Non-Complying Tax Professionals

NOTE—These figures plot kernel densities of year 2 wage earnings (excluding self-employment income) for tax filers with one dependent. The solid red curve shows the wage earnings distribution for individuals filing with a “complying” tax professional; the dashed blue curve shows the wage earnings distribution for individuals filing with a “non-complying” tax professional. See notes to Figure IV for the definition of “complying” tax professionals. Panel A is for the sample of individuals in the treatment group, while panel B is for the sample of individuals in the control group. Each panel also shows the relevant EITC schedule (on the left y-axis). The vertical lines mark the boundaries between the phase-in, peak, and phase-out ranges of the EITC.
1. Fill in earnings, EIC amount

2. Explain and dot graph

3. Table

4. Take-home Message

Exhibit 1

Single With Two or More Children

The EIC (Earned Income Credit) is a tax refund that gives families as much as $4,500 per year.

We want to explain how the EIC works to help you decide how much to work and earn this year.
In 2006, you made $10,000 → you are getting an EIC of $4,000 in your refund.

- Your earnings this year (in 2007) will determine the size of your EIC refund next year
- The EIC has 3 ranges: 1) Increasing, 2) Peak, 3) Decreasing

You are in the **increasing** range of the EIC. Think about it like this:

- **Increasing** Suppose you earn $10 an hour, then you are really making $14.00 an hour.
- **Peak** Your earnings are maxing-out the EIC amount
- **Decreasing** If you earn $10 more, your EIC is reduced by $2.10

<table>
<thead>
<tr>
<th>EIC Range</th>
<th>If you earn between</th>
<th>EIC refund will be</th>
<th>If you earn $10 more, the EIC...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increasing</td>
<td>$0-$11,790</td>
<td>$0 up to $4,716</td>
<td>Increases by $4</td>
</tr>
<tr>
<td>Peak</td>
<td>$11,790-$15,390</td>
<td>$4,716</td>
<td>Stays the same</td>
</tr>
<tr>
<td>Decreasing</td>
<td>$15,390-$37,780</td>
<td>$4,716 down to $0</td>
<td>Decreases by $2.10</td>
</tr>
</tbody>
</table>
The EIC is the largest component of the tax refund of American working families. This year, you are getting an EIC of $4000 as part of your tax refund. As part of a special effort to promote the EIC, H&R Block will offer you some useful and simple information about the EIC to help you take the best advantage of this credit. We want to explain how the EIC works to help you decide how much to work and earn this year.

Let me tell you some more details about the study. We are trying to better understand and increase awareness of EIC among our EIC-eligible clients.

Use Handout SINGLE WITH 2+ CHILDREN
In 2006, you made **$10,000** and you are getting an EIC of **$4,000** in your tax refund. Your earnings this year (in 2007) determine the size of your EIC refund next year. The EIC has 3 ranges: 1) Increasing, 2) Peak, 3) Decreasing.

You are in the **increasing** range of the EIC. Think about it like this: Suppose you earn $10 an hour. Because of the EIC you are really making $14 an hour. It pays to work more!

| EIC Range | If you earn between | Your EIC refund is | Earn $10 more, the EIC...
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Inc</td>
<td>$0-$11,790</td>
<td>$0 up to $4,716</td>
<td>Increases by $4.00</td>
</tr>
<tr>
<td>2) Peak</td>
<td>$11,790-$15,390</td>
<td>$4,716</td>
<td>Stays the same</td>
</tr>
<tr>
<td>3) Decr</td>
<td>$15,390-$37,780</td>
<td>$4,716 down to $0</td>
<td>Decreases by $2.10</td>
</tr>
</tbody>
</table>
Appendix Exhibit 2

Dear WARD CLEAVER,

The EIC (Earned Income Credit) gives tax refunds to working families. We want to explain how the EIC works to help you decide how much to work and earn this year. In 2006, you made $10000 and you are getting an EIC of $ 1984 in your tax refund.

Your earnings this year (in 2007) determine the size of your EIC refund next year. The EIC has 3 ranges: 1) Increasing, 2) Peak, 3) Decreasing.

In 2007 if you earn between: Your EIC refund in 2008 will be: If you earn $10 more, the EIC:

<table>
<thead>
<tr>
<th>EIC Range</th>
<th>In 2007 if you earn between:</th>
<th>Your EIC refund in 2008 will be:</th>
<th>If you earn $10 more, the EIC:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increasing</td>
<td>$0-$11,790</td>
<td>$0 up to $4,716</td>
<td>Increases by $4</td>
</tr>
<tr>
<td>Stays the Same</td>
<td>$11,790-$17,390</td>
<td>$4,716</td>
<td>Stays the same</td>
</tr>
<tr>
<td>Decreasing</td>
<td>$17,390-$39,780</td>
<td>$4,716 down to $0</td>
<td>Decreases by $2.10</td>
</tr>
</tbody>
</table>

You are in the **increasing** range of the EIC. Think about it like this: Suppose you earn $10 an hour. Because of the EIC you are really making $14 an hour. It pays to work more!

Note: The EIC does not affect any other credits or refunds you can get. This table applies to married joint filers with two or more qualifying children. If your family situation changes in 2007, your EIC may also change (see IRS Publication 596). Changes in earnings may also affect other credits you are entitled to or taxes you may owe. Though the printed earnings and EIC amounts are based directly on your current tax return, the indication of your position on the graph is for illustrative purposes only.
Dear [1st Name],

Thank you for preparing your taxes with H&R Block this year. Even though it’s early, we want to provide important information that you may want to consider as you plan financially for next year. The EIC (Earned Income Credit) gives tax credits to working families. This year, you qualified for the EIC. This letter is a follow up to the EIC information your H&R Block tax professional shared with you when you had your taxes prepared. We want to remind you how the EIC works as you consider how much to work and earn this year.

As pictured on the graph below, the EIC has 3 ranges: 1) Increasing, 2) Peak, 3) Decreasing.

Last year, you were in the increasing range of the EIC. Look at the table below. Will you be in the increasing range again this year? If yes, think about it like this: Suppose you earn $10 an hour. Because of the EIC, for each $10 you earn you could be eligible to receive an additional $4 in EIC – so it’s like you’re making $14 an hour. It pays to work more!

This table applies to single filers with two or more qualifying children. If your family situation changes in 2007, your EIC may also change (see IRS Publication 596). Many things can affect EIC, including changes in your family situation, other financial changes, or changes in tax laws. These changes may also affect your eligibility for other credits or deductions or taxes you may owe.

We hope you find the EIC information helpful. We look forward to continuing to provide tax and financial planning assistance to you in the future.

Sincerely,

Bernard M. Wilson
Vice President
Outreach & Business Development
Dear Tax Professional,

As you know and thanks to your help, H&R Block has implemented an EIC outreach effort in Chicago where you have explained the Earned Income Tax Credit to our clients. In order to evaluate this initiative, we would like to ask you a few short questions about your experience. Please circle your response to each question below.

1) What proportion of your clients was interested in the EIC information?
   a. Few (less than 25% of your clients)
   b. Many (25% to 75% of your clients)
   c. Most (over 75% of your clients)

2) Do you think Block should provide this EIC information to clients again in the future?
   a. Yes
   b. No

3) Is there anything else you would want to tell us about this EIC outreach or about how to make it work better?
   a. No
   b. Yes: Please explain below and/or on the back of this survey.

4) Did the explanation of EIC help your understanding of how the credit worked?
   a. Yes
   b. No

Please return this survey to your office leader who will forward it to Block headquarters in the envelope provided to each office. Thank you for your participation in the EIC Outreach and in this survey.

If you have questions, please contact Eileen McCarthy, at 816.854.4866.