

# **EITC Take-Up by Recipients of Public Assistance in Virginia, and Results of a Low-Cost Experiment to Increase EITC Claims**

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## **Abstract:**

Because the EITC is effective in encouraging work and reducing poverty, and because the federal benefits boost states' economies at no cost to state budgets, increasing the EITC take-up rate has the potential to be highly cost-effective to states. Until recently the effectiveness of outreach efforts had not been measured, and the EITC take-up rate by recipients of public assistance was unknown. The Virginia General Assembly amended state law to: require that a question be added to the state tax return form about whether a taxpayer claimed the federal EITC; and to allow the Tax Commissioner to share data with VDSS on whether clients claimed the federal EITC. Using household-level tax return and W-2 earnings data, this study provides accurate estimates of EITC take-up rates, as well as dollar amounts claimed and unclaimed, by recipients of public assistance. We also use random assignment to test the effectiveness of alternative very low cost outreach strategies. We find that a multiple outreach strategy has a small positive effect on filing tax returns and claiming EITC, and the consequent increase in EITC benefits far outweighs the cost of outreach.

We would like to thank Catherine Walker at VDSS, for conducting the EITC outreach, providing information about the process, and supporting evaluation efforts. We would also like to thank staff at the Virginia Department of Taxation, including Joan Schlitz and Sakthivel Natarajan, for their ongoing partnership in providing the data for this study.

## 1. Introduction

The Earned Income Tax Credit (EITC) is the nation's largest antipoverty program for working families. In 2011, the EITC provided about \$60 billion in benefits to about 27 million households.<sup>1</sup> EITC benefits were expanded substantially during the recent recession as a key recovery measure. The EITC lifts more households out of poverty than any other income support program, moving an estimated 6.6 million people out of poverty annually.<sup>2</sup> For example, a single mother with two children who works full-time for minimum wage could receive an EITC benefit of about \$5,000, roughly a 40 percent increase in after-tax income that would lift her family above the poverty line.

Despite concerns that some households improperly claim benefits, the EITC has been politically popular, especially compared to other public assistance programs, for several reasons. First and foremost, the EITC is conditioned on work and provides a strong work incentive, in the form of a substantial benefit (up to \$5,751 in 2011 for a household with 3 or more children, and an average of more than \$2,000 per household), which increases with earnings up to a certain point. Research strongly suggests that the EITC increases the employment rates of low-income single mothers (Hotz, Mullin, and Scholz 2010; Hoynes 2009; Eissa and Hoynes 2006).

Second, the EITC reaches a large proportion of taxpayers. In 2011, nearly 27 million households claimed the EITC (for the 2010 tax year).<sup>3</sup> In examining EITC claims nationally over an 18-year period, Dowd and Horowitz (2011) found that about half of all taxpayers with children received the EITC at some point. The broad reach of the credit contributes to its popularity.

Third, because it operates through the tax code and does not require social services staff to determine eligibility, the EITC is much less costly to administer than other income support programs such as SNAP, TANF, and SSI.<sup>4</sup> Finally, especially for metropolitan areas, the EITC provides substantial economic boosts to low-income neighborhoods.<sup>5</sup>

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<sup>1</sup> <http://www.eitc.irs.gov/central/eitcstats/>. SNAP benefits in FFY2011 were larger at \$72 billion but, unlike the EITC, SNAP is not conditioned on work. Total TANF assistance in FFY2011 was about \$11 billion, of which about \$5 billion was state maintenance of effort spending.

<sup>2</sup> <http://www.eitc.irs.gov/ptoolkit/basicmaterials/ff/>. Further, the Center on Budget and Policy Priorities estimates that the EITC and the Child Tax Credit together kept 9.3 million people above the poverty line in 2010, compared to 4.6 million people for Unemployment Insurance and 4.4 million people for SNAP. See Sherman 2011.

<sup>3</sup> <http://www.eitc.irs.gov/central/eitcstats/>

<sup>4</sup> EITC administrative costs are estimated to be 1.5 cents per benefit dollar, compared to 8 cents per benefit dollar for SSI, 16 cents per benefit dollar for SNAP and 22 cents per benefit dollar for TANF. See Isaacs 2008.

<sup>5</sup> Recent research also shows beneficial impacts of the EITC on maternal health (Evans and Garthwaite 2010) infant birth weight (Hoynes, Miller, and Simon 2011), and children's education achievement (Dahl and Lochner 2008).

Take-up rates. Although the EITC take-up rate is fairly high, the IRS estimates that about 20 percent of eligible households do not claim the EITC.<sup>6</sup> Some studies suggest slightly lower take-up rates for eligible recipients of public assistance.<sup>7</sup> Why some eligible families do not claim the EITC has not been thoroughly studied, but could be due in part to lack of awareness, despite federal and state government efforts to promote the benefit. Adults with limited or sporadic work history may not be required to file a tax return, and may not be aware of refundable credits, especially early in their working years.

EITC in Virginia. Although the IRS publishes statistics on the number of households claiming the EITC and the dollar value of benefits by state, it does not estimate take-up rates by state. In Virginia, IRS statistics show that 590,000 households claimed the EITC in 2011 (for tax year 2010), for a total of \$1.25 billion in benefits.<sup>8</sup>

VDSS role in EITC. The Virginia Department of Social Services (VDSS) is a natural fit to promote the EITC, because of the agency's broad reach and its mission to help families lift themselves out of poverty. Primarily through the SNAP, Medicaid, and child support programs, VDSS touched nearly one in five Virginia residents in 2011, including the vast majority of all low-income families in the state. Because of the EITC's effectiveness in encouraging work and reducing poverty, and because the federal benefits boost the state's economy at no cost to the state budget, increasing the EITC take-up rate has the potential to be highly cost-effective to states.

Consistent with this reasoning, Virginia law requires VDSS to make eligible clients aware of the EITC. Specifically, the Code of Virginia states:

The Department shall provide notice regarding the availability of the federal earned income tax credit authorized in § 32 of the Internal Revenue Code and the state earned income tax credit authorized in subdivision B 2 of § 58.1-339.8 to all recipients of Temporary Assistance for Needy Families pursuant to Chapter 6 (§ 63.2-600 et seq.), food stamps pursuant to § 63.2-801, or medical assistance pursuant to § 32.1-325 who had earned income in the prior tax year based on information available through the Virginia Employment Commission and, according to information made available by the Virginia Department of Taxation, either did not file federal or state income taxes or filed taxes and did not claim the federal or state earned income tax credit. Notice shall be mailed to recipients annually and shall include information on the qualifying income levels, the amount of credit available, the process for applying for the credit, and the availability of assistance in applying for the credit. (Code of Virginia § 63.2-527)

<sup>6</sup> <http://www.eitc.irs.gov/ptoolkit/basicmaterials/keymessages/> In addition, some *ineligible* households claim the EITC, either because of fraud or error. The IRS monitors for fraud and errors, but substantial overpayments are thought to occur (Greenstein and Wanchek 2011). This is the downside of low administrative cost: there is some tradeoff between efficiency and accuracy.

<sup>7</sup> For a sample of TANF recipients in California, one study found that 52 percent of all welfare recipients (that is, regardless of earnings) claimed the federal EITC in 2000 (Hotz, Mullin, and Scholz 2010). For a *state* EITC in Minnesota, another study found that 65 percent of EITC-eligible welfare recipients in 1999 claimed the credit (Hirasuna and Stinson 2006).

<sup>8</sup> <http://www.eitc.irs.gov/central/eitcstats/>

VDSS outreach. In recent years, VDSS's primary targeted outreach effort is mailing notices in January or February to clients who appear to be eligible for the EITC and did not claim it in the prior year. The notices inform clients of their potential eligibility for the EITC, and provide a phone number and web site to locate free tax preparation assistance. VDSS also makes automated phone calls to a subset of these individuals, providing information similar to the mailer.

Although increasing the EITC utilization or take-up rate is good state policy, and state law mandates outreach to increase claims, until recently the effectiveness of outreach efforts had not been measured, and the EITC take-up rate by recipients of public assistance was unknown. In 2006, the Virginia Joint Legislative Audit and Review Commission (JLARC) estimated that only 13 percent of eligible VDSS clients in 2003 claimed the EITC, and that as much as \$170 million annually was unclaimed by VDSS clients (Virginia JLARC 2006). As a result of the apparently low EITC utilization rate, JLARC recommended that the General Assembly amend the Code of Virginia to: require that a question be added to the state tax return form about whether a taxpayer claimed the federal EITC; and to allow the Tax Commissioner to share data with VDSS on whether clients claimed the federal EITC. The General Assembly enacted these provisions in 2006.<sup>9</sup>

These steps enable more accurate measurement of EITC utilization by recipients of public assistance. The client-level tax return data also enable more targeted outreach efforts, because the data identify individuals who appear to be eligible for but did not claim the EITC in a prior year. Finally, the data provide a close to ideal opportunity to test whether outreach actually has an effect.

Research questions. This study addresses the following questions:

- Among households receiving public assistance in Virginia, what proportion is eligible for the EITC? Among those eligible, what proportion claims the EITC and how much is claimed? How many eligible non-claimants are there, and what is the value of unclaimed EITC benefits?
- Why do some EITC-eligible public assistance households not claim the EITC? In other words, what characteristics are associated with claiming the EITC?
- Can very low-cost outreach to eligible non-claimants induce them to claim the EITC?
- If outreach has a positive effect, is it cost-effective?

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<sup>9</sup> Code of Virginia §58.1-3

This study addresses these questions using: (a) household-level data on tax returns, earnings, family characteristics, and public assistance receipt; and (b) a simple random assignment design to test alternative outreach strategies.

## 2. Other Research on EITC Outreach

Although research indicates that EITC participation rates are high relative to other income support programs (roughly 80 to 85 percent of eligible households), the federal government, state governments, and non-profit organizations put substantial resources into increasing the EITC participation rate. Many of these efforts are general public awareness campaigns, but some are more targeted. For example, the IRS has conducted special outreach projects in New York City and California, mailing notices to families who appear to be eligible for but did not claim the EITC.<sup>10</sup> The New York City Department of Finance has conducted an intensive outreach effort in several recent tax years, mailing pre-filled amended federal tax returns to households who appeared to be eligible for the EITC and did not claim it for a prior tax year.<sup>11</sup> Given already high participation rates, do the substantial resources used for outreach produce benefits that exceed the costs?

Some evidence suggests a potential value for outreach because some families are not aware of their eligibility for the EITC. A recent study finds substantial neighborhood variations in EITC awareness (Chetty, Friedman, and Saez 2012). Another study finds that most EITC recipients claim it for only one or two years, suggesting that every year many families are first-time claimants (Dowd and Horowitz 2011). A third study decomposes the EITC take-up rate into rates for two sub-populations: eligible households required to file a tax return and eligible households not required to file a tax return. The take-up rates are much lower for the latter group, about 35 percent compared to about 90 percent for the former group (Blumenthal, Erard, and Ho 2005). These studies suggest the potential for informational outreach to have an impact.

Unfortunately, very little research evidence exists on the effectiveness of EITC outreach efforts. One exception is a pilot outreach program undertaken by Seedco, a national nonprofit organization. With funding from the Annie E. Casey Foundation, in 2008 Seedco tested an outreach strategy very similar to the initiative described in this paper, combining automated telephone calls and postcards to 2,400 job placement clients randomly assigned to three groups who received either: (1) a basic message about where to get free tax preparation services; (2) a message that emphasized the savings compared to a paid tax preparer; and (3) a message similar to (2) that added a “positive identity” component based on behavioral economics research. The pilot study found no evidence of impact differences among the

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<sup>10</sup> See <http://www.eitc.irs.gov/ptoolkit/caproject/> and <http://www.eitc.irs.gov/ptoolkit/nyc/>.

<sup>11</sup> See [http://www.nyc.gov/html/ceo/downloads/pdf/appendixb\\_eitc.pdf](http://www.nyc.gov/html/ceo/downloads/pdf/appendixb_eitc.pdf)

three strategies (Brown 2009). The outreach in this paper differs from the Seedco pilot in at least two key ways: we employ a no-outreach control group; and we use household-level tax return data to target eligible non-claimants.<sup>12</sup>

This study makes two main contributions to existing research by providing: rigorous evidence on the impacts of low-cost outreach for the EITC, including a simple cost-benefit analysis; and more recent estimates of EITC take-up rates for recipients of public assistance, based on accurate data sources. This study also uses large sample sizes even though they are only for Virginia (a starting population of close to 500,000 households, including 225,000 EITC- eligible households).

### 3. The Outreach Process: Mailers and Telephone Calls

VDSS's EITC direct outreach to recipients of public assistance consists of a mailer and an automated telephone call. Addresses and telephone numbers are obtained from ADAPT, the VDSS public assistance eligibility determination system. Because the case records are for current or recent clients, and because address is a critical part of eligibility determination, both address and phone number information is accurate for a very high proportion of clients.

The mailer is 5.5 inches by 8.5 inches, folded in half to a postcard size. Exhibit 1 shows both sides of the mailer sent to households in January 2012. The text reads:

- **“Based on your earnings in 2011, you may be eligible for the Earned income Tax Credit (EITC). You must file your taxes to qualify.**
- **The EITC can provide you with a refund of up to \$5,571 based on family size and income. You can file your taxes for FREE at an IRS approved free tax preparation site.**
- **The EITC helps millions of families each year pay bills, lower debts, meet basic needs, and save for the future.**
- **File your taxes for free and claim the EITC. To find a free tax prep site near you dial 2-1-1 or visit [www.211virginia.org](http://www.211virginia.org).”**

Every mailer has this text printed in both English and Spanish. The text of the mailer has varied somewhat over time. In prior years the mailer directed clients to a toll-free IRS number to find a free tax

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<sup>12</sup> Another recent experiment tested a novel approach to increasing the labor-supply response to EITC incentives. The authors randomly assigned 43,000 EITC recipients at H&R Block offices to two groups. One group received a simple explanation from their tax preparer of the earnings level that would maximize their EITC benefit in the subsequent year, while the other group did not receive the explanation. The authors did not find evidence of an average increase in earnings in the subsequent year (Chetty and Saez 2012).

prep center near them, but the IRS list of local centers is not always available by January. Virginia 2-1-1 operators were provided with a list of free tax preparation centers and notified about the mailers.<sup>13</sup>

The 2012 mailers were printed by a private printing services firm, after which the Virginia Department for the Blind and Vision Impaired laser printed the addresses, sealed the mailers, and delivered them to the U.S. Postal Service for mailing. The total cost for 70,000 mailers was \$24,500 (about 35 cents per mailer), of which about two-thirds was the cost of postage. The cost is partially paid by a non-profit EITC coalition.

In addition to the mailers, automated telephone calls are made to a sub-sample of public assistance recipients. The script of the calls made in February and March 2012 is:

**“I am calling for [name\_first name\_last name\_suffix] on behalf of the Virginia Department of Social Services. Based on your earnings in 2011, you appear to be eligible to receive a federal tax refund for the Earned Income Tax Credit. Even if you do not owe any taxes and are not required to file a tax return, you can still receive a refund.**

**To find out your EITC refund amount, you can use the calculator on [www.virginiafreefile.org](http://www.virginiafreefile.org).**

**If you are eligible for a refund, you can get your taxes done for free by a volunteer income tax preparer. To find the free income tax preparation center closest to you, dial 211, or go to [www.virginiafreefile.org](http://www.virginiafreefile.org).**

**Again, to find the free income tax center closest to you, dial 211.”**

The calls are made by a private call center contractor, who also provides call center support for the VDSS child support enforcement program. VDSS staff provide the contractor with an Excel file containing the telephone numbers and names of clients, as well as instructions about the days and times when calls should be attempted, and the number of attempts.

The call center provides a data file with the results for each telephone number attempted, including whether the call was completed, and whether the call was answered by a person or by voicemail. Because the EITC outreach calls are an add-on to an existing contract with the private call center, the only cost is a marginal cost of 16 cents per completed (either voice answer or voicemail) call.

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<sup>13</sup> 2-1-1 is a nationwide information and referral service to health and human resource organizations. The three digit telephone number was implemented by the United Way in partnership with the Alliance of Information and Referral Systems, and approved for nationwide use by the Federal Communications Commission in 2000.

## 4. Analysis Approach

Addressing the research questions identified in the introduction involves four main steps:

- (1) Identifying the outreach population for 2010 and randomly assigning households to outreach strategies;
- (2) Estimating the impacts of outreach on tax filing and EITC claims;
- (3) Estimating the amount of EITC benefits claimed and unclaimed for 2010; and
- (4) Understanding the factors associated with claiming the EITC, among eligible families.

This section discusses these steps in turn, focusing primarily on the 2010 tax year. Section 5 presents the estimated impacts of outreach for tax years 2010 and 2009, so this section also notes the differences in sampling for the 2009 tax year.

### 4.1 Identifying the outreach population for 2010 and randomly assigning households to outreach strategies

The target for outreach in early 2011 is households who appear to be eligible for the EITC in 2010 and did not claim the EITC in 2009 (either because they were not eligible in 2009 or they appear to be eligible in 2009 but nevertheless did not claim). Outreach is intended to let these households know about their apparent eligibility for EITC benefits for 2010, so they can claim the credit on their tax return due April 15, 2011. Households that claimed the EITC in a prior year are not an outreach target because they are assumed to be aware of their eligibility.

The key steps to identify the outreach sample are:

- Identify all adults who received public assistance during 2010;
- For these adults, determine their household's eligibility for the EITC in 2010;
- Determine the subset of this population to target for outreach; and
- Randomly assign the outreach population to different outreach strategies.

Identify all adults who received public assistance during 2010. From ADAPT, the VDSS information system used to determine eligibility for public assistance, we identified all adults who received SNAP or TANF benefits or who enrolled in Medicaid at some point in calendar year 2010. This is about 490,000 adults.

Determine EITC eligibility for 2010. We estimate 2010 taxable income only for families that have nonzero earnings for 2010 as reported to the Unemployment Insurance (UI) quarterly wage system.<sup>14</sup> Because we obtain earnings data in December 2010, UI-reported earnings are generally not yet available for the last two quarters of 2010, so we rely on data for the first two quarters of 2010. A small proportion of individuals have earnings reported for three quarters, because their employers reported their earnings more quickly.

For each family, we annualize the 2010 UI-reported earnings using a simple rule of thumb:

- If 3 quarters of earnings are reported, multiply by 4/3;
- If 2 quarters of earnings are reported, multiply by 2;
- If 1 quarter of earnings is reported, multiply by 1.5<sup>15</sup>; and
- If 0 quarters of earnings are reported, assume annual earnings are zero.

Although this is a fairly crude approach to estimating annual earnings, it is used only to determine who should be targeted for outreach. To measure the impacts of outreach, and to estimate the value of EITC benefits claimed and unclaimed, we rely on much more complete income or earnings data, from tax returns and W-2 reports. These data are not available ex-ante, for outreach, but they are available ex-post.

We impute whether a household is EITC eligible in 2010 based on annualized 2010 earnings, marital status, number of children, and age. This step follows the EITC rules, which set earnings thresholds based on marital status, number of children, and age. For example, a single parent with one child is eligible for the EITC if her earnings are less than \$36,051. The earnings limits are higher for married families, and for two children, or three or more children. For households with no qualifying child, the earnings threshold is much lower and the adult must meet an age requirement (between 25 and 65 as of the end of the tax year).

Determine the outreach population. The outreach population for calendar year 2010 was all families with adult recipients of public assistance who appear to be EITC eligible in 2010 and did not claim the EITC in 2009. This is approximately 65,000 families. Whether a household claimed EITC in 2009 is based on 2009 individual tax return data from the Virginia Department of Taxation. The Virginia tax form includes a box for the taxpayer to indicate whether they claimed the federal earned income credit for the current tax year and the amount of the credit.

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<sup>14</sup> The Virginia Employment Commission administers the UI system in Virginia.

<sup>15</sup> Because employers should have reported two quarters of earnings, if an individual has only one quarter he or she is likely to work only part of 2010. Multiplying by 1.5 is an ad hoc assumption that on average the individual will have a limited work history for the year.

Randomly assign the outreach population to different outreach strategies. We randomly assign the outreach population to three outreach (treatment) groups and a control, no outreach, group:

- T1: Receive phone call and mailer;
- T2: Receive phone call only;
- T3: Receive mailer only; and
- C: Receive neither phone call nor mailer.

To increase statistical power, we stratified the three outreach groups above by whether children are in the household, and the first two outreach groups (T1 and T2) were stratified by EITC eligibility in the prior year, 2009.<sup>16</sup> Therefore the four strata of families are:

- (1) EITC eligible in 2009 but did not claim, and has children;
- (2) EITC eligible in 2009 but did not claim, and no children;
- (3) Not EITC eligible in 2009 and has children; and
- (4) Not EITC eligible in 2009 and no children.

We oversample families with children, because their EITC benefits are much larger so they have a stronger incentive to claim. We oversample families that were not EITC eligible in 2009, because results for prior years suggest that these families may be more likely to respond to outreach. The outreach groups T1 and T2 each have 40 percent of families in stratum 1; 10 percent in stratum 2; 40 percent in stratum 3; and 10 percent in stratum 4. The control group is stratified only on whether children are in the household and, like T1 and T2, has 80 percent of families with children; and 20 percent of families with no children. Outreach group T3 (mailer only) is not stratified and includes everyone in the outreach population not assigned to groups T1, T2, or C. Exhibit 2 shows the sample sizes by strata for tax years 2010 and 2009.<sup>17</sup>

We construct weights for each strata so that, when weighted, each group has the same proportion of households with children and 2009 EITC eligibility as in the full outreach population. All analyses are done using these weights.

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<sup>16</sup> EITC eligibility in 2009 is determined similar to the way we determine EITC eligibility in 2010, with two main exceptions: (1) we use 2009 tax return data to determine who claimed the EITC, and assume those claimants were eligible; and (2) for households that did not claim the EITC in 2009, we use W-2 earnings from the Department of Taxation to predict 2009 taxable income. W-2 earnings more accurately predict taxable income, but are not available in time to predict 2010 taxable income. The approach used to predict taxable income is discussed in more detail below.

<sup>17</sup> For tax year 2009, the outreach sample was stratified only on the presence of children in the household, not on whether a household was EITC eligible in the prior tax year.

## 4.2 Estimating the impacts of outreach on tax filing and EITC claims

Outreach, both the mailer and the phone calls, is intended to increase the proportions of EITC-eligible households who file tax returns and who claim the EITC. Filing a tax return is necessary to claim the EITC, and most EITC-eligible non-claimants do not file a tax return. Filing a return and claiming the EITC are therefore the two key outcomes of the outreach experiment.

The analysis approach is simply to compare the outcomes of each outreach strategy to the outcomes for the control (no outreach) group. Random assignment ensures that each outreach group is comparable (after weighting to adjust for stratification). Statistical significance is based on a two-tailed t-test of the difference in means between each treatment group and the control group.

To measure the actual tax filing and EITC claim rates, in Fall 2011 we obtained household-level 2010 tax return data from the Virginia Department of Taxation. The filing deadline for 2010 is April 15, 2011, but we allow for extra months for returns filed late.

The analysis of results for the outreach strategies includes all phone calls attempted and mailers sent, regardless of whether the calls were completed or mailers delivered successfully. Including all call and mail attempts is necessary to preserve the equivalence among the randomly assigned groups. More than 80 percent of the phone calls were successfully completed, and more than 90 percent of the mailers were delivered.

## 4.3 Estimating the amount of EITC benefits claimed and unclaimed for 2010

The total amount of EITC benefits *claimed* in 2010 by all recipients of public assistance, not just the outreach groups, can be estimated accurately using household-level tax return data. Although the Department of Taxation does not provide the federal EITC benefit amount, they do provide federal adjusted gross income, filing status, and number of dependents, which can be mapped to the EITC table to determine the amount of benefits claimed.

Measuring the amount of EITC benefits *unclaimed* requires estimating 2010 taxable income, and then applying the EITC rules to determine whether a household is eligible and the amount of benefits that could have been claimed.

Estimate 2010 taxable income. We define 2010 taxable income for each family using the following rules:

- (a) Use actual 2010 reported taxable income for households that filed a 2010 tax return.

- (b) For households that did not file a 2010 return, use linear regression on the households in (a) to model the relationship between 2010 taxable income and: 2010 W-2 earnings; UI earnings for 2007 through 2009; number of children; age as of the end of 2010, and ethnicity. The coefficients from this model are applied to households that did *not* file a 2010 return to estimate their 2010 taxable income.

To increase the accuracy of estimated taxable income, we estimate the model above separately for four subpopulations:

- (1) Unmarried families with nonzero 2010 W-2 earnings;
- (2) Married families with nonzero 2010 W-2 earnings;
- (3) Unmarried families with zero 2010 W-2 earnings but nonzero earnings reported to VDSS; and
- (4) Married families with zero 2010 W-2 earnings but nonzero earnings reported to VDSS.

Families with no 2010 W-2 earnings and no earnings reported to VDSS are assumed to have no taxable income.

Identify 2010 EITC eligibility. EITC eligibility for 2010 is imputed based on: (a) actual tax return information for 2010; or (b) predicted taxable income for 2010 for those who did not file tax returns for 2010. Households that claimed the EITC are assumed to be eligible. For all other households, we impute whether a household is EITC eligible in 2010 based on actual or predicted 2010 taxable income, marital status, number of children, and age. As described above, this step follows the EITC rules, which set earnings thresholds based on marital status, number of children, and age. The earnings limits are higher for married families, and for two children, or three or more children. Households with no qualifying child must meet an age requirement (between 25 and 65 as of the end of the tax year), in addition to earnings threshold that are much lower than for households with children.

The result of this process is an estimated EITC benefit for every household, and an indicator for whether the benefit was claimed or unclaimed. These amounts are aggregated to get total dollars claimed and unclaimed for each of the 120 localities in Virginia, and aggregated again to get statewide totals.

#### **4.4 Understanding the factors associated with claiming the EITC, among eligible families**

A non-experimental analysis was conducted to learn more about who claims the EITC and who doesn't, among eligible families. Claimants and non-claimants were compared on: estimated taxable income; marital status; number of children; race and ethnicity; whether required to file a tax return; and number of quarters worked during the calendar year. Each characteristic was first compared

independently, and then included in a multivariate logistic regression to assess relative importance. Separate models were also estimated by marital status, and for households with and without children, because the results differed significantly for these groups.

## 5. Results

This section addresses, in turn, each of the research questions listed in the introduction.

### **5.1 Among households receiving public assistance in Virginia, what proportion is eligible for the EITC? Among those, what proportion claims the EITC and how much is claimed? How many eligible non-claimants are there, and what is the value of unclaimed EITC benefits?**

Exhibit 3 shows EITC results for all adult recipients of public assistance in Virginia for 2010. Out of a population of about 490,000 households who received Medicaid, SNAP, or TANF in 2010, close to half (46 percent) are estimated to be eligible for the Earned Income Tax Credit, based on the analysis described in section 4.3 of this paper. This estimate is likely to be fairly accurate, because it is based on two accurate data sources:

- (1) Earnings from W-2s reported by employers to the Virginia Department of Taxation;
- (2) Family composition, including marital status and the number and age of children in the household, from ADAPT, Virginia's public assistance eligibility information system. Household composition is necessary to determine eligibility for public assistance.

The overwhelming reason why some households receiving public assistance are not EITC eligible is that they have no earnings, as shown on the right hand branch of Exhibit 3. Approximately 80 percent of ineligible households have no reported earnings. Another 10 percent have earnings that exceed the EITC eligibility threshold; presumably these families left public assistance and found steady employment. Other households are ineligible because they have no children and do not meet the age requirement for childless households (8 percent of ineligible households), or use the filing status "married, filing separately" (1 percent).

**Among the public assistance households that are EITC eligible in Virginia, approximately 70 percent claim the EITC.** This is somewhat below the IRS estimate of 80 percent take-up for all eligible households. The take-up rate may be lower for recipients of public assistance because earnings tend to be lower and more sporadic for welfare recipients than for other EITC-eligible families. This may mean that families receiving cash assistance are less likely to file a tax return, even if they have earnings. **Public assistance recipients claiming EITC in Virginia in 2010 received close to a half-billion dollars in**

**2010, with an average EITC benefit per household of nearly \$3,000.** This represents more than one-third of all EITC benefits claimed in Virginia, based on IRS data.<sup>18</sup>

Of the public assistance households that are EITC eligible but do not claim the EITC (the families that are the target of VDSS outreach efforts), about three-fourths do not file a tax return. The vast majority of these households are not required to file a tax return because their income is below the filing threshold, although they would receive a refund if they did file. A substantial number of households (approximately 10,000), however, did not file a tax return even though they appear to be required based on their earnings. **We estimate that recipients of public assistance in Virginia left unclaimed in 2010 well over \$100 million in EITC benefits, with an estimated average unclaimed benefit per household of about \$1,700.**

## **5.2 Why do some EITC-eligible public assistance households not claim the EITC? What characteristics are associated with claiming the EITC?**

To better understand why some recipients of public assistance do not claim the EITC, we compared the characteristics and circumstances of eligible non-claimants and claimants. As noted above, three-fourths of eligible non-claimants do not file a tax return, and close to 80 percent of these households are not required to file a tax return. Beyond this proximate reason, participation rates are much higher for households with children, and somewhat higher for married households. Among EITC-eligible recipients of public assistance, the percentage claiming the EITC in 2010 was:

- 80 percent of married families with children (n = 44,858);
- 75 percent of single-parent families with children (n = 140,595);
- 56 percent of married households without children (n = 4,488); and
- 45 percent of single-parent households without children (n = 35,295).

Within the largest group, single-parent families with children, the top panel of Exhibit 4 compares eligible non-claimants to claimants. Compared to claimants, eligible non-claimants: have much lower income and consequently lower expected EITC benefits; are much less likely to be required to file a tax return (because of their lower income); have more sporadic work; are more likely to have one child and less likely to have two children.<sup>19</sup> Eligible non-claimants and claimants do not differ much on race, ethnicity, or age.

<sup>18</sup> The IRS reports a total of \$1.25 billion in EITC benefits claimed by Virginia households for 2010. See <http://www.eitc.irs.gov/central/eitcstats/>.

<sup>19</sup> Exhibit 4 is also of interest because it provides a sense of the substantial income boost provided by the EITC. The median EITC benefit represents an increase in annual median income of about 25 percent for single-parent claimants with children, and a potential increase of about 33 percent for single-parent eligible non-claimants.

The same patterns hold for married families with children, as shown in the bottom panel of Exhibit 4. The differences, however, between eligible non-claimants and claimants tend to be smaller than for single-parent households. For example, median income for eligible non-claimants is only about 15 percent lower than claimants, whereas for single-parent families the difference is 50 percent. On the other hand, work history differs substantially for the two groups of married families: 28 percent of eligible non-claimants households have UI-covered earnings in all four quarters of 2010, compared to 49 percent of claimants. This difference is a little puzzling given the small difference in median taxable income. Married families that are eligible non-claimants appear to be more likely to do non-UI covered work, which could be primarily self-employment.

Overall, the differences between eligible non-claimants and claimants are larger for single-parent households than for married households, especially the income differences. Single-parent families who do not claim the EITC have much less to gain in terms of their expected EITC benefit and, because they are not required to file a tax return, they may not be aware they would get a refund. With married families, the possible reasons for not claiming are less clear.<sup>20</sup>

To determine which characteristics and circumstances are most strongly associated with EITC non-participation, we estimated a multivariate logit model with all explanatory factors included (except predicted taxable income, because of its close relationship to the expected EITC benefit, which was included in the models). Separate models were estimated for each of the four household types (single with children, married with children, single without children, married without children). The population is the same as for the univariate comparisons: only recipients of public assistance who are EITC eligible.

The focus of the multivariate analysis was comparing the size of the marginal effects of all the factors.<sup>21</sup> For families with children (both single and married), the largest marginal effects are for the number of children and the number of UI-covered quarters worked. Exhibit 5 graphs these marginal effects. The direction of effects is the same for single and married households: EITC participation decreases with the number of children and increases with the number of quarters worked.<sup>22</sup> It is

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<sup>20</sup> We also estimated models for EITC eligible single adults with no children, although they comprise a relatively small proportion of our population. As with households with children, single adults with no children are much more likely to claim the EITC as the numbers of quarters worked increases. EITC take-up also increases with age for single adults, but surprisingly is *negatively* related to the expected EITC benefit. The expected EITC benefit, however, is much smaller than for families with children, with a median of only \$313.

<sup>21</sup> Statistical significance is of less interest because, given the large sample sizes, nearly all the independent variables had p-values less than 0.01.

<sup>22</sup> The *sign* of the effect, however, differs with respect to the number of children, as shown by the vertical axes on the graphs. Single-parent households with three or more children are *less* likely to claim the EITC than single-parent households with one child. Married households with two or more children are *more* likely to claim the EITC than married households with one child.

unclear why EITC participation rates would be lower in households with more children, although the model controls for the higher expected EITC benefit. As the graphs show, the marginal effects are larger for single-parent than married families. For example, single-parent families with four children are 26 percentage points less likely to claim the EITC than single-parent families with one child, holding other factors constant. These results are consistent with an earlier study by Scholz (1994), who also found that eligible non-claimants are more likely to have a smaller benefit, be self-employed, and have larger families.

### **5.3 Can very low-cost outreach to eligible non-claimants induce them to claim the EITC?**

Results based on the random assignment design described in sections 4.1 and 4.2 suggest that the combined outreach strategy of a mailer plus an automated phone call produces small increases in filing tax returns and claiming the EITC. Exhibit 6 shows the results for tax years 2010 and 2009, the most recent results available. For tax year 2010, EITC-eligible public assistance recipients who received both the mailer and phone call were 2.4 percentage points more likely than the control group to file a Virginia tax return, a small but statistically significant difference. The impact on EITC claims, however, was 0.9 percentage points and not statistically significant. For tax year 2009, the estimated impacts are slightly larger, and the impacts on both filing a return and claiming EITC are significant.<sup>23</sup> Impact estimates for the single outreach strategies in both years were mostly positive but none were statistically significant. Apparently reaching out to families using multiple approaches is more effective than a single approach.<sup>24</sup>

### **5.4 If outreach has a positive effect, is it cost-effective?**

Given the small size of the estimated impacts, it is natural to ask whether the benefits of the outreach efforts outweigh the costs. Fortunately, the costs of outreach are very modest. The mailers cost 35 cents each (mostly postage, but also printing), and the automated telephone calls were 16 cents each. The other costs are labor: a programmer/analyst to identify the outreach sample, and a staff person to oversee the outreach efforts.

Exhibit 7 estimates the benefits and costs, assuming both mailers and phone calls to 70,000 EITC-eligible families receiving public assistance. Total costs of outreach are approximately \$42,000, or only 60 cents per household. The benefits assume that outreach produces a 2 percentage point increase in

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<sup>23</sup> The lower mean control group outcomes in 2009 are at least partly due to differences in sample stratification. For tax year 2010 we over-sampled clients who were not EITC eligible in the prior tax year. These clients are more likely to claim EITC than clients who were EITC eligible in the prior tax year (and did not claim in the prior tax year).

<sup>24</sup> It is possible that some families responded to the outreach by submitting a federal tax return to claim the EITC, but not a state tax return. Because our data on federal claims come from the state tax form, we cannot measure whether this happened. To the extent that it did, the full impacts would be larger than shown here.

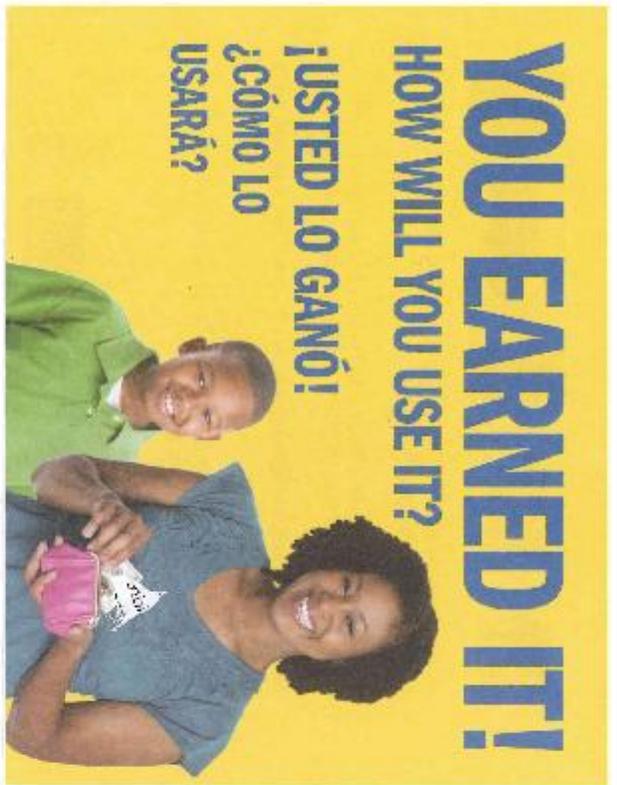
EITC claims, in line with the impact estimates presented above. From a base population of 70,000 households, this amounts to an increase of 1,400 households claiming EITC. If the average claim per household is \$1,700 (the estimate calculated for eligible non-claimants in tax year 2010), the increase in EITC benefits would be about \$2.4 million. Further assuming that households spend 80 percent of these benefits, and a sales tax of 4 percent, this would yield an increase in sales tax revenues of \$76,000. The additional sales tax revenue alone is more than enough to cover the cost of outreach, so there is a net gain to government budgets. And the increase in income to 1,400 low-income families is considerable. The estimated benefits of outreach outweigh the costs by a ratio of 50 to 1. In short, random assignment makes a strong case for undertaking low-cost outreach to EITC-eligible non-claimants.

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Exhibit 1  
 VDSS Mailer to EITC-Eligible Recipients of Public Assistance



Based on your earnings in 2011, you may be eligible for the Earned Income Tax Credit (EITC). You must file your taxes to qualify.

The EITC can provide you with a refund of up to \$5,571 based on family size and income. You can file your taxes for FREE at an IRS approved free tax preparation site.

The EITC helps millions of families each year pay bills, lower debts, meet basic needs, and save for the future.

File your taxes for free and claim the EITC. To find a free tax prep site near you dial 2-1-1 or visit [www.211virginia.org](http://www.211virginia.org).

This message is free to you by:

Basado en sus ingresos de 2011, es posible que usted sea elegible para el Crédito por Ingreso del Trabajo, o EITC por sus siglas en inglés. Para calificar, hay que presentar su declaración de impuestos.

El EITC puede proveerle con un reembolso hasta \$5,571, basado en el tamaño de su familia y sus ingresos. Usted puede declarar sus impuestos SIN COSTO en un sitio de preparación de impuestos gratis aprobado por el IRS.

Cada año el EITC ayuda a millones de familias a pagar sus cuentas, reducir sus deudas, satisfacer sus necesidades básicas y ahorrar para el futuro.

Declare sus impuestos gratis y solicite al EITC. Para encontrar un sitio de preparación de impuestos gratis cerca de usted, llame al 2-1-1 o visite [www.211virginia.org](http://www.211virginia.org).

Se presenta este mensaje gracias a:



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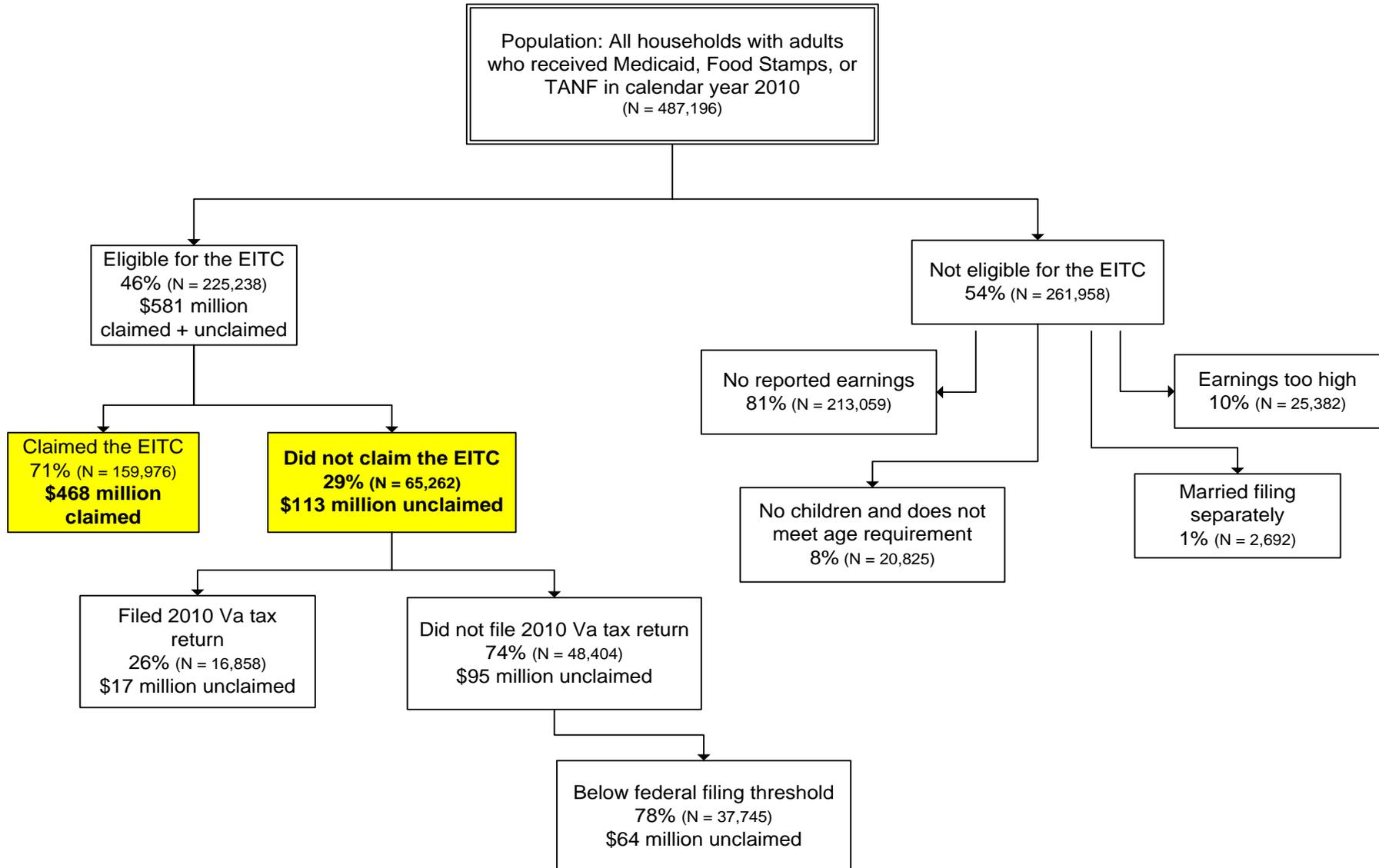
**Exhibit 2**  
**Sample Sizes for Outreach, by Strategy and Strata, Tax Years 2010 and 2009**

<b>Tax Year and Strata</b>	<b>Control: Neither Phone Call Nor Mailer</b>	<b>Received Phone Call and Mailer</b>	<b>Received Phone Call Only</b>	<b>Received Mailer Only</b>	<b>Total</b>
<b>Tax Year 2010</b>					
Households with Children	800			25,145	
Eligible Non-Claimant in Prior Year		1,200	600		
Not Eligible in Prior Year		1,200	600		
Households with No Children	3,200			21,801	
Eligible Non-Claimant in Prior Year		300	150		
Not Eligible in Prior Year		300	150		
<b>Total</b>	<b>4,000</b>	<b>3,000</b>	<b>1,500</b>	<b>46,946</b>	<b>55,446</b>
<b>Tax Year 2009</b>					
Households with Children	3,200	1,359		23,867	
Households with No Children	800	346		19,515	
<b>Total</b>	<b>4,000</b>	<b>1,705</b>		<b>43,382</b>	<b>49,087</b>

Source: author's calculations.

Note: For Tax year 2009, the sample size for households receiving both phone call and mailer includes only households to which a phone call was attempted. The call center attempted calls to fewer than half the households in this stratum.

**Exhibit 3**  
**EITC Eligibility and Participation in 2010**  
**for Medicaid, Food Stamps, and TANF Clients in Virginia**

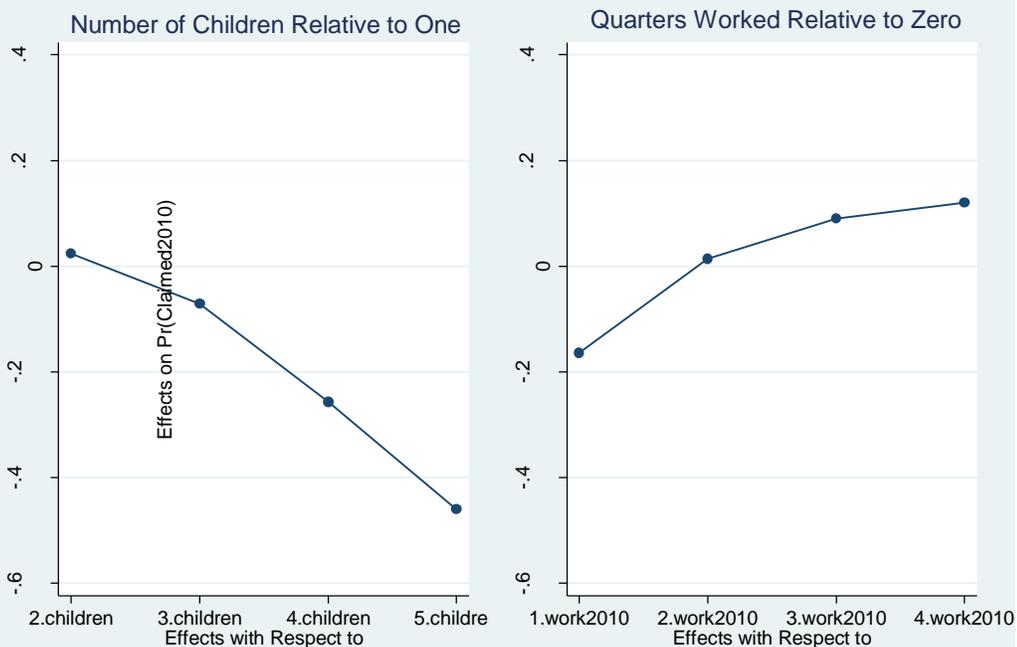


**Exhibit 4**  
**Characteristics of EITC Eligible Non-Claimants and EITC Claimants,**  
**Among Recipients of Public Assistance,**  
**By Family Type, Tax Year 2010**

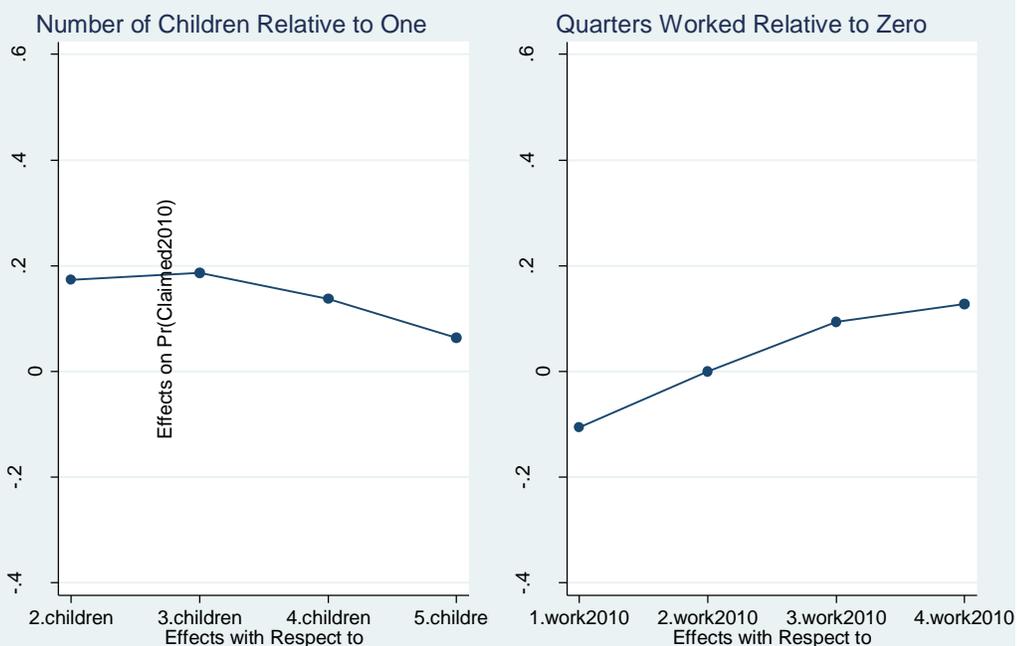
<b>Characteristic</b>	<b>EITC Eligible Non- Claimants</b>	<b>EITC Claimants</b>
<b>Single Parents with Children (75% claimed EITC)</b>		
Median EITC benefit (estimated)	\$ 2,063	\$ 3,053
Median taxable income (estimated)	\$ 6,359	\$ 12,695
Income above filing threshold (%)	31.0	69.2
Worked 4 UI-covered quarters in 2010 (%)	25.9	57.0
White (%)	43.9	40.8
Non-Hispanic (%)	95.7	94.0
One child (%)	62.6	47.0
Two children (%)	20.1	37.5
Average age of adult (years)	32.1	33.6
Number of households	34,963	105,632
<b>Married Parents with Children (80% claimed EITC)</b>		
Median EITC benefit (estimated)	\$ 3,050	\$ 3,310
Median taxable income (estimated)	\$ 18,083	\$ 20,985
Income above filing threshold (%)	45.7	57.7
Worked 4 UI-covered quarters in 2010 (%)	27.9	48.7
White (%)	69.6	74.2
Non-Hispanic (%)	91.8	93.1
One child (%)	45.0	28.2
Two children (%)	25.5	36.8
Average age of adult (years)	36.5	34.7
Number of households	8,897	35,961

**Exhibit 5**

**Average Marginal Effects, Single Parents with Children**



**Average Marginal Effects, Married Parents with Children**



**Exhibit 6**  
**Impacts of Outreach on Percentage of Households Filing Tax Returns**  
**and Claiming EITC**

Tax Year and Outcome	Control Group	Difference from Control Group		
		Received Phone Call and Mailer	Received Phone Call Only	Received Mailer Only
2010	(n= 4,000)	(n= 3,000)	(n= 1,500)	(n= 46,946)
Filed state tax return (%)	53.8	2.4*	1.6	0.5
Claimed federal EITC (%)	38.8	0.9	-0.7	0.5
2009	(n= 4,000)	(n= 1,970)		(n= 43,382)
Filed state tax return (%)	41.2	4.1**	n.a.	1.1
Claimed federal EITC (%)	30.5	3.2**	n.a.	0.6

Source: Author calculations based on data from tax returns.

Notes: (1) Statistically significant at the \* 10% level; \*\* 5% level; \*\*\* 1% level, based on two-tailed t test. (2) The 2010 sample was stratified on whether children lived in the household, and whether the household was also eligible for EITC in the prior year. The 2009 sample was stratified on whether children lived in the household. The results above are weighted to account for this stratification.

**Exhibit 7**  
**Benefits and Costs of Targeted EITC Outreach**

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**Costs of outreach**

Labor cost to identify outreach sample (40 hours)	\$ 1,500
Labor cost to oversee outreach efforts (160 hours)	\$ 5,000
Mailer, at \$0.35 each	\$ 24,500
Automated telephone calls, at \$0.16 each	\$ 11,200
<b>Total cost</b>	<b>\$ 42,200</b>

**Benefits of Outreach**

Additional EITC claims, assuming impact of 2% and average benefit of \$1,700	\$ 2,380,000
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**Approximate Benefit-Cost Ratio**

50:1

Source: Author's calculations based on results of outreach experiment.

Notes: (1) Calculations assume 70,000 EITC-eligible non-claimant households.

(2) The additional EITC benefits would increase sales tax revenues by about \$75,000, assuming a marginal propensity to consume of 0.8 and a sales tax of 4 percent.