The Earned Income Tax Credit and Parent-Child Time Use

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ABSTRACT

This study examines whether the addition of money via the receipt of the Earned Income Tax Credit (EITC) affects parent-child time use patterns. Using difference-in-differences analyses that exploit seasonal variation in EITC refund receipt with nationally representative time-diary data from the 2003-2017 American Time Use Survey-Current Population Survey (ATUS-CPS), the plausibly causal effects of EITC receipt on the quantity and quality of parent-child time use were estimated. Results suggest that receipt of EITC refunds are associated with short-term increases in time with children for females, particularly unmarried females, and short-term decreases in time with children for males. Among the parents of children under age six, EITC receipt was associated with more time spent working. EITC receipt also predicted a short-term decrease in parent-child time spent in enriching activities, but this appears to be attributed to seasonal fluctuations. Findings highlight a potential pathway via which EITC may affect children's outcomes. Research and policy implications are discussed.

INTRODUCTION

The gaps in achievement and development between children from low-income and high-income families are large and persistent (Hutchison, Morrissey, & Burgess, 2014; Reardon, 2011; Reardon & Portilla, 2016). At kindergarten, there is a one standard deviation difference between the reading and math scores of children from high- and low-income households (Magnuson et al., 2012). Historically, while racial achievement gaps have narrowed, income achievement gaps have widened over the last half-century, and have long-term, cascading impacts across all aspects of life (Duncan & Magnuson, 2005; Reardon, 2011). Adults who were poor as young children completed two fewer years of schooling and, by their thirties, earned less than half as much, and were three times more likely to report being in poor health, than their peers those raised in families with incomes at twice the federal poverty line or greater (Duncan, Ziol-Guest, & Kalil, 2010). Although exposure to educational resources and activities increased among low-income children over the last decade, wide income gaps in parental engagement persist (Bassok, Finch, Lee, Reardon, & Waldfogel, 2016; Kalil, Ziol-Guest, Ryan, & Markowitz, 2016). The income gap in achievement, and the resulting disparate educational and labor market trajectories, remain one of most pressing societal issues of our time.

Lower-income families have fewer resources to help children thrive, including access to educational materials, health care, or high-quality educational activities, and recent research also shows that low-income children have less quality time with their parents (Kalil et al., 2016). This study examined whether the addition of money via the receipt of the Earned Income Tax Credit (EITC), one of the largest anti-poverty programs in the United States, changes parent-child time use. Using two quasi-experimental difference-in-difference (DD) analyses that exploit variation over time in the federal EITC program with nationally representative time-diary data from the 2003 to 2017 waves of the American Time Use Survey-Current Population Survey (ATUS-CPS),

this study estimates the plausibly causal effects of EITC receipt and refund size on the quantity and quality of parent-child time use. Findings suggest that EITC refund receipt has short-term increases mothers' time with children, particularly among unmarried households, and increase labor market activity among the parents of young children.

Literature Review

Income gaps in achievement emerge prior to elementary school and persist through the K-12 years, influencing life-long economic trajectories and perpetuating social and economic inequalities (Hutchison et al., 2014; Reardon, 2011). Household production theory suggests that children from low-income families lag behind their peers because their parents have fewer resources – both time and money – to invest in them (Becker, 1993). Income allows for improved household physical resources, including stable and higher-quality housing, food, and educational materials such as books and toys, which may improve achievement. Additional income may also improve achievement by changing children's time use. Additional money allows for parents to purchase more and higher-quality activities for children, such as higher-quality early care and education, afterschool programs, educational and enrichment activities (e.g., music lessons), and summer camps. An increase in resources may also change the amount and quality of time children spend with their parents in that parents can use the additional funds to outsource time-consuming tasks they may otherwise do themselves, such as cooking or cleaning, or to purchase time-saving items such as cars or dishwashers, and spend that time directly interacting with children. In particular, this could lead to parents and children spending more time engaged in educational or enriching interactions, such as reading or doing homework together, rather than multitasking.

The literature on children's time use indeed shows wide socioeconomic (SES) gaps in both the quality and quantity of parental time spent interacting with children (Bianchi &

Robinson, 1997; Gershenson, 2013; Guryan, Hurst, & Kearney, 2008; Hofferth & Sandberg, 2001; Kalil, Ryan, & Corey, 2012; Vinopal & Gershenson, 2017). Recent evidence suggests that while some SES gaps in parent-child time use such as visiting libraries have narrowed over the past quarter-century, others, such as reading to children or teaching them numbers, have increased (Kalil et al., 2016). Although exposure to educational resources and activities increased among low-income children over the last decade, wide income gaps in young children's experiences – including parental engagement – persist (Bassok et al., 2016). While the SES gaps identified are largely along parent education lines, rather than household income, the research in this area is predominantly cross-sectional and not causal. To date, the causal impacts of increased household income on parent-child time use is unexplored.

One critical question for research and policy is whether household resources – namely income – account for the observed income gaps in achievement and parent engagement, or other correlates of income and wealth underlie these variations (Mayer, 1997). Previous research has attempted to estimate the causal effects of income for children's achievement using within-child fixed effects models to relate changes in income to changes in children's home environments and outcomes, finding that increased income leads to improved levels of cognitive stimulation in the home, including the educational resources available in the home and the frequency with which someone reads to the child or helps the child learn numbers, shapes, and other concepts (Votruba-Drzal, 2003), and improved academic outcomes (Dearing, McCartney, & Taylor, 2001; Morrissey, Hutchison, & Winsler, 2014).

Other recent research that uses experimental or quasi-experimental methods adds to the evidence that additional income improves children's achievement. Recent work exploiting the income increases associated with the establishment of a casino in the Great Smokey Mountains finds evidence that increased income has benefits for children's personality traits and health as

measured in adolescence (Akee, Simeonova, Costello, & Copeland, 2015), and for long-term educational attainment outcomes (Akee, Copeland, Keeler, Angold, & Costello, 2010). Other research has exploited variation in social policies that cause changes in income for program participants. Using social welfare experiments, Duncan et al. (2011) estimated that a $1,000 increase in annual income results in a five to six percent of a standard deviation increase in preschool children's achievement (Duncan, Morris, & Rodrigues, 2011). Dahl and Lochner (2012, 2017) exploited time variation in rates for the Earned Income Tax Credit (EITC), estimating that a $1,000 increase in income accounts for approximately a three percent of a standard deviation increase in children's math and reading test scores, with effects stronger for low-income children (Dahl & Lochner, 2012, 2017; Lundstrom, 2017). Other research suggests that the income supplement provided from EITC during childhood has sustained, positive effects on educational attainment and economic outcomes, specifically on children's likelihood to graduating high school, completing college, to be employed as an adult, and adult earnings (Bastian & Michelmore, 2015). To date, however, the causal impacts of increased household income on parent-child time use – an important pathway via which income may affect achievement – remains unexplored.

Several household characteristics may affect if and how income affects parent-child time use. First, research demonstrates that income during the early childhood years in particular is most salient for later outcomes (Duncan, Magnuson, & Votruba-Drzal, 2015), and this may be true for parent-child time use, especially given how time-intensive caring for young children is (Kalil et al., 2012). Second, the gender of the parent may be relevant, as research indicates fathers spend more time engaged in play with their children, whereas mothers spend more time in caregiving, nurturing, and educational activities (Kalil, Ugaz, & Guryan, 2013). In response to greater income or the greater incentives for work provided by policies such as the EITC, one

parent (e.g., the father) may specialize in earning income whereas the other (e.g., mother) may decrease work and increase the time spent with children. Finally, family structure may also moderate the effects of income on parent-child time, as children in households with two biological resident parents experience much greater levels of parent engagement compared to their peers (Kalil, Ryan, & Chor, 2014). Increased income may affect parent-child time more strongly in single-parent households.

The Earned Income Tax Credit and Parent-Child Time

The question of whether increased income itself can lead to changes in children's achievement via parent-time use is relevant for policy. Created in 1975 and expanded several times since, the Earned Income Tax Credit (EITC) is designed to supplement the incomes of workers, and provides greater benefits to individuals with children (Marr, Huang, Sherman, & Debot, 2015). In 2016, over 27 million eligible workers and their families received more than $67 billion in EITC benefits, with the average benefit amount of $2,455. The Internal Revenue Service (IRS) and Census Bureau estimate that most – 79 percent – of all eligible taxpayers receive the EITC[1], and it serves as an important anti-poverty program. In 2007, the EITC reduced child poverty rates by an estimated 16 percent (Meyer, 2010). Paying bills and vehicle purchases are common uses for EITC refunds (Goodman-Bacon & McGranahan, 2008), and both may reduce parent stress in the short- and long-term. Vehicle access may also reduce the time parents spend in transportation, providing for more time with children.

The household resources provided by the EITC affect individual and family functioning and outcomes, and a growing body of research suggests this to be true. Higher EITC disbursements have been linked to improved birth outcomes (Hamad & Rehkopf, 2015; Hoynes, Miller, & Simon, 2015), improved child achievement (Dahl & Lochner, 2012a), increased

[1] https://www.eitc.irs.gov/EITC-Central/eitcstats

likelihood of college enrollment (Manoli & Turner, 2018), and short-term improvements in child behavior and home quality scores (Hamad & Rehkopf, 2016). Much of this work has relied on expansions in the EITC that occurred in the 1990s. Other work examines the shorter-term effects of EITC receipt, exploiting the seasonal variation in refunds. Although EITC recipients have the option to receive refunds spread over the year, very few do; most EITC recipients receive their benefits as a lump sum after filing their tax return, with the vast majority receiving their EITC refunds in February or March (Goodman-Bacon & McGranahan, 2008; Rehkopf, Strully, & Dow, 2014). Adults eligible to receive large EITC refunds ($1000 or more) reported less food insecurity, smoking, and exposure to smoke, and a greater likelihood of trying to lose weight, but also some worse metabolic outcomes for women, during tax season relative to the summer months, compared to a non-EITC eligible control group (Rehkopf et al., 2014). Among children, EITC disbursements are predictive of short-term improvements in overall physician-reported health (Hamad, Collin, & Rehkopf, 2018). Notably, the majority of health behaviors, health outcomes, and test score outcomes among adults and children appeared unaffected in the short-term by EITC receipt (Hamad et al., 2018; Rehkopf et al., 2014). It may be that health and achievement outcomes change at too slow a pace to show short-term effects. By contrast, time use varies by the day, and may be sensitive to short-term changes in household resources, leading to the longer-term benefits for health and education found in other studies (Dahl & Lochner, 2012; Hoynes et al., 2015).

Importantly, the EITC is designed to be a work incentive, as it makes each hour of work more lucrative to the worker. In turn, research, largely focused on single mothers, has found that EITC increases labor market activity (Athreya, Reilly, & Simpson, 2014; Meyer & Rosenbaum, 2001). Increased labor force participation and hours may have the effect of increasing household resources above and beyond the EITC refund, as workers work longer hours and thus earn more,

and this increased time working may come at the expense of time with children or other family members. However, time use research on maternal employment finds that despite their dramatic increase in paid work hours over the last quarter-century, mothers' time with children has remained surprisingly consistent. That is, employed mothers tend to spend less time in housework, volunteer work, or leisure, in order to maximize time with children (Bianchi, 2000). A similar pattern of substituting time spent doing chores for parent-child time in enrichment activities may hold for parents who gain from increased EITC rates. However, although the EITC serves as a work incentive in the long-term, receipt of the refund (i.e., increased household resources) may serve as a disincentive for work in the short-term. Indeed, previous research finds that women's (but not men's) unemployment spells that begin soon after tax refund receipts last longer than during other times of the year (LaLumia, 2013). Reduced work hours may allow for more time spent with children.

Alternatively, it is possible that, in the short-term, increased income has negative effects on parent-child time use. Previous research exploiting the timing of government transfers, military wage payments, and the lottery have found increased rates of substance abuse, drug-related hospitalizations, and mortality in the days or weeks following receipt (Apouey & Clark, 2015; Dobkin & Puller, 2007; Evans & Moore, 2011; Phillips, Christenfeld, & Ryan, 1999). It is possible that parents use the extra resources for activities that do not involve their children, including socializing or other forms of recreation. However, to date, the effects of the EITC on parent-child use has not been investigated.

The Current Study

Despite the large public investments in EITC, and the fact that households with children constitute the major beneficiaries, we know little about how EITC affects parents' and children's time use. This study addressed these gaps in the literature by examining the plausibly causal

impacts of EITC receipt on the quantity and quality of parent-child time use. Specifically, I used a difference-in-differences (DD) design with nationally representative time diary data from the 2003 to 2017 waves of the American Time Use Survey – Current Population Survey (ATUS-CPS) linked to publicly available, annual state-level data on federal and state EITC policies from the University of Kentucky Center for Poverty Research's (UKCPR) National Welfare Database. Focusing on less-educated households with children under 18, I exploited time and state variation in EITC policies to examine the following research questions:

1. How does EITC receipt affect parent-child time use? I hypothesized that receipt of an EITC is associated with increased parent-child time spent in enriching or quality activities such as reading or doing homework, but that the increased incentive to work may also lead to increased work hours and decreased total time with children or with family members.
2. Do the [expected] effects of EITC receipt on parent-child time use vary by child age, family structure, or parent gender? I hypothesized that effects on parent-child time use will be stronger among households with young children (under 5 years), in single-parent households, and for mothers, compared to those with older children, in two-parent households, or fathers.

METHODS

Data

This study used three data sources. The cross-sectional, annual ATUS collects a 24-hour retrospective time diary from one individual age 15 or older per household from a subsample of households included in the CPS. The CPS is a cross-sectional, nationally representative survey that provides information on all household members. The ATUS-CPS linked data are well suited for this study because time diaries are the ideal instruments with which to measure parent-child engagement, particularly in socially desirable activities such as reading (Juster & Stafford, 1991). Information on household education and the number and age of respondents' children

allow the sample to be restricted to less-educated respondents over 18 year of age, with one or more of their own children under 18 years of age living in the household. The ATUS-CPS data were merged using state and year identifiers to the UKCPR National Welfare Database, a publicly available dataset containing annual state-level information on a wide range of state economic and political characteristics (e.g., poverty rate, political party in control of legislature) from 1980 through 2017 (UKCPR, 2018).[2]

Measures

Dependent Variables

The outcome of interest (dependent variable) is parents' time spent with their children, which was operationalized in several ways. First, aggregate measures of total time spent with all household children, of total time spent with household and non-household children (for nonresident parents), and the total time spent with family were used as dependent variables. These measures included childcare as a primary activity (e.g., reading to or physically caring for a child) or a time during which one or more children was in the parent's care (secondary activity: e.g., parent was caring for a child while watching preparing food). Family time also included time spent with a spouse or other family members.

Second, the ATUS detailed activity codes were used to decompose the aggregate measure of time spent with children into time spent in specific activities that vary in their influence on child development, such as reading to children, helping children with their homework, and physical care (e.g., giving a child a bath). An index of enrichment time was created, summing the total amount of time spent: reading with children, engaged in sport or non-sport play or arts, helping children with homework, and attending events with children. Finally, given the

[2] For more information, see: http://www.ukcpr.org/data.

relationship between the EITC and employment, a measure of time spent working served as a dependent variable.

For each of these measures of total time with children, with family, and engagement in specific activities with children or work, both continuous measures of minutes per day spent in the activity and a binary measure of whether the parent engaged in that activity at all that day were tested as dependent variables. The binary variables representing any time spent in a specific activity were used for two reasons. First, specific time use activities frequently have many zero values, which drive down means. Although unlike other types of dependent variables with skewed distributions, linear regression can still be used for variables with multiple zeros in time use, as – for most common activities – a value of zero represents no time spent that day engaged in the activity, not a censored value or a true zero of no time ever spent in that activity. For example, an individual may not do any laundry on the sample day, but this does not mean that the individual never does laundry (Stewart, 2013). Second, the examination of the binary variable sheds light on whether the additional household income entice parents who would not otherwise engage in an activity to spend some time engaged in it, in addition to the continuous measure analysis showing whether on average time spent in the activity increased. For example, it is likely important to development for a parent to spend at least some time reading to a young child, but it is questionable whether 30 minutes a day spent reading is more beneficial than 25 minutes a day.

Independent Variables

Unfortunately, EITC receipt and refund amount is not reported in the CPS or ATUS. Thus, estimated eligibility and predicted amounts of the federal EITC credit served as the main independent variables. These were calculated for each respondent using the National Bureau of

Economic Research's (NBER) TAXSIM program[3] using: the year, state of residence, respondent marital status, total household income[4], the number of children in the household (under 13, 17, or 18), and respondents' reports of income from rent, capital gains, and child support.

A number of respondent, household, and state level covariates were controlled: number of children; age of youngest child; respondent marital status, gender, race/ethnicity; whether the respondent had a high school degree; household income; whether the household was located in a metropolitan area; whether the respondent was interviewed on a weekend day; state, year, and month of interview; state population, unemployment and poverty rates, the fraction of the state legislature that is Democrat, and whether the Governor is a Democrat.

Analytic Plan

A difference-in-differences (DD) analysis (Angrist & Pischke, 2009) was conducted, exploiting the seasonal variation in EITC refunds. Formally, this is operationalized by estimating equation 1:

$$Y_i = \beta_o + \beta_1 Taxtime + \beta_2 EITC + \delta\ (Taxtime\ X\ EITC) + \beta_3 X_i + \alpha + \lambda + \Upsilon + \mu$$

where *i* represents the respondent. *Y* represents a measure of respondent time use. *Taxtime* is a binary indicator equal to one if the respondent was interviewed in February or March, and zero if interviewed in other months. *EITC* represents either a binary indicator for whether the respondent is predicted to have received an EITC refund of $1000 or more, and zero for those predicted to receive an EITC refund of $0. The sample is limited to respondents with less than a college education, and who have at least one child under the age of 18 in the household; thus, the treatment group consists of less-educated respondents with children predicted to receive large EITC refunds, and the control group consists of less-educated respondents with children

[3] For more information about TAXSIM, see: http://users.nber.org/~taxsim/taxsim27/
[4] Annual household income was measured as a categorical variable (e.g., $40,000-$50,000). Thus, to calculate predicted EITC refund amounts, the midpoints of categories were used.

predicted to receive no EITC refunds.[5] X is a vector of household and individual characteristics (e.g., age of youngest child, respondent race/ethnicity). α represents state fixed effects; λ represents month fixed effects; Υ represents year fixed effects; and u is idiosyncratic error. The parameter of interest is δ, which represents the intent-to-treat (ITT) effect of EITC refund receipt on short-term time use. Because we lack information on EITC receipt, this study estimates the ITT effect instead of the treatment-on-the-treated (TOT) effect, which provides more conservative estimate given that most, but not all, eligible households receive EITC benefits, and it also limits endogeneity bias regarding selection into EITC participation. All regressions clustered standard errors at the state level. Heterogeneous effects were tested by running separate models by respondent marital status, respondent gender, and age of youngest child.

RESULTS

Descriptive Results

Of the total 191,558 observations in the ATUS-CPS from 2003 to 2017, more than half of the ATUS-CPS sample did not live with any children under 18 (54%; 104,225 observations). 13,698 observations lacked household income data and thus TAXSIM could not calculate their predicted EITC refunds. A total of 42,672 observations met the following requirements: the respondent lived with one or more children under age 18; the respondent lacked a four-year college degree; the respondent was predicted via TAXSIM to receive an EITC refund of $1,000 or more or was predicted to receive an EITC refund of $0; and the observation had non-missing data on independent and dependent variables. This subsample served as the primary analytic sample.

Insert Table 1 here.

[5] Those predicted to receive EITC refunds of less than $1,000 were excluded from analytic sample; they represented 39% of those predicted to receive an EITC. Sensitivity analyses that compared predicted receipt of any EITC to the control group found substantively similar results.

Weighted descriptive statistics on the background variables for the treatment group (those predicted to receive EITC refunds of $1,000 or more) and the control group (those predicted to receive EITC refunds of $0) and the total analytic sample are provided in Table 1. Approximately two-fifths of the sample (39%) were predicted to have received EITC refunds of $1,000 or more, with EITC receipt averaging $3,310 among the treatment group. By design, the analytic sample respondents were low-educated (only 6 in 10 had a high school diploma or higher). Respondents predicted to receive large EITC refunds averaged younger and more children per household, were less likely to be employed, more likely to be racial or ethnic minority, and to have less than a high school degree, compared to those without college degrees who were not predicted to receive EITC refunds. Not surprisingly, non-EITC receivers were more likely to have higher annual incomes[6]. About half of the subsample was married and about three-quarters lived in metro areas, and these factors did not differ across the two groups. The EITC receiving group were more likely to live in states with larger populations, and higher unemployment and poverty rates, although the political party of their Governor or legislature did not significantly differ.

Insert Table 2 here.

Weighted descriptive statistics for dependent time use variables for the analytic sample are provided in Table 2. Importantly, standard deviations on all measures are high, indicating a wide range of variability in parent-child time use across the sample. On a given day, respondents spent an average of 258 minutes (4.28 hours) with all children (household and non-household), and 195 minutes (3.25 hours) with children living in their households. About 82 percent of the sample spent any time with children, and about 53 percent with household children, whereas more than 9 in 10 spent any time with a family member. Less than one-quarter (23%) of

[6] The maximum household income for receiving an EITC was $54,850 for a married couple filing jointly in 2018: https://www.irs.gov/publications/p596

respondents spent any time that day engaged in enrichment activities with their children; playing and attending activities with children constituted most of this enriching time. About half of the sample cared for children on a given day.

EITC-receivers and non-receivers differed significantly in their measures of parent-child time use. EITC receivers were more likely to spend time with children and family, and averaged more total minutes doing so. EITC receivers were also more likely to engage in enrichment time with their children (28% vs. 20%), averaging 26 minutes a day, compared to non-receivers. These differences in parent-child time use may be facilitated by EITC-receiving respondents being less likely to work on a given day (34% vs. 41%) and averaging fewer minutes of work (2.6 vs. 3.1 hours).

One assumption of difference-in-differences analyses is that the treatment and control groups follow parallel trends in the dependent variables in the pre-event period; for this study, meaning that respondents predicted to receive EITC refunds of $1,000 or more and their low-educated peers predicted to receive $0 EITC refunds have parallel parent-child time use trends at periods other than tax refund time. Figures 1 and 2 display the mean dependent variables across the year for EITC receivers and non-EITC receivers. As shown, non-EITC receivers averaged less total time and less enriching time with children over the course of the year compared to EITC receivers of $1,000 or higher refunds, but the seasonal trends of this time were similar. Total time with children ticked up in March and April, then decreased in the summer months, and increased again slightly in the fall. The likelihood of spending any time with children was highest in February and in the summer, which children may be home from school. Enrichment time was highest in the summer, which may reflect parent-child activities when children are home from school, and lower in the spring and fall. Time spent working followed slightly different patterns, with those not receiving EITC increasing work time and the likelihood of any

work on a given day in May and then gradually decreasing through November, with EITC receivers reporting decreases in the spring and fall, and increases in the summer. This may reflect differences in the types of jobs across the treatment and control groups (e.g., low-wage, seasonal work).

Insert Figures 1 and 2 here.

Difference-in-Difference Results

Main Effects

Tables 3 and 4 show the results from the regression models examining the effects of the continuous predicted EITC refund amount on binary measures of parent-child time and total minutes of parent-child time, respectively. As shown on the first line in Table 3, the interaction between EITC refund and tax time indicated that EITC receivers were 3.8 percentage points less likely to spend any time in enrichment activities, and a 3.4 percentage point less likely to spend any time caring for children, during tax time compared to other times of the year, relative to their non-receiving peers. These effects nearly eliminated the higher likelihood of EITC-receivers to spend time caring for children relative to non-receivers (the EITC refund coefficient of .036), and more than eliminated the difference that EITC receivers were more likely to spend any time in enriching activities with their children (.022). Models examining the continuous number of minutes per day, as shown in Tabl3 4, also indicated that EITC-receiving parents spent less time (5.151 fewer minutes) in enriching activities with their children during tax time relative to other times of the year.

Insert Tables 3 and 4 here.

Heterogeneous Effects

To test the second research question examining heterogeneous effects by child age, parent marital status, and parent gender, separate models were run for subsamples in which: the

youngest child was younger than 6 or between 6-18 years; married and unmarried respondents; and male and female respondents.

Child Age. Among parents with one or more children under 6 years, (predicted) receipt of EITC refunds of $1,000 or more had few short-term effects on time use, as shown in Tables 5 and 6, with one exception: EITC receiving parents with young children spent about 23 minutes more time working on a given day during tax season compared to other times of the year, but this increased work did not seem to affect their time with children. By contrast, EITC-receiving respondents with older children (6-18 years) were less likely to spend any time in enriching activities with children (4.2 percentage points) and averaged less time in enriching activities with children (-4.241 minutes).

Insert Tables 5 and 6 here.

Parent Gender. Tables 7 and 8 display the results by parent (respondent) gender, suggesting different patterns for mothers and fathers. EITC-receiving females are 3.6 percentage points more likely to spend any time with household children, and average about 20 additional minutes with all children, during tax season. By contrast, EITC-receiving males spend 19 fewer minutes with household children during tax time. This reduction in total time is partially accounted for by less enriching time. EITC-receiving males are 4.9 percentage points less likely to spend any time, and average 6.6 fewer minutes, in enriching activities with children during tax season.

Insert Tables 7 and 8 here.

Marital Status. Tables 9 and 10 display the results by respondent marital status. Unmarried and married respondents were both less likely to spend any enriching time with children following EITC refund receipt, although the effect was marginally statistically significant for married respondents. EITC receivers who were married were 5.4 percentage

points less likely to spend any time caring for children during tax time. By contrast, EITC receivers who were unmarried EITC spent about 23 more minutes with their children on a given day during tax season.

Insert Tables 9 and 10 here.

Because single mothers constitute a large proportion of EITC recipients (Meyer, 2007), analogous models were run on a subsample of unmarried females (n = 13,070). Results (not shown; available upon request) indicate that unmarried mothers who received EITC showed a 4.6 percentage point increase in their likelihood of spending any time with household children (SE = .018, p = .014), and substantially increased their total time with all children (41.1 minutes, SE = 15.381, p = .010), with household children (28.6 minutes, SE = 10.664, p = .010), and with family members (31.2 minutes, SE = 14.179, p = .033) during tax time.

Because EITC recipients often spend their refunds purchasing cars, which could shorten travel times, time spent commuting was tested in the main models, as well as for females and unmarried females (results not shown); however, there was no evidence that EITC receipt was associated with short-term effects on commute time.

Event History Analyses

A series of event history analyses were performed on each dependent variable, predicting the outcome from (predicted) EITC receipt of $1,000 or more, each month of the year, and their interaction to test whether the results described above were seasonal changes in time use that likely had little or no relation to EITC receipt. The coefficients for the binary and continuous dependent variables are shown in Figures 3 and 4, respectively. For the majority of dependent variables, the interaction between EITC receipt and month was not significant throughout the year, with few exceptions. In the binary variables (Figure 3), EITC recipients were less likely to spend any time with children in December, or to spend any time working in May, relative to non-

recipients, which may reflect seasonal patterns of work and holidays. EITC recipients showed time use changes during tax season: they were more likely to spend time with household children in February, less likely to spend time caring for children in March and April, and less likely to spent time with family in April, relative to their counterparts. For the continuous variables (Figure 4), EITC recipients and non-recipients total time spent with all children, household children, and caring for children did not show differential seasonal patterns. However, EITC recipients were more likely to spend time with family in February, and less so in April, which may reflect tax time differences. However, time spent working varied, such that EITC recipients spent less time working in May and June, and more time working in November, relative to other months of the year, but this pattern was not true for non-recipients. Again, this may reflect seasonal changes common in low-wage work.

Insert Figures 3 and 4 here.

In contrast to total time with children, however, patterns of enriching parent-child time showed seasonal fluctuations. EITC recipients were less likely to spend any enriching time with children in March and April, but more likely in June, October, and December. The tax season changes may reflect refund receipt, whereas the June and December findings may reflect more time with children during the summer and holidays. For the continuous enriching time variable, respondents spent less total time in March and November, and more time in June and July. Because of these seasonal variations in enriching time, the results described above with regard to changes in enriching time due to EITC receipt should be interpreted with caution.

Falsification Tests

Two different falsification tests were conducted. First, to assess whether changes in parent-child time use during tax time was a broader trend not limited to EITC-receivers, analogous models to the main models were run examining the parent-child time use of high-

income respondents ($100,000 or greater annual income) compared to slightly lower high-income respondents ($75,000-$100,000), all of which should not receive the EITC. Results (not shown; available upon request) included no significant interactions between the treatment and the tax time indicators. Second, to assess whether parent-child time use changes were a result of seasonal patterns that varied by EITC receivers and non-receivers, rather than resulting from EITC receipt, analogous models were tested that replaced "tax time" in Equation 1 with October and November, months during which tax refund receipt is unlikely. Again, none of the interactions of interest were statistically significant, providing evidence that seasonal patterns or trends over time do not account for the findings described above.

DISCUSSION

This study sought to examine whether the addition of money into a household with children – via receipt of or an increase in the Earned Income Tax Credit (EITC) – affects parent-child time use. In general, results provide evidence that receipt of the EITC refund – specifically, one of $1,000 or more – may lead to temporary changes in parent-child time that vary by parent and child characteristics. Specifically, findings suggest that the once-a-year influx of funds provided by the refund may lead to mothers' increased time with children, particularly among single mothers, and fathers' decreased time with children, but that EITC refunds do not necessarily lead to short-term changes in parent-child enriching activities such as reading or helping children with their homework.

Descriptive results indicate that parent-child time varies over the course of the year, Low-income families (those predicted to receive an EITC refund of $1,000 or more) exhibited seasonal patterns relatively similar to their peers with higher incomes but also low education (less than a college degree), but averaged less time working, and more time with children and family – and importantly, more time engaged in enriching activities with children. Specifically,

low-income families averaged more than an hour of more total time with household children throughout the year, and about 30 fewer minutes of work, although work time fluctuated considerably throughout the year.

Overall, EITC refunds were associated with a small, short-term decrease in the likelihood that parents spent any time caring for children on a given day, although this result appeared to be driven by married respondents. By contrast, findings indicated that females spent more time with children, and were more likely to spend any time with children, in the months during which tax refunds are typically received. Specifically, EITC-receiving women were 3.6 percentage points more likely to spend any time with household children and spent 20 more minutes per day with all children during tax time relative to other times of the year, compared to non-receiving females. This effect was particularly strong for unmarried mothers, who averaged 41 more minutes with all children, and 31 more minutes with family members. Notably, female EITC recipients already spent more time with children, and were more likely to spend any time with children, compared to non-recipients, as indicated by the main effect of EITC receipt; thus, the additional resources actually increased the gap between receivers and their non-receiving, low-educated peers. In contrast to females, EITC-receiving males averaged about 19 fewer minutes with household children, which nearly erases the difference between EITC recipients and non-recipients. These results suggest that EITC refund receipt may widen gender differences in child care and housework, warranting more research.

There was no evidence that this increase in mother-child time resulted from mothers' changed work or commute time, but it is possible that EITC refunds were spent on purchases that freed parents' time to spend with children in other ways (e.g., outsourcing housework or other tasks). Further, the addition of resources in the home may decrease parents' financial stress such that they choose to spend more time with their children in place of other activities, or that

mother-child time may be less stressed and more emotionally available. For example, other research finds that larger EITC refunds are associated with lower residential mobility and a lower exit of gentrifying neighborhoods (Brown-Robertson, Casey, Hardy, & Muhammed, 2016), which could reduce household stress and time spent securing housing. This extra time with children, particularly time with positive emotional valence, may promote health among both parents and children, and may help explain some of the prior research identifying EITC's health benefits (Gangopadhyaya, Gates, Braga, & Blavin, 2018; Hamad & Rehkopf, 2015; Hoynes et al., 2015; Rehkopf et al., 2014), although more research using data that assesses time use, emotional well-being, and health outcomes is needed.

Importantly, results provide evidence that EITC refunds lead to short-term increases in the time spent working among respondents with young children (under age 6), a substantial effect of 23 more minutes a day, or a nearly 15 percent increase over the baseline average of 2.6 hours per day. This is different from other research that finds the EITC serves as a temporary disincentive to work (LaLumia, 2013), but to date the labor market effects by age of child have not been tested. Added resources in the household via EITC refunds may be spent on child care for young children, which is not as needed, nor as costly, for older children who are typically attending school during tax season (Chaudry, Morrissey, Weiland, and Yoshikawa, 2017). For parents with older children, there was no evidence that EITC refunds served as income substitution, reducing time spent in work activity; there was no evidence of changes in work behaviors. Future research on the employment and income effects of the EITC should take into account child age, as children's developmental stage and age may play a role in how families decide to spend extra household resources and allocate time.

Findings also provided limited evidence that EITC refunds lead to decreases in parents' time engaged in enriching activities with their children. The effects were strongest among males

and among respondents with school-age children (6-18 years of age), and in analyses on the individual activities included in the enriching time total (results not shown; available upon request), time spent helping children with their homework and attending activities and events with children appear to underlie this pattern. Respondents receiving EITC refunds of $1,000 or more were about 4 percentage points less likely to spend any enriching time with children, and spent about 5 fewer minutes on a given day engaged in enriching parent-child activities, during tax time compared to non-recipients. While the overall effects are sizable, representing a 13.7 percent decrease in the likelihood of any enriching time and a 19 percent decrease in total time, these results should be interpreted with caution given the differential seasonal patterns in enriching time found by the event history analyses.

Despite the use of nationally representative data and two different quasi-experimental designs, the study has several limitations. First, the ATUS-CPS lacks information about actual EITC receipt, or the size of refunds, and thus TAXSIM was used to predict EITC refund receipt and amount, which were used to estimate intent-to-treat effects of the EITC. However, as noted, the intent-to-treat effect is policy relevant, as even though take-up of the EITC is high (~79%), it is not universal. Second, our DD approach provides plausibly causal estimates of the effects of a policy change; however, to the extent that our treatment group, defined as either respondents lacking a college degree in households with children time, also experienced other simultaneous, unique seasonal or economic changes that did not affect the treatment groups, these results would be biased. That is, it is possible that seasonal or economic conditions other than the EITC differentially affect families' time use. Indeed, the event history analyses for the enriching time variables suggest varied seasonal trends across the treatment and control groups that are not driven by tax refund receipt.Further, the time period examined (2003-2017) included the Great Recession, spanning 2007 to 2009, which was a time of high unemployment and relatively high

levels of government intervention in the labor market. To the extent that the Great Recession affected respondents in the treatment group more so than control respondents, these results may be biased. Indeed, studies of time use demonstrate changes during the Great Recession (Aguiar, Hurst, & Karabarbounis, 2013; Kalil & Ziol-Guest, 2013). Policy changes aimed at low-income families were enacted during this period, such as the temporary increase in SNAP benefit levels (Morrissey & Miller, 2018; Nord & Prell, 2011).

Third, only data on respondents' primary activity and with whom they were with were collected. That is, if parents were multitasking (e.g., cooking dinner while helping a child with his or her homework), the secondary activity would go unmeasured. Fourth, the ATUS-CPS sample only included respondents 15 years and older, and thus we lack information on children's time use. It may be that receipt of the EITC or a larger refund leads to changes in children's time use that are unrelated to parent-child time, namely in that children spend more time in activities or at events that do not directly involve parents, such as child care, lessons, or other activities. Fifth, and importantly, the ATUS-CPS data are cross-sectional, and thus income and time use information was concurrent, referring to the same year; as a result, the analyses used TAXSIM-predicted EITC refund receipt and amount from the same year in which time use was measured, not the prior year's income information, as would have been preferable. To the extent that families' economic and demographic circumstances change from year to year, these EITC predictions are inaccurate. Finally, complete case analysis was used, dropping those with missing data on the variables of interest. For example, more than 13,000 respondents (7.5% of the sample) did not provide data on family income, excluding them from the analysis sample.

CONCLUSION

In sum, this study finds evidence that EITC receipt leads to short-term increases in mother-child time, particularly among unmarried households, as well as short-term increases in

the work hours of parents with young children. Importantly, results are suggestive that greater income in the household may lead to temporary widening of the gender gap in child caregiving. More research is needed to better understand the interplay of labor and safety net policies and parent-child time, particularly among low-income families.

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Table 1. Weighted sample background characteristics, using pooled data from 2003-2017.

	Mean or % (SD)		
Independent Variables	**Predicted to receive EITC**	**Predicted to receive $0 EITC**	**Total Sample**
Received an EITC refund of $1,000 or more (predicted)	100%	0%	38.77%
EITC refund amount (predicted)	$3,310.03 ($1,417.51)	$0	$1,213.46 ($1,762.01)
Interviewed during tax time (February or March)	16.78%	16.77%	16.78%
Age of youngest child (years)	6.65 (5.30)***	9.60 (5.56)	8.46 (5.65)
Number of children in the household	2.19 (1.16)***	1.81 (0.99)	1.96 (1.07)
Respondent and/or spouse/partner is employed	65.07%*	67.54%	66.58%
Respondent is employed	49.42%***	58.79%	55.16%
Respondent is married	48.16%	46.26%	47.00%
Respondent is male	41.98%***	51.64%	47.90%
Respondent is Black	20.09%***	9.74%	13.54%
Respondent is Hispanic	41.90%***	19.03%	27.90%
Respondent is non-Hispanic White or other race	38.01%***	71.23%	58.56%
Respondent has a high school diploma or more*	56.18%**	61.89%	59.68%
Household annual income:			
Less than $20,000	46.25%***	0.86%	18.45%
$20,000-$40,000	51.46%***	6.44%	23.89%
$40,000-$60,000	2.29%***	28.69%	18.46%
$60,000-$75,000	0%***	18.82%	11.52%
$75,000-$100,000	0%***	21.21%	12.99%
$100,000-$150,000	0%***	15.00%	9.19%
$150,000 or more	0%***	8.98%	5.50%
Household located in metro area	73.68%	74.14%	73.96%
N	17,087	25,585	42,672

*Note: All sample respondents (and spouse/partners, if present) had less than a four-year college degree.
+p<10, *p<.05, **p<.01, ***p<.001

Table 2. Weighted dependent variable descriptive statistics, using pooled data from 2003-2017 (N = 42,672).

	Predicted to receive EITC of $1000 or more		Predicted to receive $0 EITC		Total Sample	
Dependent Variables	**Mean # of minutes (SD)**	**% spent any time**	**Mean # of minutes (SD)**	**% spent any time**	**Mean # of minutes (SD)**	**% spent any time**
Total time with all children	332.53*** (268.65)	87.20%***	241.95 (244.39)	78.82%	257.87	82.07%
Total time with all household children	261.09*** (279.81)	62.22%***	152.47 (232.27)	45.81%	194.58 (257.27)	53.34%
Total time with family	404.37*** (278.58)	93.28%***	320.02 (263.06)	90.61%	352.72 (272.29)	91.65%
Total time spent in enrichment activities with children	26.17*** (61.74)	27.82%***	17.82 (51.92)	19.75%	21.06 (56.08)	22.88%
Time parent spent reading with children	1.28** (8.81)	3.79%**	0.96 (6.36)	3.67%	1.08 (7.41)	3.47%
Time parent spent playing with children	15.03*** (51.69)	13.49%***	9.12 (40.46)	8.49%	11.41 (45.24)	10.43%
Time spent helping child with homework	5.08*** (20.23)	9.12%***	2.93 (15.48)	5.43%	3.76 (17.50)	6.86%
Time parent spent in activities with children	5.10 (19.73)	21.41%***	5.21 (24.37)	18.69%	5.17 (22.68)	19.74%
Time parent spent attending events with children	1.32*** (14.97)	1.14%***	2.44 (21.20)	2.06%	2.00 (19.04)	1.71%
Time parent spent in arts with children	0.12 (3.26)	0.22%	0.12 (3.63)	0.20%	0.12 (3.49)	0.21%
Time parent spent talking with children	2.83*** (15.93)	6.47%**	1.90 (11.60)	5.17%	2.23 (13.33)	5.67%
Time parent spent playing or watching sports with children	0.52* (7.39)	0.72%	0.36 (5.58)	0.60%	0.42 (6.34)	0.65%
Time spent in caring for children	56.32*** (96.80)	51.02%***	34.15 (77.08)	36.98%	42.75 (85.95)	49.42%
Time spent working	156.54*** (237.07)	34.21%***	187.66 (251.87)	41.43%	175.59 (257.87)	38.63%

+p<10, *p<.05, **p<.01, ***p<.001

Table 3. Main Difference-in-Difference Results: Predicted to receive an EITC refund of $1,000 or more and binary measures of parent-child time (N = 42,672).

	Any time with all children	**Any time with household child(ren)**	**Any time with family**	**Any enriching time with child(ren)**	**Any time caring for child(ren)**	**Any time working**
EITC refund $1000 or more X Tax time	.006 (.011)	.016 (.012)	.002 (.009)	**-.038**** **(.012)**	**-.034*** **(.017)**	-.013 (.015)
Tax time	-.025+ (.013)	-.022 (.014)	-.003 (.011)	-.030* (.012)	-.035** (.012)	-.003 (.011)
EITC refund $1000 or more	.007 (.011)	.009*** (.008)	.008 (.011)	.022* (.011)	.036** (0.12)	-.074*** (.014)
R^2	.359	.366	.268	.146	.290	.410

Notes: Each column represents a separate linear probability regression model. The following variables are controlled (results not shown; available upon request): respondent employment status; age of youngest child in household; number of children under 18 in household; respondent marital status; respondent gender; respondent race/ethnicity; respondent has less than a high school education; total household income; household located in a metropolitan area; state population; state unemployment rate, poverty rate, the fraction of the state House that is Democrat, and whether the Governor is Democrat; and interview month; state of residence; and year of interview fixed effects. Standard errors are clustered by state of residence. Note that all dependent variables represent time that respondents spent with their child or children, with the exception of time spent with family (which may or may not include children) and time spent working.
+p<10, *p<.05, **p<.01, ***p<.001

Table 4. Main Difference-in-Difference Results: Predicted to receive an EITC refund of $1,000 or more and continuous measures of parent-child time, in minutes (N = 42,672).

	Total time with all children	**Total time with household child(ren)**	**Total time with family**	**Total enriching time with child(ren)**	**Total time caring for child(ren)**	**Total time working**
EITC refund $1000 or more X Tax time	7.252 (7.101)	3.408 (6.247)	9.696 (8.614)	**-5.151*** **(2.271)**	-1.648 (3.347)	-.682 (8.855)
Tax time	16.289* (7.530)	4.060 (6.287)	23.134** (7.762)	-1.723 (1.749)	-3.498 (2.532)	-.617 (5.382)
EITC refund $1000 or more	16.002* (6.738)	36.841*** (4.469)	26.483** (9.176)	1.410 (1.084)	1.611 (1.214)	-20.487** (5.521)
R^2	.205	.319	.203	.091	.221	.276

Notes: Each column represents a separate linear probability regression model. The following variables are controlled (results not shown; available upon request): respondent employment status; age of youngest child in household; number of children under 18 in household; respondent marital status; respondent gender; respondent race/ethnicity; respondent has less than a high school education; total household income; household located in a metropolitan area; state population; state unemployment rate, poverty rate, the fraction of the state House that is Democrat, and whether the Governor is Democrat; and interview month; state of residence; and year of interview fixed effects. Standard errors are clustered by state of residence. Note that all dependent variables represent time that respondents spent with their child or children, with the exception of time spent with family (which may or may not include children) and time spent working.
+p<10, *p<.05, **p<.01, ***p<.001

Table 5. Results by Age of Youngest Child: Predicted to receive an EITC refund of $1,000 or more and binary measures of parent-child time.

	Any time with all children		**Any time with household child(ren)**		**Any time with family**		**Any enriching time with child(ren)**		**Any time caring for child(ren)**		**Any time working**	
	Youngest child under 6	**Youngest child 6-18 years**	**Youngest child under 6**	**Youngest child 6-18 years**	**Youngest child under 6**	**Youngest child 6-18 years**	**Youngest child under 6**	**Youngest child 6-18 years**	**Youngest child under 6**	**Youngest child 6-18 years**	**Youngest child under 6**	**Youngest child 6-18 years**
EITC refund $1000 or more X Tax time	.028 (.018)	-.010 (.015)	.008 (.023)	.018 (.018)	.018 (.017)	-.006 (.014)	-.031 (.028)	**-.042** (.013)**	-.028 (.028)	-.033 (.021)	.005 (.020)	-.015 (.021)
Tax time	-.035 (.024)	-.021 (.017)	-.014 (.034)	-.022+ (.012)	-.019 (.016)	.003 (.015)	-.053+ (.029)	-.015 (.011)	-.047 (.030)	-.027+ (.014)	-.040+ (.021)	.013 (.015)
EITC refund $1000 or more	.004 (.011)	.005 (.016)	.110*** (.016)	.078*** (.010)	.006 (.011)	.007 (.016)	-.001 (.017)	.038** (.012)	.037* (.015)	.036* (.016)	-.039+ (.022)	-.098*** (.018)
R^2	.058	.133	.235	.498	.049	.066	.070	.140	.148	.228	.282	.303
N	16,365	26,307	16,365	26,307	16,365	26,307	16,365	26,307	16,365	26,307	16,365	26,307

Notes: Each column represents a separate linear probability regression model. EITC refund $1000 or more refers to the TAXSIM predicted amount of refund, compared to a prediction of a refund of $0. Tax time is defined as February and March compared to the other 10 months of the year. The following variables are controlled (results not shown; available upon request): respondent employment status; age of youngest child in household; number of children under 18 in household; respondent marital status; respondent gender; respondent race/ethnicity; respondent has less than a high school education; total household income; household located in a metropolitan area; state population; state unemployment rate, poverty rate, the fraction of the state House that is Democrat, and whether the Governor is Democrat; and interview month; state of residence; and year of interview fixed effects. Standard errors are clustered by state of residence. Note that all dependent variables represent time that respondents spent with their child or children, with the exception of time spent with family (which may or may not include children) and time spent working.
+p<10, *p<.05, **p<.01, ***p<.001

Table 6. Results by Age of Youngest Child: Predicted to receive an EITC refund of $1,000 or more and continuous measures of parent-child time (in minutes).

	Total time with all children		**Total time with household child(ren)**		**Total time with family**		**Total enriching time with child(ren)**		**Total time caring for child(ren)**		**Total time working**	
	Youngest child under 6	**Youngest child 6-18 years**	**Youngest child under 6**	**Youngest child 6-18 years**	**Youngest child under 6**	**Youngest child 6-18 years**	**Youngest child under 6**	**Youngest child 6-18 years**	**Youngest child under 6**	**Youngest child 6-18 years**	**Youngest child under 6**	**Youngest child 6-18 years**
EITC refund $1000 or more X Tax time	9.008 (10.260)	.984 (10.238)	-4.539 (12.004)	5.420 (7.252)	11.053 (12.682)	7.763 (11.766)	-7.209 (4.984)	**-4.241** (1.275)**	-2.844 (7.552)	-1.652 (1.907)	**22.853* (9.249)**	-12.679 (11.949)
Tax time	-1.458 (15.040)	27.583*** (7.262)	3.613 (16.157)	6.371 (5.310)	-3.925 (16.514)	39.071*** (8.671)	-3.643 (4.535)	-.095 (1.370)	-9.823 (8.048)	.332 (1.591)	-23.407* (10.649)	9.167 (7.900)
EITC refund $1000 or more	11.714 (12.053)	18.456* (7.722)	48.650*** (11.817)	29.379*** (5.321)	16.058 (14.000)	32.015** (11.539)	.210 (2.311)	2.162* (1.030)	1.656 (3.441)	3.039* (1.312)	-13.156 (11.068)	-25.676** (8.311)
R^2	.168	.121	.190	.286	.182	.140	.050	.072	.145	.129	.263	.289
N	16,365	26,307	16,365	26,307	16,365	26,307	16,365	26,307	16,365	26,307	16,365	26,307

Notes: Each column represents a separate linear probability regression model. EITC refund $1000 or more refers to the TAXSIM predicted amount of refund, compared to a prediction of a refund of $0. Tax time is defined as February and March compared to the other 10 months of the year. The following variables are controlled (results not shown; available upon request): respondent employment status; age of youngest child in household; number of children under 18 in household; respondent marital status; respondent gender; respondent race/ethnicity; respondent has less than a high school education; total household income; household located in a metropolitan area; state population; state unemployment rate, poverty rate, the fraction of the state House that is Democrat, and whether the Governor is Democrat; and interview month; state of residence; and year of interview fixed effects. Standard errors are clustered by state of residence. Note that all dependent variables represent time that respondents spent with their child or children, with the exception of time spent with family (which may or may not include children) and time spent working.
+p<10, *p<.05, **p<.01, ***p<.001

Table 7. Results by Parent Gender: Predicted to receive an EITC refund of $1,000 or more and binary measures of parent-child time.

	Any time with all children		**Any time with household child(ren)**		**Any time with family**		**Any enriching time with child(ren)**		**Any time caring for child(ren)**		**Any time working**	
	Females	**Males**	**Females**	**Males**	**Females**	**Males**	**Females**	**Males**	**Females**	**Males**	**Females**	**Males**
EITC refund $1000 or more X Tax time	.003 (.011)	.010 (.018)	**.036** (.012)**	-.013 (.020)	.011 (.010)	-.005 (.018)	-.027 (.018)	**-.049* (.019)**	-.030+ (.016)	-.050+ (.028)	-.019 (.021)	.003 (.023)
Tax time	-.019 (.018)	-.031 (.019)	-.029+ (.017)	-.011 (.019)	.001 (.007)	-.002 (.017)	-.040* (.016)	-.022 (.018)	-.030+ (.018)	-.026+ (.019)	-.029+ (.017)	.024 (.014)
EITC refund $1000 or more	.017 (.013)	-.005 (.019)	.096*** (.012)	.080*** (.011)	.018*** (.005)	.004 (.018)	.020 (.017)	.023+ (.013)	.068*** (.017)	.0003 (.012)	-.076** (.023)	-.082*** (.017)
R^2	.130	.115	.439	.462	.236	.066	.150	.118	.320	.204	.282	.285
N	24,232	18,440	24,232	18,440	24,232	18,440	24,232	18,440	24,232	18,440	24,232	18,440

Notes: Each column represents a separate linear probability regression model. EITC refund $1000 or more refers to the TAXSIM predicted amount of refund, compared to a prediction of a refund of $0. Tax time is defined as February and March compared to the other 10 months of the year. The following variables are controlled (results not shown; available upon request): respondent employment status; age of youngest child in household; number of children under 18 in household; respondent marital status; respondent gender; respondent race/ethnicity; respondent has less than a high school education; total household income; household located in a metropolitan area; state population; state unemployment rate, poverty rate, the fraction of the state House that is Democrat, and whether the Governor is Democrat; and interview month; state of residence; and year of interview fixed effects. Standard errors are clustered by state of residence. Note that all dependent variables represent time that respondents spent with their child or children, with the exception of time spent with family (which may or may not include children) and time spent working.
+p<10, *p<.05, **p<.01, ***p<.001

Table 8. Results by Parent Gender: Predicted to receive an EITC refund of $1,000 or more and continuous measures of parent-child time (in minutes).

	Total time with all children		**Total time with household child(ren)**		**Total time with family**		**Total enriching time with child(ren)**		**Total time caring for child(ren)**		**Total time working**	
	Females	**Males**	**Females**	**Males**	**Females**	**Males**	**Females**	**Males**	**Females**	**Males**	**Females**	**Males**
EITC refund $1000 or more X Tax time	**19.828* (9.196)**	-13.329 (10.214)	15.886+ (7.931)	**-19.237* (7.707)**	18.832+ (10.525)	-8.005 (11.436)	-3.887 (2.767)	**-6.638* (2.596)**	-2.043 (3.840)	-2.153 (4.656)	-4.094 (9.418)	6.969 (15.213)
Tax time	15.795 (10.360)	19.312* (9.479)	5.723 (9.361)	5.400 (7.672)	29.884** (9.972)	18.674 (11.530)	-1.326 (2.265)	-2.450 (2.097)	-3.154 (3.338)	-3.342 (2.862)	-10.510 (7.885)	9.779 (9.505)
EITC refund $1000 or more	20.204* (9.153)	10.736 (8.571)	44.252*** (7.288)	26.432*** (4.531)	26.668* (10.984)	25.372* (11.239)	.980 (1.855)	1.669 (1.668)	3.389 (2.496)	-1.061 (2.237)	-23.536** (8.697)	-22.209* (8.318)
R^2	.253	.096	.356	.254	.250	.108	.107	.071	.261	.127	.261	.262
N	24,232	18,440	24,232	18,440	24,232	18,440	24,232	18,440	24,232	18,440	24,232	18,440

Notes: Each column represents a separate linear probability regression model. EITC refund $1000 or more refers to the TAXSIM predicted amount of refund, compared to a prediction of a refund of $0. Tax time is defined as February and March compared to the other 10 months of the year. The following variables are controlled (results not shown; available upon request): respondent employment status; age of youngest child in household; number of children under 18 in household; respondent marital status; respondent gender; respondent race/ethnicity; respondent has less than a high school education; total household income; household located in a metropolitan area; state population; state unemployment rate, poverty rate, the fraction of the state House that is Democrat, and whether the Governor is Democrat; and interview month; state of residence; and year of interview fixed effects. Standard errors are clustered by state of residence. Note that all dependent variables represent time that respondents spent with their child or children, with the exception of time spent with family (which may or may not include children) and time spent working.
+p<10, *p<.05, **p<.01, ***p<.001

Table 9. Results by Parent Marital Status: Predicted to receive an EITC refund of $1,000 or more and binary measures of parent-child time.

	Any time with all children		**Any time with household child(ren)**		**Any time with family**		**Any enriching time with child(ren)**		**Any time caring for child(ren)**		**Any time working**	
	Unmarried	**Married**	**Unmarried**	**Married**	**Unmarried**	**Married**	**Unmarried**	**Married**	**Unmarried**	**Married**	**Unmarried**	**Married**
EITC refund $1000 or more X Tax time	.002 (.017)	.008 (.014)	.015 (.017)	.012 (.018)	-.003 (.017)	.010 (.008)	**-.037* (.017)**	-.039+ (.019)	-.016 (.018)	**-.054* (.026)**	-.021 (.019)	.003 (.023)
Tax time	-.038+ (.020)	-.010 (.011)	-.030+ (.017)	-.009 (.017)	.0005 (.018)	-.004 (.010)	-.007 (.017)	-.057** (.020)	-.020 (.015)	-.054* (.021)	.016 (.022)	-.026 (.020)
EITC refund $1000 or more	.032 (.019)	-.002 (.013)	.132*** (.015)	.013 (.014)	.022 (.017)	.009 (.010)	.038** (.012)	.003 (.020)	.084*** (.013)	-.023 (.026)	-.133*** (.016)	-.003 (.021)
R^2	.128	.063	.389	.077	.052	.032	.145	.099	.303	.192	.271	.271
N	21,020	21,652	21,020	21,652	21,020	21,652	21,020	21,652	21,020	21,652	21,020	21,652

Notes: Each column represents a separate linear probability regression model. EITC refund $1000 or more refers to the TAXSIM predicted amount of refund, compared to a prediction of a refund of $0. Tax time is defined as February and March compared to the other 10 months of the year. The following variables are controlled (results not shown; available upon request): respondent employment status; age of youngest child in household; number of children under 18 in household; respondent marital status; respondent gender; respondent race/ethnicity; respondent has less than a high school education; total household income; household located in a metropolitan area; state population; state unemployment rate, poverty rate, the fraction of the state House that is Democrat, and whether the Governor is Democrat; and interview month; state of residence; and year of interview fixed effects. Standard errors are clustered by state of residence. Note that all dependent variables represent time that respondents spent with their child or children, with the exception of time spent with family (which may or may not include children) and time spent working.
+p<10, *p<.05, **p<.01, ***p<.001

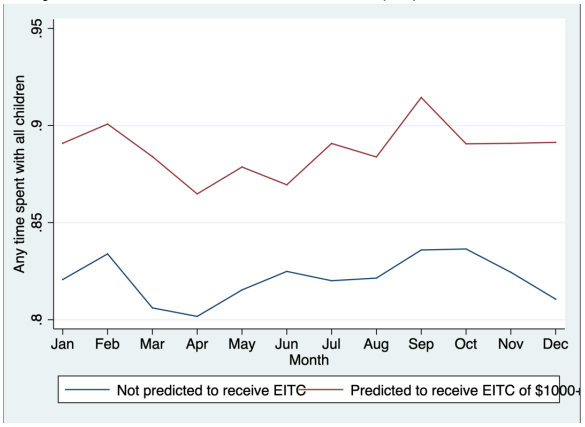
Table 10. Results by Parent Marital Status: Predicted to receive an EITC refund of $1,000 or more and continuous measures of parent-child time (in minutes).

	Total time with all children		**Total time with household child(ren)**		**Total time with family**		**Total enriching time with child(ren)**		**Total time caring for child(ren)**		**Total time working**	
	Unmarried	**Married**	**Unmarried**	**Married**	**Unmarried**	**Married**	**Unmarried**	**Married**	**Unmarried**	**Married**	**Unmarried**	**Married**
EITC refund $1000 or more X Tax time	**22.817* (9.832)**	-12.604 (9.500)	11.381 (9.027)	-10.365 (10.635)	13.848 (10.947)	2.200 (11.744)	-4.845+ (2.664)	-5.364+ (2.837)	-2.701 (3.894)	-1.078 (4.134)	-3.373 (9.304)	5.880 (13.903)
Tax time	14.952 (12.485)	18.731* (7.682)	-5.831 (7.620)	16.283+ (9.227)	29.785* (14.285)	15.806 (10.636)	.193 (2.098)	-4.068 (3.124)	-.681 (2.839)	-6.989+ (3.914)	5.088 (8.884)	-7.977 (10.671)
EITC refund $1000 or more	25.269*** (7.983)	-.507 (11.025)	44.489*** (5.626)	4.319 (9.095)	39.126*** (8.991)	4.818 (14.770)	4.550** (1.580)	-3.631 (2.211)	6.268* (2.453)	-5.538 (3.646)	-36.926*** (5.898)	-1.946 (10.367)
R^2	.170	.216	.302	.193	.130	.174	.093	.073	.218	.208	.263	.246
N	21,020	21,652	21,020	21,652	21,020	21,652	21,020	21,652	21,020	21,652	21,020	21,652

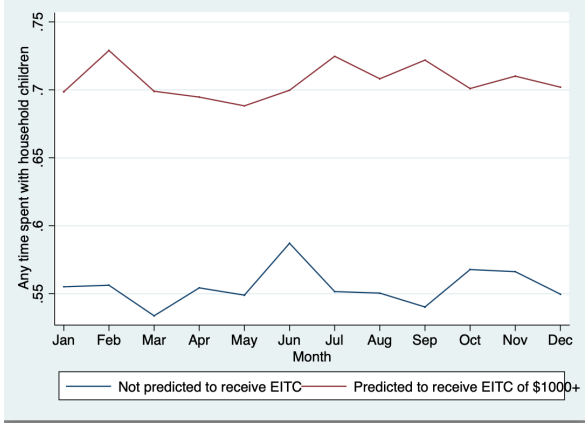
Notes: Each column represents a separate linear probability regression model. EITC refund $1000 or more refers to the TAXSIM predicted amount of refund, compared to a prediction of a refund of $0. Tax time is defined as February and March compared to the other 10 months of the year. The following variables are controlled (results not shown; available upon request): respondent employment status; age of youngest child in household; number of children under 18 in household; respondent marital status; respondent gender; respondent race/ethnicity; respondent has less than a high school education; total household income; household located in a metropolitan area; state population; state unemployment rate, poverty rate, the fraction of the state House that is Democrat, and whether the Governor is Democrat; and interview month; state of residence; and year of interview fixed effects. Standard errors are clustered by state of residence. Note that all dependent variables represent time that respondents spent with their child or children, with the exception of time spent with family (which may or may not include children) and time spent working.
+p<10, *p<.05, **p<.01, ***p<.001

Figure 1. Binary Dependent Variable Measures for EITC receivers and non-receivers over the year.

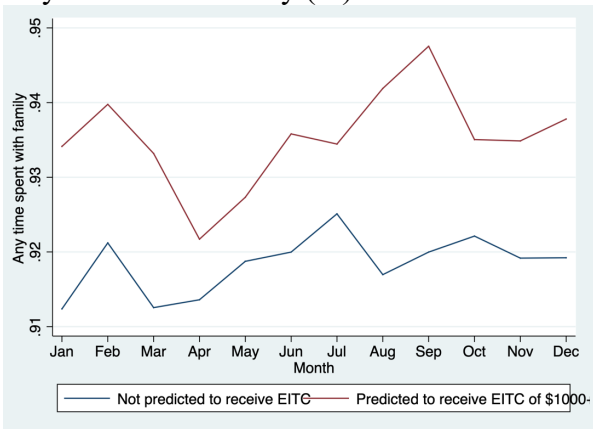
Any Time with All Children (%)



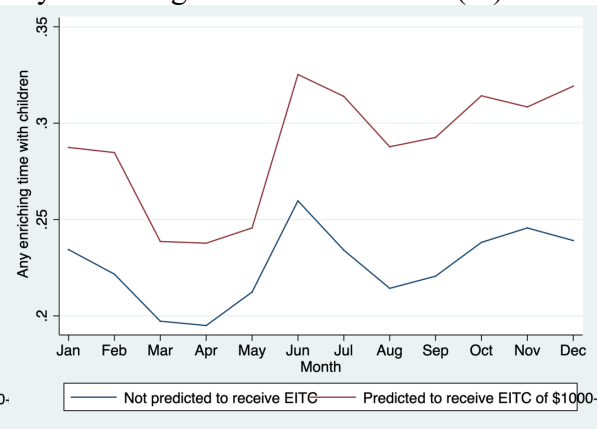
Any Time with Household Children (%)



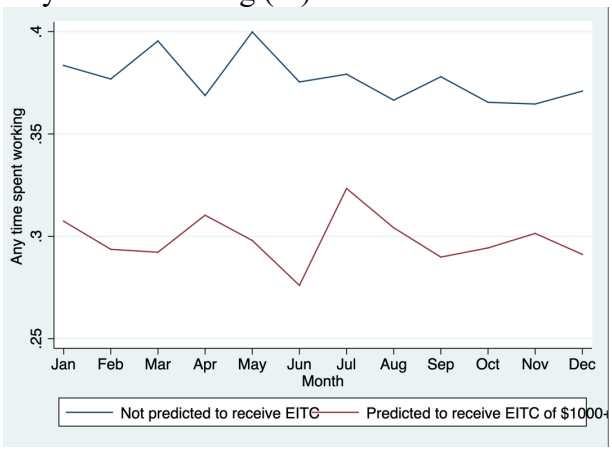
Any Time with Family (%)



Any Enriching Time with Children (%)



Any Time Working (%)



Any Time Caring for Children (%)

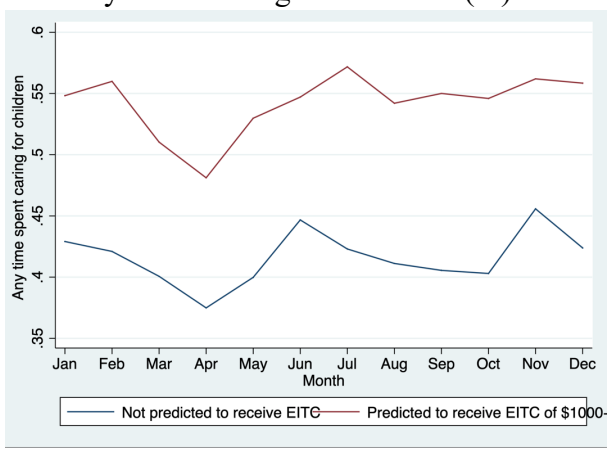
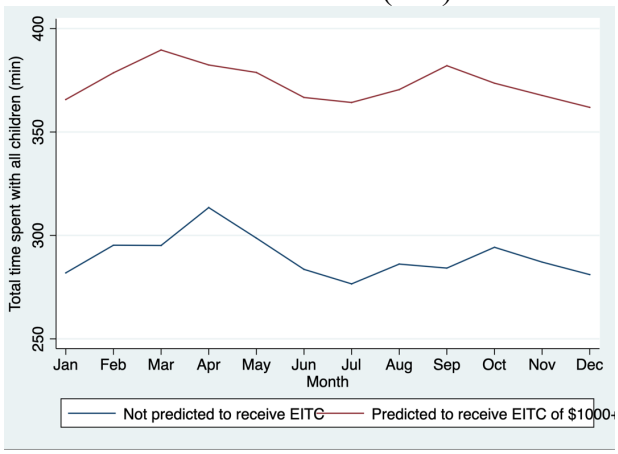
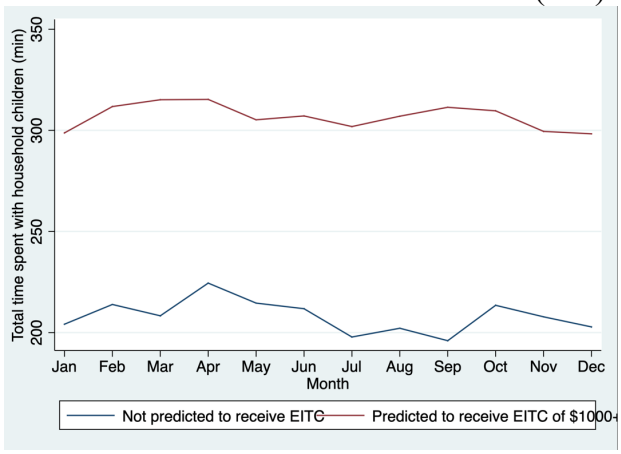


Figure 2. Continuous Dependent Variable Measures for EITC receivers and non-receivers over the year.

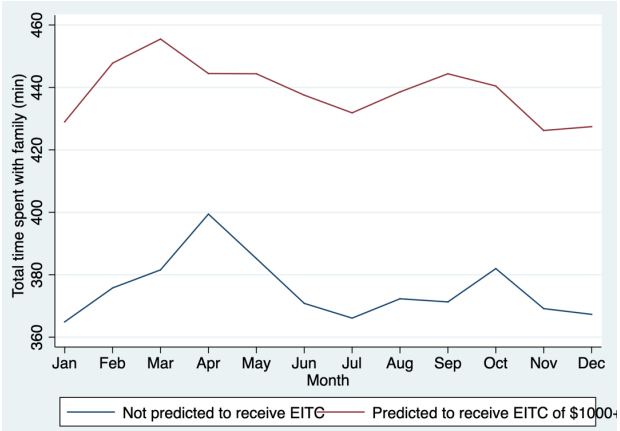
Total Time with All Children (min)



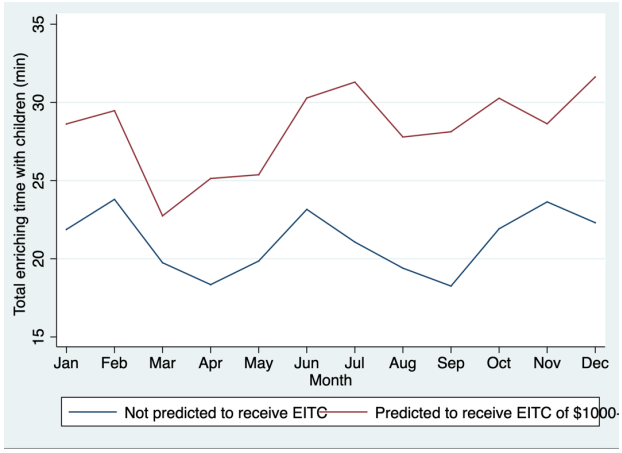
Total Time with Household Children (min)



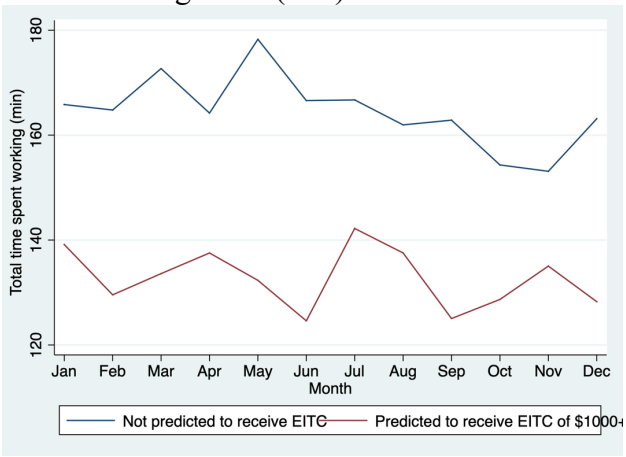
Total Time with Family (min)



Total Enriching Time with Children (min)



Total Working Time (min)



Total Time Caring for Children (min)

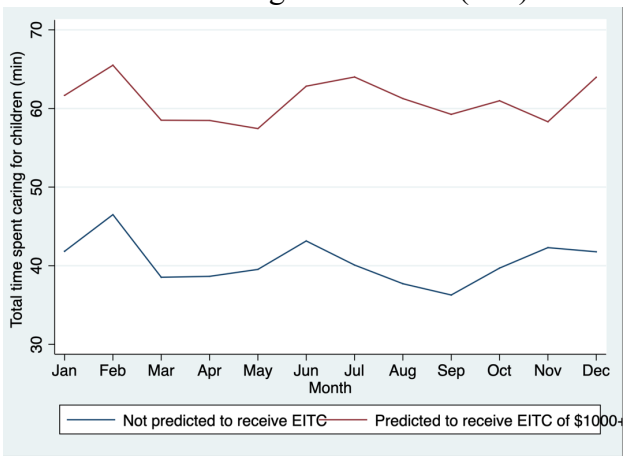


Figure 3. Event history studies comparing EITC receivers and non-receivers over the year for binary dependent variables.

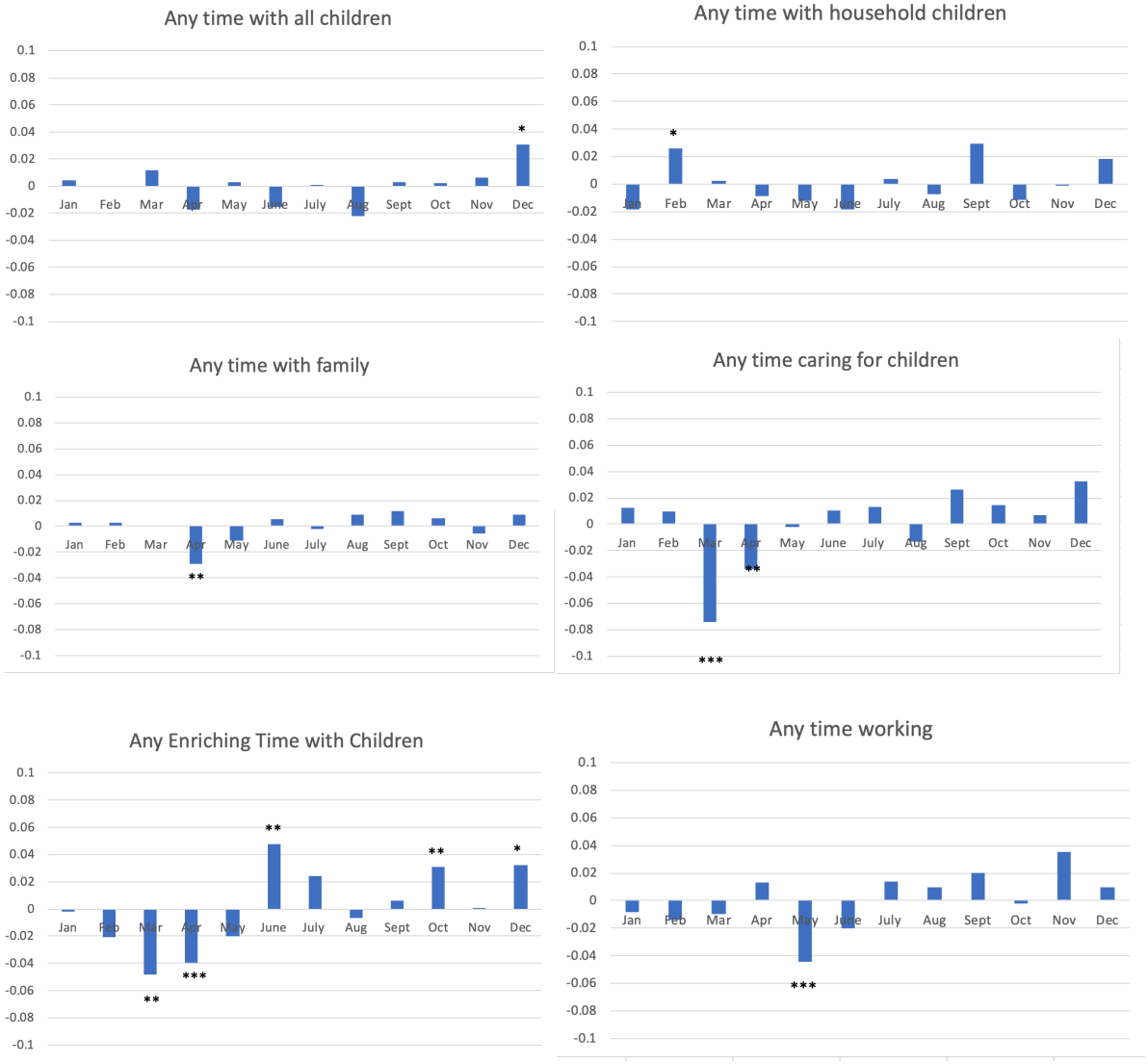


Figure 4. Event history studies comparing EITC receivers and non-receivers over the year for continuous dependent variables.