Evaluating the Impact of Expanded Tax Credits on the Wellbeing of Puerto Rican Families

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Abstract

Do refundable tax credits increase labor supply and improve family well-being in low-income, high-poverty settings? While extensive evidence from the mainland United States and a few other higher-income countries shows that tax credits raise employment and reduce poverty, far less is known about their effectiveness in lower-wage economies with large informal sectors. This paper provides some of the first evidence on this question by evaluating two decades of Earned Income Tax Credit (EITC) and Child Tax Credit (CTC) policy in Puerto Rico—a setting characterized by chronically low labor force participation and high child poverty. Using microdata from the Puerto Rico Community Survey linked to detailed, hand-collected tax policy histories, the analysis exploits variation in credit generosity by year and family size to estimate intention-to-treat effects. Expansions of the EITC and CTC substantially increase employment, hours worked, and earnings, with especially large effects for unmarried mothers, lower-educated women, and rural households. These labor supply responses translate into sizable gains in total and family income, reductions in poverty, and declines in reliance on cash welfare. Beyond labor market outcomes, expanded tax credits improve housing stability and residential quality. Families are less likely to live doubled-up with other families, spend more on higher-quality housing, and are more likely to reside in higher-opportunity neighborhoods with higher incomes, employment rates, and educational attainment. Overall, the results show that refundable tax credits can meaningfully improve labor market attachment and broader economic well-being even in low-income, high-poverty contexts, with important policy implications for many countries around the world seeking effective, work-based strategies to reduce poverty and strengthen economic opportunity.

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Do modern expansions of refundable tax credits meaningfully increase labor supply, reduce poverty, and improve family well-being? While much of the existing evidence on tax credits comes from the U.S. mainland—particularly the large Earned Income Tax Credit (EITC) expansions of the 1990s—those reforms coincided with major welfare changes, making it difficult to isolate the independent effects of tax credits. Other studies document positive effects of tax credits prior to the 1990s; however, evidence of declining female labor supply elasticities suggests that such policies may not have the same impact today as they did several decades ago. At the same time, there is little evidence on how refundable tax credits operate in low-wage, high-poverty, or high-informality economies. This paper addresses these gaps by studying large, modern expansions of refundable tax credits in Puerto Rico and finds that these expansions led to significant increases in labor supply, reductions in poverty, and broad improvements in household well-being.

This paper provides the first comprehensive empirical evaluation of two decades of Puerto Rico's tax credit policies, with a particular focus on the major expansions beginning in 2018. Although the EITC is widely recognized as one of the most effective anti-poverty policies in the mainland United States, its role in Puerto Rico—and more broadly in low-income or high-informality contexts—remains understudied. We examine how these tax credit expansions affected labor supply, income, and broader measures of economic well-being in Puerto Rico, a setting characterized by lower wages, limited employment opportunities, and a sizable informal labor market. While prior research documents substantial labor supply responses to the EITC in the mainland United States, it remains an open question whether similar effects arise in Puerto Rico's distinct economic environment.

The analysis also contributes to the broader debate over whether refundable tax credits continue to influence labor force participation in the modern era. Evidence suggests that the EITC had its strongest labor supply effects in the 1980s and 1990s, when female labor force participation was lower and elasticities were higher. More recent studies find smaller effects as employment rates have risen. Puerto Rico presents a critical test case: labor force participation remains far below mainland levels, making it an ideal setting to assess whether tax credits continue to encourage formal employment today.

Using data from the Puerto Rico Community Survey covering 2000–2024, combined with

two decades of hand-collected and previously uncompiled tax policy data detailing annual EITC and CTC parameters, this paper examines changes in employment, hours worked, self-employment, earnings, and reliance on public assistance following the tax credit expansions. We construct a novel policy database that documents variation in credit generosity, eligibility thresholds, phase-in and phase-out rates, and family-size adjustments over time—information that has not previously been systematically assembled or studied. The analysis also explores broader household decisions influenced by these credits, including housing stability, living arrangements, and residential location.

The results show that expanded tax credits increased workforce participation and earnings, particularly among lower-income families, unmarried mothers, and lower-wage workers, alongside substantial reductions in poverty and welfare receipt. Beyond labor market outcomes, tax credit expansions are associated with meaningful changes in housing, household composition, and geography. Greater credit generosity is linked to higher housing expenditures, residence in larger units, and sizable reductions in living doubled-up with other families, including declines in co-residence with other mothers and extended family members. Families exposed to larger credits are more likely to rent and, in some cases, to have recently purchased a home, and they increasingly live in denser, more urban areas and in neighborhoods with higher incomes, employment rates, and lower poverty. Together, these patterns indicate that expanded tax credits help families live in higher-quality housing and in higher-opportunity neighborhoods.

Overall, this study contributes to the literature on refundable tax credits by providing evidence from a historically low-labor-force-participation, high-poverty setting. By separately analyzing EITC and CTC expansions, the paper highlights both the potential of tax credits to improve economic conditions in Puerto Rico and the importance of understanding their operation in low-income, high-informality environments.

1 Tax Credits in Puerto Rico

Residents of Puerto Rico are generally exempt from U.S. federal income tax on island-source income, rendering them historically ineligible for federal tax credits. The government

of Puerto Rico first offered a local EITC-like credit, the *crédito por trabajo*, in 2007. This credit was eliminated for tax years 2014–2018 due to budget limitations, was reintroduced with more generous parameters in 2019, and was expanded with financial support from the U.S. federal government beginning in tax year 2021. The U.S. federal Child Tax Credit (CTC), introduced in 1997, has been available to some Puerto Rico residents since its introduction, but only in 2021 were the eligibility criteria for Puerto Rico residents brought into alignment with those for mainland U.S. residents.

Figures 1 and 2 illustrate the structures of Puerto Rico's EITC and CTC as of 2023, along with historical trends in maximum credit values. Panel (a) of Figure 3 shows the maximum combined tax credit amount by family income in 2023, panel (b) zooms in to show the pattern for family income below $70,000, and panel (c) shows the maximum combined credits over time, relative to households without children.

Puerto Rico's original EITC-like credit, introduced in 2007, was small in dollar value but broadly accessible. As with the U.S. federal EITC, the credit functioned as a wage subsidy in the phase-in region and reduced after-tax wages in the phase-out region, though both phase-in and phase-out rates were low. The phase-in rate was 1.5% in 2007 and rose gradually to 4.5% by 2013, while the maximum credit increased from $150 to $450 over the same period. Eligibility was based on an individual's own earnings rather than filing-unit income, so that each adult was potentially and separately eligible. In 2013, the maximum income at which any EITC could be claimed was $27,500, compared with a median household income of roughly $19,000 (Enchautegui, 2014). Eligibility did not depend on the presence or number of children. With these inclusive criteria, about 21% of filers claimed the credit in its first year, rising to 48% by 2012 (Enchautegui, 2014).

Budget shortfalls led to the elimination of the *crédito por trabajo* for tax years 2014–2018 (Torres, 2021). When the program was reintroduced for tax year 2019, its design more closely resembled the U.S. federal EITC. Credit amounts and phase-in rates varied with the number of dependent children, eligibility thresholds were based on filing-unit income rather than individual earnings, and self-employment income was counted as earned income for the first time. The revised program also substantially increased benefit levels, with maximum credits ranging from $300 for filers without qualifying children to $2,000 for filers with three

or more qualifying children.

The largest expansion of Puerto Rico's EITC occurred in 2021, when the American Rescue Plan Act permanently allocated up to $600 million annually to supplement the local program. Phase-in rates rose to levels comparable to the federal policy, ranging from 15% for filers without qualifying children to 44.83% for those with three or more children. Maximum benefits increased to $1,500 for filers without dependents and $6,500 for those with three or more dependents. In 2022, approximately 648,000 families received the EITC, with an average benefit of $1,731 (Santamaría Ots, 2024).

Turning to the CTC, the U.S. federal government introduced the credit in 1997. Initially largely nonrefundable, subsequent policy changes expanded access to the refundable portion for lower-income families. For mainland U.S. filers, the credit amount has always increased with the number of children. In contrast, residents of Puerto Rico were eligible for the CTC only if they had three or more children, and benefits were calculated using an alternative formula. This changed in 2021, when ARPA expanded eligibility to Puerto Rico residents with one or two children, temporarily increased the maximum credit, and made the credit fully refundable. While Puerto Rico residents were eligible for the higher maximum benefit and full refundability, they did not receive the monthly advance payments available to mainland filers. As a result of ARPA's 2021 expansion, the share of Puerto Rico families eligible for the CTC rose from 11% to 97% (Marxuach, 2021).

Important policy changes affecting both credits began in 2018. At the federal level, the Tax Cuts and Jobs Act doubled the CTC to $2,000 per child beginning in tax year 2018, increased the refundable portion to $1,400, and lowered the earnings threshold for refundability from $3,000 to $2,500. Puerto Rico's longstanding three-child eligibility rule, however, remained in effect, limiting access to these expanded benefits to households with three or more children on the island.

At the same time, Puerto Rico moved to restore its own EITC. With broad bipartisan support, including endorsement by the Fiscal Oversight and Management Board, an EITC was incorporated into a major tax reform package (House Bill 1544). Governor Ricardo Rosselló signed the reform into law in December 2018 (Act 257-2018), authorizing implementation of a local EITC beginning in tax year 2019, subject to fiscal plan approval.

Policymakers emphasized the EITC as a tool to address Puerto Rico's high poverty, joblessness, and chronically low labor-force participation rate of roughly 40%. These reforms took place amid recovery from a decade-long recession and the 2017 hurricanes, with the EITC intended to encourage work and formal employment as part of a broader economic recovery strategy. Consistent with this framing, tax year 2019 saw a sharp increase in returns claiming the EITC (Puerto Rico Fiscal Agency and Financial Advisory Authority, 2020).

Since each credit became law in the year before residents became eligible, there may be an anticipation effect—either because of misunderstanding the policy or because individuals began preparing for the credit by searching for work in the months leading up to eligibility. Similar anticipation effects have been documented in empirical studies of in-work tax credits, particularly in the U.K., where employment increased following policy announcements but prior to implementation, consistent with labor market frictions and the time required to find employment (Blundell et al., 2011).[1]

1.1 Economic Context

Our data are for years 2000 and 2005–2024, a period in which Puerto Rico has experienced a fiscal crisis and multiple natural disasters. One of the first fiscal challenges to occur in our time period of interest was the phasing out of a U.S. federal income tax provision that had promoted corporate investment in Puerto Rico. Section 936 of the Internal Revenue Code, enacted in 1976, exempted U.S. corporations from federal income tax on profits earned on the island. Pharmaceutical companies particularly benefited, with 17 of the most prescribed drugs in the U.S. manufactured in Puerto Rico by 1990, and the sector employing 18% of the island's workforce in 1987 (United States General Accounting Office, 1992). However, the 1996 Small Business Job Protection Act began a 10-year phase out of Section 936. This resulted in corporate relocations, job losses, wage declines, and an increased reliance on bonds (The Public-Private Analytic Exchange Program, 2018).

Puerto Rico faced further economic disruptions in 2017 when Hurricanes Irma and Maria

[1] Anticipatory responses to announced but not-yet-implemented policies have also been documented in other settings, including employment responses to tighter disability insurance eligibility rules (Karlström et al., 2008), labor supply responses to an announced parental allowance expansion (Grossmann et al., 2024), and employer hiring responses to job-creation tax credits with implementation lags (Chirinko and Wilson, 2023).

caused an estimated $90 billion in damages, destroyed infrastructure, and led to substantial migration (Hernández, 2018). Edwin Meléndez and Jennifer Hinojosa (2017) estimated a potential population decline of 470,335 residents (14%). School closures followed, with 265 public schools shutting down in the 2018–2019 academic year (Jennifer Hinojosa, Edwin Meléndez, and Kathya Serevino Pietri, 2019) and 83 more planned for closure by 2026 (Departamento de Educación, n.d.).

On May 3, 2017, Puerto Rico filed for bankruptcy, facing obligations of $72 billion in debt and $55 billion in unfunded pension liabilities (Richard J. Cooper, Luke A. Barefoot, Jessica E. McBride, et. al, 2017; Financial Oversight & Management Board for Puerto Rico, n.d.). A restructuring deal in January 2022 reduced $33.7 billion in claims to $7.4 billion (Mary Louise Kelly, 2022). Political instability followed, with the 2019 *Ricky Renuncia* protests leading to Governor Ricardo Rosselló's resignation (Robles, 2019). Natural disasters continued to impact Puerto Rico, with a 6.4-magnitude earthquake in January 2020 causing significant damage (United States Geological Survey , USGS) and Hurricane Fiona in 2022 exacerbating power grid vulnerabilities (National Weather Service, 2022). Frequent power outages continued to hinder economic recovery, affecting businesses, schools, and hospitals.

Against this backdrop, Puerto Rico has experienced high rates of out-migration, high rates of poverty, and low rates of formal labor market participation. Figure A.1 illustrates population trends over time. Mora et al. (2017) estimate that 12.9% of Puerto Rico's 2006 population had migrated to the U.S. mainland by 2014. Both out-migration and low rates of fertility have contributed to an aging population, with the percentage of the population age 65 or older rising from 12.9% in 2006 to 18.9% in 2016 (Mora et al., 2018).

Puerto Rico has long experienced some of the highest poverty rates in the United States, with estimates indicating that up to 44% of the general population and 57% of children live in poverty. Vargas-Ramos (2023) notes that Puerto Rico qualifies as a "persistent poverty" jurisdiction under U.S. government definitions, having sustained a poverty rate of 20% or more for at least three consecutive decades. Female-headed households comprise a large share of Puerto Rico's low-income families, and 75% of children below the poverty line reside in female-headed households (del Desarrollo Juvenil , IDJ).

The labor force participation rate is much lower in Puerto Rico than in the U.S. main-

land. Burtless and Sotomayor (2006) show that this pattern is true from 1970 to the early 2000s, that it is present for both men and women, and that it exists across the entire age distribution. They argue that safety net programs may be one contributing factor. Programs including unemployment insurance, Social Security, and disability insurance tend to have higher average replacement rates for residents of Puerto Rico than for U.S. mainland residents, because incomes are lower on the island. A large informal sector may also contribute to low measured labor force participation rates. A RAND report estimates that the size of the informal economy in Puerto Rico is likely 20 to 30% of its GNP, and that the informal economy's size has been fairly stable from about 2000 to 2016 (Bond et al., 2020). Enchautegui and Freeman (2006) present evidence consistent with high levels of informal activity, although they show that historically measures of informal activity have not increased in tandem with declines in the measured labor force participation rate.

2 Tax Credits and Labor Force Participation

EITC-like credits have been implemented in settings around the world (see Bastian (2025) for a brief review). The most extensive evidence on their labor supply effects is from the United States. Numerous studies indicate that the credit raises employment—particularly among unmarried mothers and those with lower levels of education—by providing stronger work incentives (Hotz and Scholz, 2006; Eissa and Liebman, 1996; Meyer and Rosenbaum, 2001; Hoynes and Patel, 2018; Bastian and Michelmore, 2018; Bastian, 2020; Bastian and Jones, 2021). Nevertheless, Kleven (2019) challenges this consensus by reporting no significant employment effects, a finding that has itself been contested (Bastian and Jones, 2021; Kose et al., 2021; Schanzenbach and Strain, 2020)

In Puerto Rico, where the informal market is believed to be large and formal labor force participation rates are low, the tax filing and income reporting requirements of the EITC and CTC may encourage workers to enter or remain in the formal sector. Filing Puerto Rico income taxes is required for the EITC, and filing federal income taxes is required for the CTC. A shift towards formal employment could yield a twofold payoff: improving labor outcomes and take-home pay for low-earning workers, and strengthening Puerto Rico's

fiscal capacity by raising tax receipts. Evidence from other settings suggests that tax and transfer programs can affect decisions about informal vs. formal work. More generous state-level EITC programs in the U.S. reduce men's likelihood of participating in informal employment, and shift the mix of men's work hours away from informal and towards formal work (Gunter, 2013). In Uruguay, when a policy reform extended health insurance benefits to the dependent children of registered private sector workers, registered (formal) employment rose by 1.6 percentage points (Bergolo and Cruces, 2014). If the EITC and CTC in Puerto Rico similarly increase the incentives to choosing formal-sector employment, there may be shifts out of informality.

3 Empirical Strategy

This project is the first to examine how Puerto Rico's EITC and the federal CTC affect families' labor supply, earnings, and overall well-being. We separately analyze the effects of EITC policy changes, CTC policy changes, and the combined effect of the two policies. The empirical framework builds on previous research in the U.S. context (Bastian and Michelmore, 2018; Bastian, 2020; Bastian and Jones, 2021; Bastian and Black, 2024). Exploiting policy changes as exogenous shifts in credit generosity, we compare outcomes among families exposed to varying levels of EITC/CTC expansions over time. This setup estimates intention-to-treat (ITT) effects by focusing on how expansions in potential benefits influence labor supply and earnings, rather than examining only those who actually receive the maximum credits.

We first use equation 1 to estimate an event study of policy changes by number of children:

$$Y_{it} = \sum_{j=[2000,2024]} \sum_{k=[1,2,3]} \alpha_k^j \mathbb{1}(\#kids = k, year = j) + X_{it}'\alpha_2 + \gamma_t + \epsilon_{it}. \quad (1)$$

Subscripts i and t refer to individual and year. Estimates of α_k^j are the annual impact on the outcome of interest (e.g. employment) for women with k children, relative to women without kids. Although filers without children can receive some EITC benefit, they receive no CTC and the dollar amount of their EITC benefit is always small. The event study setup allows us to examine pre- and post-trends. We expect to see parallel trends by number of

kids up through 2017, after which we expect to see increases in employment after 2018 and 2021 when the EITC and CTC expansions increased credit amounts substantially more for parents than for individuals without children.

Our second empirical approach uses a continuous treatment variable, $MaxCredits$. Equation (2) estimates the effects of receiving an additional $1000 of tax credits on employment and other outcomes:

$$Y_{it} = \alpha_1 MaxCredits_{it} + X'_{ist}\alpha_2 + \gamma_t + \epsilon_{it}, \tag{2}$$

The control vector X_{it} includes fixed effects for number of kids, marital status, age, and education. Year fixed effects are represented by γ_t. We also examine robustness to interactions such as state $\times$ year fixed effects and state $\times$ number of kids fixed effects.

The variable *MaxCredits* shows the largest credit amount a family could receive in a given tax year. This measure of generosity is affected by a large set of credit parameters, including eligibility thresholds and phase-in and phase-out rates. The value of *MaxCredits* varies with year and number of dependent children. This simplified approach has proven effective in other contexts for gauging how tax credits influence labor force participation and family income (Bastian and Michelmore, 2018; Bastian, 2020; Bastian and Jones, 2021; Bastian and Black, 2024). In subsequent versions of the paper we will also use a simulated instrument that fully accounts for policy details, including the exact phase-in and phase-out schedules and how earnings levels interact with eligibility rules.

The error term ϵ_{it} is assumed to be independent of $MaxCredits_{it}$ and marital status, conditional on other covariates X_{it} and year fixed effects. We use CPS weights. Standard errors are clustered at the year-by-number-of-kids level and are robust to heteroskedasticity. Using variation by number of children as a source of identifying variation assumes that fertility is largely unaffected by the EITC. This assumption is supported by existing literature showing near-zero impacts of the EITC on fertility (Baughman and Dickert-Conlin, 2009; Nichols and Rothstein, 2016).

Evidence from the U.S. mainland suggests that the EITC has larger effects on the employment of unmarried women than on the employment of married women (Eissa and Hoynes, 2004; Bastian and Jones, 2021). It is not necessarily the case that the same pattern would

be expected in Puerto Rico. Because average wages in Puerto Rico are lower, the earnings of the primary earner may be less likely to reach the phase-out region of the credit. Thus, secondary earners in married couples may be more likely to face the positive labor market incentives of the phase-in region of the credit. Consequently, the effects of $MaxCredits$ may be more widespread across marital groups in Puerto Rico than is typically observed in higher-wage settings. To investigate this possibility, we estimate separate effects of $MaxCredits$ by marital status in Equation 3:

$$Y_{it} = \alpha_1 MaxCredits_{it} \cdot Mar_{it} + \alpha_2 MaxCredits_{it} \cdot Unmar_{it} + X'_{it}\alpha_3 + \gamma^1 t + \epsilon_{it}. \quad (3)$$

Here, Mar_{it} and $Unmar_{it}$ denote married and unmarried mothers. We also estimate other subgroup effects by replacing Mar and $Unmar$ with indicators for education, race, age, and so on.

We examine how tax credits affect a range of outcomes related to labor market behavior, household well-being, and demographics. Specifically, we analyze changes in labor force participation, hours worked, occupational choices, tax credits received, earnings, poverty status, and receipt of public assistance (e.g., cash welfare, food stamps, SSI). Beyond these economic indicators, we investigate potential changes in educational attainment and college enrollment, as well as health and disability measures. Because prior research suggests that tax credits can influence broader aspects of family life, we further evaluate shifts in housing traits (e.g., ownership, rent or mortgage, home value, number of rooms, availability of appliances, internet access), vehicle ownership, and household composition (including the number of people, families, and children). Analyzing these variables will help clarify whether increased tax credits enhance families' autonomy, reduce reliance on shared housing arrangements, or facilitate relocation to areas with more economic opportunities. Finally, we will explore whether tax credits affect marriage and fertility patterns.

4 Data

We use data from the Puerto Rico Community Survey (PRCS) spanning the years 2000 and 2005–2024. The PRCS is similar in content to the American Community Survey (ACS),

including questions on demographics, family structure, labor market outcomes, and income. It is administered annually by the U.S. Census Bureau.

Our analysis uses data on all women ages 21 and older at the time of their PRCS interviews. All dollar amounts are adjusted for inflation, and reported in real 2022 dollars.

Geographic indicators identify each respondent's place of residence and whether it is urban or rural. Such data enable a geographically disaggregated view of policy impacts, recognizing that labor market conditions and employment opportunities can vary significantly within Puerto Rico.

Housing variables include monthly rent or mortgage payments, home ownership, number of bedrooms. These indicators can serve as proxies for household well-being and economic security.

Household composition is documented through the number of individuals in each household, the presence of parents or subfamilies, and the total count of dependent children. Accurately measuring the number of children is critical for studying tax credits, given that credit generosity depends on family size.

Demographic information encompasses race/ethnicity, age, marital status, recent changes in marital status (e.g., marriage in the past year), and details on childbearing (e.g., children born in the last year). These variables are key for defining subgroups (e.g., unmarried mothers) who may respond differently to tax credit incentives.

Education data capture highest grade completed, current school attendance, and field of study. Monitoring educational attainment is valuable for understanding labor market trajectories, such as whether EITC or CTC expansions might affect decisions to pursue more schooling or stay in the labor force.

Employment and income measures extend to employment status, usual hours worked, occupation, and various sources of income (e.g., wages, business income, public assistance, Social Security). Information on welfare and retirement benefits is also included, allowing for a broad assessment of household financial resources and facilitating analyses of how expanded credits might alter labor supply and overall income. Respondents are interviewed throughout the year and information related to income and labor supply refer to the last 12 month period.

Health insurance and disability status are recorded to identify coverage gaps and any limitations (e.g., cognitive, ambulatory, visual, hearing). Such details may be relevant to understanding how individuals with constrained work options respond to changes in EITC or CTC generosity.

Migration indicators track whether individuals have moved within the past year, as well as their prior place of residence (on-island versus elsewhere). Since the generosity of tax credits may influence relocation decisions, these variables help address possible confounding related to in- or out-migration.

Commuting and workplace data reveal where individuals work, how long their commute is, and whether they rely on carpooling or shared vehicles. In a setting where transportation infrastructure varies widely, these factors may interact with tax credit incentives to shape labor force participation.

Overall, the breadth of household and individual data available in the PRCS makes it well-suited to studying the impacts of EITC and CTC policies in Puerto Rico.

Table 1 presents summary statistics for the full sample of women and for the subsample of unmarried women. Among all women, the average age is 52.1; 74% live in a metropolitan area; and 53% have 12 or fewer years of schooling. The average family size is 2.86, and women have 0.79 children on average. About 25% have one child, 16% have two children, and 7% have three or more children, while 53% have no children. Roughly one-third are employed (32%), and 3% are self-employed. Average earned income is $9,580, and average total household income is $42,810. Forty-one percent live below the poverty line, and 7% receive cash welfare.

Unmarried women have a similar age profile (average 51.8), educational attainment, and metropolitan residence rates. They have slightly smaller families (average size 2.61) and fewer children on average (0.67). Employment rates are identical at 32%, and 3% are self-employed. Earned income is slightly lower at $8,850, and average household income is $34,390. Poverty is substantially higher among unmarried women (48%), and 9% receive cash welfare.

5 Results

5.1 Event Study Labor Supply and Imputed Tax Credits

To examine whether tax credits impact female employment, we first estimate an event study using equation (1). We restrict the sample to unmarried women, similar to previous research on the EITC and other tax credits. Based on the pattern of tax credit values shown in Figure 3, we expect to see a relative increase in employment for mothers beginning after 2018, and again after 2021. This is when both the EITC and CTC expansions significantly increased work incentives for parents, especially those with three or more children.

First we show employment in levels in Figure 5. Trends are shown for all mothers, all women without children, and also for unmarried mothers and unmarried women without children. The figure shows fairly steady employment rates of around 60% for mothers up through 2020, with a trend break beginning in 2021 showing an increase to about 68%. The trend for women without children is also quite stable over time, and substantially lower at around 35%. After a small drop in 2018, the employment of this group slowly rises through 2024 (from about 36% to 39% for unmarried women without children).

Having shown the absolute employment levels, we now show annual employment levels of mothers, relative to women without children, and normalized to zero in 2017. Figure 6 panels A and B show trends in employment and usual weekly work hours. Each figure comes from a single regression without any controls (besides year FE to account for annual employment of women without children). For each measure of labor supply, we find parallel trends between 2008 and 2017 (p-values between 0.46 and 0.68). We pool estimates in 2018–2020 and 2021–2024 to capture the impact of two major EITC/CTC expansions. For these two time periods, we find employment increases of 2.79 (0.89) and 7.23 (0.92) percentage points, and weekly work hour increases of 0.90 (0.33) and 2.75 (0.35).

These figures also show the generosity of EITC and CTC for mothers relative to women without children. The red line and right axis of each figure shows a 2018–2019 increase of about $1,000 in maximum potential credits, and an additional $4,000 starting in 2022.[2]

[2]As discussed in section 1, the 2021 CTC was unconditional on earnings, so we zero-out the CTC in this one year.

The increases in labor supply closely align with the increases in tax credits. These patterns suggest that the 2018–2019 tax credit expansions encouraged mothers to work more, and that the 2021 expansions had an even larger effect on the labor supply decisions of mothers.

Figure 7 further divides the trends in the previous figure by number of children. This figure shows annual employment by number of children relative to women without children. The figure shows larger employment increases among women with more children, corresponding to the size of the EITC/CTC policy expansions. Relative to the pre-2017 baseline, the employment of women with 1, 2, and 3 or more children increases by 1.05, 3.94, and 5.99 percentage points between 2018 and 2020, and by 6.28, 7.83, and 10.06 percentage points between 2021 and 2024. The figure also shows the mean value of maximum possible EITC and CTC credits for each group (relative to women without children) in each year. For the 2018–2020 EITC/CTC expansions, women with one child had the smallest increases in both EITC/CTC and employment; women with two children had larger increases in each outcome; and women with three or more children had the largest increases in each outcome. The pattern is similar for 2021–2024.

One interesting pattern in Figure 7 is the apparent anticipation effect across groups. As discussed in Section 1, the 2017 CTC expansion—enacted in December 2017—took effect starting with tax year 2018 income. Importantly, this expansion applied only to families with three or more children in Puerto Rico, due to the longstanding rule excluding smaller households from the federal CTC. Figure 7 suggests there may have been an uptick in employment among women with 3+ children during 2017, prior to the credit's implementation. However, this trend break is not statistically significant: the p-values for parallel trends among this group of mothers for 2008–2016 and 2008–2017 are 0.95 and 0.96, respectively.

Similarly, Puerto Rico's EITC expansion—enacted in December 2018—applied to earnings from tax year 2019 onward. Figure 7 shows employment rising among mothers with two or more children starting around 2018. Part of the 2018 estimate, however, appears to reflect a temporary decline in employment among women without children, as shown in Figure 5. Overall, the figure indicates a broad and sustained increase in maternal employment beginning around 2018, which continued to grow after 2021.

5.2 Validating that Our Measures of Policy Changes Predict Imputed Benefits

Next, we examine how our three measure of EITC and CTC policy generosity track imputed EITC and CTC tax credits. For each credit we use the maximum possible credits, the phase-in rate, and a simulated instrument (discussed in section 3). We impute EITC and CTC credits with annual household earnings, marital status, and number of EITC- and CTC-eligible children. This imputation is possible for the first time since we compiled detailed information on annual EITC and CTC policy details (shown in Appendix Tables A.1–A.4). We assume a 100% take up rate, likely overstating the take-up rate and aggregate benefits by perhaps a fifth or so.

Table 2 shows that each measure is strongly associated with imputed benefits. Each \$1,000 in $MaxEITC$ and $MaxCTC$ is associated with \$370 and \$463 in tax credits. Each 10 percentage point increase in the EITC and CTC phase-in rate leads to \$564 and \$934 in benefits. Finally, each \$100 increase in simulated benefits leads to \$60 and \$53 in benefits. For each estimate, imputed benefits reflect two channels: a mechanical increase in benefits among those already working, and a behavioral increase in benefits among those moving from not working (and not eligible) to working and eligible.

Estimates for EITC and CTC benefits are not comparable across alternate measures of these policies, as they capture different aspects of each credit. For example, the phase-in rate differs by number of children for the EITC but not for the CTC. Also, since the EITC phases-in faster, the maximum possible credits is reached at lower earnings than for the CTC. In contrast, the CTC is worth more to higher-income families since benefits phase-out at much higher incomes (\$400,000 vs \$40,000). This difference is captured in Figure 8a which shows the estimates of $MaxEITC$ and $MaxCTC$ on imputed EITC and CTC benefits, respectively, for various subgroups. Panels A and B show that the estimate on $MaxEITC$ is generally larger for lower-income groups, whereas the opposite is true for $MaxCTC$.

Overall, each of our three measures of each tax credit captures a slighly different aspect of each tax credit. Our goal is to capture policy changes and ultimately how these changes influence women's extensive margin work incentive.

5.3 Average Effects of EITC/CTC on Labor Supply and Income

We next examine how the six measures of EITC and CTC policy changes are associated with changes in labor supply and other outcomes. In the following tables, panels A–F estimate the impact of the six EITC/CTC measures discussed above on various outcomes.

Table 3 focuses on employment and decomposes effects into wage versus self-employment, as well as working from home (WFH) versus outside the home (not WFH). Across all six measures, increases in the EITC and CTC raise employment. A $1,000 increase in the maximum EITC increases employment by 1.85 percentage point, with most new workers employed outside the home (1.42 pp) and about two-thirds in wage jobs (1.32 pp), versus 0.51 pp in self-employment. Effects based on $MaxCTC$ are smaller than for $MaxEITC$ (about 1.0 vs. 1.8 pp), for reasons discussed in the previous section. However, when CTC effects are scaled using phase-in rates or simulated benefits, the implied employment responses are comparable to those for the EITC. For example, a 10–percentage-point increase in the phase-in rate—for each credit—raises employment by about 3 pp (Panels B and E).

Table 5 focuses on labor supply and job quality, examining effects on hours, weeks worked, annual hours, nonparticipation, unemployment, and occupational outcomes. Across each outcome, increases in the EITC and CTC raise labor supply. A $1,000 increase in the maximum EITC raises usual weekly hours by 0.65 hours, weeks worked by 0.86, and annual hours by roughly 30 hours, while reducing nonparticipation by 1.35 percentage points and unemployment by 0.6 percentage points. We also find increases in Occupation Score and Socioeconomic Index (SEI). As for the employment results, alternative EITC measures yield very similar magnitudes: for example, a 10–percentage-point increase in the EITC phase-in raises annual hours by about 50 hours, and a $100 increase in simulated benefits raises annual hours by about 13 hours. Effects based on the maximum CTC are smaller, particularly for hours and weeks worked, consistent with weaker work incentives at low earnings; however, when scaled using phase-in rates or simulated benefits, CTC effects are again comparable to those for the EITC. For example, a 10–percentage-point higher CTC phase-in increases annual hours by about 60 hours.

Table 6 examines effects on earnings, income composition, wages, and cash welfare.

Across all seven measures, increases in the EITC and CTC raise earned income while reducing reliance on welfare income. A $1,000 increase in $MaxEITC$ raises wage income by about $478, total personal income (which includes imputed EITC and CTC benefits) by roughly $901, total family income by $1227, with positive effects on self-employment income ($58) and hourly wages ($0.28). While increased labor supply could theoretically put downward pressure on hourly wages, we find no evidence of such effects in the data. $MaxEITC$ also decreases annual welfare income by $29 and reduces the probability of receiving any welfare by 0.50 percentage points. Alternative EITC and CTC measures yield similar conclusions: increases in wage, total, and family earnings; generally insignificant effects on self-employment earnings and hourly wages; and decreases in welfare income and usage. Effects based on the maximum CTC are generally smaller: $323 in earnings; $840 in total personal income; a similar $1376 in family income; and a larger -$75 in welfare income.

Importantly, the EITC- and CTC-led reductions in welfare income and usage in Table 6 do not coincide with any contemporaneous changes in welfare policy—unlike the 1990s U.S. context—and likely reflect **reduced eligibility** due to higher earnings and/or **lower take-up** as households rely less on means-tested programs, consistent with Bastian and Jones (2020) and Hoynes and Patel (2018).

Table 7 examines housing costs, housing traits, indicators of doubled-up living arrangements, and urbanicity. Across outcomes measures, increases in the EITC and CTC are associated with higher housing expenditures, housing with more bedrooms, reductions in living doubled-up, increases in both the likelihood of renting and of having bought a home in the last year, and increases in living in multifamily housing and in more dense and urban areas. A $1,000 increase in $MaxEITC$ raises annual spending on housing by $103, increases the likelihood of renting by 0.52 percentage points. $MaxEITC$ also decreases living doubled up, living with another mother, and living with a sibling by 0.72, 1.4, and 0.2 percentage points. $MaxEITC$ also increases living in multifamily housing by 0.2 pp, PUMA density by about 2,700 people per square mile, living in a city by 0.3 percentage points, and 0.02 more vehicles. These patterns suggest that increased resources allow households to move out of shared or doubled-up arrangements into more independent housing, as well as spending more on housing and vehicles.

Alternative EITC and CTC measures yield generally similar conclusions (though many results are not statistically significant): more spending on housing, less living doubled-up, more likely to rent, to live in multifamily housing, and to live in more dense and urban areas.

The outcomes in Table 7 suggest that families may be using their additional income to live on their own and/or to relocate to higher-opportunity neighborhoods (as found by Bastian and Black, 2024). We test whether this is true by regressing measures of EITC/CTC expansions on PUMA-level average traits in which families live. We create traits defined by income, employment, education, occupational score, socioeconomic index, poverty, marriage rates, housing costs, receiving welfare. These traits are defined based on the full sample of women, across all sample years.

Table 8 shows that each of the six measures of EITC/CTC expansions are associated with families living in PUMAs with higher family income, employment rates, SEI, occupation score, college graduation rates, and housing costs; and with lower poverty rates and welfare usage. Fraction married is consistently small and insignificant. This table shows that these expanded tax credits lead families to have a higher probability of living in higher quality neighborhoods, which may have a number of positive effects for the adults and children in these families (cite).

Moving can reflect a decision to move to a more desirable situation (based on housing or the location, but moving often reflects an unfortunate circumstance, such as not being able to afford the rent or moving in with another family.

To investigate whether families living in higher-quality neighborhoods reflects moves to better locations or not moving to lower quality locations, Table 9 interacts measures of EITC/CTC with having moved in the last year or not. Thus each regression re-estimates an estimate in Table 8, but interacts the estimate with having moved or not in the last year. Across all nine outcomes, the EITC and CTC leads both movers and non-movers to live in higher quality neighborhood, though the effect is significantly larger among movers. Both positive moves and preventing negative moves is driving the overall effect on neighborhood quality, with positive moves explaining between about 25–40% of the overall effect depending on the trait.[3]

[3]The effect on family income is about 3.5 times as large for movers as for non-movers; since movers are

5.4 Subgroup Effects and Estimating Distributional Effects

Figure 9 examines the effects of $MaxEITC$ and $MaxCTC$ on employment across subgroups defined by marital status, education, metropolitan residence, and English language ability. The average effects—1.8 for $MaxEITC$ and 1.0 for $MaxCTC$—are shown for reference and replicate the baseline results reported in Table 3. Across all subgroups, employment effects are positive and statistically significant for $MaxEITC$, and uniformly larger than the corresponding effects of $MaxCTC$.

For $MaxEITC$: Employment responses are positive for both unmarried and married women—contrasting with results from the mainland U.S., where effects for married women are often null or slightly negative. In Puerto Rico's lower-wage labor market, many married mothers continue to face strong incentives to enter the labor force in order to increase household tax credit benefits. Effects are also larger among lower-educated mothers and those living outside metropolitan areas (namely San Juan).

For $MaxCTC$: Estimated effects are generally positive across groups but smaller, especially for lower income groups, including unmarried, lower education, and low English ability women.

Annual Weeks Worked: Figure 10 examines the effects of $MaxEITC$ and $MaxCTC$ on the distribution of annual weeks worked, both for the full sample of women and for the high-impact subsample of unmarried women with no more than one year of college. The corresponding average effects for the sample of all women—0.86 for $MaxEITC$ and 0.55 for $MaxCTC$—are reported in Table 5. Figure 10 reports effects for working more than various weeks-worked thresholds and shows (1) a large increase in working more than zero and (2) that for each tax credit and sample, roughly three-quarters of women who work more than zero weeks also work more than 50 weeks.

Usual Weekly Work Hours: Figure 11 examines the effects of $MaxEITC$ and $MaxCTC$ on usual weekly work hours, for the full sample of women and for the high-impact subsample. The corresponding average effects for the sample of all women—0.65 for $MaxEITC$

only about 8% of the sample, they contribute about 23% of the overall effect: $\frac{3.5\times0.08}{3.5\times0.08+0.92} = 0.233$. Many other traits lead to higher fractions: for example, effects on poverty and college rates are 5 and 7 times as large for movers; explaining 30% and 38% of the total effect.

and 0.33 for $MaxCTC$—are reported in Table 5. Figure 11 reports effects for working more than various hours-worked thresholds and shows (1) a large increase in working more than zero and (2) that for each tax credit and sample, about half of newly working women work more than 30 hours and few work more than 40 hours.

Individual Earnings: Figure 12 examines the effects of $MaxEITC$ and $MaxCTC$ on individual annual earnings, for the full sample of women and for the high-impact subsample. The corresponding average effects for the sample of all women—$478 for $MaxEITC$ and $323 for $MaxCTC$—are reported in Table 6. Figure 12 shows a substantial increase in the share with positive earnings, with larger effects for EITC vs. CTC, as well as for the high-impact sample vs. all women. The figure shows a decreasing likelihood of earning over $5,000, $10,000, $15,000, etc. Among the sample of unmarried women, less than a quarter of new workers earn over $20,000. The figure also shows an insignificant null effect on earning above $25,000, for each tax credit and each sample, consistent with new workers being eligible for a significant amount of EITC and CTC benefits.

Figure 13 uses the sample of all women and decomposes earnings into total, wage, and self-employment earnings. Figure 13 shows that $MaxEITC$ and $MaxCTC$ lead to increases in all types of earnings, with larger effects for wage earnings vs. self-employment earnings, consistent with results shown in Table 6. (Note that effects for total earnings is also shown in Figure 12.) Figure 13 shows the EITC led to an increase in the likelihood of having each type of earnings over $0, $5,000, and $10,000, but not over $15,000. The impact of the CTC was smaller, with generally insignificant positive effects of having each type of earnings over $0 and $5,000.

Figure 14 replicates the approach of Figure 13 and the three types of earnings for each tax credit, but uses the high-impact sample of unmarried lower-educated women. This figure shows a large increase in having positive earnings, with about 85% of the effect driven by wage workers and about 15% driven by self-employed workers. Using thresholds of every $5,000 up to $55,000, the figure shows that the impact steadily falls for the probability of earning over $5,000, $10,000, etc., until the effect falls to zero at around $30,000. The impact of earning over $15,000 is completely driven by wage workers.

Figure 14 also overlays the EITC and CTC schedules to compare where the increases in

earnings occurs relative to the EITC and CTC schedules. The increase in earnings completely occurs in the EITC phase-in and plateau range, and the CTC phase-in range, aligning with the most common amount of earnings shown in Figure 4.

Figure 15 focuses on unmarried women and total earnings (wage plus self-employed earnings), and shows the probability of earning over each $2,000 threshold. The figure shows a steady decrease in earning over each threshold for $MaxEITC$ and $MaxCTC$, with effects falling to zero around $24,000.

Next, we look at total individual income, which includes total earnings, imputed EITC and CTC benefits, and other income sources.[4] Figure 16 shows a relatively small increase in having positive total income—for both EITC and CTC expansions—and a larger effect for having over $5,000, $10,000, $15,000, and $20,000. The impact steadily falls for having income over $25,000, $30,000, etc., until it becomes quite small and generally insignificant for income over $50,000.

Finally, we look at total family income, which sums up total individual income (defined above) for members of the primary family, while excluding income from subfamilies and unrelated household members. Figure 17 shows a similar pattern as for total individual income, with small insignificant effect for having positive family income, a steadily increasing effect for having family income up through $20,000, and then a generally falling effect for higher incomes, until the effect reaches zero around $45,000.

These results provide more context for the average effects on earnings, total income, and family income shown for the full sample in Table 6.

5.5 Impacts on Welfare Usage, Housing, and Other Measures of Material Wellbeing

To assess whether tax credit expansions generate meaningful changes in living standards, we examine outcomes that are less sensitive to reporting incentives, such as housing expenditures, doubled-up living arrangements, and residential mobility. In a high-informality context like Puerto Rico, increases in reported employment and earnings could in principle

[4] Total individual income includes total personal cash income in the prior 12 months, including wages and salary, self-employment income, asset income, retirement and disability income, unemployment insurance, public assistance, and other cash transfers; it excludes noncash benefits and capital gains.

reflect shifts from informal to formal work rather than increases in total labor supply. Examining housing and mobility outcomes allows us to assess whether expanded tax credits are associated with changes that likely require not only additional tax credits, but also higher earned income and sustained improvements in economic resources.

Cash Welfare: Figure 18 explores the impact of $MaxEITC$ and $MaxCTC$ on the distribution of cash welfare received annually, both for the sample of all women and the high-impact sample. Figure 18 shows having welfare income above various thresholds. The figure shows a substantial decrease in having more than \$0 or \$2,000 (especially among the high impact sample), with steadily smaller effects for having over \$4,000 and \$6,000, and null effects for having over \$8,000.

These results provide more context for the average effects on reductions in welfare income and usage—\$29 and 0.50 percentage points for $MaxEITC$ and \$75 and 1.1 percentage points for $MaxCTC$—for the sample of all women in Table 6.

Housing: Figure 19 shows the impact of $MaxEITC$ and $MaxCTC$ on the distribution of monthly spending on housing, for the full sample and the high-impact sample. This figure shows a null impact on spending over \$200 per month, with a steadily increasing effect up to about \$600 per month (of about 1.5 percentage points), where effects then steadily fall to zero for spending over \$1,400 per month. The figure shows a similar impact for EITC and CTC benefits, and slightly larger effects for the high impact sample.

These results provide more context for the average effects on annual spending on housing—\$104 for $MaxEITC$ and \$110 for $MaxCTC$—for the sample of all women in Table 7. Average spending on monthly housing is \$500 among EITC-eligible mothers, meaning that these estimates represent increases of 1.7% and 0.6%. Since Table 6 shows that the impact of $MaxEITC$ and $MaxCTC$ on earnings plus credits is \$647 and \$408 (\$647=\$288 + \$359; \$408 = \$163 + \$245), this means 16 and 9% of the EITC and CTC-led increases in income is spent on housing. Estimates from prior work show comparable or higher marginal propensities to spend tax credits on housing, with Garner et al. (2024) and Schild and colleagues (2023) finding that 23–28% of Child Tax Credit payments in the U.S. were spent on housing, and Najjarrezaparast and Pendakur (2021) reporting a 33% housing share from Canada's child benefit expansion among low-income renters.

Figure 20 looks at the number of bedrooms by credit type for the full and high-impact samples. All four estimates are zero for both having at least one and two bedrooms, however the effects become positive for having at least three or four bedrooms, before again falling to zero for five or more bedrooms. This figure shows the margin most impacted by the EITC and CTC is having three or more bedrooms. For context, the average monthly cost of housing for EITC-eligible mothers with two and three bedrooms is $378 and $603 (with 25th and 75th percentile values of $135 and $513, and $230 and $825, respectively; among those with non-zero values).

These results provide more context for the average effects on the number of bedrooms—0.004 (0.003) for $MaxEITC$ and 0.021 (0.004) for $MaxCTC$—for the sample of all women in Table 7.

Figure 21 shows a kernal density plot for housing costs by number of bedrooms (restricting to those with positive values and EITC-eligible mothers). The average monthly housing cost for 0, 1, 2, 3, 4, 5+ bedrooms is $705, $510, $458, $668, $927, and $879, with an overall average cost of $603.

Together, these results provide a broader perspective on how tax credits influence family economic stability in Puerto Rico. While the primary effects are on labor supply and earnings, tax credit expansions also appear to improve household economic wellbeing in various ways.

Figures A.4 and A.5 also look at the type of housing that families live in. The figure shows that families are slightly less likely to live in single-family housing and more likely to live in housing with multiple units. While most individual estimates are insignificant, the estimates all point to an increase in multifamily housing, with the largest (insignificant) estimate for the high impact sample of living in buildings with 10 or more units. Figure A.5 shows that for families who move out of single-family housing, over half move into a building with at least five units; women in the high impact sample are more likely to move to larger buildings (with over 10 or 20 units).

That families are more likely to live in multifamily housing would suggest that they live in more urban areas. Three ways to test this is to look at whether they live in a major city (i.e., Bayamon, Carolina, or San Juan) and the population and population-density of the

PUMA they live in.

Table 7 shows the impact on living in multifamily housing, PUMA density, living in a city, and buying a house within the last year. Across the three EITC measures, results show increases in living in multifamily housing, PUMA density, living in a city, and buying a house within the last year. For the three CTC measures, results are less significant and indicate less of an impact of the CTC on these margins.

Figure 22 shows the distribution of PUMA density and shows a null effect on living in a PUMA with more than 3,000 people per square mile (roughly the density of Phoenix or San Antonio); a rising effect of living in a PUMA with up to about 13,000 people per square mile (roughly the density of Chicago or Miami), and a decreasing effect that reaches zero at 19,000 people per square mile (roughly the density of San Francisco or Brooklyn).[5]

Figure 23 shows the distribution of PUMA population and shows a null effect on $MaxEITC$ and $MaxCTC$ for the sample of all women, but a larger effect on the high impact sample. The effect for living in a PUMA with populations over various thersholds is quite consistent, suggesting that many families move to the most populated PUMAs.

Overall, EITC and CTC expansions have allowed mothers to afford to spend more on housing and to live in larger homes, as well as to move to more densely populated areas.

Finally, Figure 24 shows the impact of $MaxEITC$ and $MaxCTC$ on vehicle ownership for the full sample and the high impact sample. For the high impact sample, the figure shows a significant impact of each credit on owning at least one vehicle, and a smaller and insignificant impact on owning a second vehicle. The impact is null on owning three or more vehicles, as well as for the full sample of women (on owning any number of vehicles).

5.6 Robust to Alternate Sets of Controls

Figure 25 shows the impact of EITC and CTC policy expansions on five key outcomes, using five different sets of controls.[6] The outcomes are being employed, being a wage worker,

[5] Density information from Governing Magazine (2019).

[6] Specifications add controls in a cumulative way: (1) age and age squared, marital status, the presence of young children, and college attainment; (2) adds metropolitan status and three English proficiency indicators; (3) adds interactions between marital status and number of children, year, education, age and age squared, English proficiency, metropolitan status, and having young children; (4) adds interactions between year FE and college attainment, English proficiency, and metropolitan status; and (5) adds education-by-demographic

total individual income, living doubled-up with another family, and receiving cash welfare. Panels (a) and (b) focus on maximum credit value and phase-in rates, respectively. These figures show estimates for the sample of unmarried lower-education women.

Figure 25 shows that effects are remarkably similar across the five sets of controls for each treatment definition and outcome. While effects are larger for $MaxEITC$ vs. $MaxCTC$, the effects are much more similar for the two phase-in rates (as shown in previous tables). That estimates are stable and robust to alternate controls suggest that the treatment variables are picking up a relationship between tax credit policy expansions and various outcomes that seemingly cannot be explained by other observable factors.

To explore whether employment effects reflect actual changes in behavior or just reporting effects, we turn to a number of outcomes related to employment. Among new workers, Figures 26, 27, and 28 look at the mode of transportation to work, the length of commute, and the time of day that women leave home for work. Figure 26 shows that most new workers drive themselves to work, and that a small positive fraction work at home, carpool, and take public transportation. The estimate of $MaxEITC$ on these four outcomes for the high impact sample is 1.0, 0.2, 0.2, and 0.1 percentage points.

Figure 27 shows that the most common commute length among the high impact sample is having a 1–15 and 16–30 minute commute (estimate on $MaxEITC$ is about 0.8 pp on each). A positive share works from home and has no commute (0.3 pp); there is no impact on having a commute longer than 30 minutes. Effects are a bit smaller for the full sample and for estimates on $MaxCTC$.

Figure 28 shows that the most common time to leave for work is before 8am (0.5 pp), though effects are also positive for working from home (0.3 pp), leaving between 9 and 11am (0.3 pp), and between 11am and 5pm (0.4 pp). There is a null impact on leaving for work after 5pm.

These results provide context for new workers and suggest that most new workers are indeed actually going to work (not just working from home) and changing behavior in a way consistent with actual work increases and not just changing reporting of informal to formal work arrangements.

interactions, including age, English proficiency, metropolitan status, and young children.

6 IV Approach

We estimate the effects of the EITC and CTC using an instrumental variables strategy that exploits plausibly exogenous variation in statutory program generosity. Specifically, we instrument group-specific imputed benefits with policy parameters—maximum benefits and phase-in rates—which vary mechanically across family types and years and are predetermined with respect to individual behavior. For each outcome, we estimate four separate specifications using each policy parameter as an instrument (MaxEITC, MaxCTC, the EITC phase-in rate, and the CTC phase-in rate). We apply this framework to outcomes including labor supply, income and earnings, housing conditions, and geographic place of residence, estimating effects for both the full sample of women and a high-impact subsample of unmarried women with lower education.

Table 10 reports instrumental variables estimates for a range of labor supply and job quality outcomes, including employment, work location, hours and weeks worked, annual work hours, earnings participation, unemployment, and occupational measures. We focus first on employment, where increased EITC and CTC benefits lead to statistically significant increases in labor force attachment across all specifications. For the full sample of women, a $100 increase in benefits raises employment by roughly 0.17 to 0.34 percentage points, depending on the instrument used, with comparable effects for working outside the home and positive wage earnings. These effects are substantially larger for the high-impact sample of unmarried, lower-education women: the same $100 increase raises employment by about 0.33 to 0.50 percentage points under EITC instruments and by as much as 1.07 percentage points under the CTC maximum benefit instrument.

Table 11 reports IV estimates for income sources and transfers, including wage and self-employment earnings, total individual income, total family income, and welfare participation and amounts. Increased EITC and CTC benefits lead to large and statistically significant increases in wage earnings and total income across specifications, while effects on self-employment earnings are smaller in magnitude and generally statistically insignificant. For the full sample of women, a $100 increase in benefits raises wage earnings by roughly $40–$135 and total income by about $200–$290, depending on the instrument used. Income

effects are somewhat larger for the full sample than for the high-impact sample, reflecting the inclusion of married women and higher-income families (e.g., those with earnings around $30,000–$40,000) who qualify for larger CTC benefits while still receiving substantial EITC amounts. Consistent with these income gains, higher benefits are associated with sizable reductions in welfare participation and welfare amounts received, with especially pronounced declines for the high-impact sample of unmarried, lower-education women.

Table 12 reports IV estimates for a broad set of housing and residential outcomes, including housing costs, household composition, housing size, renting, home purchasing, building type, neighborhood density, urban residence, and vehicle ownership. Across specifications, higher EITC and CTC benefits are associated with higher annual housing costs and a greater likelihood of renting, alongside generally positive (though not uniformly statistically significant) estimates for recent home purchases, suggesting that increased renting and home buying can occur simultaneously for different populations. These patterns occur alongside sizable and statistically significant reductions in living doubled-up with another family and in residing in households with multiple mothers, consistent with transitions into more independent living arrangements. Benefits are also associated with improvements in housing quality, including a higher likelihood of living in larger units with three or more bedrooms, with especially large effects for the high-impact sample of unmarried women. Effects on vehicle ownership, neighborhood density, and city residence are generally positive but less precisely estimated. As in earlier results, estimated effects are typically larger for the high-impact sample.

Table 13 reports IV estimates for PUMA-level characteristics of the neighborhoods in which women reside, capturing broad measures of local economic opportunity, including average family income, employment rates, socioeconomic status, occupational quality, poverty, educational attainment, housing costs, and welfare receipt. Across specifications, higher EITC and CTC benefits are associated with residence in PUMAs with higher average incomes (on the order of $25–$75 per $100 increase in benefits), higher employment rates (roughly 2–4 percentage points), higher socioeconomic and occupational scores, lower poverty rates (about 1.5–4 percentage points), and a greater share of college-educated residents (roughly 1–3 percentage points). These patterns are evident for both the full sample and the high-impact

sample, with somewhat larger effects for the full sample, likely reflecting in part the inclusion of married families who receive larger benefits—particularly through the CTC—under the tax credit schedule. Interestingly, estimated effects on the married fraction are small and negative, generally on the order of 0.5–1.5 percentage points. Effects on PUMA-level housing costs are positive (approximately \$4–\$11 per \$100 increase in benefits), consistent with residence in higher-cost, higher-opportunity areas with potentially better schools, peer networks, and local amenities.

Table 14 reports IV estimates for standardized PUMA-level characteristics, allowing effects to be interpreted in standard deviation units across neighborhood traits. A \$100 increase in EITC or CTC benefits is associated with sizable improvements in neighborhood opportunity, with effects on the average standardized trait ranging from roughly 0.36 to 0.50 standard deviations for the full sample and 0.34 to 0.40 standard deviations for the high-impact sample, depending on the instrument used. Looking across individual components, higher benefits are associated with residence in PUMAs that are 0.4–0.6 standard deviations higher in average family income, 0.3–0.5 standard deviations higher in employment rates, and 0.5–0.7 standard deviations higher in socioeconomic and occupational scores, alongside reductions in poverty of roughly 0.3–0.5 standard deviations. These magnitudes are remarkably similar for the full sample and the high-impact sample, indicating that both groups move to higher-opportunity neighborhoods in response to increased tax credit generosity. Consistent with earlier results, effects on standardized housing costs are positive—on the order of 0.4–0.6 standard deviations—suggesting that families sort into more expensive but higher-opportunity areas, while standardized welfare receipt declines.

Across nearly all outcomes and specifications, estimated effects are larger for the high-impact sample than for the full sample, consistent with stronger behavioral responses among women most exposed to policy-driven changes in tax credit generosity.

7 Formal vs. Informal Employment: An Industry and Occupation Analysis

Overall, approximately two-thirds of the employment response reflects increases in wage-and-salary employment, while the remaining one-third reflects increases in self-employment. Consistent with this pattern, roughly 85 percent of the associated earnings gains accrue to wage earnings, indicating that most of the additional labor supply occurs in relatively stable, payroll-based jobs.

To better understand the types of jobs that new workers enter, we next examine industry composition by interacting indicators for wage employment and self-employment with two-digit NAICS industry codes. This approach allows me to identify which industries account for the observed increases in each type of employment.

Figure 29a shows that among wage workers, employment gains are broad-based across private service sectors, including retail trade, information, finance, administrative and support services, accommodation and food services, and other services. The largest positive effects are concentrated in education and health care, two labor-intensive sectors characterized by predominantly formal, wage-and-salary employment. In contrast, wage employment in public administration declines, suggesting a compositional shift away from public-sector employment toward private-sector jobs.

Among the self-employed, employment gains are concentrated in manufacturing (food and textiles), accommodation and food services, and other services, sectors in which small-scale and own-account work is common. This pattern is consistent with tax credits supporting entry into, or increased reporting of, self-employment in industries where informal or semi-formal work is more prevalent.

Taken together, these results indicate that the policy increased labor supply along both the wage and self-employment margins, with formal wage employment accounting for the majority of the response, and self-employment gains concentrated in industries where small-scale entrepreneurial activity is common.

8 Conclusion

This study provides the first empirical evaluation of Puerto Rico's tax credit policies over the past two decades, with a particular focus on the expansions initiated in 2018. It examines whether these policies function as effectively in a low-wage, high-poverty context as they have in the U.S. mainland. The results show that the expanded Earned Income Tax Credit (EITC) and the revised Child Tax Credit (CTC) eligibility criteria have significantly improved the material well-being of families in Puerto Rico. These findings align with previous research demonstrating the EITC's positive impact on employment and poverty reduction in the U.S. mainland, but they also address an open question: whether recent expansions continue to influence labor supply, given evidence that female labor elasticities were largest in the 1980s and 1990s.

Puerto Rico's tax credit story underscores the complex relationship between local autonomy, federal policy, and economic hardship. Historically, residents were excluded from federal refundable tax credits, leaving local policymakers to implement their own version of the EITC. However, budget constraints frequently disrupted this program, limiting its reach. The American Rescue Plan Act provided a turning point by expanding the CTC and establishing a permanent federal match for the local EITC. Early indicators suggest that these policy changes have contributed to poverty reduction and increased formal employment, but significant challenges remain.

One key challenge is reaching families who work in Puerto Rico's sizable informal labor market. Many eligible households may not claim the credits due to lack of awareness or the complexity of tax filing requirements. Additionally, the island's ongoing debt restructuring, coupled with the long-term effects of hurricanes and earthquakes, complicates policy implementation. Repeated power grid failures further disrupt economic recovery, making it difficult for families to plan ahead and for businesses to operate smoothly.

Moving forward, policymakers must monitor how these tax credits function in practice. Effective outreach, administrative efficiency, and stable funding will be essential to maximizing their impact. If properly managed, the expanded EITC and CTC have the potential to lower Puerto Rico's high poverty rates, encourage more workers to enter the formal economy,

and reduce outmigration. While tax credits alone cannot resolve all of the island's economic struggles, they represent an important policy tool. By providing new evidence on their effects, this study informs future reforms and contributes to the broader discussion on how tax policy can support economic stability in Puerto Rico and other low-income regions.

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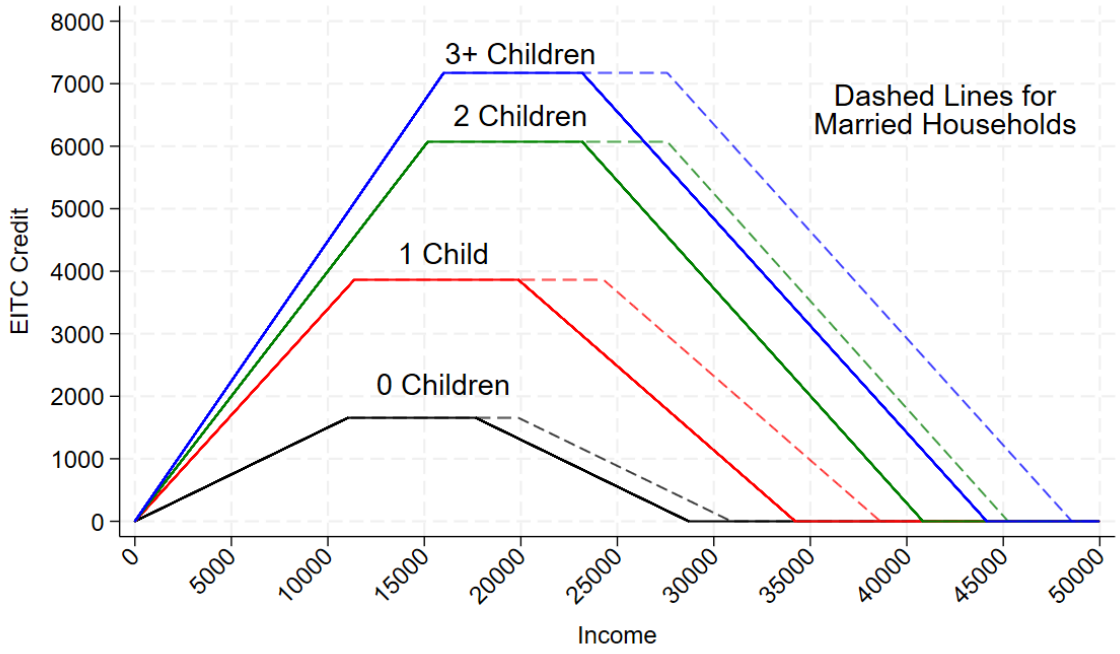
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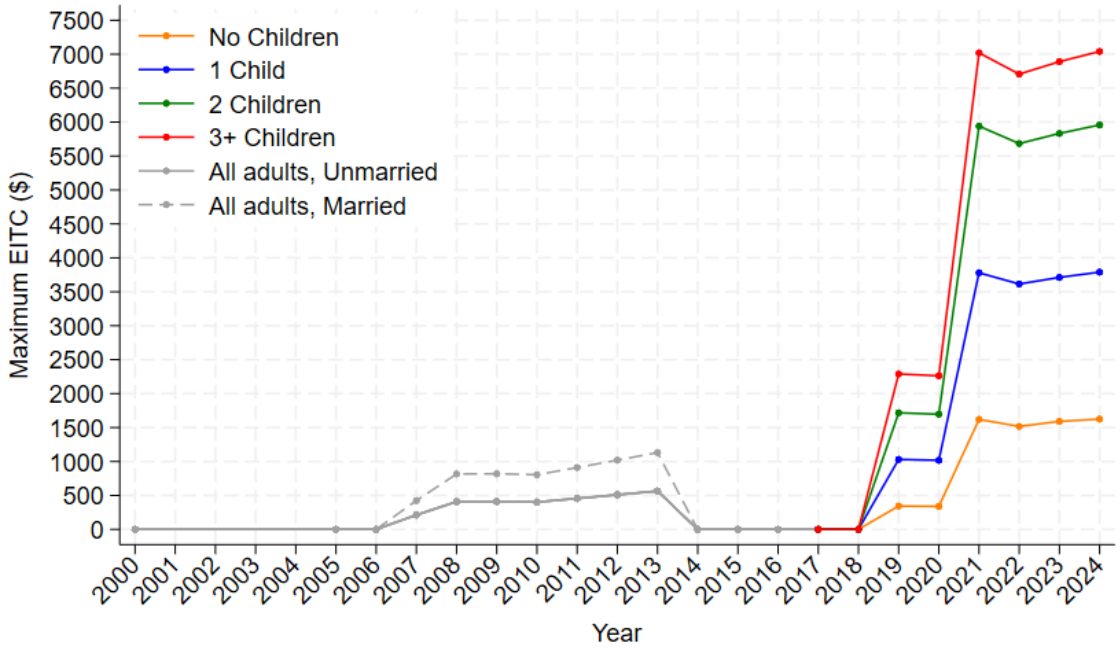
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Figure 1: **Puerto Rico's Earned Income Tax Credit (EITC)**

(a) **Structure of the 2023 Puerto Rico EITC**



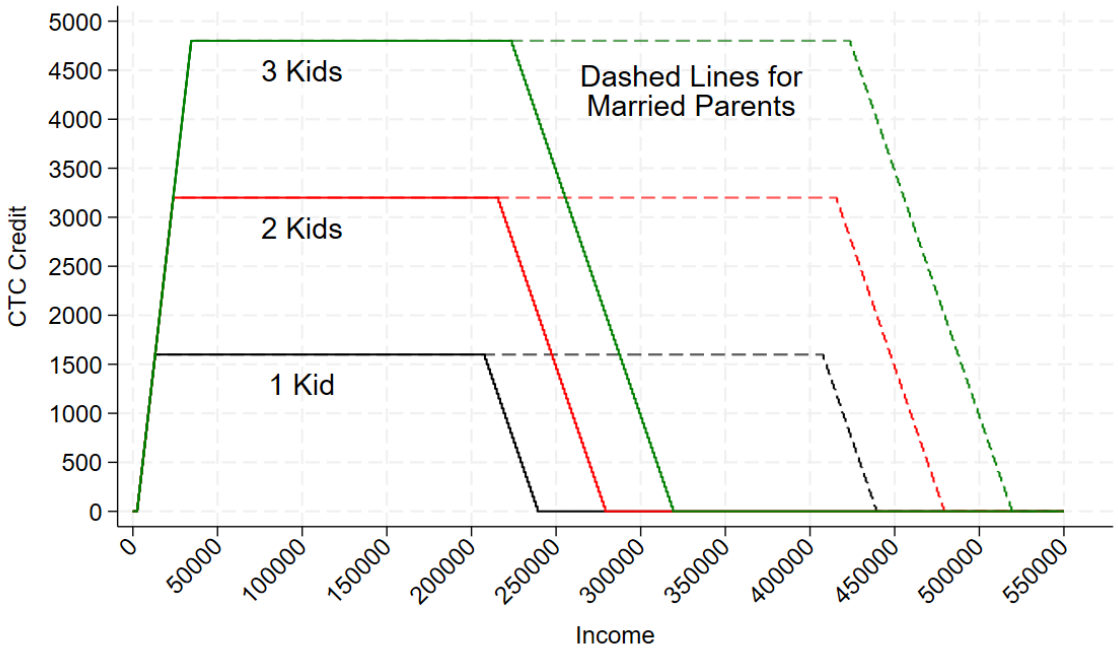
(b) **Maximum Possible EITC Over Time by Children (2022 $)**



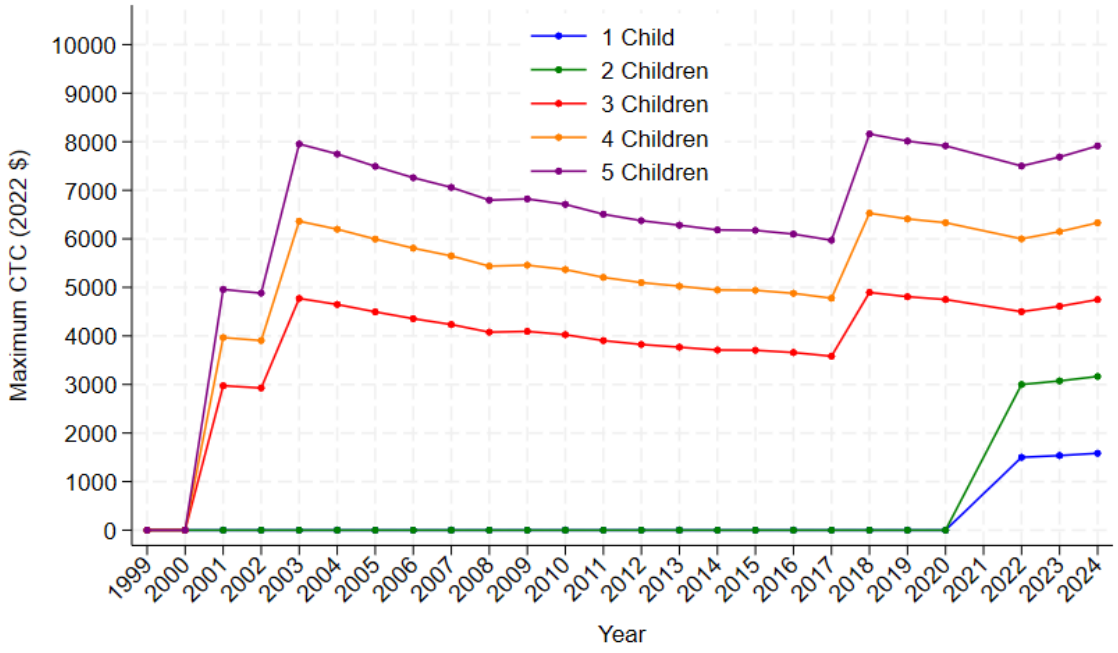
Panel A calculated using Gobierno de Puerto Rico (2023). Panel B calculated using Department of the Treasury, Commonwealth of Puerto Rico (2007, 2008, 2009, 2010, 2011, 2012), Oversight and for Puerto Rico (2019), Oversight and for Puerto Rico (2020), Santamaría Ots (2021), Departamento de Hacienda de Puerto Rico (2022), and Departamento de Hacienda de Puerto Rico (2023). The EITC began in 2007; no EITC existed between 2014 and 2018; it was not until 2019 that the EITC depended on the number of children. From 2007 to 2013, the EITC was calculated per tax filer rather than per household. As a result, married couples filing jointly, where both spouses individually qualified for the maximum EITC, could receive double the maximum credit amount (Department of the Treasury, Commonwealth of Puerto Rico, 2007, 2008, 2009, 2010, 2011, 2012, 2013).

Figure 2: **Puerto Rico's Additional Child Tax Credit (ACTC)**

(a) **Structure of the 2023 Puerto Rico ACTC**



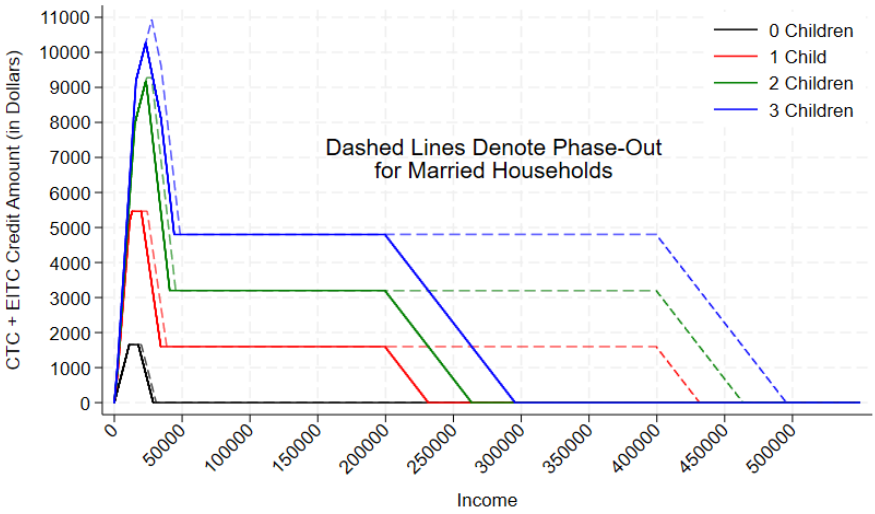
(b) **Maximum Possible ACTC in Puerto Rico by Number of Kids (2022 $)**



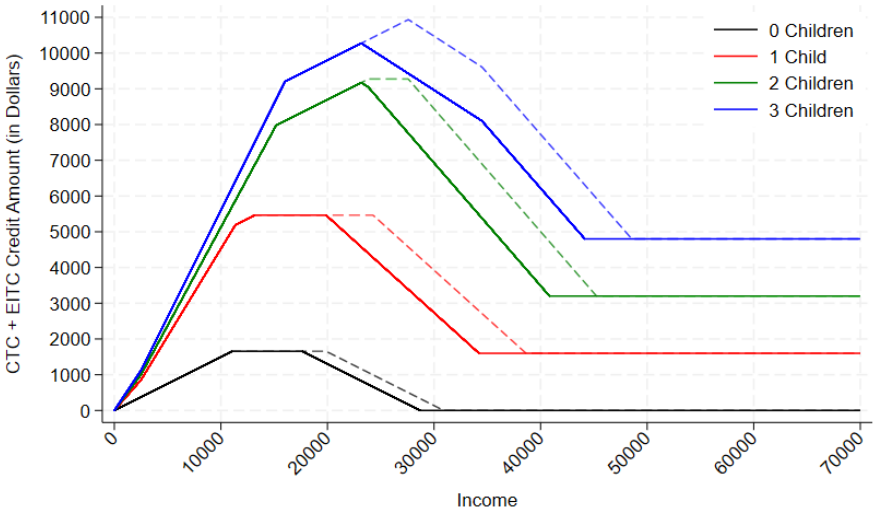
Panel A based on Service (2024) for phase-in calculations and of the Treasury Internal Revenue Service (2023) for phase-out values. Panel B based on Internal Revenue Service (2001–2022) and Internal Revenue Service (2023). Children are aged 17 or less. CTC amounts were in constant nominal dollars between 2003 and 2017, leading to decreasing real values. Families with six or more kids receive additional CTC. The CTC in 2021 was $3,000 per child and did not require earnings; this value is omitted from the figure for scale.

Figure 3: **Combined EITC and ACTC**

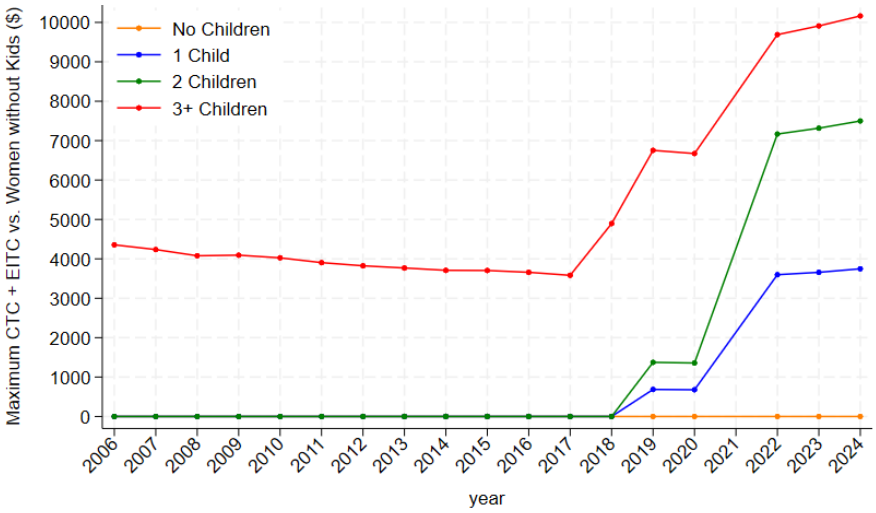
(a) **Maximum Possible EITC + ACTC by Income (2022 $)**



(b) **Maximum Possible EITC + ACTC Over Time (Zoomed In)**



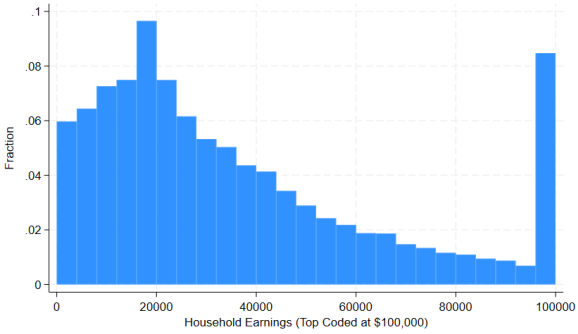
(c) **Max Possible EITC + ACTC Over Time (vs. those without Kids)**



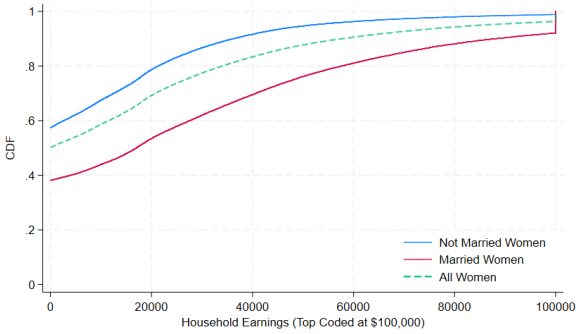
Notes: The 2021 CTC was $3,000 per child, did not require earnings, and is omitted from Panel (c).

Figure 4: **Household Earnings Distribution in Puerto Rico (2022 $)**

(a) **Histogram of Household Earnings**

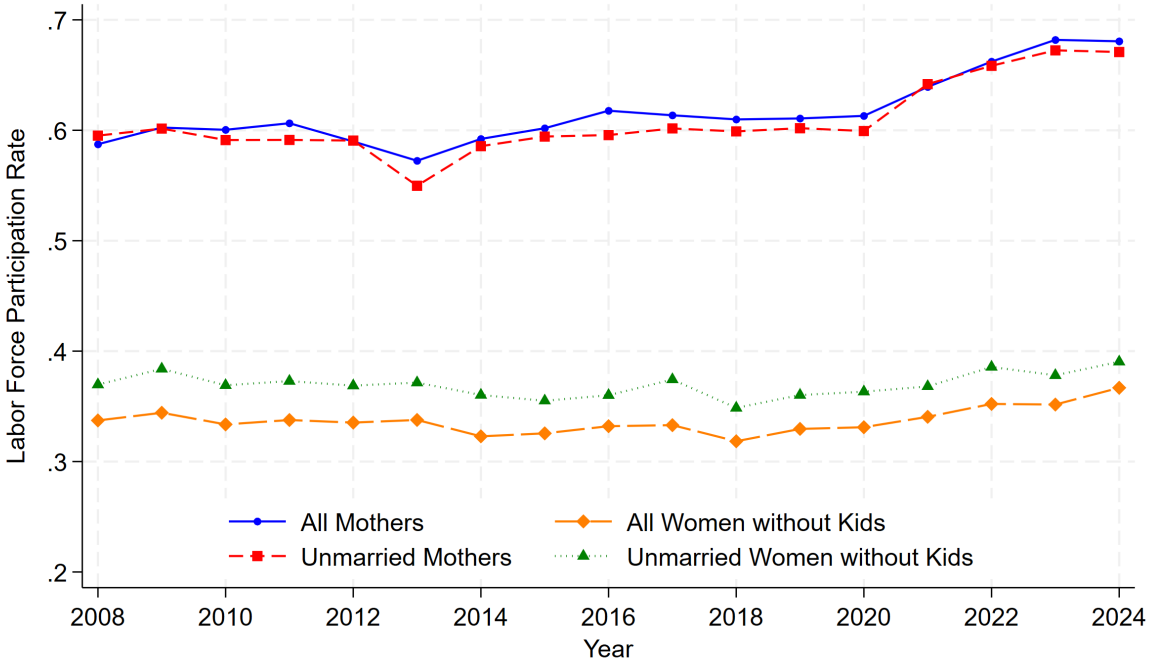


(b) **CDF of Household Earnings**



Source: 2000 and 2005–2024 PRCS data and the sample of all women ages 19–64.

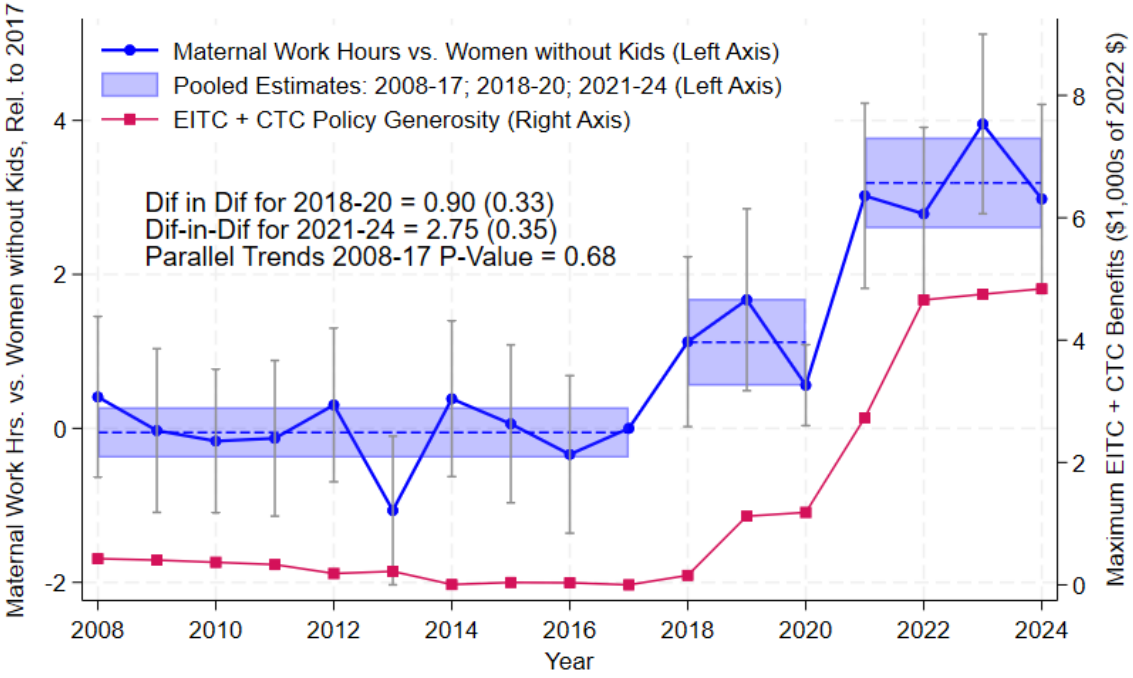
Figure 5: **Maternal Labor Force Participation, by Group**



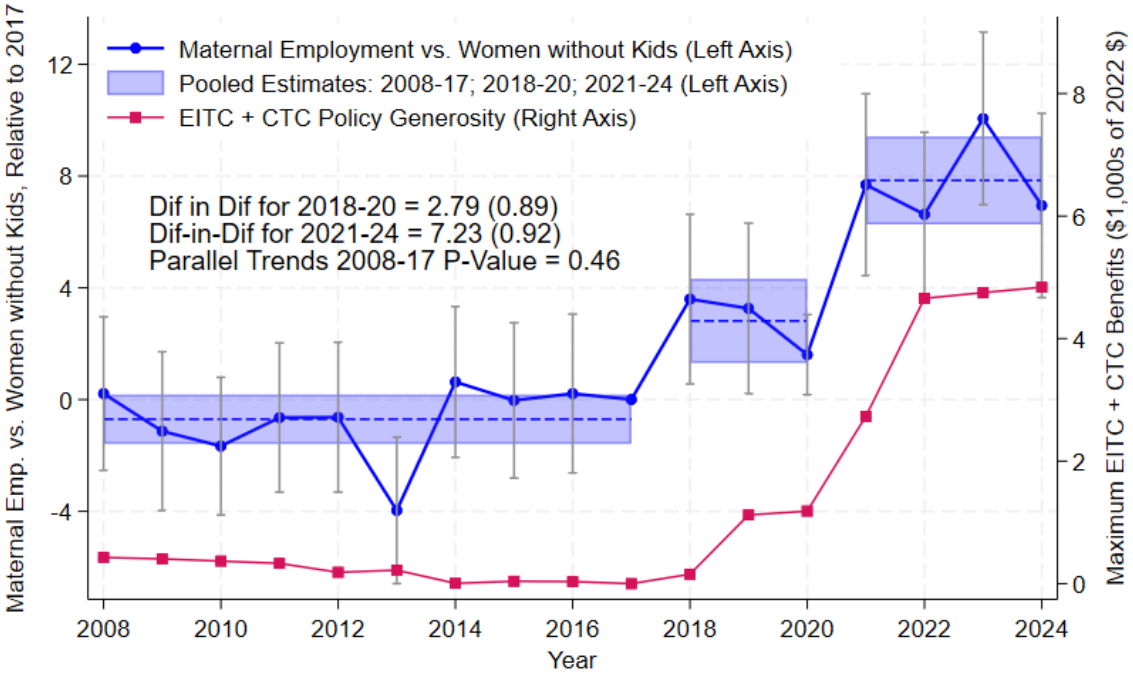
Notes: Figures use 2008–2024 PRCS data and the sample of all unmarried women ages 20 and older. Outcome is earning over $5,000 (in 2022 $). Maximum EITC and CTC is in real 2022 dollars; 2021 only includes EITC since the CTC in that year did not require work and the focus of this study is on credits that require work.

Figure 6: **Maternal Labor Supply vs. Women without Kids (Unmarried Women)**

(a) **Outcome = Usual Hours Worked**

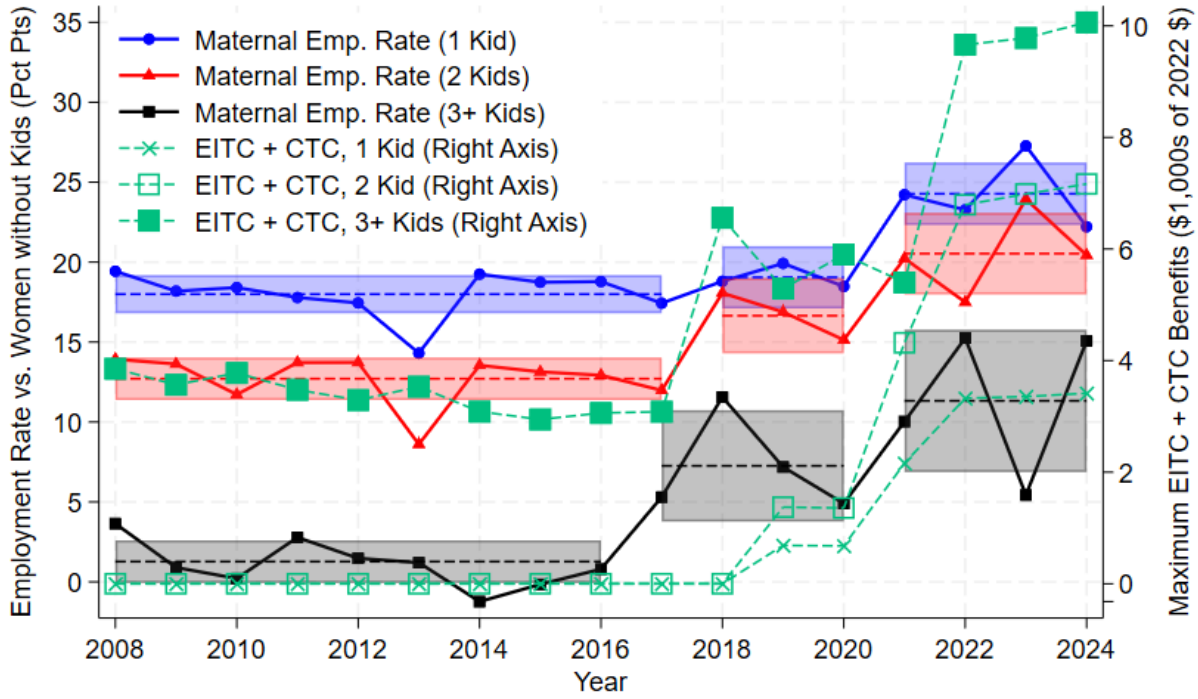


(b) **Outcome = Employment**



Notes: Figures use 2008–2024 PRCS data and the sample of all unmarried women ages 20 and older. Maximum EITC and CTC are in real 2022 dollars; 2021 only includes the EITC since the CTC in that year did not require work and the focus of this study is on credits that require work.

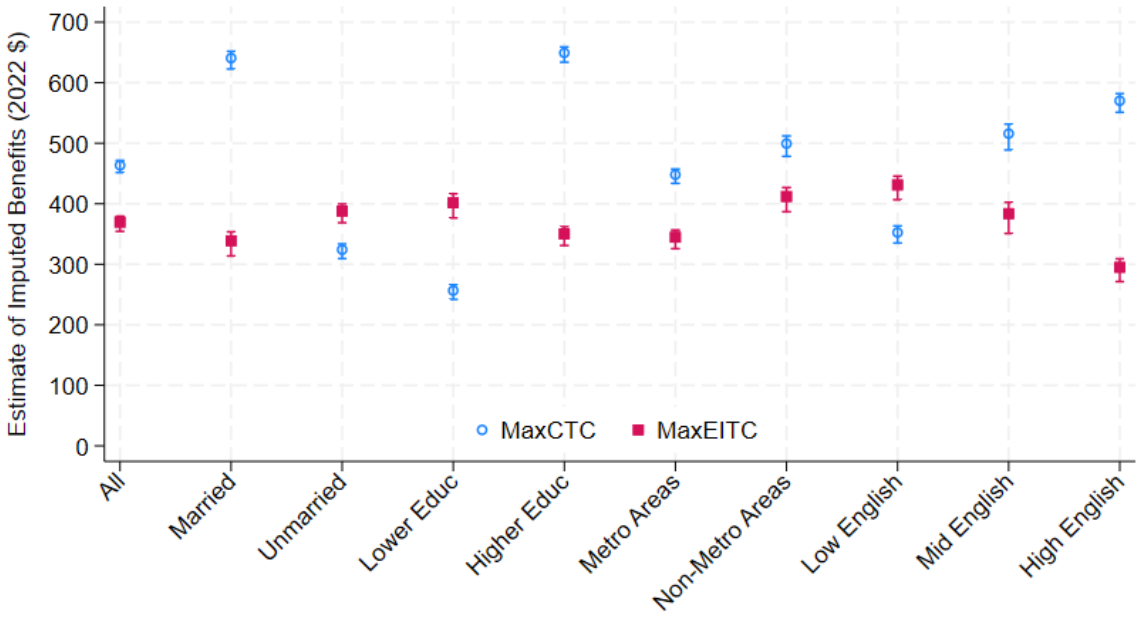
Figure 7: **Employment by # of Kids vs. Women without Kids (Unmar. Women)**



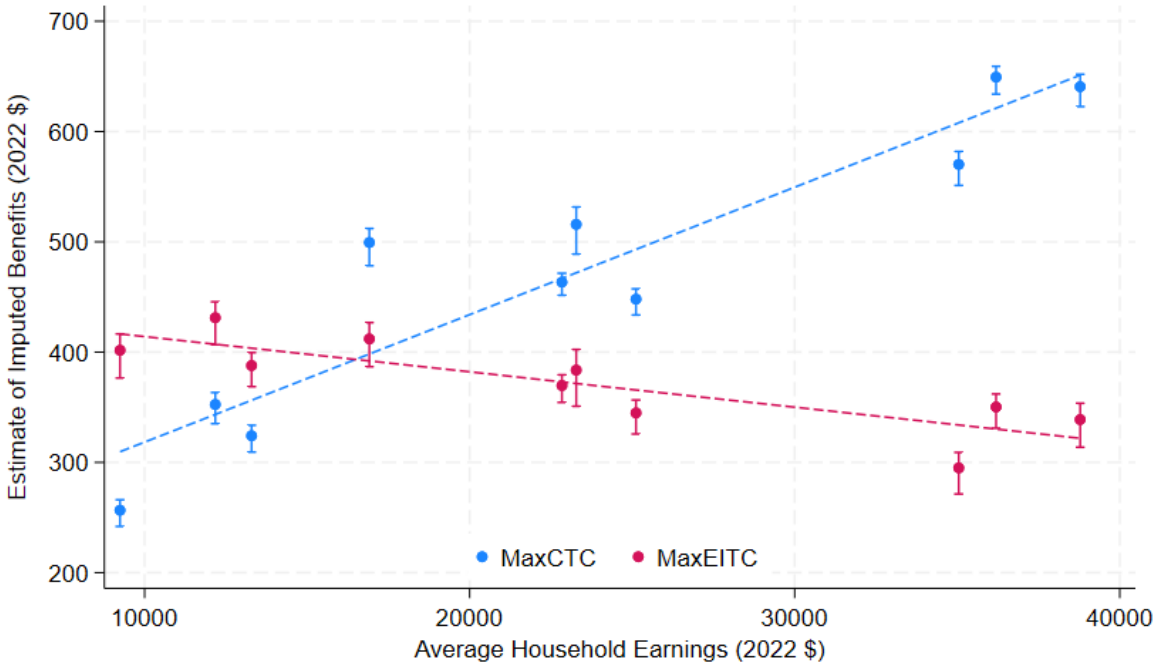
Notes: Figures use 2008–2024 PRCS data and the sample of all unmarried women ages 20 and older. Maximum EITC and CTC is in real 2022 dollars; 2021 only includes EITC since the CTC in that year did not require work and the focus of this study is on credits that require work.

Figure 8: **EITC and CTC Benefits**

(a) **Estimate of *MaxEITC* and *MaxCTC* on Imputed Benefits, by Subgroup**

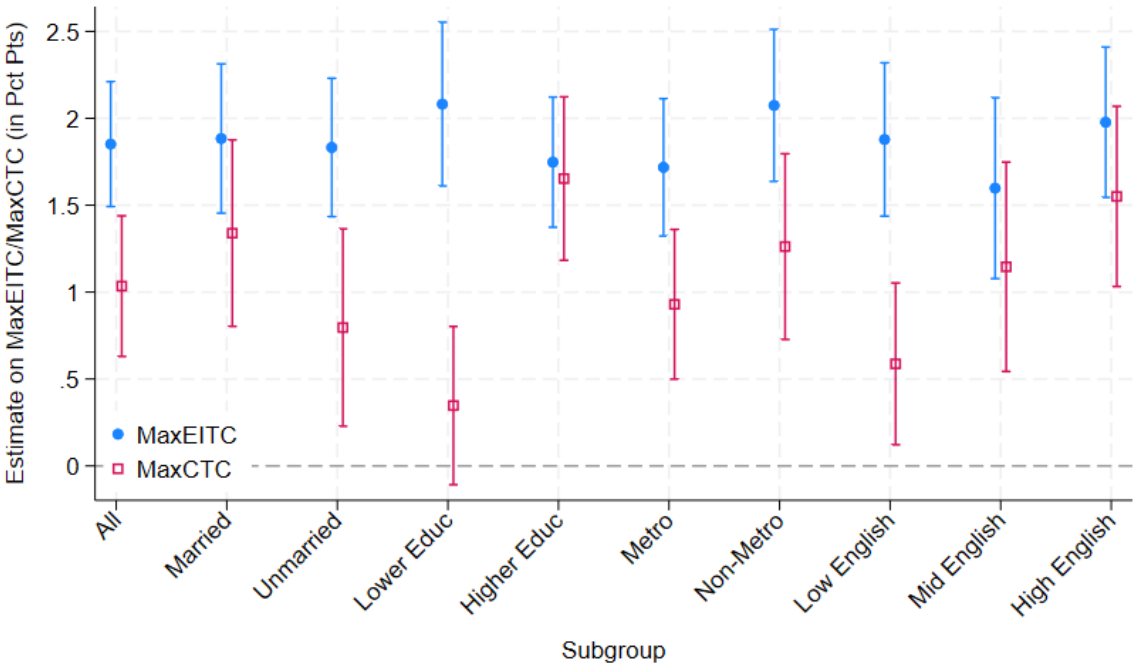


(b) **Subgroup Income vs. Estimate of *MaxEITC* and *MaxCTC* on Imputed Benefits**



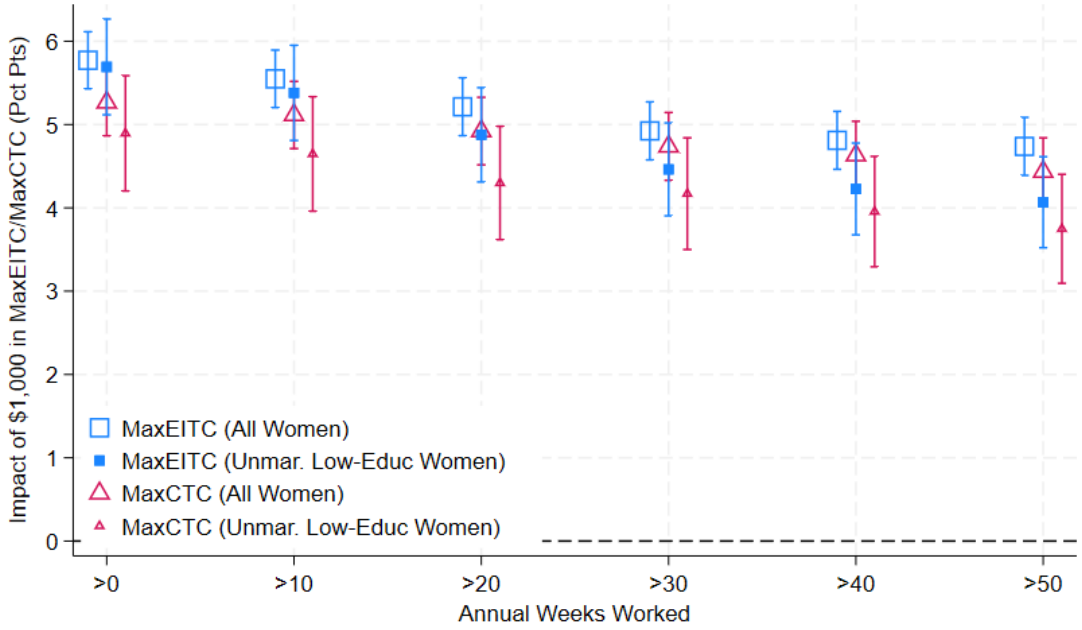
Notes: Figures use 2008–2024 PRCS data and the sample of all unmarried women ages 20 and older. Maximum EITC and CTC are in real 2022 dollars; 2021 only includes the EITC since the CTC in that year did not require work and the focus of this study is on credits that require work.

Figure 9: **Impact of MaxEITC and MaxCTC on Employment, by Subgroup**



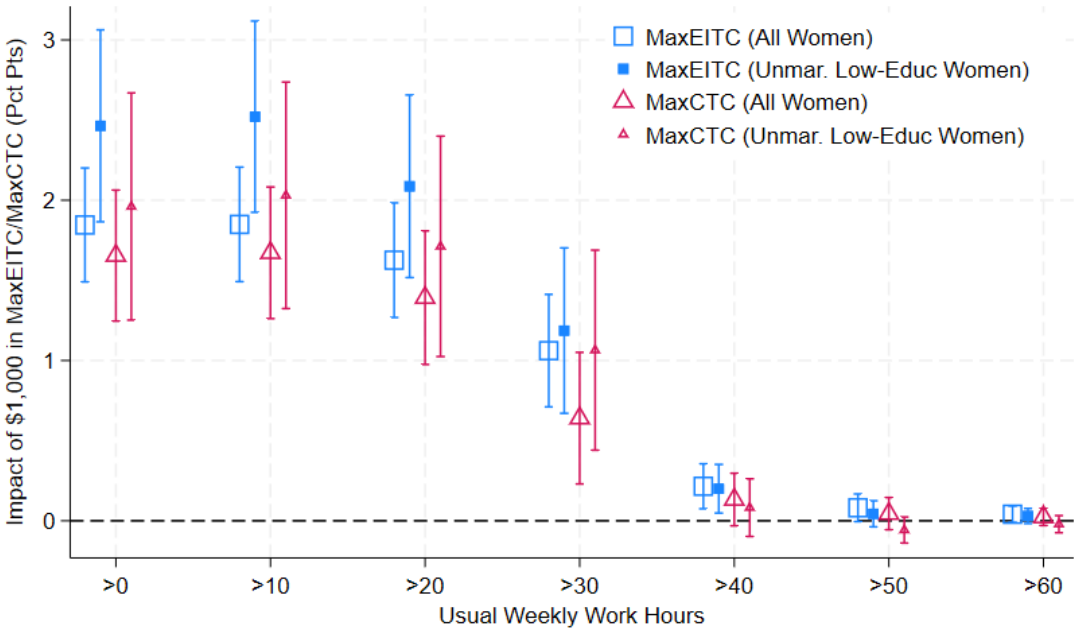
Source: Author's calculation using IPUMS USA PRCS data. Sample is all women ages 21 and older.

Figure 10: **Impact of EITC/CTC on the Distribution of Annual Weeks Worked**



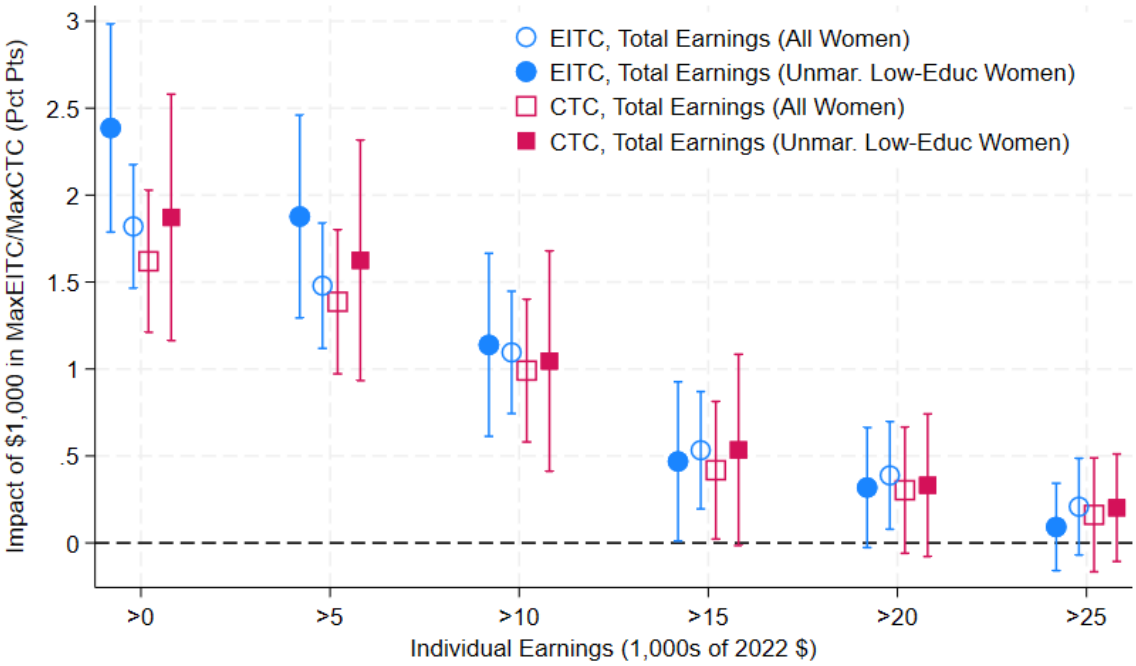
Source: Author's calculation using IPUMS USA PRCS data. Sample is all women ages 21 and older. Outcome is having annual weeks worked above each threshold.

Figure 11: **Impact of EITC/CTC on the Distribution of Usual Weekly Work Hours**



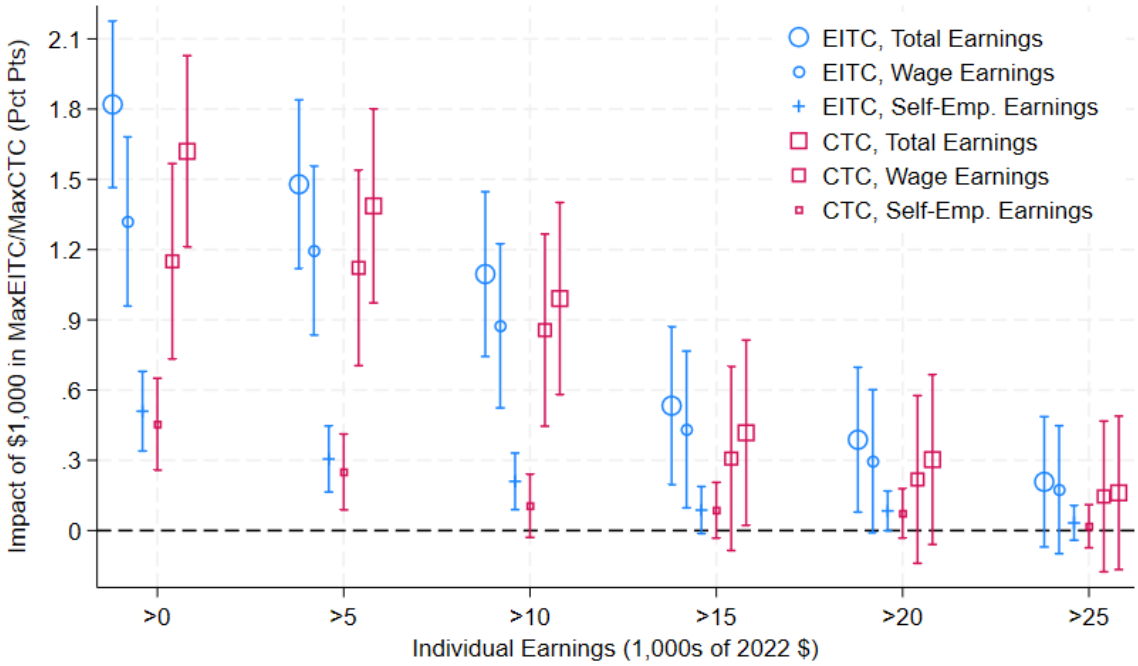
Source: Author's calculation using IPUMS USA PRCS data. Sample is all women ages 21 and older.

Figure 12: **Impact of EITC/CTC on Individual Earnings Distribution**



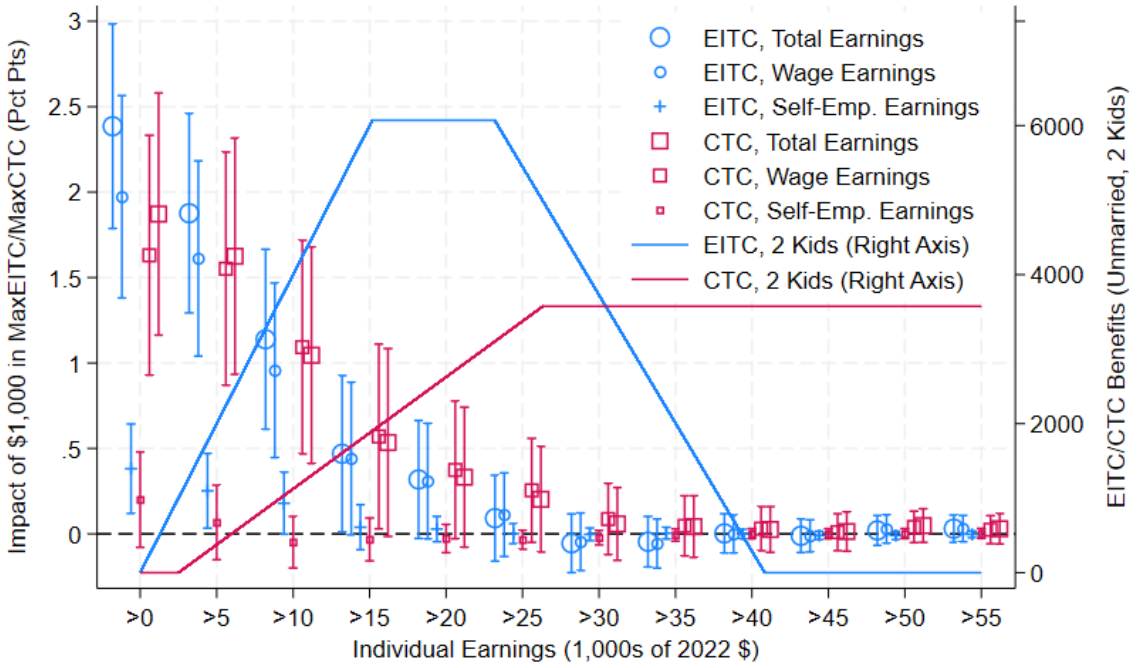
Source: Author's calculation using IPUMS USA PRCS data. Sample is all women ages 21 and older.

Figure 13: **Impact on Total, Wage, and Self-Emp. Earnings Dist. (All Women)**



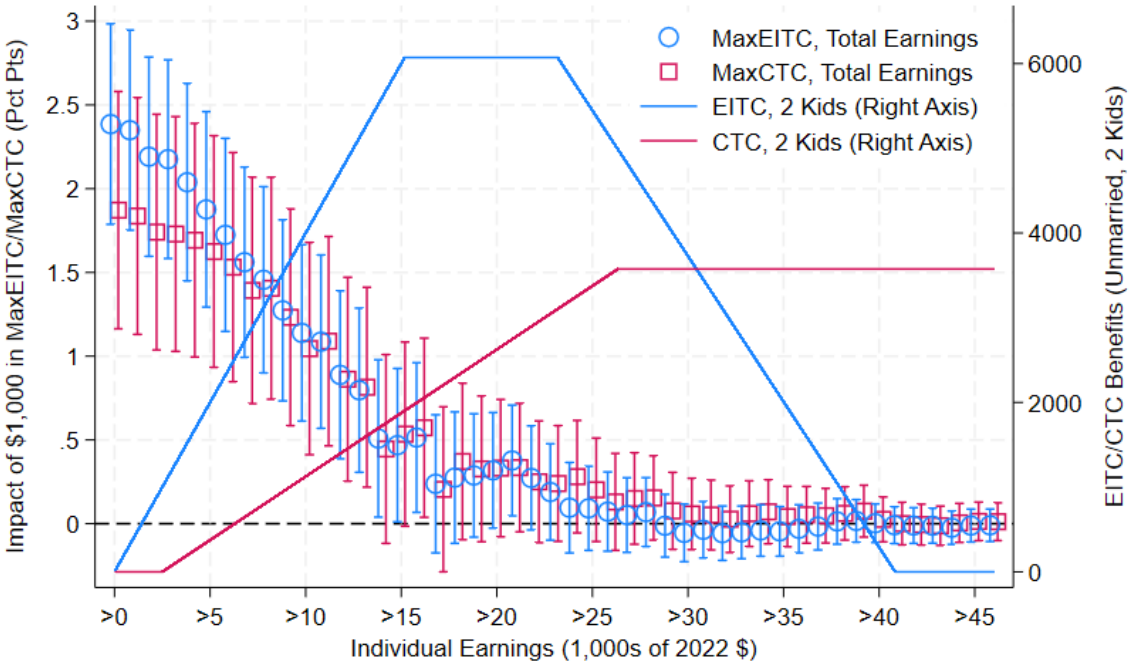
Source: Author's calculation using IPUMS USA PRCS data. Sample is all women ages 21 and older.

Figure 14: **Impact on Total, Wage, & Self-Emp. Earnings Dist. (Unmar. Women)**



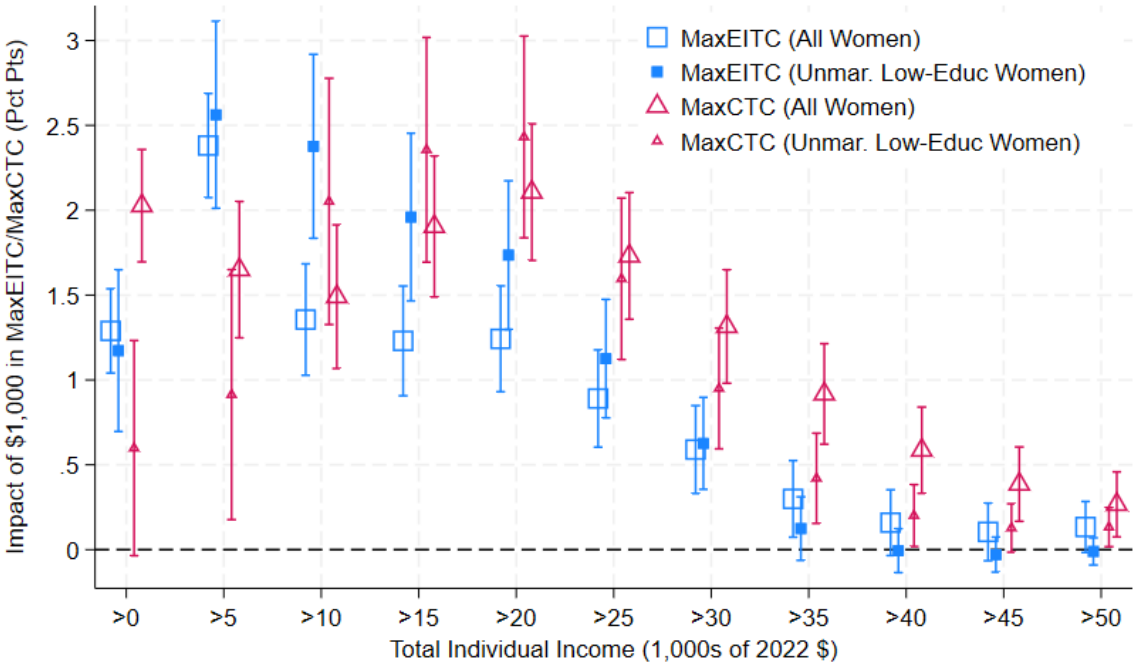
Source: Author's calculation using IPUMS USA PRCS data. Sample is all women ages 21 and older.

Figure 15: **EITC/CTC Impact on Total Earnings Distribution (Unmar. Women)**



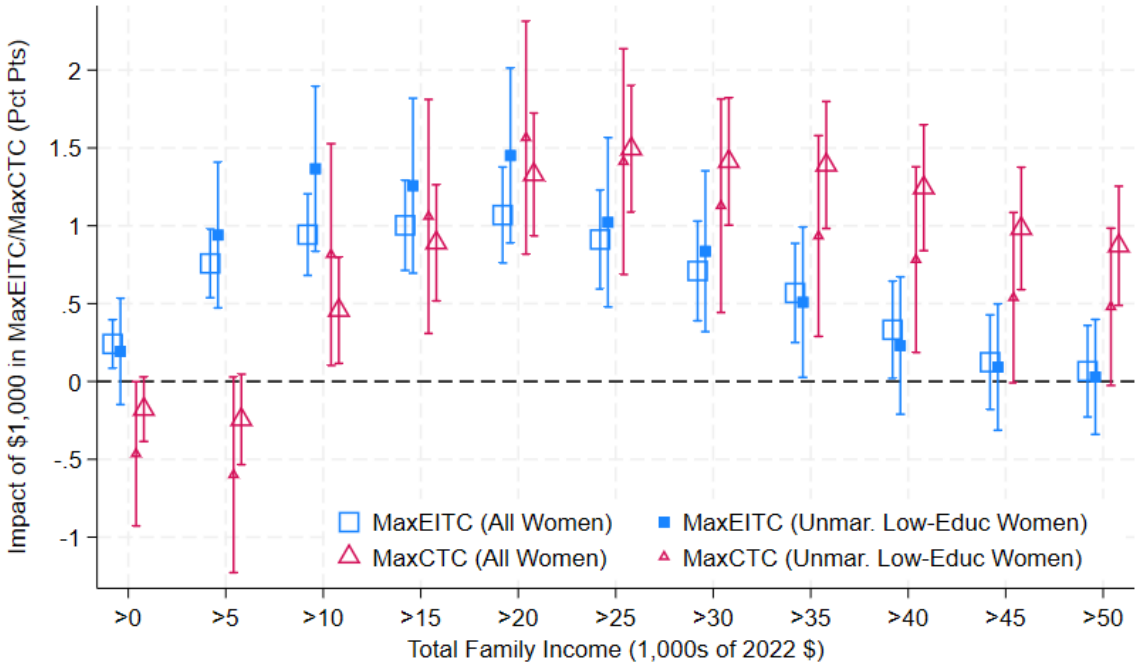
Source: Author's calculation using IPUMS USA PRCS data. Sample is all women ages 21 and older.

Figure 16: **EITC/CTC Impact on Total Individual Income Distribution**



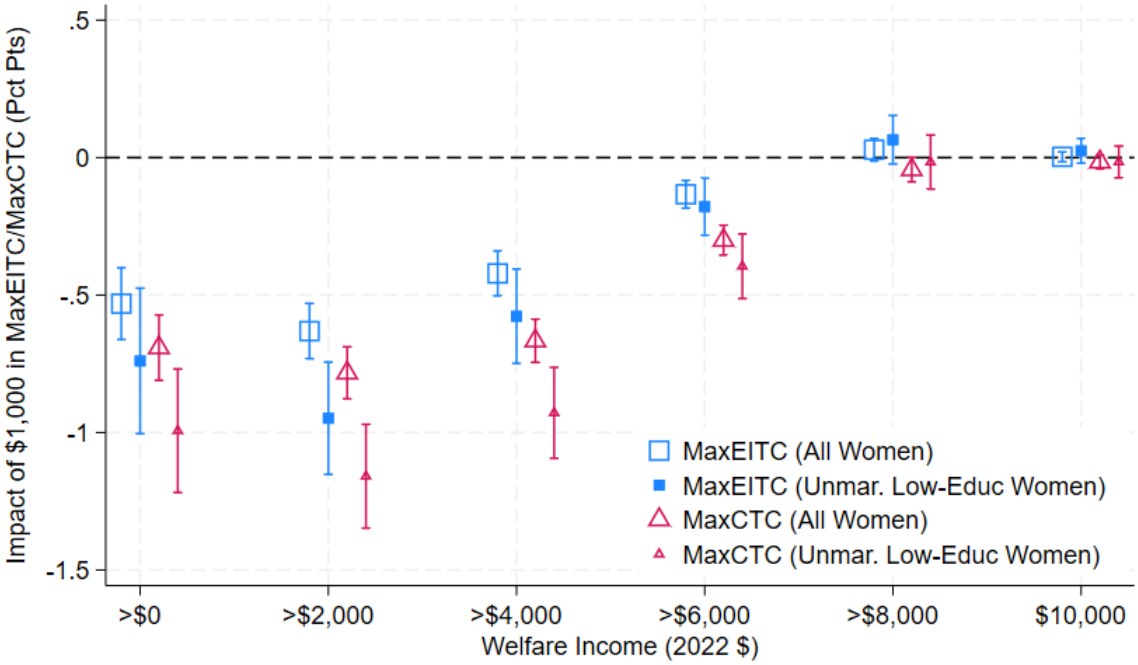
Source: Author's calculation using IPUMS USA PRCS data. Sample is all women ages 21 and older.

Figure 17: **EITC/CTC Impact on Total Family Income Distribution**



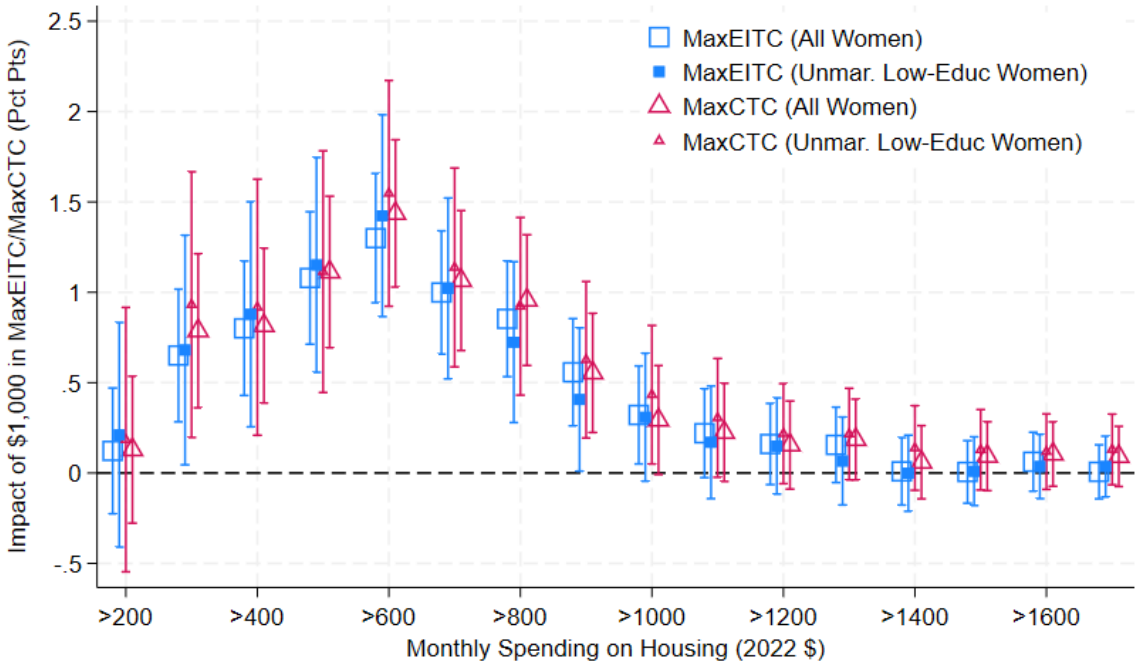
Source: Author's calculation using IPUMS USA PRCS data. Sample is all women ages 21 and older.

Figure 18: **Impact of EITC/CTC on the Distribution of Cash Welfare (2022 $**



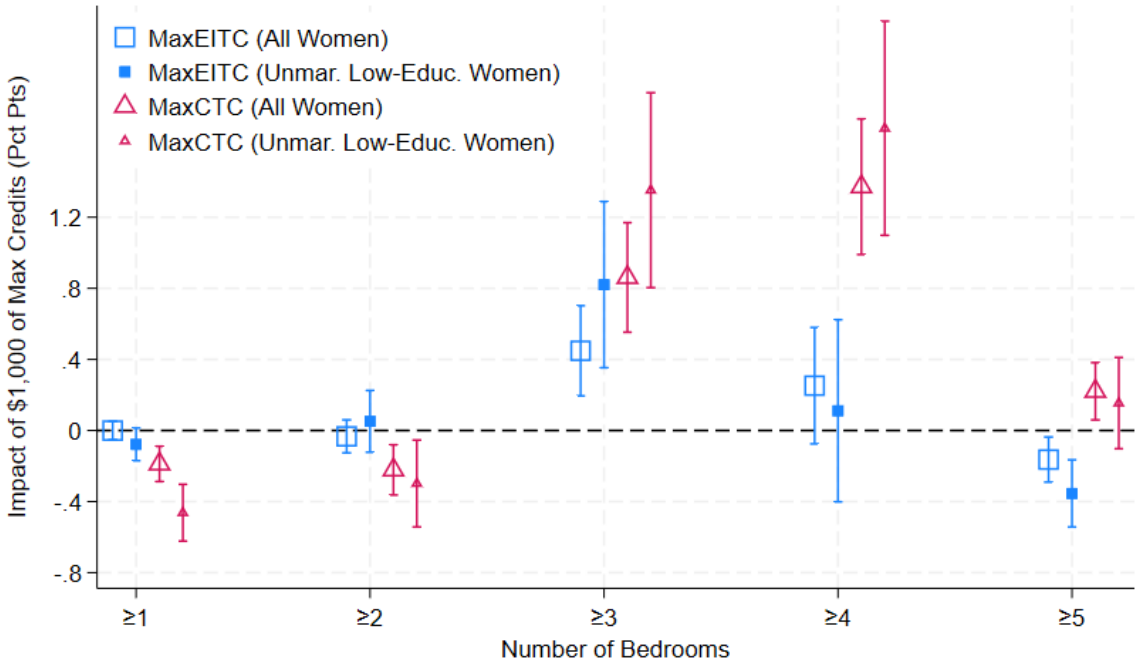
Source: Author's calculation using IPUMS USA PRCS data. Sample is all women ages 21 and older.

Figure 19: **EITC/CTC and the Distribution of Spending on Housing (2022 $)**



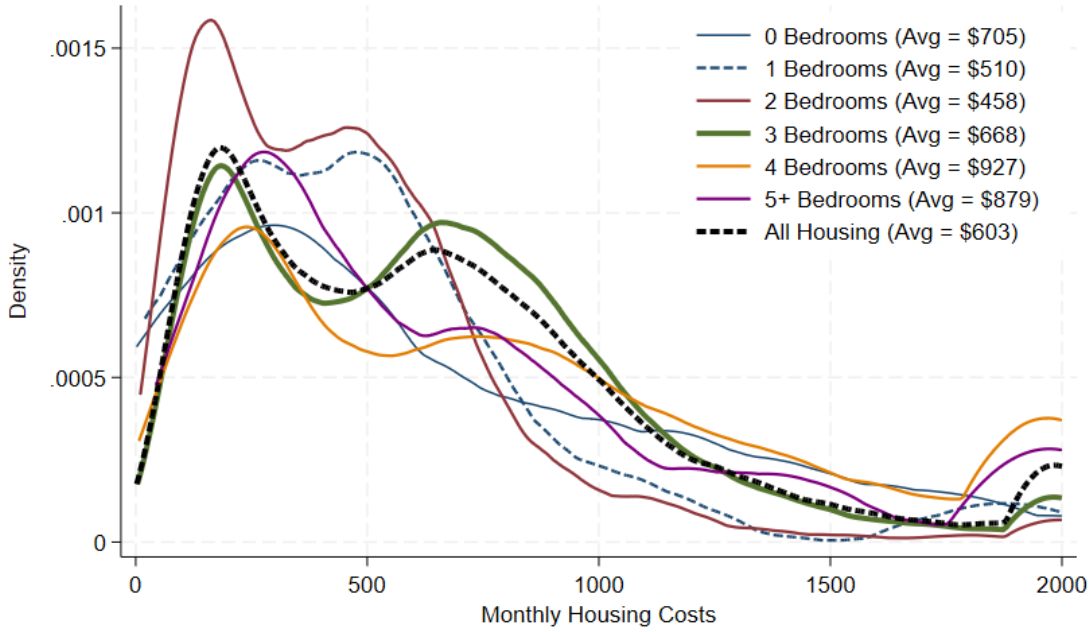
Source: Author's calculation using IPUMS USA PRCS data. Sample is all women ages 21 and older.

Figure 20: **Impact of EITC/CTC on Number of Bedrooms**



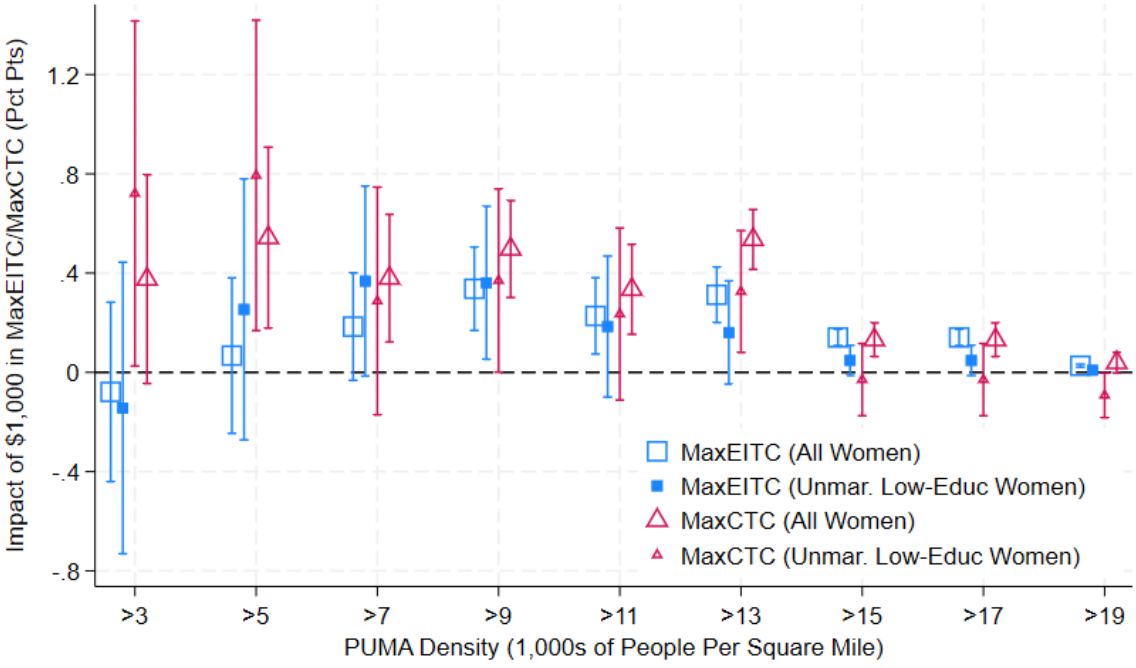
Source: Author's calculation using IPUMS USA PRCS data. Sample is all women ages 21 and older.

Figure 21: **Distribution of Housing Cost, by Number of Bedrooms (2022 $)**



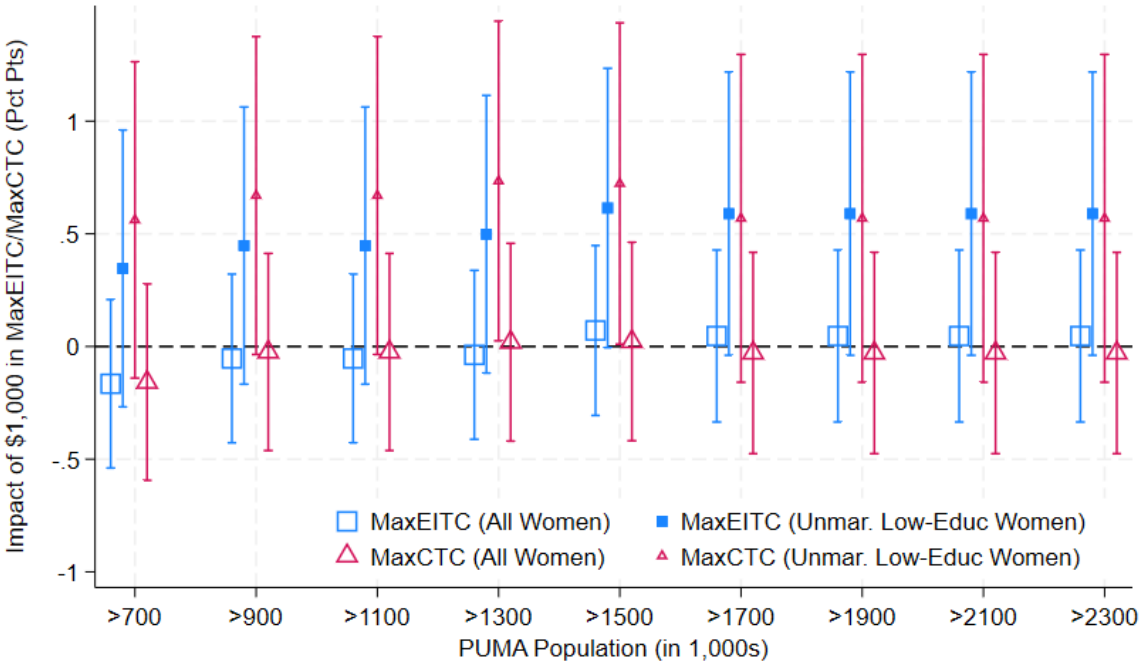
Source: Author's calculation using IPUMS USA PRCS data. Sample is all EITC-eligible mothers, ages 21 and older, in sample years 2019–2024.

Figure 22: **EITC/CTC and Population Density of Where People Live**



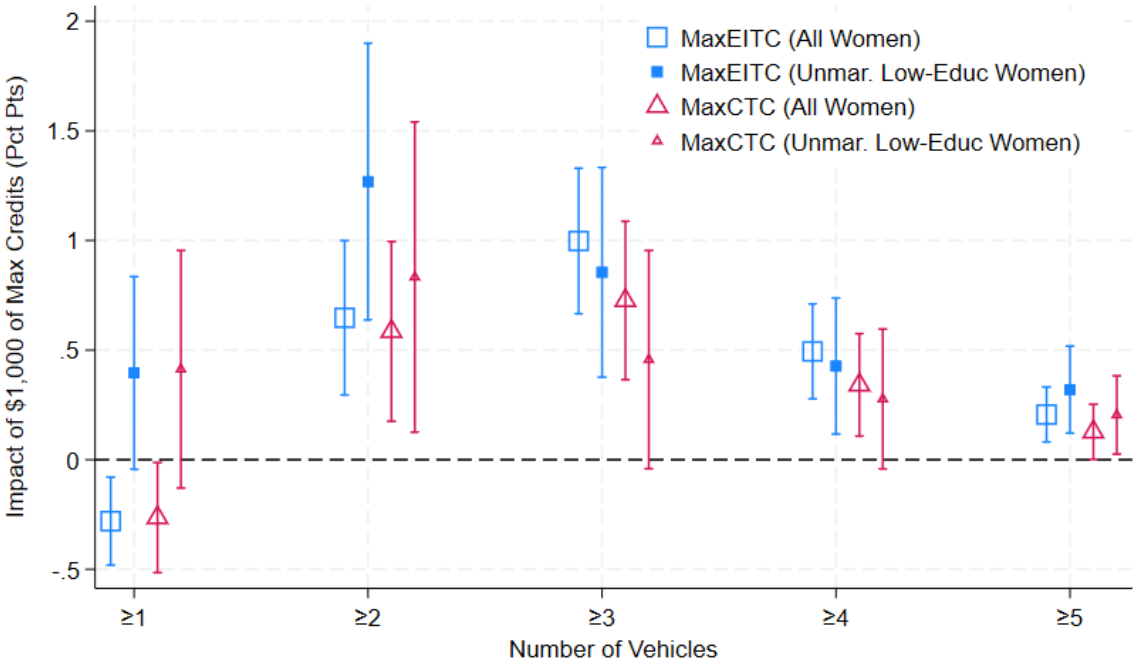
Source: Author's calculation using IPUMS USA PRCS data. Sample is all women ages 21 and older.

Figure 23: **EITC/CTC and Population of PUMA Where People Live**



Source: Author's calculation using IPUMS USA PRCS data. Sample is all women ages 21 and older.

Figure 24: **Impact of EITC/CTC on Number of Vehicles**



Source: Author's calculation using IPUMS USA PRCS data. Sample is all women ages 21 and older.

Figure 25: **Estimates Robust to Alternative Control Sets**

(a) **Estimates on MaxEITC/MaxCTC**

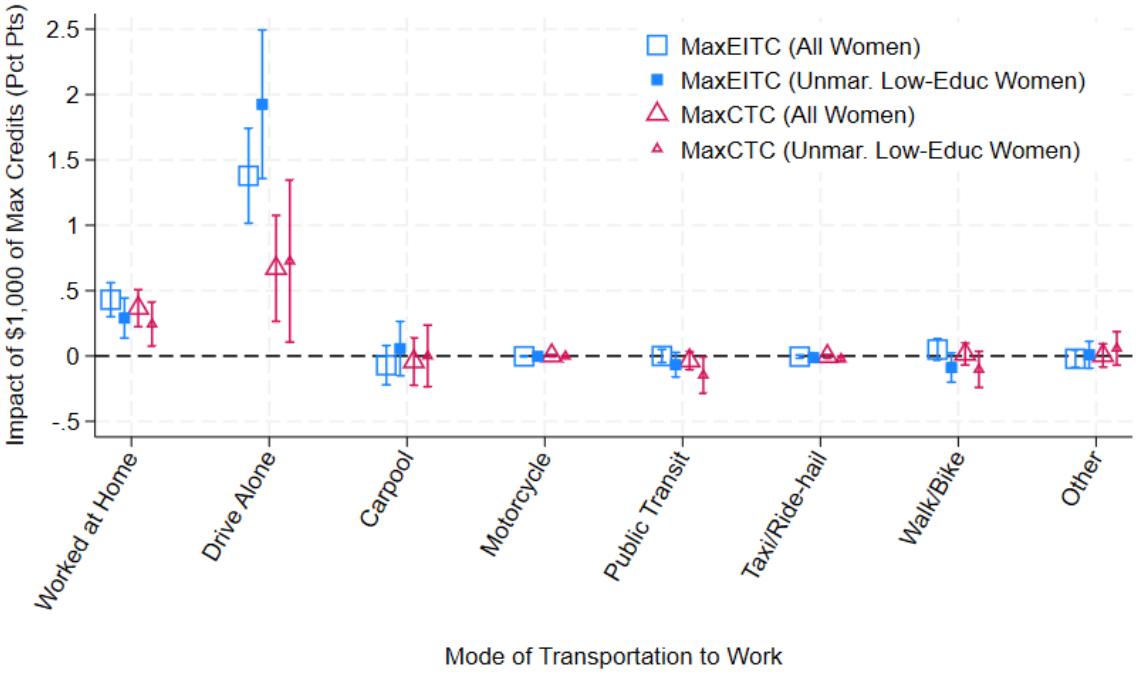


(b) **Estimates on EITC/CTC Phase-In Rate**



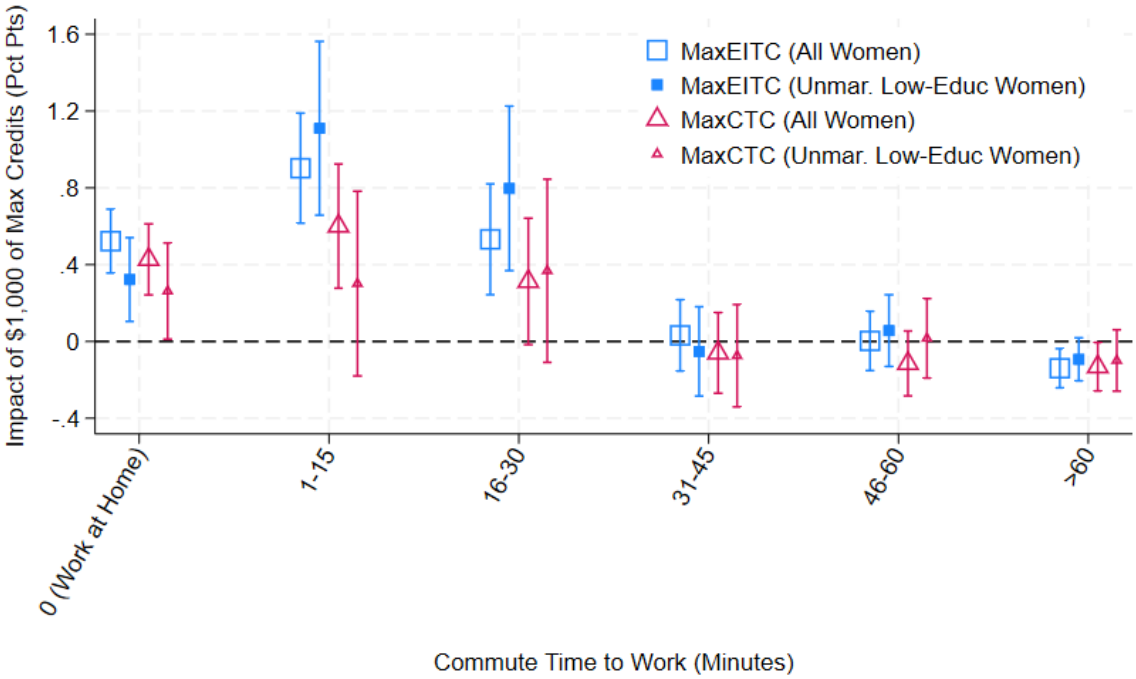
Source: Author's calculation using IPUMS USA PRCS data. Sample is all women ages 21 and older. Specifications (1)–(5) add controls in a cumulative and structured way: specification (1) includes age and age squared, marital status, the presence of young children, and college attainment; specification (2) adds metropolitan status and English proficiency indicators; specification (3) further incorporates interactions between marital status and children, year effects, education, age, English proficiency, metropolitan status, and young children; specification (4) augments this set with interactions between year and college attainment, English proficiency, and metropolitan status; and specification (5) adds a final layer of education-by-demographic interactions, including age, English proficiency, metropolitan status, and young children.

Figure 26: **New Workers' Mode of Transportation to Work**



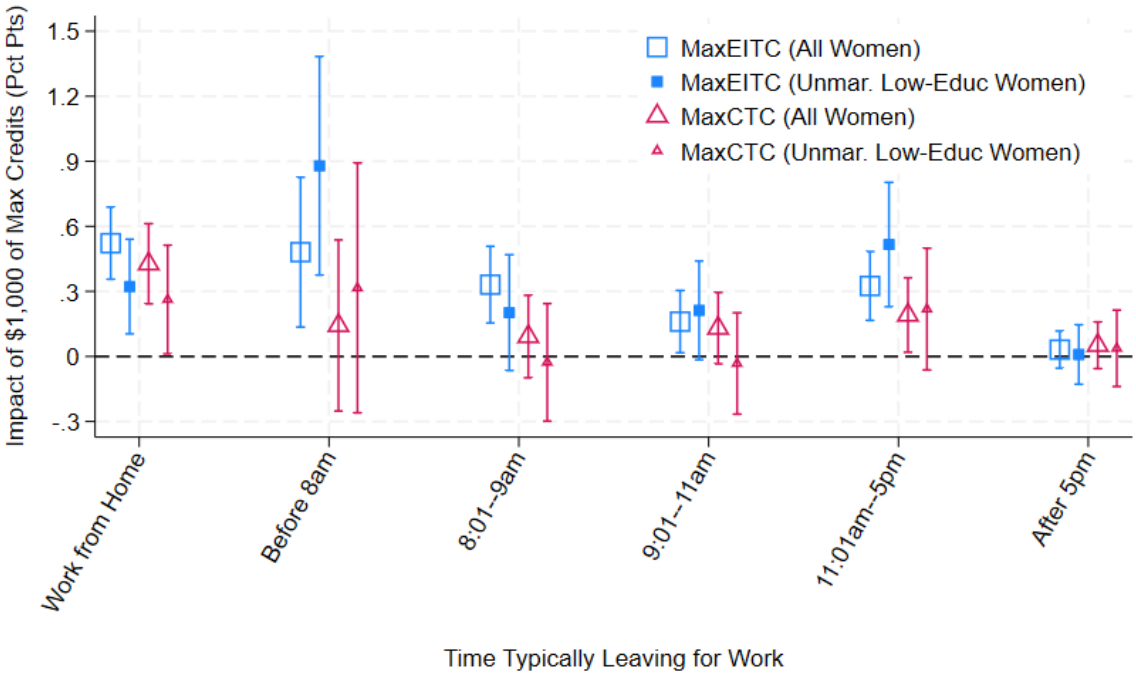
Source: Author's calculation using IPUMS USA PRCS data. Sample is all women ages 21 and older.

Figure 27: **New Workers' Length of Commute to Work**



Source: Author's calculation using IPUMS USA PRCS data. Sample is all women ages 21 and older.

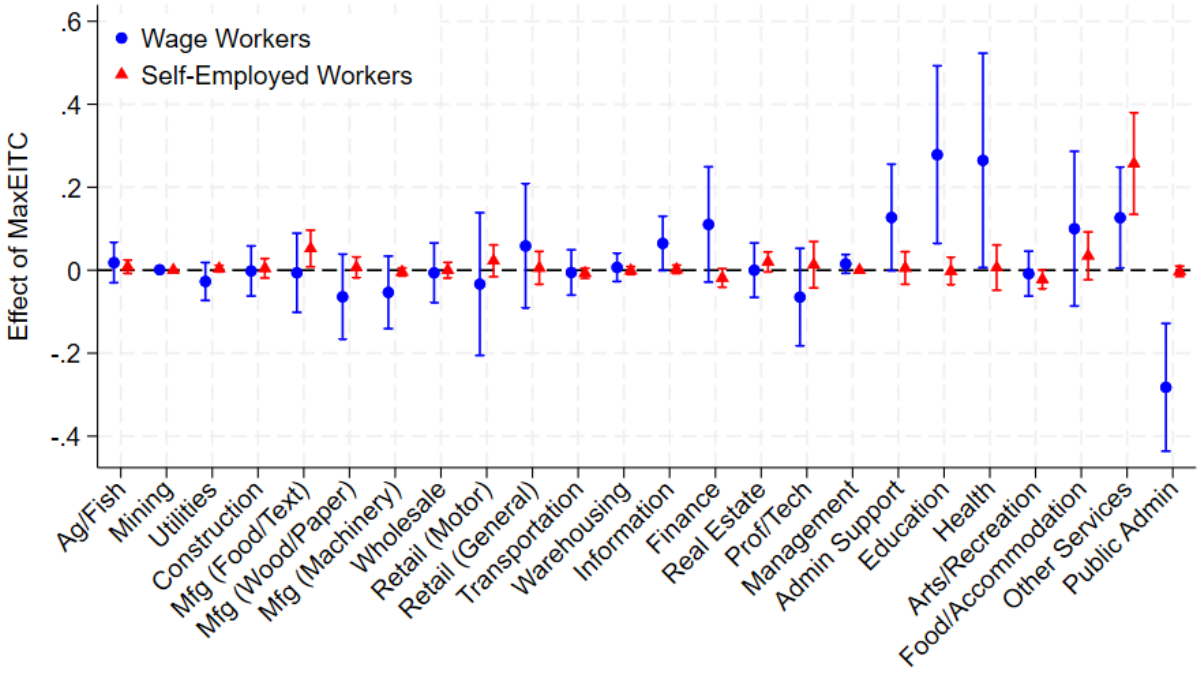
Figure 28: **Time of Day that New Workers Leave Home for Work**



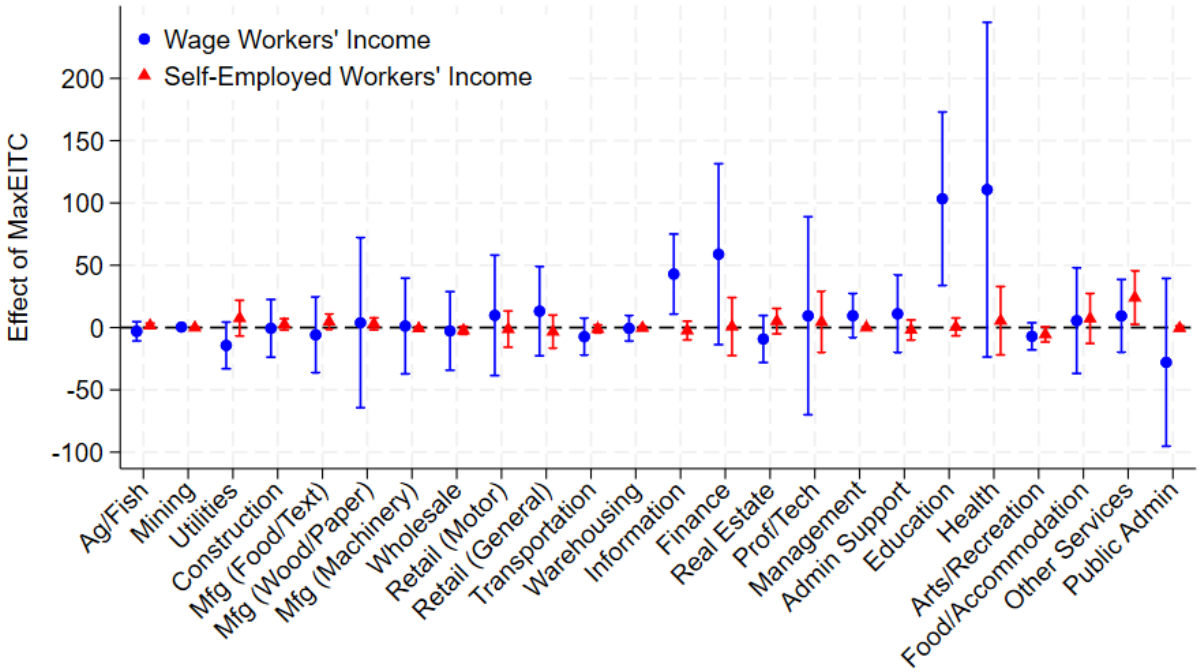
Source: Author's calculation using IPUMS USA PRCS data. Sample is all women ages 21 and older.

Figure 29: **Which Industries Do Wage Workers and Self-Employed Enter?**

(a) **EITC's Impact on Working in Each Two-Digit Industry**



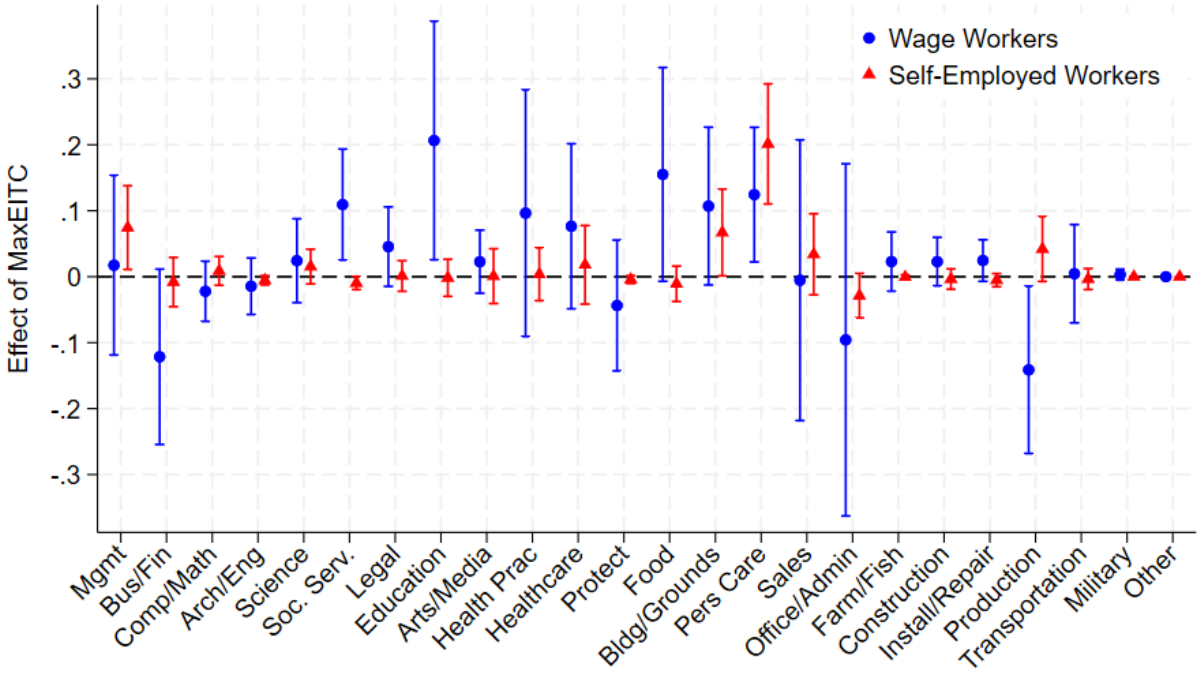
(b) **EITC's Impact on Earnings in Each Two-Digit Industry**



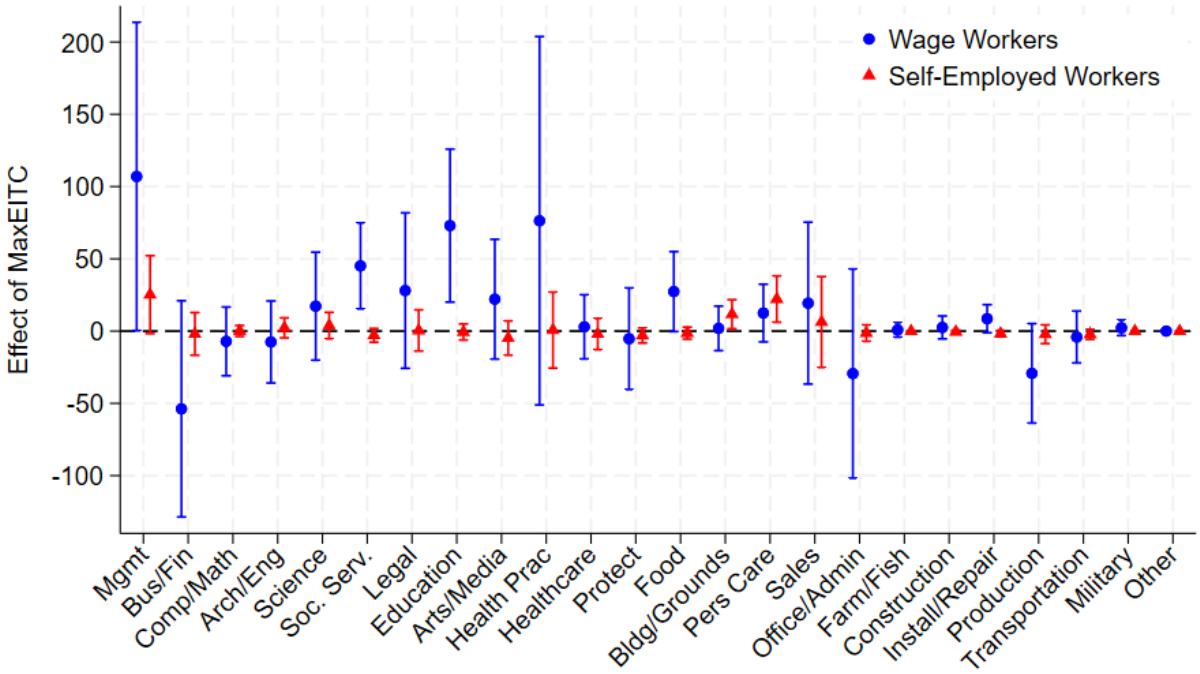
Notes: Figures use 2008–2024 PRCS data and the sample of all unmarried women ages 20 and older. Maximum EITC and CTC are in real 2022 dollars; 2021 only includes the EITC since the CTC in that year did not require work and the focus of this study is on credits that require work.

Figure 30: **Which Occupations Do Wage Workers and Self-Employed Enter?**

(a) **EITC's Impact on Working in Each Two-Digit Occupation**



(b) **EITC's Impact on Earnings in Each Two-Digit Occupation**



Notes: Figures use 2008–2024 PRCS data and the sample of all unmarried women ages 20 and older. Maximum EITC and CTC are in real 2022 dollars; 2021 only includes the EITC since the CTC in that year did not require work and the focus of this study is on credits that require work.

Table 1: Summary Statistics: All Women and Unmarried Women

	Mean	SD	Min	Max
Panel A: All Women				
Age	52.08	18.67	20.00	96.00
Metropolitan	0.74	0.44	0.00	1.00
12 or Less Years of Schooling	0.53	0.50	0.00	1.00
Family Size	2.86	1.49	1.00	15.00
Number of Children	0.79	1.02	0.00	9.00
One Child	0.25	0.43	0.00	1.00
2 Children	0.16	0.36	0.00	1.00
3 or More Children	0.07	0.26	0.00	1.00
No Children	0.53	0.50	0.00	1.00
Employed	0.32	0.47	0.00	1.00
Self Employed	0.03	0.18	0.00	1.00
Earned Income ($1,000s)	9.58	23.63	0.00	824.39
Total Individual Income ($1,000s)	15.86	27.74	-17.00	1305.42
Self Employment Income ($1,000s)	0.55	7.24	-17.00	623.81
Business/Farm Income ($1,000s)	10.13	24.72	-17.00	943.37
Total Family Income ($1,000s)	42.16	57.13	-27.20	2272.59
Total Household Income ($1,000s)	42.81	57.60	-27.20	2272.59
Received Welfare	0.07	0.25	0.00	1.00
Below Poverty Line	0.41	0.49	0.00	1.00
Observations	361962			
Panel B: Unmarried Women				
Age	51.78	20.59	20.00	96.00
Metropolitan	0.75	0.43	0.00	1.00
12 or Less Years of Schooling	0.53	0.50	0.00	1.00
Family Size	2.61	1.55	1.00	15.00
Number of Children	0.67	0.96	0.00	9.00
One Child	0.24	0.43	0.00	1.00
2 Children	0.12	0.33	0.00	1.00
3 or More Children	0.06	0.23	0.00	1.00
No Children	0.58	0.49	0.00	1.00
Employed	0.32	0.47	0.00	1.00
Self Employed	0.03	0.17	0.00	1.00
Earned Income ($1,000s)	8.85	22.41	0.00	824.39
Total Individual Income ($1,000s)	15.72	26.68	-17.00	1305.42
Self Employment Income ($1,000s)	0.49	6.58	-17.00	623.81
Business/Farm Income ($1,000s)	9.34	23.36	-17.00	858.38
Total Family Income ($1,000s)	33.41	46.57	-27.20	2272.59
Total Household Income ($1,000s)	34.39	47.56	-27.20	2272.59
Received Welfare	0.09	0.28	0.00	1.00
Below Poverty Line	0.48	0.50	0.00	1.00
Observations	205469			

Table 2: EITC and CTC Parameters and Imputed Tax Credits

Units:	MaxCredit ($1,000s)		Phase-In Rate (10pp)		Simulated IV ($100s)	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: EITC						
EITC	369.66		563.73		60.44	
	(7.78)		(11.19)		(1.51)	
EITC × Married		348.22		536.46		62.31
		(9.44)		(12.74)		(2.00)
EITC × Unmarried		382.66		580.03		59.20
		(8.46)		(11.79)		(1.76)
Panel B: CTC						
CTC	463.47		934.47		53.18	
	(6.07)		(8.70)		(0.76)	
CTC × Married		643.73		1308.96		53.53
		(8.84)		(12.32)		(0.72)
CTC × Unmarried		322.41		698.65		51.32
		(7.45)		(10.80)		(1.62)
Observations = 368,022 (EITC) and 356,519 (CTC)						

Notes: MaxCredit is measured in $1,000s, Phase-In Rate in 10 percentage point units, and the simulated IV in $100s.

Table 3: Decomposing EITC/CTC Employment Effect: Wage vs Self-Emp, Whether WFH

	Employed			Wage Worker			Self-Employed Worker		
	Any Type	WFH	Not WFH	Any Type	WFH	Not WFH	Any Type	WFH	Not WFH
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel A: MaxEITC (1,000 of 2022 $)									
EITC	1.85	0.43	1.42	1.32	0.29	1.03	0.51	0.14	0.37
	(0.18)	(0.07)	(0.19)	(0.18)	(0.05)	(0.19)	(0.09)	(0.04)	(0.08)
Panel B: EITC Phase-In Rate (10 Pct Pts)									
EITC	3.01	0.75	2.27	2.21	0.52	1.69	0.75	0.23	0.52
	(0.28)	(0.10)	(0.29)	(0.28)	(0.09)	(0.29)	(0.13)	(0.06)	(0.12)
Panel C: Simulated EITC Benefits (100s of 2022 $)									
EITC	0.76	0.19	0.57	0.54	0.13	0.41	0.19	0.06	0.13
	(0.07)	(0.03)	(0.07)	(0.07)	(0.02)	(0.07)	(0.03)	(0.02)	(0.03)
Panel D: MaxCTC (1,000 of 2022 $)									
CTC	1.03	0.37	0.67	0.65	0.25	0.41	0.37	0.13	0.25
	(0.21)	(0.07)	(0.21)	(0.21)	(0.06)	(0.21)	(0.10)	(0.05)	(0.08)
Panel E: CTC Phase-In Rate (10 Pct Pts)									
CTC	3.29	0.82	2.47	2.29	0.56	1.72	0.85	0.28	0.57
	(0.44)	(0.17)	(0.45)	(0.45)	(0.14)	(0.45)	(0.21)	(0.10)	(0.19)
Panel F: Simulated CTC Benefits (100s of 2022 $)									
CTC	0.13	0.04	0.09	0.11	0.00	0.11	0.05	0.04	0.01
	(0.12)	(0.04)	(0.12)	(0.12)	(0.03)	(0.12)	(0.06)	(0.02)	(0.05)
Observations = 272,668 (EITC) and 253,715 (CTC)									
Mean D.V.	45.5	1.20	44.3	47.1	0.791	46.3	3.46	0.428	3.03

Notes: All outcomes are binary indicators multiplied by 100, so coefficients are interpreted as percentage point effects. WFH denotes working from home.

Table 4: Effects on EITC/CTC on Labor Supply Outcomes

	Usual hours worked per week	Weeks worked	Annual hours	Not Working or Looking for Work	Unemp.	Occ. Score	SEI
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: MaxEITC (1,000 of 2022 $)							
EITC	0.65	0.86	30.37	-1.35	-0.59	0.45	0.67
	(0.07)	(0.09)	(3.54)	(0.18)	(0.11)	(0.05)	(0.10)
Panel B: EITC Phase-In Rate (10 Pct Pts)							
EITC	1.05	1.43	49.86	-2.18	-1.02	0.73	1.05
	(0.11)	(0.14)	(5.51)	(0.28)	(0.16)	(0.08)	(0.15)
Panel C: Simulated EITC Benefits (100s of 2022 $)							
EITC	0.26	0.36	12.64	-0.55	-0.25	0.18	0.26
	(0.03)	(0.04)	(1.39)	(0.07)	(0.04)	(0.02)	(0.04)
Panel D: MaxCTC (1,000 of 2022 $)							
CTC	0.33	0.55	17.36	-0.82	-0.56	0.21	0.27
	(0.08)	(0.10)	(3.96)	(0.21)	(0.13)	(0.06)	(0.11)
Panel E: CTC Phase-In Rate (10 Pct Pts)							
CTC	1.09	1.76	60.14	-2.59	-1.15	0.69	1.06
	(0.17)	(0.22)	(8.75)	(0.43)	(0.25)	(0.13)	(0.24)
Panel F: Simulated CTC Benefits (100s of 2022 $)							
CTC	0.01	0.10	1.27	-0.17	0.05	0.00	0.06
	(0.04)	(0.06)	(2.24)	(0.12)	(0.07)	(0.03)	(0.06)
Observations = 368,022 (for EITC) and 356,519 (for CTC)							
Mean D.V.	14.03	18.48	662.08	52.56	6.09	12.15	22.25

Notes: Binary outcomes are multiplied by 100, so coefficients are interpreted as percentage point effects. Hours, weeks, annual hours, occupational score, and SEI are in levels.

Table 5: Effects on EITC/CTC on Income Outcomes

	Wage Income	Self Emp Income	Total Personal Income	Hourly Wage	Total Family Income	Welfare Income	Received Any Welfare
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: MaxEITC (1,000 of 2022 $)							
EITC	477.87	58.15	901.20	0.28	1227.43	-29.18	-0.50
	(96.57)	(28.28)	(118.32)	(0.08)	(223.41)	(2.76)	(0.06)
Panel B: EITC Phase-In Rate (10 Pct Pts)							
EITC	786.94	100.55	1464.40	0.50	2060.01	-41.29	-0.69
	(148.46)	(46.58)	(182.49)	(0.14)	(354.28)	(3.80)	(0.10)
Panel C: Simulated EITC Benefits (100s of 2022 $)							
EITC	195.97	27.64	361.48	0.12	508.31	-9.68	-0.16
	(37.68)	(12.43)	(44.44)	(0.03)	(87.36)	(0.88)	(0.02)
Panel D: MaxCTC (1,000 of 2022 $)							
CTC	323.78	30.46	840.66	0.02	1376.08	-75.34	-1.13
	(102.92)	(30.23)	(109.45)	(0.22)	(223.47)	(5.28)	(0.09)
Panel E: CTC Phase-In Rate (10 Pct Pts)							
CTC	919.17	197.36	2146.58	0.48	3584.02	-104.78	-1.46
	(227.57)	(86.24)	(252.89)	(0.31)	(508.82)	(6.05)	(0.15)
Panel F: Simulated CTC Benefits (100s of 2022 $)							
CTC	-13.48	-19.45	71.36	-0.15	336.90	-36.52	-0.49
	(60.50)	(13.89)	(67.96)	(0.14)	(128.75)	(3.23)	(0.05)
Observations = 272,668 (for EITC) and 253,715 (for CTC)							
Mean D.V.	12776.3	714.0	16328.5	8.53	44511.2	139.9	4.65

Notes: Income outcomes are measured in 2022 dollars.

Table 6: Effects on EITC/CTC on Housing Traits and Living Doubled-Up

	Annual Housing Costs	Number of Bedrooms	Living Doubled Up	Living with Another Mother	Living with a Sibling	Renting	Bought in Last Year	Living in Multi-Family Housing	PUMA Density	Living in a City	Number of Vehicles
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Panel A: MaxEITC (1,000 of 2022 $)											
EITC	103.714	0.004	-0.718	-1.404	-0.196	0.520	0.061	0.244	2.735	0.311	0.021
	(27.741)	(0.003)	(0.136)	(0.156)	(0.067)	(0.177)	(0.071)	(0.151)	(1.185)	(0.124)	(0.004)
Panel B: EITC Phase-In Rate (10 Pct Pts)											
EITC	147.507	0.004	-1.150	-2.209	-0.268	0.669	0.068	0.215	2.983	0.355	0.036
	(42.888)	(0.004)	(0.211)	(0.242)	(0.106)	(0.275)	(0.110)	(0.232)	(1.858)	(0.195)	(0.007)
Panel C: Simulated EITC Benefits (100s of 2022 $)											
EITC	35.856	0.001	-0.290	-0.557	-0.057	0.165	0.011	0.061	0.793	0.098	0.009
	(10.924)	(0.001)	(0.053)	(0.061)	(0.027)	(0.070)	(0.027)	(0.058)	(0.464)	(0.049)	(0.002)
Panel D: MaxCTC (1,000 of 2022 $)											
CTC	110.458	0.021	-0.259	-0.472	0.189	0.778	-0.050	0.124	6.111	0.636	0.015
	(30.933)	(0.004)	(0.167)	(0.192)	(0.084)	(0.212)	(0.087)	(0.174)	(1.417)	(0.145)	(0.005)
Panel E: CTC Phase-In Rate (10 Pct Pts)											
CTC	228.879	0.005	-1.425	-2.442	-0.050	0.635	-0.072	-0.395	4.556	0.713	0.036
	(69.470)	(0.007)	(0.344)	(0.392)	(0.170)	(0.441)	(0.166)	(0.366)	(2.838)	(0.298)	(0.011)
Panel F: Simulated CTC Benefits (100s of 2022 $)											
CTC	32.782	0.007	0.187	0.193	0.052	0.135	-0.060	-0.070	2.821	0.333	0.004
	(17.707)	(0.002)	(0.089)	(0.103)	(0.037)	(0.115)	(0.060)	(0.100)	(0.751)	(0.076)	(0.003)
Observations = 272,668 (for EITC) and 253,715 (for CTC)											
Mean D.V.	6177.1	3.98	7.19	12.17	4.15	29.18	1.88	23.58	354.96	17.91	1.54

Notes: Income outcomes are measured in 2022 dollars.

Table 7: Effects of EITC/CTC Parameters on PUMA-Level Traits of Women's Residential Locations

	Mean Family Income (2022 $)	Emp Rate	SEI	Occ. Score	Poverty Rate	College Share	Married Share	Housing Costs	Received Welfare
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel A: MaxEITC (1,000 of 2022 $)									
EITC	164.415	0.044	0.069	0.031	-0.061	0.059	-0.003	19.928	-0.006
	(36.680)	(0.017)	(0.011)	(0.005)	(0.029)	(0.021)	(0.010)	(6.129)	(0.005)
Panel B: EITC Phase-In Rate (10 Pct Pts)									
EITC	207.552	0.051	0.092	0.041	-0.063	0.067	0.003	22.412	-0.006
	(56.465)	(0.026)	(0.017)	(0.007)	(0.045)	(0.033)	(0.015)	(9.484)	(0.007)
Panel C: Simulated EITC Benefits (100s of 2022 $)									
EITC	52.260	0.013	0.023	0.010	-0.015	0.017	-0.001	5.643	-0.001
	(14.027)	(0.007)	(0.004)	(0.002)	(0.011)	(0.008)	(0.004)	(2.361)	(0.002)
Panel D: MaxCTC (1,000 of 2022 $)									
CTC	225.859	0.071	0.088	0.040	-0.091	0.095	-0.029	30.733	-0.008
	(40.525)	(0.019)	(0.013)	(0.005)	(0.033)	(0.024)	(0.010)	(6.732)	(0.004)
Panel E: CTC Phase-In Rate (10 Pct Pts)									
CTC	244.366	0.042	0.123	0.057	-0.013	0.088	-0.016	23.668	0.008
	(79.102)	(0.040)	(0.025)	(0.010)	(0.069)	(0.052)	(0.021)	(13.693)	(0.009)
Panel F: Simulated CTC Benefits (100s of 2022 $)									
CTC	44.022	0.027	0.013	0.005	-0.036	0.031	-0.027	7.525	-0.000
	(22.735)	(0.011)	(0.007)	(0.003)	(0.019)	(0.014)	(0.006)	(3.815)	(0.003)
Observations = 272,668 (for EITC) and 253,715 (for CTC)									
Mean D.V.	44511.6	45.56	49.09	26.46	41.28	58.76	36.45	6198.9	4.46

Notes: Each outcome is a PUMA-level mean constructed using population weights. Percentage outcomes are expressed in percentage points. Monetary outcomes are in 2022 dollars.

Table 8: Effects of EITC/CTC Parameters on PUMA-Level Traits of Women's Residential Locations

	Mean Family Income (2022 $)	Emp Rate	SEI	Occ. Score	Poverty Rate	College Share	Married Share	Housing Costs	Received Welfare
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel A: MaxEITC (1,000 of 2022 $)									
EITC ×	439.0	0.211	0.168	0.072	-0.278	0.292	-0.136	87.070	-0.027
Moved	(70.8)	(0.035)	(0.022)	(0.009)	(0.059)	(0.044)	(0.019)	(12.259)	(0.009)
EITC ×	137.8	0.028	0.059	0.027	-0.040	0.036	0.010	13.413	-0.003
Not Moved	(37.2)	(0.017)	(0.011)	(0.005)	(0.029)	(0.022)	(0.010)	(6.214)	(0.005)
Panel B: EITC Phase-In Rate (10 Pct Pts)									
EITC ×	583.9	0.285	0.227	0.097	-0.360	0.399	-0.189	115.916	-0.038
Moved	(96.0)	(0.048)	(0.030)	(0.013)	(0.080)	(0.060)	(0.027)	(16.613)	(0.012)
EITC ×	172.6	0.029	0.080	0.036	-0.035	0.036	0.020	13.724	-0.003
Not Moved	(57.0)	(0.027)	(0.018)	(0.008)	(0.045)	(0.034)	(0.015)	(9.567)	(0.007)
Panel C: Simulated EITC Benefits (100s of 2022 $)									
EITC ×	165.5	0.080	0.063	0.027	-0.102	0.112	-0.053	32.858	-0.011
Moved	(27.0)	(0.014)	(0.008)	(0.004)	(0.023)	(0.017)	(0.007)	(4.669)	(0.003)
EITC ×	42.8	0.008	0.020	0.009	-0.008	0.009	0.004	3.373	-0.001
Not Moved	(14.2)	(0.007)	(0.004)	(0.002)	(0.011)	(0.009)	(0.004)	(2.384)	(0.002)
Panel D: MaxCTC (1,000 of 2022 $)									
CTC ×	252.1	0.123	0.089	0.040	-0.153	0.131	-0.060	42.639	-0.019
Moved	(82.1)	(0.035)	(0.026)	(0.011)	(0.061)	(0.043)	(0.019)	(13.247)	(0.009)
CTC ×	200.5	0.050	0.084	0.038	-0.067	0.077	-0.014	24.620	-0.003
Not Moved	(40.4)	(0.019)	(0.012)	(0.005)	(0.033)	(0.025)	(0.010)	(6.778)	(0.004)
Panel E: CTC Phase-In Rate (10 Pct Pts)									
CTC ×	498.848	0.263	0.175	0.080	-0.316	0.291	-0.128	91.375	-0.032
Moved	(207.420)	(0.093)	(0.065)	(0.027)	(0.163)	(0.117)	(0.049)	(34.026)	(0.024)
CTC ×	225.812	0.026	0.119	0.056	0.009	0.073	-0.007	18.732	0.011
Not Moved	(80.146)	(0.041)	(0.025)	(0.010)	(0.070)	(0.053)	(0.022)	(13.861)	(0.010)
Panel F: Simulated CTC Benefits (100s of 2022 $)									
CTC ×	80.200	0.054	0.021	0.009	-0.075	0.058	-0.040	16.914	-0.005
Moved	(33.434)	(0.016)	(0.010)	(0.004)	(0.027)	(0.020)	(0.008)	(5.521)	(0.004)
CTC ×	40.624	0.024	0.012	0.004	-0.032	0.028	-0.026	6.643	0.000
Not Moved	(22.847)	(0.011)	(0.007)	(0.003)	(0.019)	(0.014)	(0.006)	(3.839)	(0.003)
Observations = 272,668 (for EITC) and 253,715 (for CTC)									
Mean D.V.	44735.3	45.56	49.09	26.46	41.28	58.76	36.45	6198.9	4.46

Notes: Each outcome is a PUMA-level mean constructed using population weights. Percentage outcomes are expressed in percentage points. Monetary outcomes are in 2022 dollars. "Moved" indicates a residential PUMA change over the sample window.

Table 9: EITC/CTC Parameters as an IV for Average Group Credits, Impact on Labor Supply

Sample:	All Women				Unmarried Women			
Credit:	EITC		CTC		EITC		CTC	
Instrument:	Max	Phase-In Rate	Max	Phase-In Rate	Max	Phase-In Rate	Max	Phase-In Rate
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Outcome = Employed								
Credit ($100s)	0.493	0.528	0.307	0.390	0.559	0.568	0.587	0.622
	(0.049)	(0.050)	(0.041)	(0.048)	(0.079)	(0.079)	(0.121)	(0.133)
Panel B: Outcome = Working Not From Home								
Credit ($100s)	0.379	0.397	0.229	0.288	0.483	0.487	0.495	0.512
	(0.050)	(0.050)	(0.041)	(0.049)	(0.078)	(0.079)	(0.120)	(0.132)
Panel C: Outcome = Usual Weekly Work Hours								
Credit ($100s)	0.174	0.184	0.104	0.133	0.213	0.218	0.218	0.245
	(0.019)	(0.019)	(0.015)	(0.018)	(0.027)	(0.027)	(0.043)	(0.047)
Panel D: Outcome = Annual Work Weeks								
Credit ($100s)	0.230	0.251	0.162	0.204	0.282	0.295	0.317	0.356
	(0.024)	(0.025)	(0.020)	(0.024)	(0.038)	(0.039)	(0.059)	(0.066)
Panel E: Outcome = Annual Work Hours								
Credit ($100s)	8.096	8.731	5.279	6.976	9.190	9.585	10.267	12.008
	(0.944)	(0.965)	(0.790)	(0.949)	(1.330)	(1.342)	(2.089)	(2.336)
Panel F: Outcome = Positive Wage Earnings								
Credit ($100s)	0.352	0.387	0.225	0.283	0.515	0.537	0.553	0.593
	(0.049)	(0.050)	(0.041)	(0.048)	(0.079)	(0.078)	(0.121)	(0.132)
Panel G: Outcome = Positive Self-Employment Earnings								
Credit ($100s)	0.136	0.132	0.088	0.100	0.099	0.088	0.068	0.065
	(0.023)	(0.023)	(0.019)	(0.023)	(0.035)	(0.034)	(0.048)	(0.053)
Panel H: Outcome = Unemployment								
Credit ($100s)	-0.158	-0.178	-0.115	-0.129	-0.121	-0.146	-0.175	-0.163
	(0.028)	(0.028)	(0.024)	(0.027)	(0.055)	(0.053)	(0.085)	(0.088)
Panel I: Outcome = Occupational Score								
Credit ($100s)	0.121	0.128	0.067	0.086	0.141	0.145	0.140	0.155
	(0.014)	(0.014)	(0.012)	(0.014)	(0.019)	(0.019)	(0.030)	(0.033)
Panel J: Outcome = SEI								
Credit ($100s)	0.178	0.185	0.101	0.127	0.184	0.188	0.202	0.213
	(0.026)	(0.027)	(0.022)	(0.026)	(0.035)	(0.035)	(0.054)	(0.060)
Observations = 272,668 (for Full Sample) and 94,395 (for High-Impact Sample)								

Notes: Income outcomes are measured in 2022 dollars.

Table 10: EITC/CTC Parameters as an IV for Average Group Credits, Impact on Income Sources

Sample:	All Women				Unmarried Women			
Credit:	EITC		CTC		EITC		CTC	
Instrument:	Max	Phase-In Rate	Max	Phase-In Rate	Max	Phase-In Rate	Max	Phase-In Rate
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Outcome = Wage Earnings								
Credit ($100s)	127.4	137.8	81.7	109.8	60.3	65.7	103.2	110.4
	(25.8)	(26.1)	(21.1)	(24.8)	(16.6)	(17.3)	(31.7)	(31.7)
Panel B: Outcome = Self-Employment Earnings								
Credit ($100s)	15.5	17.6	8.3	21.2	9.5	7.7	1.8	4.5
	(7.5)	(8.2)	(6.3)	(9.5)	(5.7)	(6.2)	(9.0)	(12.5)
Panel C: Outcome = Imputed EITC + CTC Benefits								
Credit ($100s)	184.3	188.7	160.5	165.9	147.7	150.4	200.5	208.4
	(3.0)	(2.8)	(2.1)	(2.2)	(5.0)	(4.6)	(6.5)	(6.4)
Panel D: Outcome = Total Income								
Credit ($100s)	240.7	256.8	188.5	228.5	174.4	183.4	248.1	270.3
	(31.8)	(32.2)	(22.5)	(27.0)	(22.2)	(23.0)	(36.8)	(37.6)
Panel E: Outcome = Total Family Income								
Credit ($100s)	327.8	361.2	319.2	380.6	128.9	172.6	258.6	363.1
	(60.0)	(62.4)	(45.5)	(54.4)	(56.7)	(63.2)	(86.9)	(109.5)
Panel F: Outcome = Receiving Welfare								
Credit ($100s)	-0.134	-0.122	-0.272	-0.173	-0.222	-0.200	-0.730	-0.458
	(0.017)	(0.017)	(0.018)	(0.016)	(0.035)	(0.033)	(0.062)	(0.054)
Panel G: Outcome = Welfare Received								
Credit ($100s)	-7.78	-7.23	-18.90	-12.07	-12.22	-11.34	-51.71	-32.14
	(0.74)	(0.67)	(0.96)	(0.65)	(1.53)	(1.35)	(3.42)	(2.06)
Observations = 272,668 (for Full Sample) and 94,395 (for High-Impact Sample)								

Notes: Income and welfare outcomes are measured in 2022 dollars.

Table 11: EITC/CTC Parameters as an IV for Average Group Credits, Impact on Housing Outcomes

Sample:	All Women				Unmarried Women			
Credit:	EITC		CTC		EITC		CTC	
Instrument:	Max	Phase-In Rate	Max	Phase-In Rate	Max	Phase-In Rate	Max	Phase-In Rate
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Outcome = Annual Housing Cost								
Credit ($100s)	28.9	27.5	28.5	27.7	27.3	27.5	47.6	50.3
	(7.3)	(7.4)	(6.1)	(7.5)	(10.1)	(10.1)	(15.0)	(18.1)
Panel B: Outcome = Living Doubled Up with Another Family								
Credit ($100s)	-0.19	-0.20	-0.09	-0.17	-0.27	-0.26	-0.24	-0.33
	(0.04)	(0.04)	(0.03)	(0.04)	(0.06)	(0.06)	(0.10)	(0.11)
Panel C: Outcome = Having 3 or More Bedrooms								
Credit ($100s)	0.12	0.12	0.14	0.12	0.21	0.19	0.38	0.27
	(0.03)	(0.04)	(0.03)	(0.04)	(0.06)	(0.07)	(0.10)	(0.12)
Panel D: Outcome = Living in a Household with at Least 2 Mothers								
Credit ($100s)	-0.37	-0.39	-0.19	-0.29	-0.60	-0.59	-0.73	-0.82
	(0.04)	(0.04)	(0.04)	(0.04)	(0.07)	(0.07)	(0.12)	(0.12)
Panel E: Outcome = Renting								
Credit ($100s)	0.14	0.12	0.13	0.09	0.21	0.20	0.31	0.24
	(0.05)	(0.05)	(0.04)	(0.05)	(0.08)	(0.08)	(0.12)	(0.13)
Panel F: Outcome = Density								
Credit ($100s)	0.91	0.75	1.11	0.89	0.28	0.24	0.59	0.26
	(0.29)	(0.30)	(0.25)	(0.28)	(0.51)	(0.51)	(0.82)	(0.80)
Panel G: Outcome = Lives in a City								
Credit ($100s)	0.10	0.08	0.13	0.10	0.03	0.03	0.11	0.05
	(0.03)	(0.03)	(0.03)	(0.03)	(0.05)	(0.05)	(0.08)	(0.09)
Panel H: Outcome = Number of Vehicles								
Credit ($100s)	0.55	0.62	0.33	0.41	0.87	0.98	0.99	1.17
	(0.12)	(0.12)	(0.09)	(0.12)	(0.19)	(0.20)	(0.28)	(0.32)
Observations = 272,668 (for Full Sample) and 94,395 (for High-Impact Sample)								

Notes: Housing cost outcomes are measured in 2022 dollars.

Table 12: EITC/CTC Parameters as IV for Average Group Credits, Impact on PUMA-Level Traits

Sample:	All Women				Unmarried Women			
Credit:	EITC		CTC		EITC		CTC	
Instrument:	Max	Phase-In Rate	Max	Phase-In Rate	Max	Phase-In Rate	Max	Phase-In Rate
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Outcome = Average Family Income								
Credit ($100s)	50.134	44.501	45.435	39.264	18.342	14.350	35.231	14.681
	(9.065)	(9.179)	(7.474)	(8.186)	(14.323)	(14.141)	(21.459)	(21.403)
Panel B: Outcome = Employment Rate								
Credit ($100s)	0.015	0.013	0.014	0.011	0.003	0.002	0.015	0.005
	(0.004)	(0.004)	(0.003)	(0.004)	(0.006)	(0.006)	(0.009)	(0.010)
Panel C: Outcome = Mean Socioeconomic Index (SEI)								
Credit ($100s)	0.020	0.018	0.018	0.017	0.013	0.012	0.018	0.012
	(0.003)	(0.003)	(0.002)	(0.003)	(0.005)	(0.005)	(0.007)	(0.007)
Panel D: Outcome = Mean Occupational Score								
Credit ($100s)	0.009	0.008	0.008	0.008	0.006	0.005	0.008	0.005
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.003)	(0.003)
Panel E: Outcome = Poverty Rate								
Credit ($100s)	-0.022	-0.018	-0.019	-0.012	-0.004	-0.002	-0.026	-0.008
	(0.007)	(0.007)	(0.006)	(0.007)	(0.011)	(0.011)	(0.016)	(0.018)
Panel F: Outcome = Fraction with College Degree								
Credit ($100s)	0.019	0.015	0.018	0.015	0.010	0.007	0.022	0.009
	(0.005)	(0.005)	(0.004)	(0.005)	(0.008)	(0.008)	(0.013)	(0.014)
Panel G: Outcome = Married Fraction								
Credit ($100s)	-0.002	-0.001	-0.005	-0.003	-0.001	-0.001	-0.001	0.001
	(0.002)	(0.003)	(0.002)	(0.002)	(0.004)	(0.004)	(0.006)	(0.006)
Panel H: Outcome = Mean Housing Cost								
Credit ($100s)	6.460	5.408	6.101	4.744	2.115	1.500	5.095	1.614
	(1.485)	(1.509)	(1.243)	(1.402)	(2.401)	(2.374)	(3.606)	(3.748)
Panel I: Outcome = Fraction Receiving Welfare								
Credit ($100s)	-0.002	-0.002	-0.001	-0.000	-0.004	-0.004	-0.005	-0.002
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)
Observations = 272,668 (for Full Sample) and 94,395 (for High-Impact Sample)								

Notes: Outcomes are PUMA-level averages for the location where families reside. Monetary outcomes are measured in 2022 dollars.

Table 13: EITC/CTC as IV for Avg. Group Credits, Impact on Standardized PUMA-Level Traits

Sample:	All Women				Unmarried Women			
Credit:	EITC		CTC		EITC		CTC	
Instrument:	Max	Phase-In Rate	Max	Phase-In Rate	Max	Phase-In Rate	Max	Phase-In Rate
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Outcome = Average Standardized Trait								
Credit ($100s)	0.357	0.314	0.323	0.268	0.189	0.161	0.358	0.164
	(0.070)	(0.071)	(0.058)	(0.066)	(0.111)	(0.110)	(0.165)	(0.175)
Panel B: Outcome = Average Family Income (Standardized)								
Credit ($100s)	0.413	0.366	0.374	0.323	0.151	0.118	0.290	0.121
	(0.075)	(0.076)	(0.062)	(0.067)	(0.118)	(0.116)	(0.177)	(0.176)
Panel C: Outcome = Employment Rate (Standardized)								
Credit ($100s)	0.314	0.274	0.289	0.226	0.066	0.042	0.322	0.105
	(0.084)	(0.086)	(0.070)	(0.083)	(0.137)	(0.136)	(0.201)	(0.219)
Panel D: Outcome = Mean Socioeconomic Index (Standardized)								
Credit ($100s)	0.538	0.492	0.478	0.458	0.356	0.321	0.480	0.309
	(0.078)	(0.079)	(0.064)	(0.071)	(0.123)	(0.123)	(0.185)	(0.189)
Panel E: Outcome = Mean Occupational Score (Standardized)								
Credit ($100s)	0.539	0.495	0.488	0.466	0.347	0.315	0.461	0.304
	(0.076)	(0.077)	(0.061)	(0.066)	(0.119)	(0.118)	(0.174)	(0.174)
Panel F: Outcome = Poverty Rate (Standardized)								
Credit ($100s)	-0.268	-0.221	-0.237	-0.148	-0.051	-0.026	-0.317	-0.105
	(0.084)	(0.086)	(0.072)	(0.084)	(0.134)	(0.134)	(0.202)	(0.221)
Panel G: Outcome = Fraction with College Degree (Standardized)								
Credit ($100s)	0.304	0.252	0.302	0.246	0.157	0.120	0.359	0.147
	(0.085)	(0.087)	(0.072)	(0.085)	(0.137)	(0.137)	(0.211)	(0.229)
Panel H: Outcome = Mean Housing Cost (Standardized)								
Credit ($100s)	0.344	0.288	0.325	0.253	0.113	0.080	0.272	0.086
	(0.079)	(0.080)	(0.066)	(0.075)	(0.128)	(0.127)	(0.192)	(0.200)
Panel I: Outcome = Fraction Receiving Welfare (Standardized)								
Credit ($100s)	-0.141	-0.121	-0.086	-0.027	-0.275	-0.263	-0.363	-0.133
	(0.085)	(0.086)	(0.058)	(0.068)	(0.131)	(0.131)	(0.164)	(0.178)
Observations = 272,668 (for Full Sample) and 94,395 (for High-Impact Sample)								

Notes: Outcomes are PUMA-level averages for the location where families reside. Monetary outcomes are measured in 2022 dollars.

Appendix

Description of Variables

Age: Respondents age, limited to ages 18 to 59. Source: IPUMS USA 'AGE'.
Income: Respondent's total pre-tax wage and salary income for the previous year. Source: IPUMS USA 'INCWAGE'.
Education: Number of years of schooling, where no schooling denotes 0, nursery school to grade 4 denotes 2.5, grades 5-8 denotes 6.5, each higher grade increasing by one until 12; 1 year of college denotes 13, up to 5+ years of education denoting 17. Source: IPUMS USA 'EDUC'.
Employed: Binary variable indicating if respondent was a part of the labor force. Source: IPUMS USA 'EMPSTAT'.
Number of Children: Number of own children residing with each respondent. Source: IPUMS USA 'NCHILD'.
One Child: Binary variable indicating that one child resides with the respondent. Source: IPUMS USA 'NCHILD'.
2 Children: Binary variable indicating that two children reside with the respondent. Source: IPUMS USA 'NCHILD'.
3 or More Children: Binary variable indicating that three or more children reside with the respondent. Source: IPUMS USA 'NCHILD'.
No Children: Binary variable indicating that no children reside with the respondent. Source: IPUMS USA 'NCHILD'.
Would Qualify for 2023 EITC: Binary variable determining if respondent would have received EITC credit based on the 2023 guidelines, calculated based on number of children and wage. Source: IPUMS USA 'NCHILD', 'INCWAGE'.
Would Qualify for 2023 CTC: Binary variable determining if respondent would have received CTC credit based on the 2023 guidelines, calculated similarly. Source: IPUMS USA 'NCHILD', 'INCWAGE'.
Received Welfare: Binary variable determining if respondents received federal/state Supplemental Security Income (SSI) payments to elderly, blind, or disabled persons, AFDC, and GA. Source: IPUMS USA 'INCWELFR'.
Received Food Stamps: Binary variable determining whether anyone in the household received Food Stamps. Source: IPUMS USA 'FOODSTMP'.

Self Employed: Binary variable determining if respondent is self employed. Source: IPUMS USA 'CLASSWKR'.

Family Size: Number of own family members residing with respondent, including the person himself. Source: IPUMS USA 'FAMSIZE'.

Metropolitan: Binary variable determining if respondent resides in a metropolitan area as defined in 2013. Source: IPUMS USA 'MET2013'.

Attended College: Binary variable determining if respondent went to college regardless of the degree earned. Source: IPUMS USA 'EDUC'.

At Most 12 Years of Schooling: Binary variable determining if respondent attended at most grade 12. Source: IPUMS USA 'EDUC'.

Below Poverty Line: Binary variable determining if respondents family is below the poverty line. Source: IPUMS USA 'POVERTY'.

Income from Investments: Pre-tax money respondent received or lost during the previous year in the form of income from an estate or trust, interest, dividends, royalties, and rents received, adjusted for inflation. Source: IPUMS USA 'INCINVST'.

Total Personal Income or Losses: Respondent's total pre-tax personal income or losses from all sources for the previous year, adjusted for inflation. Source: IPUMS USA 'INCTOT'.

Social Security Income: Pre-tax income the respondent received from Social Security pensions, survivors benefits, or permanent disability insurance, and U.S. government Railroad Retirement insurance payments during the previous year, adjusted for inflation. Source: IPUMS USA 'INCSS'.

Self Employment Income: Respondent's net pre-income-tax non-farm business and/or professional practice income for the previous calendar year, adjusted for inflation. Source: IPUMS USA 'INCBUS'.

Earned Income from Business or Farm: Respondents income earned from wages or a person's own business or farm for the previous year, adjusted for inflation. Source: IPUMS USA 'INCEARN'.

Retirement Income: Pre-tax retirement, survivor, and disability pension income, other than Social Security, received during the previous year, adjusted for inflation. Source: IPUMS USA 'INCRETIR'.

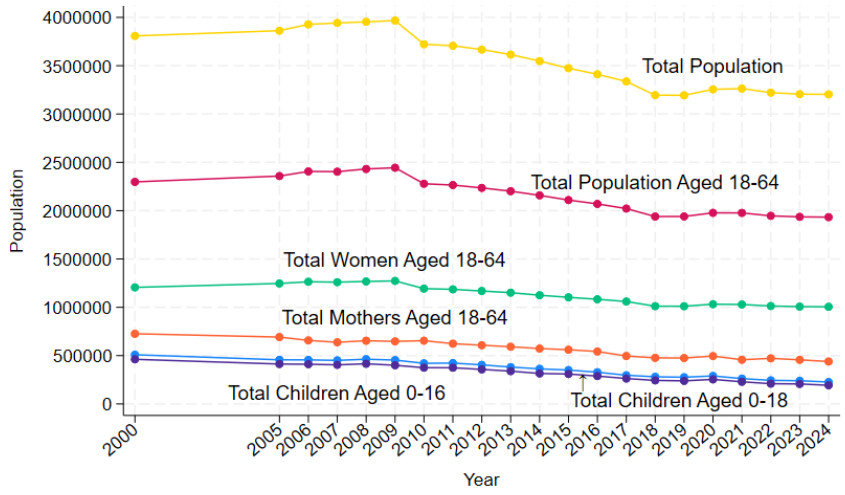
Supplemental Security Income: Pre-tax income the respondent received from Supplemental Security Income (SSI) during the previous year, adjusted for inflation. Source: IPUMS USA 'INCSUPP'.

Welfare Income: Pre-tax income the respondent received during the previous year from various public assistance programs commonly referred to as "welfare", adjusted for inflation. Source: IPUMS USA 'INCWELFR'

Other Income Received: Respondent's total income or losses not included in the other IPUMS person-record income variables, adjusted for inflation. Source: IPUMS USA 'INCOTHER'.
Total Family Income: Pre-tax money income earned by respondents family from all sources for the previous year, adjusted for inflation. Source: IPUMS USA 'FTOTINC'.
Total Income of All Household Members Age 15+: Total income of all household members of respondent age 15+ during the previous year, adjusted for inflation. Source: IPUMS USA 'HHINCOME'.

Appendix Figures and Tables

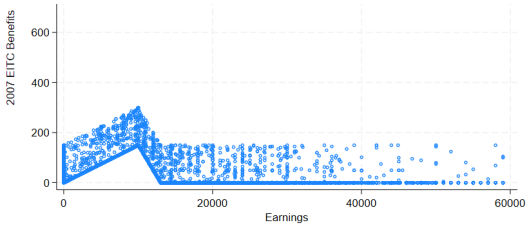
Figure A.1: **Population Trends in Puerto Rico**



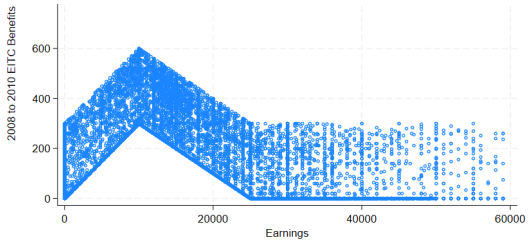
Source: The figure presents weighted counts from IPUMS USA PRCS data.

Figure A.2: **Puerto Rico EITC Schedules (Nominal $)**

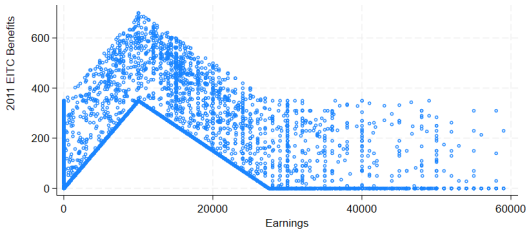
(a) **2007**



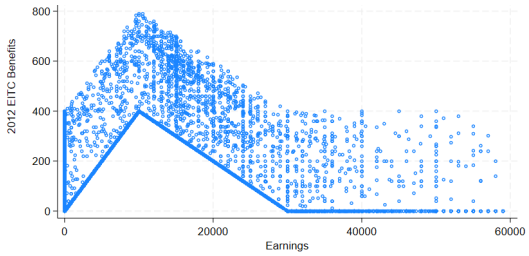
(b) **2008–2010**



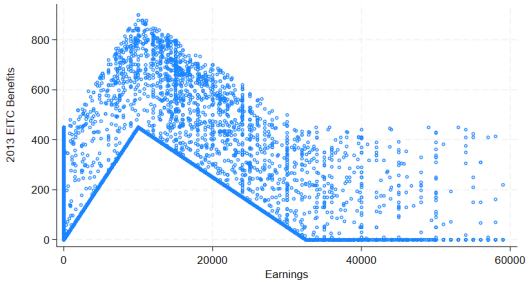
(c) **2011**



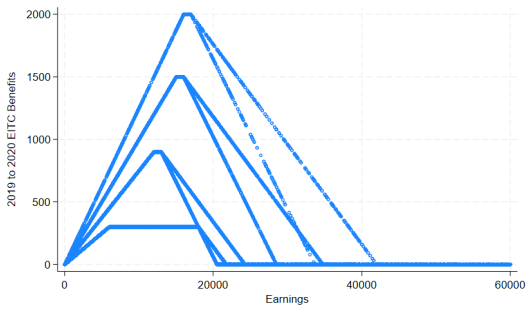
(d) **2012**



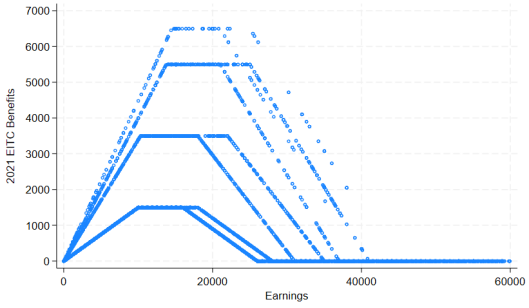
(e) **2013**



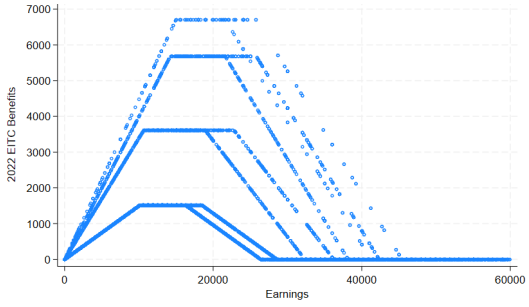
(f) **2019–2020**



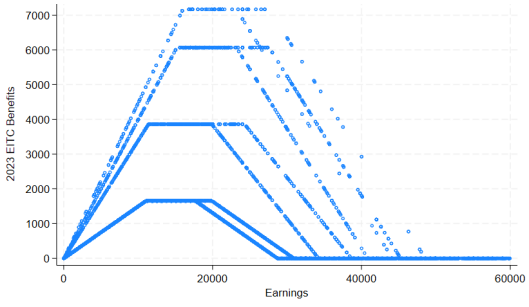
(g) **2021**



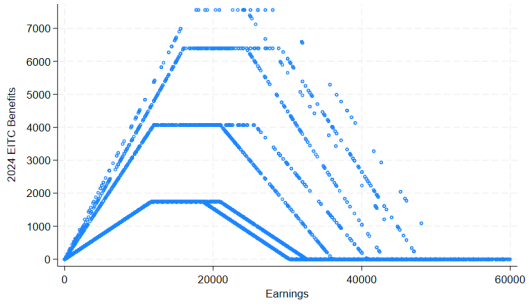
(h) **2022**



(i) **2023**



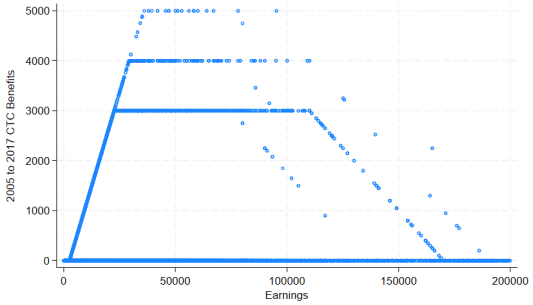
(j) **2024**



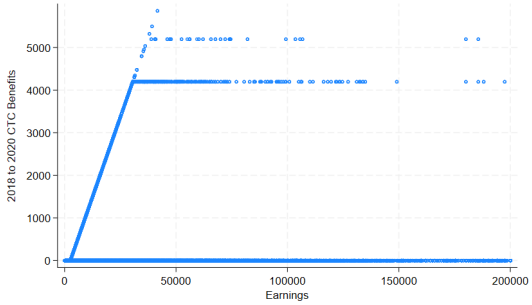
Notes: Each panel plots imputed nominal EITC benefits per observation per sample year.

Figure A.3: **Puerto Rico CTC Schedules (Nominal $)**

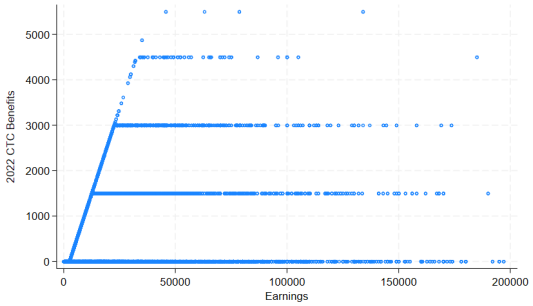
(a) **2005–2017**



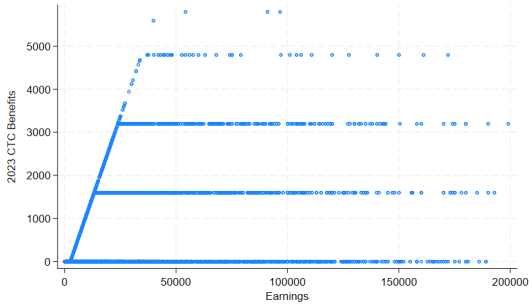
(b) **2018–2020**



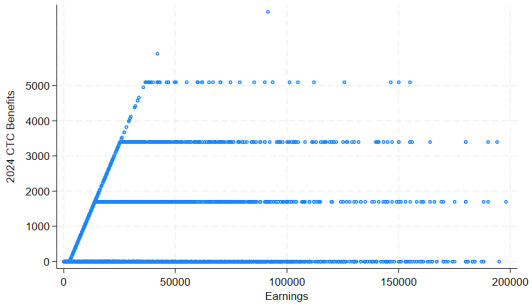
(c) **2022**



(d) **2023**

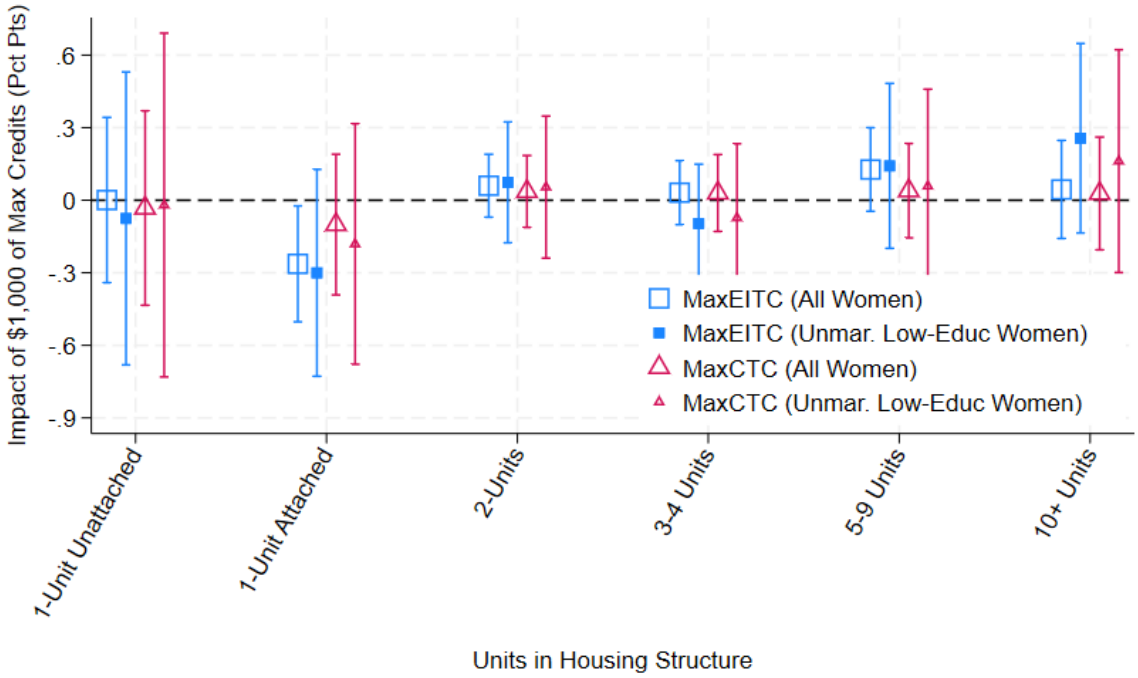


(e) **2024**



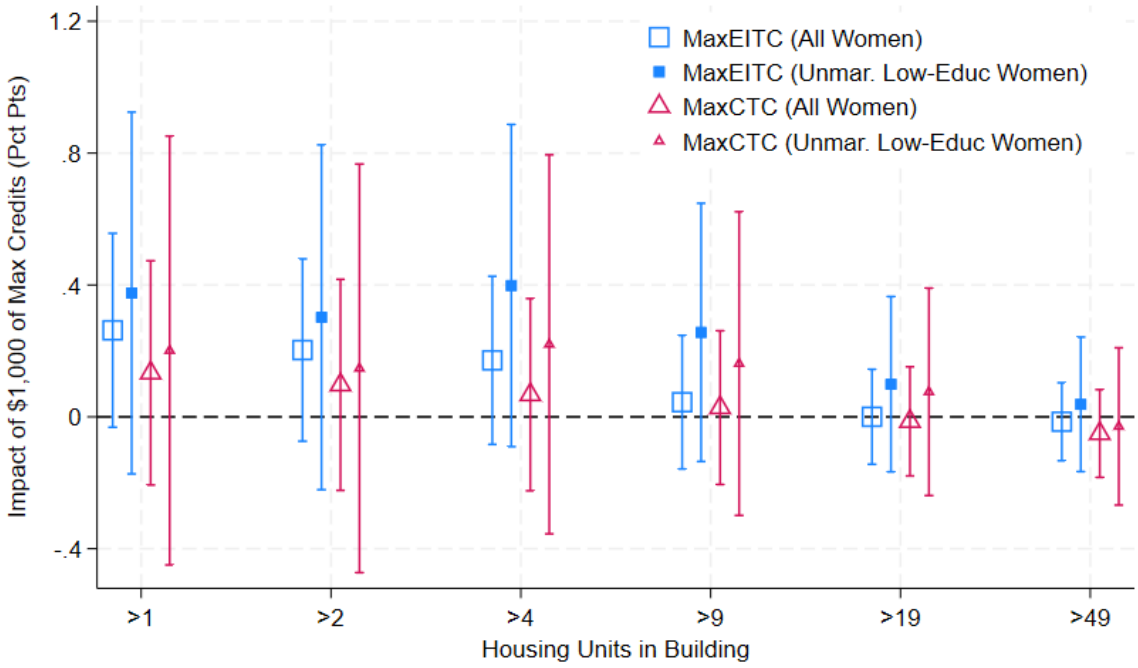
Notes: Each panel plots imputed nominal CTC benefits per observation per sample year.

Figure A.4: **Impact of EITC/CTC on Housing Units**



Source: Author's calculation using IPUMS USA PRCS data. Sample is all women ages 21 and older.

Figure A.5: **Impact of EITC/CTC on Distribution of Housing Units**



Source: Author's calculation using IPUMS USA PRCS data. Sample is all women ages 21 and older.

Table A.1: Puerto Rico EITC Parameters for Unmarried Filers, 2001–2024

Year	2001–06	2007	2008–10	2011	2012	2013	2014–18	2019–20	2021	2022	2023	2024
Panel A: Income of Phase-In Start												
All Groups	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Panel B: Phase-In Rate												
0 Children	0%	1.5%	3%	3.5%	4%	4.5%	0%	5%	15%	15%	15%	15%
1 Child	0%	1.5%	3%	3.5%	4%	4.5%	0%	7.5%	33.98%	33.98%	33.98%	33.98%
2 Children	0%	1.5%	3%	3.5%	4%	4.5%	0%	10%	40%	40%	40%	40%
3+ Children	0%	1.5%	3%	3.5%	4%	4.5%	0%	12.5%	44.83%	44.83%	44.83%	44.83%
Panel C: Income at Plateau Start												
0 Children	$0	$10,000	$10,000	$10,000	$10,000	$10,000	$0	$6,000	$10,000	$10,114	$11,041	$11,634
1 Child	$0	$10,000	$10,000	$10,000	$10,000	$10,000	$0	$12,000	$10,301	$10,639	$11,372	$11,981
2 Children	$0	$10,000	$10,000	$10,000	$10,000	$10,000	$0	$15,000	$13,750	$14,210	$15,180	$16,000
3+ Children	$0	$10,000	$10,000	$10,000	$10,000	$10,000	$0	$16,000	$14,500	$14,961	$16,001	$16,871
Panel D: Income at Plateau End												
0 Children	$0	$10,000	$10,000	$10,000	$10,000	$10,000	$0	$18,000	$16,000	$16,280	$17,660	$18,610
1 Child	$0	$10,000	$10,000	$10,000	$10,000	$10,000	$0	$13,000	$18,000	$18,910	$19,870	$20,940
2 Children	$0	$10,000	$10,000	$10,000	$10,000	$10,000	$0	$16,000	$21,000	$21,610	$23,180	$24,430
3+ Children	$0	$10,000	$10,000	$10,000	$10,000	$10,000	$0	$17,000	$21,000	$21,610	$23,180	$24,430
Panel E: Phase-Out Rate												
0 Children	0%	5%	3%	2%	2%	2%	0%	12%	15%	15%	15%	15%
1 Child	0%	5%	3%	2%	2%	2%	0%	12%	26.92%	26.92%	26.92%	26.92%
2 Children	0%	5%	3%	2%	2%	2%	0%	12%	34.38%	34.38%	34.38%	34.38%
3+ Children	0%	5%	3%	2%	2%	2%	0%	12%	34.21%	34.21%	34.21%	34.21%
Panel F: Income at End of Phase-Out												
0 Children	$0	$13,000	$20,000	$22,500	$25,000	$27,500	$0	$20,500	$26,000	$26,500	$28,700	$30,240
1 Child	$0	$13,000	$20,000	$22,500	$25,000	$27,500	$0	$20,500	$31,000	$32,334	$34,222	$36,062
2 Children	$0	$13,000	$20,000	$22,500	$25,000	$27,500	$0	$28,500	$37,000	$38,484	$40,841	$29,080
3+ Children	$0	$13,000	$20,000	$22,500	$25,000	$27,500	$0	$33,500	$44,000	$41,593	$44,147	$29,080

Notes: Values reflect the Earned Income Tax Credit (EITC) parameters for single tax filers with 0–3+ qualifying children from 2001 to 2024. Dollar amounts are nominal. Phase-in and phase-out rates are marginal subsidy/tax rates applied during earnings intervals. All values are rounded to the nearest dollar.

Table A.2: Puerto Rico EITC Parameters for Married Filers, 2001–2024

Year	2001–06	2007	2008–10	2011	2012	2013	2014–18	2019–20	2021	2022	2023	2024
Panel A: Income of Phase-In Start												
All Groups	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Panel B: Phase-In Rate												
0 Children	0%	1.5%	3%	3.5%	4%	4.5%	0%	5%	15%	15%	15%	15%
1 Child	0%	1.5%	3%	3.5%	4%	4.5%	0%	7.5%	33.98%	33.98%	33.98%	33.98%
2 Children	0%	1.5%	3%	3.5%	4%	4.5%	0%	10%	40%	40%	40%	40%
3+ Children	0%	1.5%	3%	3.5%	4%	4.5%	0%	12.5%	44.83%	44.83%	44.83%	44.83%
Panel C: Income at Plateau Start												
0 Children	$0	$10,000	$10,000	$10,000	$10,000	$10,000	$0	$6,000	$10,000	$10,114	$11,041	$11,634
1 Child	$0	$10,000	$10,000	$10,000	$10,000	$10,000	$0	$12,000	$10,301	$10,639	$11,372	$11,981
2 Children	$0	$10,000	$10,000	$10,000	$10,000	$10,000	$0	$15,000	$13,750	$14,210	$15,180	$16,000
3+ Children	$0	$10,000	$10,000	$10,000	$10,000	$10,000	$0	$16,000	$14,500	$14,961	$16,001	$16,871
Panel D: Income at Plateau End												
0 Children	$0	$10,000	$10,000	$10,000	$10,000	$10,000	$0	$18,000	$18,000	$18,470	$19,870	$20,940
1 Child	$0	$10,000	$10,000	$10,000	$10,000	$10,000	$0	$13,000	$22,000	$22,790	$24,280	$25,590
2 Children	$0	$10,000	$10,000	$10,000	$10,000	$10,000	$0	$16,000	$25,000	$25,790	$27,590	$29,080
3+ Children	$0	$10,000	$10,000	$10,000	$10,000	$10,000	$0	$17,000	$25,000	$25,790	$27,590	$29,080
Panel E: Phase-Out Rate CHECK THESE XXXX												
0 Children	0%	5%	3%	3xx%	3xx%	3xx%	0%	8%	15%	15%	15%	15%
1 Child	0%	5%	3%	3%	3%	3%	0%	8%	26.92%	26.92%	26.92%	26.92%
2 Children	0%	5%	3%	3%	3%	3%	0%	8%	34.38%	34.38%	34.38%	34.38%
3+ Children	0%	5%	3%	3%	3%	3%	0%	8%	34.12%	34.21%	34.21%	34.21%
Panel F: Income at End of Phase-Out												
0 Children	$0	$13,000	$20,000	$22,500	$25,000	$27,500	$0	$21,570	$28,000	$28,690	$30,910	$32,570
1 Child	$0	$13,000	$20,000	$22,500	$25,000	$27,500	$0	$24,250	$35,000	$36,514	$38,632	$40,712
2 Children	$0	$13,000	$20,000	$22,500	$25,000	$27,500	$0	$34,750	$41,000	$42,322	$45,251	$47,695
3+ Children	$0	$13,000	$20,000	$22,500	$25,000	$27,500	$0	$42,000	$44,000	$45,395	$48,557	$51,187

Notes: Values reflect the Earned Income Tax Credit (EITC) parameters for married tax filers with 0–3+ qualifying children from 2001 to 2024. Dollar amounts are nominal. Phase-in and phase-out rates are marginal subsidy/tax rates applied during earnings intervals. All values are rounded to the nearest dollar.

Table A.3: CTC Parameters for Unmarried Filers, 2001–2024

Year	2001–02	2003–04	2005–17	2018–20	2021	2022	2023	2024
Panel A: Income of Phase-In Start								
All Groups	$2,500	$2,500	$2,500	$2,500	–	$2,500	$2,500	$2,500
Panel B: Phase-In Rate								
0 Children	–	–	–	–	–	–	–	–
1 Child	–	–	–	–	–	15%	15%	15%
2 Children	–	–	–	–	–	15%	15%	15%
3+ Children	10%	10%	15%	15%	–	15%	15%	15%
Panel C: Income at Plateau Start								
0 Children	–	–	–	–	–	–	–	–
1 Child	–	–	–	–	–	$12,500	$13,167	$13,834
2 Children	–	–	–	–	–	$22,500	$23,834	$25,166
3 Children	$8,500	$12,500	$22,500	$30,500	–	$32,500	$34,500	$36,500
4 Children	$18,500	$22,500	$29,167	$37,167	–	$39,167	$41,167	$43,167
5 Children	$28,500	$32,500	$35,833	$43,833	–	$45,833	$47,833	$49,833
Panel D: Income at Plateau End								
0 Children	–	–	–	–	–	–	–	–
1 Child	–	–	–	–	$112,500	$200,000	$200,000	$200,000
2 Children	–	–	–	–	$112,500	$200,000	$200,000	$200,000
3+ Children	$75,000	$75,000	$75,000	$200,000	$112,500	$200,000	$200,000	$200,000
Panel E: Phase-Out Rate								
0 Children	–	–	–	–	–	–	–	–
1 Child	–	–	–	–	5%	5%	5%	5%
2 Children	–	–	–	–	5%	5%	5%	5%
3+ Children	5%	5%	5%	5%	5%	5%	5%	5%
Panel F: Income at End of Phase-Out								
0 Children	–	–	–	–	–	–	–	–
1 Child	–	–	–	–	$172,500	$230,000	$232,000	$234,000
2 Children	–	–	–	–	$232,500	$260,000	$264,000	$268,000
3 Children	$111,000	$135,000	$135,000	$284,000	$292,500	$290,000	$296,000	$302,000
4 Children	$131,000	$155,000	$155,000	$304,000	$312,500	$310,000	$316,000	$322,000
5 Children	$151,000	$175,000	$175,000	$324,000	$332,500	$330,000	$336,000	$342,000

Notes: Table shows Child Tax Credit (CTC) parameters for unmarried filers with 0–5 children, 2001–2024. Dashes indicate inapplicability or no policy in effect for a given group. All dollar amounts are nominal. Phase-in thresholds and rates reflect minimum income needed to receive the full credit. All values are rounded to the nearest dollar. 2021 CTC did not phase-in and the full benefits were provided to all families with income below the phase-out thresholds.

Table A.4: CTC Parameters for Married Filers, 2001–2024

Year	**2001-02**	**2003-04**	**2005–17**	**2018-20**	**2021**	**2022**	**2023**	**2024**
Panel A: Income of Phase-In Start								
All Groups	$2,500	$2,500	$2,500	$2,500	$0	$2,500	$2,500	$2,500
Panel B: Phase-In Rate								
0 Children	–	–	–	–	–	–	–	–
1 Child	0%	0%	0%	0%	–	15%	15%	15%
2 Children	0%	0%	0%	0%	–	15%	15%	15%
3+ Children	10%	10%	15%	15%	–	15%	15%	15%
Panel C: Income at Plateau Start								
0 Children	–	–	–	–	–	–	–	–
1 Child	–	–	–	–	–	$12,500	$13,167	$13,834
2 Children	–	–	–	–	–	$22,500	$23,834	$25,166
3 Children	$8,500	$12,500	$22,500	$30,500	–	$32,500	$34,500	$36,500
4 Children	$18,500	$22,500	$29,167	$37,167	–	$39,167	$41,167	$43,167
5 Children	$28,500	$32,500	$35,833	$43,833	–	$45,833	$47,833	$49,833
Panel D: Income at Plateau End								
0 Children	–	–	–	–	–	–	–	–
1 Child	–	–	–	–	$150,000	$400,000	$400,000	$400,000
2 Children	–	–	–	–	$150,000	$400,000	$400,000	$400,000
3+ Children	$110,000	$110,000	$110,000	$400,000	$150,000	$400,000	$400,000	$400,000
Panel E: Phase-Out Rate								
0 Children	–	–	–	–	–	–	–	–
1 Child	–	–	–	–	5%	5%	5%	5%
2 Children	–	–	–	–	5%	5%	5%	5%
3+ Children	5%	5%	5%	5%	5%	5%	5%	5%
Panel F: Income at End of Phase-Out								
0 Children	–	–	–	–	–	–	–	–
1 Child	$0	$0	$0	$0	$210,000	$430,000	$432,000	$434,000
2 Children	$0	$0	$0	$0	$270,000	$460,000	$464,000	$468,000
3 Children	$146,000	$170,000	$170,000	$484,000	$330,000	$490,000	$496,000	$502,000
4 Children	$166,000	$190,000	$190,000	$504,000	$350,000	$510,000	$516,000	$522,000
5 Children	$186,000	$210,000	$210,000	$524,000	$370,000	$530,000	$536,000	$542,000

Notes: Table shows Child Tax Credit (CTC) parameters for unmarried filers with 0–5 children, 2001–2024. Dashes indicate inapplicability or no policy in effect for a given group. All dollar amounts are nominal. Phase-in thresholds and rates reflect minimum income needed to receive the full credit. All values are rounded to the nearest dollar. 2021 CTC did not phase-in and the full benefits were provided to all families with income below the phase-out thresholds.