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CHILD-BASED REFUNDABLE TAX CREDITS AND EMPLOYMENT PATTERNS AMONGST LOW-SKILLED MARRIED COUPLES: EVIDENCE FROM THE 2001 US TAX REFORMS

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ABSTRACT

Over the past twenty-five years, federal assistance to low-income families in the United States has evolved from a system based primarily on cash entitlements to one favouring in-work tax credits, most notably the Earned Income Tax Credit (EITC) and Child Tax Credit (CTC). Given that the EITC is the largest federal anti-poverty programme and the CTC is the largest federal tax credit to households with children, it is imperative to analyse whether these programmes achieve their stated objectives of increasing labour force attachment amongst low-income families. Whereas a rich literature concludes that in-work tax credits increase employment amongst lone mothers, fewer analyses have considered the implications of these credits for married parents. Using a simple differences-in-differences framework to compare the labour supply of low-educated married parents to married couples without children, results indicate that the labour force participation of married parents increased relative to childless couples, with paternal employment increasing approximately 3.4 percentage points. However, there is no systematic workforce participation response amongst low-educated mothers. Although increases in paternal employment corroborate earlier findings, in contrast to previous evaluations there is no negative participation response amongst mothers. In accordance with economic theory, these results suggest the availability of a partially-refundable CTC through higher income levels offset some negative employment incentives secondary earners faced under earlier schemes.

I. BACKGROUND ON REFUNDABLE TAX CREDITS

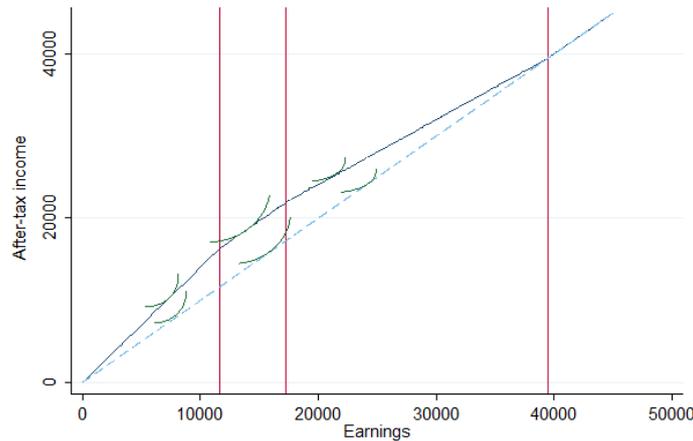
The structure of federal assistance to low-income families has dramatically changed in the United States over the past twenty-five years. Employment-based tax incentives have replaced traditional cash entitlements, through phased credits such as the Earned Income Tax Credit (EITC) and Child Tax Credit (CTC). These reforms attempt to transition low-income families from receiving welfare to being employed, and thereby increase their incomes (House of Representatives, 1995 pp. 4-12; Senate Committee on Finance, 2010).

Labour supply incentives under a system of phased tax credits depend on household income. Since after-tax earned income increases following the introduction of tax credits, no household has a heightened incentive to exit the labour force. Conditional on employment participation, labour supply predictions are more ambiguous (**Figure 1**):

- Phase-in: Low income households face negative marginal tax rates – an implicit subsidy for each additional dollar earned. In this region, the income and substitution effects present offsetting incentives with ambiguous labour supply predictions.¹
- Plateau: Higher income households receive a flat tax credit. Since changes in earnings within this range do not affect the credit amount received, a pure income effect will decrease their labour supply.
- Phase-out: As the credit phases out, households face high marginal tax rates. Both the substitution and income effect incentivise reduced labour supply.

¹ Assuming leisure is a normal good, the income effect reduces labour supply, whilst the substitution effect incentivises increased workforce participation in the phase-in region.

Figure 1: Labour Force Participation Incentives Under An In-Work Tax Credit



Source: Tax Policy Centre (2011). Note: Parameters correspond to the tax year 2007 EITC parameters without other deductions and credits. From left, the vertical lines denote the end of the phase-in, plateau, and phase-out rates, respectively. Parabolic indifference curves indicate labour force attachment with (solid line) and without (dashed line) the EITC.

The early literature concluded that the EITC increased employment of lone mothers, while it simultaneously did not reduce the hours worked amongst those employed (Eissa and Liebman, 1996; Meyer and Rosenbaum, 2001; Eissa, Kleven, and Kreiner, 2008; Hotz, Mullin, and Scholz, 2006; Eissa and Hoynes, 2011). These favourable responses suggested that the EITC achieved dual employment and poverty alleviation objectives amongst lone mothers, and provided political impetus for subsequent expansions (Ventry, 2000).

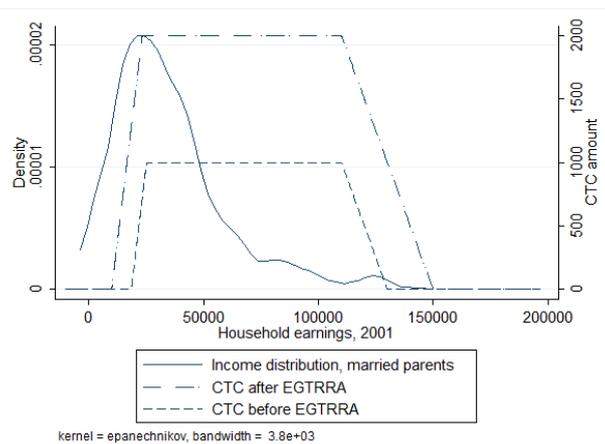
Following the positive employment effects amongst lone mothers, the EITC was broadened to include populations other than single parents, including childless households and two-parent families. Married households face different tax schedules and income assistance programmes from single-adult families, and have the opportunity to reallocate employment amongst partners without changing total household labour force participation. It is thus essential to evaluate labour force responses for two-parent households. The potential employment disincentives for secondary earners under phased credits make this an especially urgent policy question during a time of fiscal austerity.

In order to expand upon the previous literature and evaluate the effects of in-work tax credits on non-traditional populations, this paper evaluates the EITC and CTC expansions under the Economic Growth and Tax Relief Reconciliation Act of 2001 (EGTRRA). Two employment-based tax credits are of special interest for this analysis: the Earned Income Tax Credit (EITC), and the Child Tax Credit (CTC). Three factors condition eligibility for both credits. First, households must have positive earned income, defined as wage and salary earnings and business and farm self-employment income. Second, these earnings cannot exceed the maximum threshold. Finally, the credit amount depends on the number of dependent children residing in the household. The EITC and CTC have similar

structures outlined above: at low earnings, the credit provides an in-work subsidy. At higher earnings, families receive the maximum benefit (plateau) until income reaches the second threshold, at which point the credit phases out.

Under the 2001 reforms, the thresholds for the plateau and phase-out regions of the EITC expanded by \$3,000 whilst the phase-in region did not change, thereby increasing the number of eligible households. This policy also doubled the maximum per child CTC grant to \$1,000 and made the credit partially refundable for households with income exceeding \$10,000 (**Figure 2**).² These combined credit changes unambiguously increase the amount of in-work tax credits a household with children can receive for earned income exceeding \$10,000 (in 2001 terms).

Figure 2: CTC Parameters Before and After the 2001 Tax Reforms



Source: IRS, 2012; PL 105-34; ASEC 2002. Dashed lines denote CTC amount based on credit for household with two children. Solid kernel density displays earnings distribution of married couples with children reporting positive earned income in tax year 2001. All observations weighted using March supplement weights. See text for policy details.

Since both CTC and EITC receipt are conditional on employment, labour force participation should unambiguously increase at the household level following the 2001 reforms. While the EITC expansion alone predicts decreased secondary earner labour force participation due to lower average tax rates, increased CTC availability renders overall participation responses ambiguous by prompting households to increase labour force participation beyond \$10,000. We therefore expect the revised tax schedule to disincentivise secondary earner participation less than previous reforms, whilst simultaneously encourage primary earners to remain employed.

² Before 2001, the CTC was partially-refundable for families with three or more children and non-refundable for families with fewer children. The 2001 legislation made the CTC partially refundable through the Additional Child Tax Credit (ACTC). For simplicity, we refer to the joint ACTC and CTC as the CTC.

II. A QUASI-EXPERIMENTAL APPROACH TO ANALYSING EMPLOYMENT RESPONSES

To explore employment responses to the 2001 tax reforms, a simple differences-in-differences strategy compares the labour force participation of married couples with and without children. Since only a small proportion of married couples are eligible for the EITC or face the phase-in CTC region, the analysis focusses on employment responses of low-income married parents. In order to limit the analysis to households who are most likely to have low incomes, much of the existing literature is followed and the sample is limited to households of high school dropouts (Eissa and Liebman, 1996; Eissa and Hoynes 2004, 2006; Meyer and Rosenbaum, 2001). With the exception of child-related tax credits, both couples with and without children face the same tax schedule. Moreover, although couples without children may differ from married parents in demographic or unobservable characteristics that also affect employment trends, this bias is limited by controlling for demographic and geographic household characteristics.³

Table 1 and **Table 2** present results for married men and women, respectively. Our findings suggest that the 2001 tax credit increases are associated with increased paternal employment of 3.4 percentage points. The point estimate is statistically significant at the 5% level and robust to the inclusion of demographic controls. Given that the paternal employment rate was 84% prior to 2001, this point estimate implies a 4% increase in the relative employment rates of married men with children. The qualitative findings for male employment accord with the earlier literature, although the point estimates are larger in magnitude and more significant than most existing studies. As these results are driven by decreased labour force participation of a relatively small sample of low-educated childless men over this period, while the increases in relative participation are robust across specifications, it is necessary to be cautious while extrapolating precise participation responses to broader populations.

³ In extensions not reported here, we also re-weight the full sample to allocate greater weights to childless households who are most similar to households with children in their observable characteristics. Our results are highly robust to this specification.

Table 1: Employment Amongst Married Men

| | Dependent variable: Employment | | | | |
|------------------------------|--------------------------------|---|--|--|--|
| | (1) | (2) | (3) | (4) | (5) |
| Parent*post-2001 | 0.0371** (0.0165) | 0.0344** (0.0161) | 0.0336** (0.0160) | 0.0332** (0.0161) | 0.0404** (0.0175) |
| Parent | 0.0570*** (0.0178) | 0.0284* (0.0148) | 0.0285* (0.0146) | 0.0285* (0.0145) | 0.0145 (0.0160) |
| Number of preschool children | | -0.0041 (0.0078) | -0.0047 (0.0075) | -0.0046 (0.0074) | -0.0054 (0.0074) |
| State EITC | | | | -0.0096 (0.0142) | |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes |
| Region fixed effects | No | Yes | Yes | Yes | No |
| State fixed effects | No | No | No | No | Yes |
| Controls | | Age, race, urban residence, state unemployment rate, household size | Age, race, urban residence, state unemployment rate, education, household size | Age, race, urban residence, state unemployment rate, education, household size | Age, race, urban residence, state unemployment rate, education, household size |
| Pseudo R2 | 0.01 | 0.03 | 0.03 | 0.03 | 0.05 |
| Log-likelihood | -7220 | -7102 | -7090 | -7089 | -6961 |
| Observations | 15918 | 15918 | 15918 | 15918 | 15918 |

Source: CPS ASEC (1997-2008). Population: Married men in tax filing units with less than a high school diploma. All observations weighted using March supplement weights. Standard errors clustered by state in parentheses. *** p<0.01, ** p<0.05, * p<0.1. dp/dx calculated at the mean for all continuous variables, and the discrete change (zero to one) for all indicator variables.

The estimates for women, on the other hand, are imprecisely estimated: although point estimates suggest a two percentage point employment increase, none of the main estimates for female labour force participation are statistically different from zero at conventional levels. We cannot conclude that the expansion of in-work tax credits altered employment (either positively or negatively) amongst married mothers. This result contrasts with the earlier literature that found previous EITC expansions reduced labour force participation amongst married women with children.

There are several explanations for these divergent findings. First, earlier evaluations primarily focus on expansions in both the phase-in rate and EITC maximum credit. In contrast, this analysis occurs after these earlier reforms were fully implemented. The CTC doubled in generosity over the study period, dwarfing the marginal EITC reform, especially for households with multiple children. Since only families with earnings above \$10,000 are eligible for any CTC, this reform unambiguously incentivises employment amongst secondary earners in households where spousal income is less than \$10,000 (10.3% of the parental sample in tax year 2000). Throughout the reforms in the 1980s and 1990s, this same family (based on nominal earnings) would have household income in the plateau region of the EITC and thus face unambiguous negative incentives to secondary earner employment (Tax Policy Centre, 2011). Since (real) household income can now be higher before families face unambiguously negative employment incentives (i.e. a flat or phase-out credit), the taxation-based employment disincentives for secondary earners affect fewer low-skilled families during our period of analysis than in previous studies. These differential results underscore the need to evaluate

programme responses in the context of the current policy environment and examine how existing policies interact to alter incentives.

Table 2: Employment Amongst Married Women

| | Dependent variable: Employment | | | | |
|------------------------------|--------------------------------|---|--|--|--|
| | (1) | (2) | (3) | (4) | (5) |
| Parent*post-2001 | 0.0208 (0.0238) | 0.0227 (0.0207) | 0.0243 (0.0211) | 0.0253 (0.0214) | 0.0279 (0.0226) |
| Parent | -0.1121*** (0.0277) | -0.0087 (0.0217) | -0.0081 (0.0214) | -0.0077 (0.0214) | -0.0078 (0.0219) |
| Number of preschool children | | -0.1137*** (0.0076) | -0.1141*** (0.0076) | -0.1142*** (0.0075) | -0.1165*** (0.0073) |
| State EITC | | | | 0.0278 (0.0192) | |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes |
| Region fixed effects | No | Yes | Yes | Yes | No |
| State fixed effects | No | No | No | No | Yes |
| Pseudo R2 | 0.01 | 0.03 | 0.04 | 0.04 | 0.05 |
| Controls | | Age, race, urban residence, state unemployment rate, household size | Age, race, urban residence, state unemployment rate, education, household size | Age, race, urban residence, state unemployment rate, education, household size | Age, race, urban residence, state unemployment rate, education, household size |
| Log-likelihood | -10883 | -10585 | -10513 | -10510 | -10434 |
| Observations | 15918 | 15918 | 15918 | 15918 | 15918 |

Source: CPS ASEC (1997-2008). Population: Married women in tax filing units with less than a high school diploma. All observations weighted using March supplement weights. Standard errors clustered by state in parentheses. *** p<0.01, ** p<0.05, * p<0.1. dp/dx calculated at the mean for all continuous variables, and the discrete change (zero to one) for all indicator variables.

In further specifications (not reproduced here), weak evidence is found that the proportion of dual-earner households increased by approximately four percentage points following the reforms, therefore suggesting that the 2001 legislation did not reduce secondary-earner labour force participation. Additionally, an investigation of annual hours worked does not yield significant results for either employed men or women. These combined results corroborate the findings of earlier EITC expansions, which conclude labour force responses are concentrated along the participation margin and tax-based credits increase primary earners' labour supplies.

III. BALACING THE COST, EMPLOYMENT, AND POVERTY TRADE-OFFS

Overall, these results support the existing literature on the effectiveness of federal tax policy to incentivise employment at the household level. When considering further fiscal policy reforms, policymakers must balance the trade-offs between promoting work amongst low-income households and increasing the number of windfall beneficiaries. In-work tax credits not only incentivise households who would not have worked absent tax credits to enter the labour force, but also subsidise the population with income in the credit region who would have participated in the workforce

regardless of the credit. The number of windfall beneficiaries is an important consideration given the high costs of the credits: abstracting from behavioural responses, the federal government expended \$59.6 billion in EITC returns and an estimated \$29.7 billion in CTC outlays during tax year 2010 (IRS, 2012; White House, 2009).

Although the broad policy goals of the EITC and CTC were re-confirmed with temporary expansion under the American Recovery and Reinvestment Act (ARRA), maintaining these programmes in coming years is not definite. Under the Budget Control Act of 2011, if Congress does not enact \$1.2 trillion in spending cuts by the end of 2012, the EITC and CTC will automatically revert to their pre-2001 levels from January 2013. This policy change will reduce the generosity of the EITC and make the CTC non-refundable for most families, thereby weakening the employment incentives that are targeted towards low-income households.

The ability of the EITC and CTC to increase labour force participation among low-skilled families needs to be considered as policymakers weigh fiscal options for budget reform. As legislators contemplate further fiscal reforms, they must balance the relative importance of non-fiscal objectives and the competing economic goals to increase employment, reduce poverty, and decrease programme costs. Thus far, no policy has achieved all three economic objectives.

REFERENCES

- “American Recovery and Reinvestment Act”.(2009) United States Public Law 111-5. 17 Feb 2009.
- Centre on Budget and Policy Priorities (CBPP). (2011)‘Policy Basics: State Earned Income Tax Credits’ [online]13 Jan 2011 Available from: <http://www.cbpp.org/cms/index.cfm?fa=view&id=2506> [Accessed 31 Oct 2011].
- “Economic Growth and Tax Relief Reconciliation Act of 2001.” United States Public Law 107-16. 7 Jun 2001. Section 303.
- Eissa, N., and Hoynes, H.W. (2004) ‘Taxes and the Labour Market Participation of Married Couples: The Earned Income Tax Credit’ *Journal of Public Economics*, 88(9-10): 1931-1958.
- Eissa, N., and Hoynes, H.W.(2006) *The Hours of Work Response of Married Couples: Taxes and The Earned Income Tax Credit in Tax Policy and Labor Market Performance*, Jonas Agell and Peter Birch Sørensen (eds.) Cambridge, MA:MIT Press.
- Eissa N. and Hoynes, H. (2011) ‘Redistribution and Tax Expenditures: The EITC’ *National Tax Journal*, 64(2): pp.689-730.
- Eissa, N. and Liebman, J. (1996)‘Labor Supply Response to the Earned Income Tax Credit’ *Quarterly Journal of Economics* 61, 605-37.
- Eissa, E., Kleven, H.J., and Kreiner, C.T. (2008)‘Evaluation of Four Tax Reforms in the United States: Labour Supply and Welfare Effects for Single Mothers’ *Journal of Public Economics*, 92(3-4): pp.795-816.
- Hotz, J., Mullen, C.H., and Scholz, J.K. (2006) ‘Examining the Effect of the Earned Income Tax Credit on the Labour Market Participation of Families on Welfare’ *National Bureau of Economic Research Working Paper*, 11968.
- ‘Jobs Growth and Tax Relief Reconciliation Act (2003)’ US Public Law 108-27.
- Meyer, B.D. and Rosenbaum, D.T.(2001) ‘Welfare, the Earned Income Tax Credit and the Labour Supply of Single Mothers’ *Quarterly Journal of Economics* 116(2) pp.1063-1114.
- Tax Policy Centre.(2011) ‘Historical EITC Parameters’ [online]. Available from:<http://www.taxpolicycenter.org/taxfacts/displayafact.cfm?DocID=36&Topic2id=40&Topic3id=42>. [Accessed 8 Nov 2011].

United States Bureau of Labour Statistics (BLS).(2012) 'Local Area Unemployment Statistics'[online]. Available from:<http://www.bls.gov/lau/#tables> [Accessed 1 Feb 2012].

United States Bureau of the Census and Bureau of Labour Statistics.(2011) Current Population Survey, Annual Social and Economic Supplement. 1997-2008.

United States Department of the Treasury, Internal Revenue Service (IRS).(2012) 'About EITC'[online]. Available from:<http://www.eitc.irs.gov/central/abouteitc/>. [Accessed 22 Mar 2012].

United States House of Representatives, Committee on Ways and Means, Subcommittees on Oversight and Human Resources.104th Congress (1995). 'Earned Income Tax Credit: Hearing Before the Subcommittee on Oversight and the Subcommittee on Human Resources of the Committee on Ways and Means' 15 Jun 1995. Serial 104-50.

United States Senate, Senate Committee on Finance.(2010) 'Present Law: the President's Fiscal Year 2011 Budget Proposals Related to Selected Individual Income Tax Provisions Scheduled to Expire Under the Sunset Provisions of the Economic Growth and Tax Relief Reconciliation Act of 2001'[online]. Available from: <http://www.jct.gov/publications.html?func=startdown&id=3691>. [Accessed 15 November 2011].

United States White House (2009). Federal Outlays, Chapter 16: Tax Expenditures.

Ventry, D. J.(2001). 'The Collision of Tax and Welfare Politics: The Political History of the Earned Income Tax Credit' In Making Work Pay: The Earned Income Tax Credit and Its Impact on Americas Families (ed.) B.D. Meyer and D. Holtz-Eakin, pp.15–66. New York: Sage.