



# The earned income tax credit, mental health, and happiness<sup>☆</sup>



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## ABSTRACT

We study the impact of the earned income tax credit (EITC) on various measures of subjective well-being (SWB) using the National Survey of Families and Households (NSFH) to estimate intent-to-treat effects of the EITC expansion embedded in the 1990 Omnibus Budget Reconciliation Act. We use a difference-in-differences framework that compares the pre- and post-expansion SWB-changes of women likely eligible for the EITC (low-skilled mothers of working age) to the SWB-changes of a comparison group that is likely ineligible (low-skilled, childless women of working age). Our results suggest that the EITC expansion generated sizeable SWB-improvements in the three major categories of SWB identified in the literature. The NSFH is one of few datasets containing all three major categories of SWB. Subgroup analyses by marital status suggest that improvements accrued more to married than unmarried mothers. Relative to their childless counterparts, married mothers experienced a 15.7% decrease in depression symptomatology (experiential SWB), a 4.4% increase in happiness (evaluative SWB), and a 10.1% increase in self-esteem (eudemonic SWB). We also present specification checks that increase confidence that the observed SWB-effects are explained by the OBRA90 EITC expansion. Lastly, we explore mechanisms that may explain the differential impact of the EITC expansion by marital status.

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## 1. Introduction

Over the past three decades, the federal earned income tax credit (EITC) has become arguably the most important U.S. anti-poverty program. Enacted in 1975, the EITC was designed as a refundable tax credit to offset the rise in payroll taxes; 6 million families received \$5 billion in 1975 (2013 USD). Today, the program is viewed primarily as a wage supplement; 28 million families received \$64 billion in 2012 (Tax Policy Center, 2012). By comparison, expenditures on Temporary Assistance to Needy Families, the U.S.'s flagship welfare program, are less than \$30 billion (U.S. Department of Health and Human Services, 2013). The anti-poverty effects of the EITC are well-documented. For example, in 2011, the program lifted 9.4 million people, including 4.9 million children, above the poverty line (Center on Budget and Policy Priorities, 2013).

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In response to the growing prominence of the EITC, empirical work has begun to shift away from traditional economic outcomes (e.g., employment) toward an emphasis on the EITC's potential health effects. In particular, recent studies examine whether EITC expansions have implications for infant health and birth weight (Baker, 2008; Strully et al., 2010; Hoynes et al., 2015), children's cognitive ability test scores (Dahl and Lochner, 2012), and adult biomarkers and mental health (Evans and Garthwaite, 2014). Using data from the National Survey of Families and Households (NSFH), this paper contributes new evidence on the health implications of the EITC. In particular, we examine the impact of the 1990 federal EITC expansion through the Omnibus Budget Reconciliation Act (OBRA90) on adults' mental health and subjective well-being (SWB).

The NSFH provides several advantages for studying the health effects of the EITC. First, the NSFH survey includes measures of three key categories of SWB, including a subset of the multi-item Center for Epidemiologic Studies-Depression (CES-D) scale (*experiential* SWB), a measure of global happiness (*evaluative* SWB), and a variety of indicators of self-esteem (*eudemonic* SWB). Importantly, all three SWB categories are seldom available in the same survey. Second, the NSFH's initial wave of data collection occurred in 1987 and 1988 – providing outcome data on pre-reform mental health and SWB – while the second wave occurred over the period 1992–1994 – providing post-reform outcome data. Therefore, our identification strategy relies on a difference-in-differences (DD) framework to estimate intent-to-treat (ITT) effects of the EITC. Third, the survey oversampled low-income families, including unmarried women with children, who are key beneficiaries of the EITC. Fourth, the NSFH was originally intended to be used by sociologists and demographers interested in studying household structures; thus, the survey provides detailed information on intra-household relationships. This allows us to closely simulate the federal EITC qualifying-child rules, whereas previous EITC studies generally rely on coarser measures of qualifying children. Finally, we are able to replicate with the NSFH the finding from the literature that EITC expansions have sizeable employment effects. Sub-group analyses by marital status suggest that unmarried and married mothers' employment increased; consistent with previous work, the effects were larger for unmarried than married mothers.

Given the range of outcomes that the EITC has been shown to affect – from income and labor supply to family structure – and the complicated ways in which these outcomes can interact to produce individual well-being, we anticipate that the EITC will affect mental health and SWB, but the net effect is unclear *ex ante*. For example, an SWB-increase from additional income may be partially or fully offset by an SWB-decrease from reduced leisure time. Of course, individuals are not forced to receive the EITC, so it would be unlikely that SWB would decrease.

Our DD estimates consistently point to a positive effect of the OBRA90 EITC expansion on mental health and SWB. Specifically, potentially eligible mothers show improved scores on the CES-D, report higher levels of happiness, and are more likely to report feelings of self-worth and -efficacy. Interestingly, our sub-group analyses reveal that married mothers capture most of the EITC's positive mental health and SWB effects. This pattern of results – smaller employment effects coupled with larger mental health effects for married relative to unmarried mothers – is consistent with that in Evans and Garthwaite (2014), who examine the health effects of a different EITC expansion (OBRA93).<sup>1</sup> Our baseline results are robust to a battery of specification checks, and the model passes a falsification test in which we estimate the DD model on two groups of women – high-income and -education – who are not likely to be eligible for the EITC.

The remainder of the paper proceeds as follows. Section 2 provides an overview of the EITC and estimates of the increase in potential EITC benefits for eligible households associated with the OBRA90 EITC expansion. Section 3 summarizes the relevant EITC and SWB literatures, and our contribution to both. Section 4 describes our empirical strategy, describes the analysis sample, and provides validation of the NSFH. Section 5 presents the results. We conclude with a discussion of mechanisms, magnitude, and policy implications in Section 6.

## 2. Overview of the EITC

The 1975 Tax Reduction Act created the EITC as a refundable tax credit for tax filers with children; if EITC benefits exceeded tax liabilities, families received a check for the difference from the Internal Revenue Service. The EITC was initially intended to achieve three goals: act as a “work bonus” for the working poor, offset growth in payroll taxes, and stimulate demand in response to the 1974 recession. Since its inception, eligibility for the EITC has been determined along two dimensions. First, taxpayers must have non-zero earned income from wages, salary, or self-employment. Second, unmarried and married tax filers must have adjusted gross income below some threshold. This threshold has varied over time and with the number of qualifying children. The EITC benefit structure has three regions (Browning, 1995). The first, the phase-in region, has a negative marginal EITC-tax rate and operates like a wage subsidy. The second, the plateau region, has a marginal EITC-tax rate of zero and acts like a lump sum transfer. Finally, the phase-out region, has a positive marginal EITC-tax rate that phases out the credit as earnings rise. After gaining permanent tax code status in 1978, the EITC experienced its first expansion through the 1986 Tax Reform Act (TRA86). This law raised the subsidy rate to 14% and gradually increased the maximum credit and eligible income range, undoing the erosion EITC benefits had suffered due to inflation.

We are concerned with the EITC's second major expansion. The OBRA90 increased the maximum credit and eligible income range, and created separate benefit schedules for one- and multiple-child households, increasing the subsidy rate

<sup>1</sup> Although presented, this finding is not discussed at length in Evans and Garthwaite (2014). Another contribution of this paper is to subject all results to subgroup analysis by marital status and to establish the robustness of Evans and Garthwaite's (2014) briefly-mentioned finding.

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