

A Note on Employment Participation Elasticities from the Earned Income Tax Credit Literature

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By Kevin Corinth and Bruce D. Meyer

Corinth et al. (2021) simulate the labor supply effects of a proposed expansion of the Child Tax Credit (CTC) in order to determine the policy's anti-poverty effect. To simulate exit from employment among current workers, they use an employment participation elasticity of 0.75 for single mothers receiving the Earned Income Tax Credit (EITC), and 0.25 for all other workers. Some have argued that the 0.75 elasticity for single mother EITC recipients is too high, and that it is inconsistent with the EITC literature.

In this note, we show that a 0.75 employment participation elasticity for single mothers is consistent with the EITC literature. We first briefly recount other summaries of the magnitude of the participation elasticity for single mothers, which each suggest an elasticity of around 0.75. Next we turn to three individuals studies on the responsiveness of employment participation to the return to work. We focus on Hoynes and Patel (2018), which is recent and was used as the basis for simulations by the 2019 National Academy of Sciences (NAS) report on reducing child poverty (NAS 2019). The participation elasticity in Hoynes and Patel (2018) is difficult to interpret given its unconventional calculation. Thus, we focus on their estimate that a \$1,000 increase in average EITC benefits increases employment participation among single mothers by 5.1 percentage points (see Table 1). An appropriately adjusted estimate from Keane and Moffitt (1998) implies that a \$1,000 increase in average EITC benefits increases employment participation by an even higher 7.5 percentage points (see Table 1).

In comparison, Meyer and Rosenbaum (2001) estimate that a \$1,000 increase in average EITC benefits increases employment participation by a much lower 2.9 percentage points (see Table 1). Others have pointed out that the Meyer and Rosenbaum (2001) estimates imply an employment participation elasticity of 0.43 or 0.7 (McClelland and Mok 2012; Nichols and Rothstein 2016). This suggests that our 0.75 elasticity assumption for EITC recipient single mothers is somewhat higher than the elasticity implied by Meyer and Rosenbaum (2001), but likely

more conservative than the strong response to the return to work found by Hoynes and Patel (2018) or Keane and Moffitt (1998).

Table 1. Percentage Point Increase in Employment Participation During the Year among Single Mothers Due to \$1,000 Increase in Earned Income Tax Credit Benefit, Select Studies

	Value reported in study	Adjusted value based on \$1,000 increase in 2021 dollars
Hoynes and Patel (2018)	0.056	0.051
Keane and Moffitt (1998)	0.074	0.075*
Meyer and Rosenbaum (2001)	0.045	0.029

Source: Hoynes and Patel (2018); Keane and Moffitt (1998); Meyer and Rosenbaum (2001); authors' calculations
Note: Adjusted values consider \$1,000 increase in average EITC benefits in 2021 dollars, updated based on the personal consumption expenditure price index.

*In addition to adjusting to 2021 dollars, we increase the Keane and Moffitt (1998) value by 73% to adjust for their use of maximum EITC benefits rather than average EITC benefits, and by 32% to adjust for their employment period of a month instead of year. See text for further details.

Below, we recount other summaries of the employment participation elasticity for single mothers. Then we describe in more detail the employment participation response to a change in EITC benefits for each of the three studies shown in Table 1. We conclude by showing how our employment participation elasticities are consistent with simulations in NAS (2019).

Summaries of elasticities

Summaries of the literature on labor supply responses by single mothers to the EITC have concluded that single mothers are responsive to the return to work, with a participation elasticity consistent with the 0.75 baseline value used in Corinth et al. (2021). In a Congressional Budget Office working paper, McClelland and Mok (2012) conclude that participation elasticities for lower-income workers eligible for the EITC range from 0.3 to 1.2. The midpoint of this range is 0.75. Gelber and Mitchell (2012) write that participation elasticities range from “0.35 to 1.7, with a central tendency of 0.7” (p. 873). Nichols and Rothstein (2016) state that “consensus estimates of the extensive-margin elasticity [are] around 0.7 to 1.0” (p. 198). Goldin, Maag, and Michelmore (2021) echo this conclusion of Nichols and Rothstein (2016), noting that participation elasticities “approach 0.70 to 1.00 for single mothers” (p. 7).

Hoynes and Patel (2018)

Hoynes and Patel (2018) is important to consider individually because it was used as the basis for simulations in the 2019 NAS report on reducing child poverty (NAS 2019). Hoynes and Patel (2018) estimate that a \$1,000 increase in federal EITC benefits (in 2016 dollars) increases employment participation among single mothers during the year by 5.6 percentage points (see final column of their Appendix Table 7).¹ A \$1,000 increase in 2021 dollars would increase participation by 5.1 percentage points. We focus on this particular estimate because it was the estimate used by NAS (2019) to simulate the labor supply effects of an expansion of EITC benefits.

We do not rely on elasticity estimates from Hoynes and Patel (2018) because they do not seem consistent with their estimated employment effect with respect to an increase in EITC benefits. To see this, note that the standard formula for the elasticity of employment participation with respect to a change in the return to work is

$$\epsilon = \frac{\% \text{ change in employment}}{\% \text{ change in return to work}}$$

The elasticity reported in the final column of Appendix Table 7 is 0.32. The percent change in employment participation due to a \$1,000 increase in federal EITC benefits (in 2016 dollars, reported in Appendix Table 7) is 0.07. The percent change in the return to work is the dollar change in the return to work (\$1,000) divided by the baseline return to work. We can plug these values into the equation above to back out the implied baseline return to work b .

$$0.32 = \frac{0.07}{1,000/b}$$

Solving for b , we see that the baseline return to work is \$4,571 (in 2016 dollars). This value seems implausibly low. For example, Meyer and Rosenbaum (2000) estimate that the average return to work for single mothers between 1990 and 1996 ranged from \$15,909 to \$17,895 (in 2016 dollars).² Using these values as the baseline return to work would result in an elasticity of between 1.1 and 1.3. Because Hoynes and Patel (2018) calculate their elasticities in a nonstandard

¹ Appendix Table 7 in Hoynes and Patel (2018) does not indicate the year in which dollar amounts are expressed, but we note that Appendix Figure 1 is expressed in 2016 dollars, and Appendix Figure 2 is expressed in 2014 dollars. We obtain an adjusted estimate of 5.1 percentage points when converting to 2021 dollars regardless of whether we use 2014 or 2016 as the base year.

² To be consistent with the Hoynes and Patel (2018) income definition, the return to work values from Meyer and Rosenbaum (2000) exclude the value of Medicaid.

way and do not report the means that are inputs into their calculations, it is not clear why their reported elasticities are much lower.³

Due to the difficulty in interpreting the participation elasticity in Hoynes and Patel (2018), we focus on comparisons to other studies of the percentage point change in employment participation with respect to a \$1,000 increase in EITC benefits.

Keane and Moffitt (1998)

As another example of an individual study on the effects of the EITC on labor supply, Keane and Moffitt (1998) estimate the change in the probability of working in a given month among single mothers due to increases in maximum EITC benefits. In their Table 7, they report that the probability of not working falls from 34.6% at baseline to 27.2% after an increase in the maximum EITC benefit from \$500 (its 1984 level) to \$1,500.⁴ Thus, increasing the maximum EITC benefit by \$1,000 in 1984 dollars increases participation in employment among single mothers by 7.4 percentage points (the difference between 34.6% and 27.2%). Adjusted for inflation, increasing the maximum EITC benefit by \$1,000 (in 2021 dollars) would increase participation in employment by 3.3 percentage points.

The effect of increasing the average EITC benefit would be higher than the effect of increasing the maximum EITC benefit. Between 1990 and 1996, the maximum EITC benefit for one-child families increased by \$1,038 (in 1996 dollars), 1.73 times the \$601 (in 1996 dollars) decrease in taxes paid by single mothers with one child and average earnings over this period, driven by the EITC expansion (Meyer and Rosenbaum 2000; Tax Policy Center 2021). The maximum EITC benefit for two or more child families increased by \$2,442 (in 1996 dollars), 1.80 times the \$1,356 (in 1996 dollars) decrease in taxes paid by single mothers with two or more children and average earnings (Meyer and Rosenbaum 2000; Tax Policy Center 2021).⁵ Thus, the effect on employment of increasing the average EITC benefit by \$1,000 should be at least 1.73 times the effect of increasing the maximum EITC benefit by \$1,000. Applying this adjustment

³ In the equation on page 3 of the appendix, it is unclear whether the employment change estimate in the numerator is defined consistently with the change in the return to work in the denominator.

⁴ Keane and Moffitt (1998) consider a policy of increasing maximum EITC benefits from \$500 to \$1,500, increasing the phase-in rate from 10% to 30%, and increasing the phase-out rate from 12.5% to 20%. See Tax Policy Center (2021) for a history of EITC parameters from 1975 to 2001.

⁵ This calculation likely underestimates how much we should scale up the elasticity because the average EITC benefit will be less than the benefit evaluated at average earnings given the concavity of the EITC schedule.

factor, a \$1,000 increase in average EITC benefits increases participation in employment by 5.7 percentage points.

We would expect the employment participation effect to be even larger if the authors had instead considered employment at any point during the year, as considered by Hoynes and Patel (2018) and Meyer and Rosenbaum (2001), rather than at any point during the month. Meyer and Rosenbaum (2001) find that the responsiveness to the return to work is 64% larger when considering work during the year rather than work during a given week. Thus, we would expect the estimate for employment during the year to be between 0% and 64% higher than the Keane and Moffitt (1998) estimate for employment during the month. We take the midpoint of 32% and thus adjust their effect upward to 7.5 percentage points.

Meyer and Rosenbaum (2001)

Meyer and Rosenbaum (2001) estimate the change in employment participation among single mothers in response to expansion of the EITC in the 1980s and 1990s. In their Table IV, they report that a \$1,000 increase in the return to work (due to a \$1,000 decrease in taxes, driven by an expansion of the EITC) would increase employment participation during the year among single mothers by 4.5 percentage points. Converting the \$1,000 increase in return to work to 2021 dollars, the estimate is 2.9 percentage points. This estimate is substantially smaller than the 5.1 percentage point effect from Hoynes and Patel (2018) or the 7.5 percentage point effect from Keane and Moffitt (1998).

Despite the weaker responsiveness of employment with respect to EITC benefits found in Meyer and Rosenbaum (2001), the implied employment participation elasticity is still large. McClelland and Mok (2012) report that the implied elasticity is 0.43, and Nichols and Rothstein (2016) report that the implied elasticity is 0.7. Since the employment response is stronger in Hoynes and Patel (2018) and Keane and Moffitt (1998), we should expect the employment participation elasticities implied by those studies to be higher than 0.43 or 0.7.

Conclusions

The 0.75 elasticity used by Corinth et al. (2021) is consistent with the academic literature on the labor supply effects of the EITC. If anything, the recent literature (i.e., Hoynes and Patel 2018) suggests that Corinth et al. (2021) understated the elasticity for single mother EITC

recipients. This conclusion is consistent with results from the NAS report on reducing child poverty (NAS 2019). Using the estimate from Hoynes and Patel (2018) that a \$1,000 increase in EITC benefits increases employment participation among single mothers by 5.6 percentage points (before adjusting to 2021 dollars), NAS (2019) finds that a 40% increase in EITC benefits would bring 0.77 million new single mothers into employment. Assuming linearity and symmetry, this would imply that eliminating the EITC would lead 1.9 million single mothers to exit employment. Corinth et al. (2021)—using the elasticities of 0.75 for single mother EITC recipients and 0.25 for all other workers—estimate that eliminating the EITC would lead 1.7 million total workers to exit employment.⁶ The lower estimate in Corinth et al. (2021), despite its inclusion of workers who are not single mother EITC recipients, appears to reflect the lower assumed responsiveness to the return to work for single mother EITC recipients in the paper.

⁶ These calculations do not include individual workers in dual earner couples that may enter employment due to the elimination of the EITC phaseout, which we do not incorporate because it is not very relevant when comparing the EITC to the CTC as the latter has its phaseout at high earnings.

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