

The Impact of Family Income on Child Achievement: Evidence from the Earned Income Tax Credit: Reply

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In “The Impact of Family Income on Child Achievement: Evidence from the Earned Income Tax Credit” (*American Economic Review*, 2012, 102:5), we provide some of the first causal evidence of the effects of family income on child achievement using changes in the Earned Income Tax Credit (EITC). Unfortunately, a coding error in our creation of total family income has been documented by Lundstrom (2015). While this affects the first-stage estimates and, therefore, the scaling of the IV estimates, it does not affect the reduced form estimates or alter statistical significance of our IV estimates. As such, our core findings and the main message of the paper do not change. In this response, we briefly clarify the error and its implications for our results.

In order to calculate taxes, EITC amounts, and total after-tax family income, we used the TAXSIM simulator (<http://www.nber.org/taxsim>). Unfortunately, the variable for federal income tax changed from version 8 to 9 of TAXSIM, but the change had not been documented and went unrecognized by us when we undertook a major revision of our paper in 2010.¹ As a result, our measure of total family income in the published paper excludes EITC payments, although it does include EITC-induced changes in income due to labor supply responses.

The practical consequences of this coding error are that the first stage coefficient in the baseline *AER* specification is almost 40% larger when using the corrected income variable, but the reduced form estimate is unaffected since it does not use the incorrectly coded variable. The baseline IV estimate is about 30% smaller due to the larger first stage, but it remains statistically significant.

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¹Specifically, variable v28 created by TAXSIM version 8 was “Federal Income Tax After Credits.” In version 9, variable v28 was changed to “Federal Income Tax Before Credits.” Unfortunately, the early documentation for TAXSIM version 9 continued to label the variable as “Federal Income Tax After Credits.” Later versions of the documentation corrected this error in labeling. We have verified this issue with Dan Feenber, who developed and actively maintains TAXSIM as a public good for the research community. Although he does not have detailed notes going back to 2010, he was able to confirm that a change happened sometime in the Spring of 2010.

With the incorrectly coded variable we had for family income, our first stage was primarily driven by the increased earnings of mothers from EITC expansions. Using the correctly coded income variable makes the first stage larger and more precise, since it also includes the increase in EITC payments.

As others have noted, the EITC changes family income through three primary channels: the credit amount itself, induced earnings, and other income adjustments (e.g., public assistance) (Hoynes and Patel, 2015). In Dahl and Lochner (2012), we recognized that maternal labor supply could matter, which is why we used total income and not EITC payments as our main regressor and variable of interest. Because mother's labor supply might directly affect children, we attempted to control for it in a robustness check. Unless one thinks maternal labor supply has positive direct effects on children (contrary to the literature), we estimate a lower bound estimate for the effect of income on child achievement.²

We have re-estimated everything in the published version of our paper using the correct coding and report the results in the Online Appendix to this response. Lundstrom (2015) raises two other minor issues related to state tax credits and one versus two+ child families, which we also correct for in the Online Appendix.³ All of the corrected results are consistent with smaller (compared to the published paper) but still statistically and economically significant effects of family income on child achievement.⁴

References

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²U.S.-based studies typically estimate zero or negative effects of maternal labor supply on child development (Baker and Milligan, 2010; Baum, 2003; Bernal, 2008; Blau and Grossberg, 1992; Herbst, 2014; James-Burdumy, 2005; Ruhm, 2004, 2008); however, most studies focus on mothers' work behavior when children are in the first few years of life. It seems likely that direct effects of maternal labor supply are weaker for our sample of 5-14 year-olds, since most of the children have already entered school.

³Regarding the incorporation of state tax credits, some of the state variables/descriptions clearly changed between TAXSIM versions 8 and 9 (e.g. the label for v39 changed from "State General Credit" to "State EITC"); however, we are less sure about others and the timing of when various changes took place. Empirically, very few states had changes to their state EITC's during this period, so this issue has almost no effect on the estimates. The second minor issue relates to holding the EITC schedule fixed (for one versus two+ kids families). We regret that the results reported in the published version of the paper did not hold the schedule fixed over the relevant two-year time periods as was stated. Since this affects less than 3% of the estimation sample, the implications for our estimates are negligible.

⁴Corrected code is available at our websites along with the underlying data.

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