

Long-term Impacts of Child Support: A Cohort Study

Ilyar Heydari Barardehi, University of Georgia¹
Ptryk Babiarz, University of Georgia²

Family plays a major role in shaping a child's educational attainment and adulthood achievements. The innate abilities inherited through genetic endowments, as well as the early-life material and economic resources, are considered to be among the important determinants of adulthood achievements. Heterogeneity in individual endowments and childhood resources explains the discrepancies among children regarding their human capital accumulation. Children of parents with high levels of human and material capital are more likely to become economically successful (Becker & Tomes, 1997). Previous studies document that the shortage of economic resources affects a child's skill development and achievements during both childhood and adulthood (Haveman & Wolfe, 1995).

Recent socioeconomic statistics released by the U.S Census Bureau show that about 40 percent of single mothers were below the official poverty level in 2014 (Current Population Reports, 2016). Poverty is a frequent outcome when a single mother is a sole breadwinner for her family, and her work duties interfere with parenting responsibilities. A number of studies examine the deficiencies in human capital accumulation associated with single motherhood. The majority of these studies document a negative association between childhood poverty and children's educational attainment (e.g., Krein & Beller, 1988; Astone & McLanahan, 1991; Ladd, 2012). Literature also suggests that policies that provide supplementary income for disadvantaged families play a significant role in attenuating adverse human capital consequences of childhood poverty (Knox, 1996). Thus, anti-poverty transfers that target low-income single mothers could generate favorable impacts on recipient children's quality of life and attainments. The federal government enacted the Child Support Enforcement (CSE) program – a set of regulations and associated bureaucracy that attempt to elicit financial contributions from absent fathers to their children. From a conceptual point of view, a child support payment is similar to a public transfer that expands the recipient family's economic resources.

The literature argues that the child support transfer enhances early childhood skills and development, and thus partially remedies the problem of resources inadequacy among children growing up in one-parent families (Argys, Peters, Brooks-Gunn, & Smith, 1998; Nepomnyaschy, Magnuson, & Berger, 2012). This leads to a common-sense presumption that a child support transfer produces long-lasting effects on the recipient as measured by adulthood achievements. However, the literature offers no convincing analysis or evidence on the enduring effects of non-custodial fathers' financial contributions to the recipients' future success and well-being. In this essay, we attempt to fill this void using data extracted from the 1997 cohort of the National Longitudinal Survey of Youth (NLSY97). In particular, we extend the literature by identifying and measuring the lasting effects of child support transfer on recipients' educational attainments, labor market outcomes, and socioeconomic status in the early adulthood.

We use the 1997 cohort of NLSY to investigate lasting impacts of CSE policy. Our analysis sample is restricted to individuals who received child support payment up to the age of 18 or were potentially eligible for child support (i.e., were living in a single-mother household and their father was alive). We follow this cohort of children until they reach age 24-28 when we obtain the measurements of the key dependent variables (measures of early adulthood achievement)

We examine the impact of child support on various types of outcomes, each representing a unique aspect of an individual's success. The first set of dependent variables represents human capital accumulation outcomes, including educational attainment. The level of education is measured by two binary indicators of high school and college completion, respectively. The second set of dependent variables represents young adults' employment and economic well-being. A dichotomous variable, separating employed individuals from unemployed ones, measures the adulthood employment status. Another achievement outcome, which will be measured by the poverty ratio, captures the young adults' economic well-being. The measures of educational attainment are time-invariant once an individual has

¹ Doctoral Student, Department of Financial Planning, Housing and Consumer Economics, University of Georgia, Athens, GA, 30602, USA. Phone: 706-542-4138. Email: ilyar@uga.edu.

² Assistant Professor, Department of Financial Planning, Housing and Consumer Economics, University of Georgia, Athens, GA, 30602, USA. Phone: 706-542-4138. Email: pbabiarz@uga.edu.

finished schooling. Therefore, across-sectional regression analysis would be an appropriate identification strategy. The key independent variables (whether the child support was received and the actual amount of payment) and most of the control variables are obtained from the first wave of the NLSY97.

The primary purpose of this study is to identify and measure the possible causal association between child support receipt and the recipient's achievements. A key challenge in identifying this causal relationship is a problem of self-selection. This problem occurs when people self-select to be treated by a program. The self-selection could be based on observed characteristics of individuals, a problem which is usually solvable by including the vector of control variables in regression analysis. However, sometimes the self-selection problem can be generated by unobserved traits and variables (e.g., personality traits, preferences, the rate of time discounting, etc.). These unobserved or unmeasured characteristics could be correlated with the actual outcomes and lead to an endogeneity issue. For instance, single mothers who pursue child support order might also be the ones who tend to invest more in their children's human capital. Our primary strategy to obtain the unbiased estimates and isolate the causal effect is an instrumental variable approach, which is specified by a two-step regression model. First, we estimate the following model using the OLS procedure:

$$C_i = \phi_{ics} + \delta_1 X_i + \delta_2 Z_{sc} + \tau_{ics} \quad (1)$$

where C represents child support variables measured for the female-headed family i residing in county c and state s , I represents a vector of instruments, X is a vector of individual-level control variables, and Z contains state and county-level control variables. The vector of instrumental variables includes two variables that capture the administrative strength of state CSE programs. The first instrument measures state-level expenditures on non-welfare child support cases in the respondents' state of residence. The second instrumental variable represents the total amount of child support collected for non-welfare child support recipients. In the next step, to identify the impacts of child support receipt and payment on recipients' achievements, the values of C fitted in equation (1) are used to estimate the following model:

$$Y_i = \gamma C_i + \beta_1 X_i + \beta_2 Z_{sc} + \varepsilon_{ics} \quad (2)$$

where Y represents the measures of individual's achievements, such as educational attainments and employment.

Since our treatment variable (receipt of child support) is endogenous, a regular 2SLS model might cause a forbidden regression problem and produce inconsistent estimates. The forbidden regression issue arises when the first stage of a 2SLS model with a binary endogenous variable is estimated and predicted using an OLS specification. This approach does not account for the nature of the dependent variable and could lead to nonsensical predictions (e.g., probability estimated at more than 100%). An alternative solution to this methodological obstacle recommended by Angrist and Pischke (2008) is to employ a modified version of 2SLS which includes one additional stage. We use a probit model to regress the dichotomous treatment variable on a full set of instruments and exogenous variables (equation 3). Then, we substitute the predicted treatment variable obtained from the probit regression into the first stage of the 2SLS model as an instrumental variable.

$$\Pr(C_i = 1) = \Psi[\phi I_s + \delta_1 X_i + \delta_2 Z_s] \quad (3)$$

Our IV estimates show that recipients differ from non-recipients only in the likelihood of obtaining a high school degree. The coefficient on the indicator of child support receipt in the high school diploma equation is positive and statistically different from zero (Table 1), while the same coefficient from labor and economic well-being equations are statistically insignificant¹. We also evaluate the marginal effect of a one dollar increase in child support transfer on the outcomes of interest. Like previous models, none of the coefficients on child support payment demonstrates a significant relationship between the amount received and the indicators of achievement and measures of success. Our findings seem less surprising in light of the conclusions of our previous work on the effectiveness of CES program, where we documented no significant short-run improvement in recipients' material well-being and consumption (Babiarz,

Heydari- Barardehi & Mauldin, 2017). In fact, if incremental changes in the early-life resources of recipients lead to no significant improvement in their current well-being, we cannot expect to observe any lasting impact on their future achievements.

Table 1: OLS and IV estimates of the impact of child support receipt on educational attainment.

Variables	High school diploma		Bachelor's degree	
	OLS	IV	OLS	IV
Child support receipt	-0.0180 (0.0343)	0.3261* (0.1901)	0.0442 (0.0361)	-0.2457 (0.174)
Female	-0.0446 (0.0285)	-0.0519 (0.0319)	0.0851*** (0.0286)	0.0913*** (0.0305)
Black	0.0048 (0.0311)	0.0572 (0.0394)	0.1090*** (0.0351)	0.0652 (0.0463)
Hispanic	-0.0395 (0.0522)	-0.0101 (0.0561)	0.0426 (0.0375)	0.0178 (0.0372)
Mother's non-child support income (1997)	-0.0056 (0.0000)	-0.0026 (0.0000)	0.0095 (0.0000)	0.0006 (0.0001)
Mother's years of schooling	0.0028 (0.0110)	-0.0073 (0.0123)	0.0166 (0.0102)	0.0251** (0.00982)
Cognitive ability index	-0.0016** (0.0000)	-0.0020** (0.0000)	0.0463*** (0.0000)	0.0500*** (0.0000)
Indicators of self-reported health status	Yes	Yes	Yes	Yes
Constant	0.5710*** (0.1982)	0.6752*** (0.2233)	-0.4991*** (0.1080)	-0.5874*** (0.1139)
Observations	920	920	920	920

Notes: Robust standard errors in parentheses. Significance levels are: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 2: OLS and IV estimates of the impact of child support receipt on labor outcomes.

Variables	Unemployment status		Log of earnings	
	OLS	IV	OLS	IV
Child support receipt	-0.0168 (0.0201)	-0.0401 (0.2163)	-0.3142* (0.1760)	-2.5014 (2.4482)
Experience	-0.0003*** (0.0000)	-0.0003*** (0.0064)	0.0024*** (0.0006)	0.0027*** (0.0008)
Female	-0.0795*** (0.0219)	-0.0791*** (0.0232)	-0.4433* (0.2308)	-0.4012* (0.2271)
Black	-0.0356 (0.0337)	-0.0390 (0.0452)	0.2251 (0.2266)	-0.0932 (0.4616)
Hispanic	-0.0523 (0.0390)	-0.0543 (0.0409)	0.8152*** (0.3113)	0.6290* (0.3411)
Mother's non-child support income (1997)	-0.0010* (0.0000)	-0.0011 (0.0000)	0.0028 (0.0000)	0.0008 (0.0000)
Mother's years of schooling	0.0085* (0.0050)	0.0091 (0.0083)	0.0384 (0.0407)	0.0925 (0.0797)
Indicator of welfare receipt	0.1341*** (0.0291)	0.1318*** (0.0341)	-1.2763*** (0.3170)	-1.4512*** (0.4192)
Cognitive ability index	-0.0003 (0.0000)	-0.0003 (0.0000)	0.0016*** (0.0000)	0.0017*** (0.0000)
County-level unemployment rate (2009)	0.00154 (0.0034)	0.0014 (0.0039)	0.0014 (0.0425)	-0.0098 (0.0477)
Indicators of educational attainment	Yes	Yes	Yes	Yes
Indicators of self-reported health status	Yes	Yes	Yes	Yes
Constant	0.1912** (0.0785)	0.1842 (0.1154)	2.1833* (1.3092)	1.5085 (1.4881)
Observations	916	916	916	916

Notes: Standard errors in parentheses. Significance levels are: *** p<0.01, ** p<0.05, * p<0.1.

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