

## Data note 3/2017

# Exposure to Long Term Poverty in Childhood and Adult Economic Outcomes

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In any given year, both the U.K. and U.S. have a large part of their population living in poverty. In the UK, 2015/2016 estimates showed 16% of all people living in low income<sup>1</sup> before accounting for housing costs. The percentage is greater at 22% when housing costs are accounted for, as housing consumes a larger share of income for low income households. Even higher poverty rates were recorded among children, at 20% before accounting for housing costs and 30% after. The pattern of higher poverty levels among children than adults also holds in the US. For 2016, the U.S. Census Bureau estimated the official poverty rate at 12.7%, and its estimate of poverty among children was 18%<sup>2</sup>. The high rate of poverty among children is particularly disconcerting, given the large body of evidence documenting the negative association between poverty and children's health, nutrition, social and cognitive development, their home and neighbourhood environments, and their achievement in school<sup>3</sup>. Recognition of these adverse effects is reflected in a variety of policies. These include the U.K.'s Child Poverty Act of 2010, which set ambitious targets towards dramatically reducing childhood poverty by 2020/2021<sup>4</sup> (targets that were later abolished by the government in 2016), the Child Poverty Bill being put forward in Scotland to make it the only part of the UK with statutory targets to reduce child poverty by 2030, and a variety of policies and programs in the U.S. across all levels of government.

As part of our ongoing UBDC work to develop an Agent Based Model of Social Exclusion, we have been examining the extent to which childhood poverty experiences, particularly persistent exposure to poverty, affect economic outcomes in adulthood. This work utilizes national data collected in the U.S. and the U.K. to examine these relationships. The U.K. sources used are the Understanding Society data and its predecessor the British Household Panel Survey (BHPS). For the U. S., we use the Panel Study of Income Dynamics (PSID). As a measure of the persistence

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<sup>1</sup> A relative poverty measure: living in a household whose income is at 60% of the median for that year

<sup>2</sup> It is important to note that the UK and US percentages are not directly comparable to each other owing to the methods used to develop the poverty threshold values. The US poverty lines are released annually by the Department of Health and Human Services. Thresholds tend to be lower than what 60% of median income for comparable families would be.

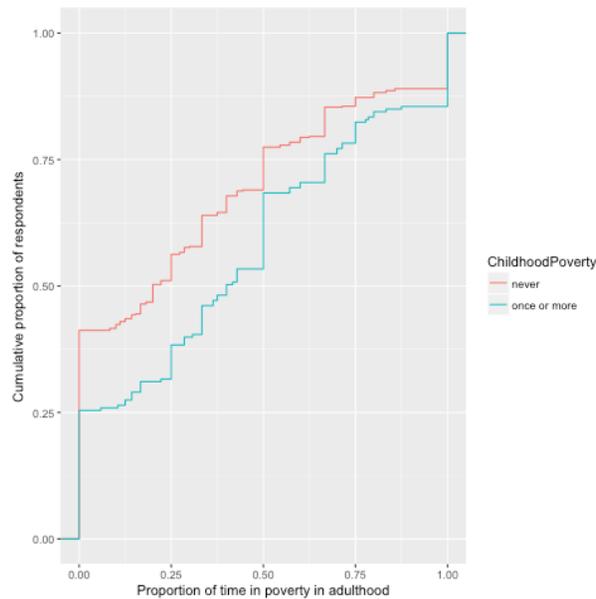
<sup>3</sup> See for example the works of Duncan, G. (1994); Brooks-Gunn and Duncan (1997); Engle and Black (2008); Evans, G. (2004); Miller and Korenman (1994).

<sup>4</sup> Kennedy, Steven. "Child Poverty Act 2010: a short guide." *London: House of Commons Library* (2014).

of childhood poverty, we use the proportion of time a given person was in poverty<sup>5</sup> prior to turning 18 years old. The same metric is used to measure persistence of poverty in adulthood at 18 years old or older. Due to the greater longevity of the PSID as compared to the Understanding Society and BHPS data, experiences of poverty are measured over longer periods per individual in the PSID. We therefore set different criteria for inclusion in the analysis below. PSID subjects must have been surveyed at least four times both as an adult and as a child. With BHPS and Understanding Society, we require at least one survey during childhood and two or more during adulthood. Owing to these criteria and the length of time these surveys were collected, subjects retained for the analysis below are fewer and significantly younger in the UK than in the US.

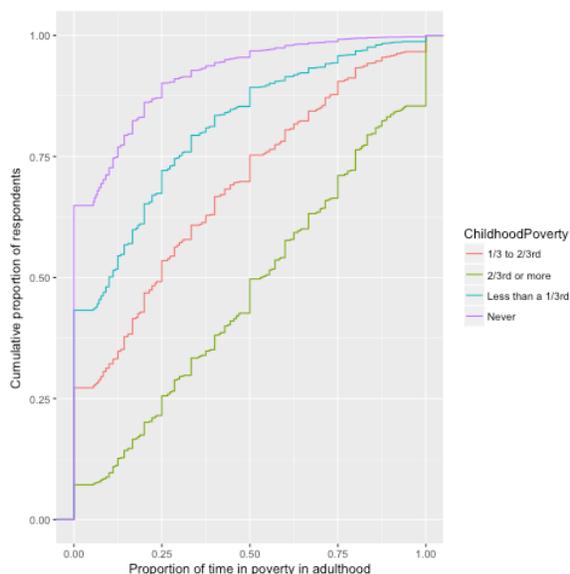
Figures 1 and 2 illustrate the cumulative distribution of persons experiencing poverty as adults, grouped by their childhood experience in the U.K. and U.S. datasets, respectively. In both, those experiencing no childhood poverty are more likely to avoid a high incidence of poverty as adults, relative to their counterparts who experienced some or high levels of poverty in childhood. In the US, where we have more data, the patterns suggest a strong relationship between childhood and adult experiences, as illustrated by the progressively worse outcomes as the intensity of childhood poverty increases.

*Figure 1. Adult poverty by childhood experience in the selected subset of Understanding Society and BHPS participants (N=712)*



<sup>5</sup> In this work, poverty lines for the U.K. are set at 60% of the median income. For the U.S., 150% of the poverty threshold is used.

Figure 2. Adult poverty by childhood experience among the selected subset of PSID participants (N=11038)



Using both these datasets, we focused on subjects that were in childhood poverty a third or more times, to identify key variables for better outcomes as adults despite a childhood of persistent poverty. The proportion of times a person is in poverty in adulthood is modelled as a function of childhood poverty persistence, sociodemographic variables, labour market attachment, and neighbourhood and county level variables<sup>6</sup>. We employ a logit model with the U.K. data because of the low number of observations. We employ a mixed logit model that incorporates random effects for the state in which the respondent primarily lived, the original 1968 family unit from which a respondent is descended, and the time period in which the respondent turned 16, to account for broad changes in the economy. This allows us to examine the presence of any random effects that may be present at the family, state, or time period levels.

Among Understand Society and BHPS respondents who met the criteria set above for inclusion in this analysis (N=192), we find that there is a strong probability of adulthood poverty among those who experienced poverty in childhood a third or more of the time. In fact, about three-quarters of these persons have experienced poverty in adulthood at least once over the course of times they were surveyed in adulthood. However, we could not reasonably test the effect of the intensity of poverty beyond the one-third level on adult outcomes because many in this sample

<sup>6</sup> Sociodemographic variables include age, sex, race, education, marital status, and number of children. Labor market attachment is measured by the proportion of times across surveys in adulthood that the person indicated they were employed. In the U.S., data on whether the person was ever jailed, the poverty level in the census tract where the person grew up until age 13, and the absolute upward income mobility in the county that the person spent the most number of years until age 13 are also included. The absolute upward mobility is the mean rank achieved by children born to parents at the 25th percentile of the income distribution. See Chetty, Raj, et al. "Where is the land of opportunity? The geography of intergenerational mobility in the United States." *The Quarterly Journal of Economics* 129.4 (2014): 1553-1623 for more on this measure.

were observed only once in childhood. Respondents tended to do better if they were older by the last observation and if they were married. Having no qualification or education levels below high school contributed to the proportion of times poverty was experienced as compared to those above those levels, all other things being equal. Men were more likely to end up in poverty at higher rates, all other things being equal. Attachment to the labour market was also found to be important, reducing the persistence of poverty in adulthood.

In the U.S., a wider set of variables were tested. The criteria for inclusion was also stricter with four or more observations in childhood and another four or more in adulthood. The final model using those with childhood experiences more than a third of the time had 3443 individuals who originated from 661 original families. Here again, owing to the intercept of the model, individuals who were in poverty a third or more of the time were very likely to experience poverty in adulthood. We also find that education levels at the less than high school level contributed to higher incidences of poverty in adulthood; however, the effect was worse for blacks than whites. While there was no difference in high school finishers and those above that level among whites, for blacks, not proceeding past high school was associated with increased poverty incidence in adulthood as compared to those achieving higher education levels. Still, their prospects were better than those who did not complete high school. Marriage had a similar effect of reducing poverty incidence in adulthood with the US data. As opposed to the UK data, we find that men tend to have lower adult poverty outcomes as compared to women, all other things being equal. The incidence of poverty in adulthood increases with the number of children. Finally, those that have ever been jailed were much more likely to experience poverty.

Among PSID respondents, the proportion of time in poverty continues to have an adverse impact on adult poverty outcomes above and beyond being in poverty a third of the time. Poverty levels in the census tract in which respondents lived before turning 13 were associated with increased proportion of adult poverty experiences. Just as in the UK, those with stronger attachment with the labour market, as measured by the proportion of time they were working when surveyed, had lower incidence of poverty. Further, those surveyed in counties with high levels of upward mobility had lower incidences of poverty in adulthood, though the effect here seems to be somewhat weakly tempered by race. We also find strong family effects, with members of some families having a high chance of reducing adult poverty while members of other families have fairly low chances of reducing adult poverty even when controlling for the other factors discussed above. Modest time-period effects were also observed with those turning 16 in the 1990s and 2000s having better chance of reducing adult poverty as compared to those who turned 16 in the 1980s or prior periods. This may have to do with the general state of the economy and the opportunities available when these individuals came of age to join the labour force. State level effects were very weak.

Overall, our analysis focused on a group of individuals whose childhood was marked by poverty. We show that both in the UK and US, the chances of experiencing poverty as adults were large for those who grew up in persistent poverty. For the US in particular, these chances increased along with increases in the proportion of childhood spent in poverty. Marriage, education, and a strong attachment to the labour market were associated with reduced poverty incidence in adulthood. Both living in a low poverty neighbourhood and the broader health of the economy, as captured by intergenerational income mobility, were important predictors of reduced adult poverty

rates. From a policy point of view, interventions that address repeated childhood poverty are important to achieving reductions in adult poverty as are efforts that target higher educational attainment. In addition, tailored programs that allow for continuous employment, and opportunities to reside in low poverty and high absolute mobility areas during early childhood can help achieve better adult economic outcomes.

### **NetLogo citation**

Wilensky, U. (1999). NetLogo. <http://ccl.northwestern.edu/netlogo/>. Center for Connected Learning and Computer-Based Modeling, Northwestern University, Evanston, IL.