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ABSTRACT

Very low household wealth, or net worth poverty (NWP), is the modal form of poverty for American children, yet little is understood about how it is experienced across childhood or its associations with children's human capital accumulation. Using data from the 1999-2021 waves of the Panel Study of Income Dynamics on a cohort of children followed from birth to age 20, this study examines the influence of NWP exposure and duration across a child's life course on high school graduation and college attendance. Findings show that through age 18, children experienced more frequent and enduring spells of net worth poverty than income poverty. NWP was negatively associated with high school graduation and college attendance independent of the effects of income poverty. Effects were more pronounced for college attendance than for high school graduation, perhaps reflecting the resource-intensive nature of college. The negative effects of NWP were most pronounced for the 31% of the sample that was NWP for at least four waves. The timing of NWP relative to developmental stage did not seem to matter, as children were at risk regardless of the age at which they experienced net worth poverty.

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Introduction

Wealth plays a central role in shaping children's development and life chances. Defined as a household's assets minus its debts, wealth is a strong and persistent predictor of child well-being—including cognitive development, academic achievement, physical and mental health, and socioemotional development—even after accounting for income (Boen, Keister and Graetz 2021; Diemer, Marchand and Mistry 2020; Elliott, Destin and Friedline 2011; Gibson-Davis and Hill 2021; Faundez and Kaestner, 2024). Wealth enables families to invest in high-quality housing and childcare; to buffer economic shocks; and to provide opportunities that build skills, networks, and expectations for the future (Shanks & Robinson, 2013; Yeung & Conley, 2008). Because it is accumulated over time and passed across generations, wealth has enduring multigenerational effects and can compound economic advantage even from modest beginnings (Pfeffer & Killewald, 2015; Pfeffer & Schoeni, 2016). Conversely, children who grow up in low-wealth households are less likely to build wealth as adults, limiting both the short- and long-term benefits of asset ownership (Pfeffer & Killewald, 2018, 2019). As such, the wealth status of children can inform broader patterns of inequality and social mobility (Gibson-Davis & Percheski, 2018).

Although wealth has been established as a key influence in children's development and their future economic well-being, scholarship has not yet explored the role of wealth deprivation, or net worth poverty. Net worth poverty (NWP) refers to households whose wealth is less than one fourth of the federal poverty line (in 2024, this equates to $7,953 for a family of four). In 2019, the NWP rate for children was 42%, 3.5 times higher than the income poverty rate (Gibson-Davis et al., 2021). Conditional on being poor, over 90% of all poverty experiences involve NWP, either alone or in combination with income poverty. The high prevalence of NWP

is especially concerning given the role of wealth in promoting children's development. If wealth supports investment, buffers instability, and shapes future expectations, then wealth scarcity may impose unique and compounding disadvantages. These effects are unlikely to mirror those of income poverty (IP) alone, as they reflect both limited cash flow and the absence of financial reserves.

This study's primary aim is to examine the consequences of NWP for children's human capital acquisition. Education plays a central role in shaping adult employment, health, and family formation, yet little is known about how NWP influences educational outcomes. In contrast, a large and robust body of research has documented the effects of income poverty on schooling, particularly when poverty begins early in life or persists over time (Duncan, Magnuson and Votruba-Drzal 2014; Duncan, Ziol-Guest and Kalil 2010; Page 2024). Yet wealth and income are complementary and distinct financial resources; (correlated at the 0.50 level amount families with children; Gibson-Davis and Percheski 2018)**,** with both wealth and income having complementary, but statistically distinct, corrections with child outcomes (Miller et al. 2021; Yeung and Conley 2008).

In this study, we explore how wealth deprivation, as measured by NWP, is experienced across a child's life course and how relates to human capital attainment in early adulthood. We focus on the cumulative effects of low wealth by studying the amount of time over the course of childhood that children are residing in households with net worth poverty and the its association with human capital accumulation. Data for our study come from the 1999–2021 waves of the Panel Study of Income Dynamics (PSID), the only large-scale longitudinal data source that contains contemporary information on family wealth and offspring's human capital attainment over the course of childhood. We measure the duration and persistence of NWP for children

from birth through age 18 and then predict how these measures relate to high school graduation and college attendance at age 20. We also compare children who experience NWP in early, middle, and late childhood to consider whether the developmental timing of NWP exposure matters. For all models, we analyze the sensitivity of results to the inclusion of IP.

This study makes several contributions. First, we document how children experience NWP (as well as IP) from birth to young adulthood. This research is novel in extending prior work documenting the persistence of IP across a child's life course (Ratcliffe 2015). Second, our study offers the first estimates associating childhood experiences of NWP with human capital attainment, a key indicator of later labor market success. Our findings reveal the importance of considering wealth and income towards a fuller understanding of the effects of economic deprivation over the course of childhood. Finally, we build on prior literature regarding the differential effects of income poverty based on depth of poverty and timing with respect to children's development by also considering depth and timing of NWP

Results indicate that NWP is relatively pervasive over a child's life course. More than 20% of children experienced five consecutive waves of NWP, four times higher than the percentage of children who experienced five consecutives of IP. NWP was negatively related to both the likelihood of graduating from high school and attending college. Larger effects were found for college attendance than high school completion, perhaps reflecting the resource intensive nature of college attendance. NWP exhibited a dose-response pattern of effects, with larger estimates found for children whose experiences of NWP were more intense. The one-third of the sample that experienced net worth poverty for at least half of the observed waves was associated with a 11 to 19% decrease in college attendance. Findings related to timing of experiences of NWP were mixed as to whether adolescent, relative to early or middle childhood,

was a time of heightened sensitivity. Estimates of NWP were also qualitatively similar when including IP thus revealing a potentially unique pathway of low wealth affecting human capital accumulation.

This study extended the growing body of research on the consequences of wealth by examining the specific role of wealth deprivation across a child's life course and its association with human capital attainment. Using longitudinal data that follow a cohort of children from birth through early adulthood, we provided the first estimates of NWP prevalence from birth to age 18. In doing so, we contribute new estimates on the cumulative nature of wealth deprivation in childhood and its implications for high school graduation and college attendance.

Background

Net Worth Poverty

Wealth and income are distinct but interdependent dimensions of economic well-being, each shaping family stability, opportunity, and long-term outcomes in different ways. Although they are interdependent and often reinforce one another, they are only moderately correlated—around 0.50—even among households with children (Gibson-Davis and Percheski 2018), indicating that they capture overlapping but non-equivalent forms of advantage and disadvantage (Keister 2018). Income is the flow of funds into a household over time from wages and salaries, public assistance, rents, and other sources. By contrast, wealth is the stock of financial resources available to a household at a single point in time, including its assets (e.g., home value, savings accounts, stock market investments) minus debts (i.e., education loans, mortgages, credit card debt). Income and wealth operate in tandem to affect the fiscal health of a household, and a shortage of either can create challenges that can be difficult to overcome. Further, stocks of resources can affect flows. For example, inadequate levels of wealth threaten the flow of

resources because wealth allows families to smooth consumption during unexpected shortfalls and address unexpected crises, such as a medical emergency or sudden job loss. Empirical studies have established the unique predictive validity of wealth over and above income, indicating that wealth acts more than an income proxy.

Researchers first introduced the concept of NWP to extend the income-centric definition of economic precarity to consider wealth deprivation (Haveman and Wolff 2004; Haveman and Wolff 2005). This broader conceptualization recognizes that a household's economic resources and financial stability hinge not only on income, but also wealth. Importantly, poverty definitions that focus exclusively on flows do not adequately capture how households achieve financial security and are inadequate representation of families' available resources during an economic crisis (Haveman and Wolff 2004). Additionally, poverty encompasses multiple dimensions of material, social, and community well-being that are unlikely to be adequately represented by measures of income alone (Aaberge and Brandolini 2015; Alkire and Santos 2013). Wealth speaks to housing and neighborhood choices that inform community-level resources and opportunities (Pfeffer and Schoeni 2016; Yellen 2016). Additionally wealth and income shape household budget constraints, suggesting that both types of resources are considerations in defining poverty (Brandolini, Magri and Smeeding 2010).

NWP can reflect one of two mutually exclusive conditions: asset poverty (having insufficient asset levels to surpass the NWP threshold, regardless of debts) or debt poverty (having asset levels that exceed the NWP thresholds but debt levels that bring wealth below the poverty threshold). Families who are asset poor versus debt poor likely face different economic constraints with important implications for children's capital accumulation (Dräger, Pforr and Müller 2023; Gibson-Davis, Keister and Gennetian 2024). Asset-poor families lack the financial

reserves that can be used to buffer economic shocks, invest in enrichment opportunities, or support children's education. In contrast, debt-poor families may have assets that exceed the NWP threshold but carry enough liabilities to fall below it; these families, while technically net worth poor, may retain access to credit markets or possess wealth-generating assets like homes or college degrees. As a result, debt-poor households may experience more financial flexibility and long-term economic potential than asset-poor households, who lack both liquidity and collateral. For children, this distinction matters: families without assets may struggle to afford extracurriculars, tutoring, or college costs, and may also experience higher levels of financial stress and instability. In this way, asset poverty is likely a stronger and more direct constraint on educational attainment than debt poverty, which may reflect a different profile of financial strain—one that coexists with other forms of economic privilege or upward mobility (Dräger et al. 2023). Previous research has shown that most children who experience NWP are asset poor rather than debt poor (Gibson-Davis et al. 2022), with mixed results as to whether the lack of assets or the presence of debts poses a risk to educational attainment (Berger and Houle 2019; Grinstein-Weiss, Shanks and Beverly 2014; Nepomnyaschy et al. 2021)

NWP and Human Capital Attainment

NWP may affect educational attainment through several theoretical mechanisms (Gibson-Davis and Hill 2021). First, NWP captures parents' capacities to invest in educational goods and outcomes for their children. Parents who are net worth poor may have low levels of liquid assets or savings, potentially reducing capacity to invest in high-quality childcare, educational resources, enhanced home-learning environments, and other cultural experiences that contribute to learning (Elliott et al. 2011; Gibson-Davis et al. 2022; Grinstein-Weiss et al. 2014). Moreover, parents who are net worth poor may be constrained in their housing choices (Yellen 2016),

potentially having to live in areas with lower resourced learning environments. Net worth poverty may also impede access to credit markets that could be used to fund higher education (Addo, Houle and Simon 2016).

Second, NWP may increase the economic and psychological stress of pursuing higher education (Shapiro 2004). Children who experienced NWP growing up may be aware of their family's financial pressures and the lack of financial resources to provide a backstop should the child decide to pursue education beyond high school (Pfeffer 2018; Zang, Gibson-Davis and Li 2024). Without this backstop in place, children may decide it is too risky and stressful to enroll or stay in college, lest they fail to achieve a degree that would allow them to pay down student debts (Addo et al. 2016). Teens who experience NWP may also feel that they need to contribute to household earnings or provide childcare, increasing the economic and psychological stress of attending college.

Third, NPW is both a predictor, as well as a reflection, of social class (Conley 1999), Social class influences how individuals, including children, are perceived and treated by others, as well as how they view themselves, shaping their behaviors and academic performance (Destin et al. 2012; Mistry et al. 2015; Shutts et al. 2016). NWP may lead parents to perceive that they are of a lower class, with potential negative repercussions on their sense of self and self-efficacy, which may in turn negative impact their parenting (Sherraden, 1991). Children who are NWP may grow up in more constrained social environments, with fewer opportunities to learn and acquire the knowledge and skills necessary to navigate education after high school. Children residing in net worth poor households may, therefore, be less likely to learn about the economic returns to completing high school and obtaining an advanced degree.

Fourth and finally, NWP may inhibit parents' and children's internalized expectations about potential life outcomes (Sherraden, 1991). Parents and children who are net worth poor may have normative expectations about educational achievement that do not include high school completion or college attendance (Destin and Oyserman 2009; Diemer et al. 2020; Zhan and Sherraden 2003). NWP could also reduce parents' optimism about their children's chances to be economically mobile or financially successful (Yeung & Conley, 2008), possibly causing parents to underinvest in their children's education.

Taken together, these mechanisms highlight how NWP is not only aligned with, but also can be distinct from, income poverty in its implications for human capital attainment. Like income poverty, NWP reflects limited parental capacity to invest in children's education and is often accompanied by heightened material and psychological stress in the household. However, unlike income, which fluctuates over time, wealth reflects a longer-term accumulation of resources and opportunity. As such, NWP may function as a marker of social class and perceived life chances, shaping children's educational aspirations and self-concepts in ways that are less immediately visible but potentially powerful. The absence of wealth may signal to both parents and children that the future is uncertain or precarious, leading to lower expectations, reduced planning, and more constrained decision-making around schooling. These pathways suggest that NWP operates through a set of mechanisms that both overlap with and extend beyond those associated with income poverty, warranting its consideration as an independent dimension of economic disadvantage.

This conceptual distinction between wealth and income is supported by a growing body of empirical research demonstrating that household wealth, typically measured in quintiles, is a predictor of children's educational attainment, with effects that are not explained by income.

Children raised in higher-wealth households are more likely than their lower-wealth peers graduate from high school, attend college, and complete a college degree (Conley 2001; Jez 2014; Nam 2020; Rauscher 2016). In one of the few studies to examine how wealth predicts both high school completion and college attendance, Pfeffer (2018) found that children in the highest wealth quintile were more likely to graduate high school and attend college than children in the lowest quintile; the effects were larger for college attendance than high school completion. Consistent with these studies, other work that has examined children's outcomes before age 18 finds inverse correlations between wealth, measured in levels, and academic achievement (Faundez and Kaestner 2024; Grinstein-Weiss et al. 2014; Moulton et al. 2021; Yeung and Conley 2008). In all of this empirical work, the predictive effects of wealth remained after measures of income levels were included, suggesting that wealth effects operate independently of income effects (Diemer et al. 2020; Miller et al. 2021).

To date, no studies have directly examined the association between NWP and human capital attainment. Existing research on NWP has instead focused primarily on outcomes observed during childhood, particularly before age 18. Gibson-Davis and colleagues, using data from the PSID, considered the joint effect of net worth and income poverty on reading and math scores for children ages 6 to 18. Net worth poverty was associated with declines in reading and math scores; this effect of NWP was similar in magnitude to, and statistically indistinguishable from, the effect of income poverty. This work, along with other work on NWP on adult health (Gibson-Davis et al. 2023), suggests that both net worth and income poverty are uniquely associated with deleterious effects.

Timing and Duration Effects of NWP

Previous research on income poverty shows that its effects on child outcomes vary by both persistence and developmental timing, with longer durations of income poverty linked to worse outcomes in adulthood (Page 2024; National Academy of Sciences, 2019). Children who experience sustained poverty are less likely to graduate from high school and tend to complete fewer years of schooling than those whose poverty is shorter-lived (Hartley, Toppenberg and Dhongde 2024; Ratcliffe 2015). Its impact is especially pronounced when exposure occurs during early childhood, a period that is particularly sensitive to economic hardship (Duncan et al. 2012; Page 2024).

In this study, we ask whether the effects of net worth poverty, like those of income poverty, vary by persistence and developmental timing. Despite growing interest in wealth-based disadvantage, previous research has not addressed the prevalence of childhood NWP or its variation by the child's age at exposure.

In terms of prevalence, we expect, consistent with findings on income poverty (Ratcliffe, 2015), that the duration and pattern of NWP exposure will shape its effects. Longer and more consistent exposure to NWP may indicate deeper or more entrenched financial hardship, which is likely to exert stronger negative effects on educational attainment. In contrast, NWP observed in only a single wave may represent a brief period of asset depletion or instability, with fewer long-term consequences for children's outcomes. The nature of persistence may also be important: consecutive spells of NWP, as opposed to intermittent ones, may reflect sustained economic vulnerability and fewer opportunities for families to buffer hardship or recover over time. This lack of recovery time could compound disadvantage, leading to more pronounced effects on educational trajectories.

For developmental timing, in contrast to the effects of income, we hypothesize that NWP may be more salient when experienced during adolescence rather than earlier in childhood. Miller and colleagues (2021) propose two primary reasons why the effects of wealth may become more pronounced as children grow older. First, adolescents are more likely to recognize and understand their family's financial circumstances. This awareness may lead them to adjust their expectations or behavior based on what they perceive as realistic options for college or career paths. They may also begin discussing future plans with their parents, shaping not only their own aspirations but also parental expectations and support strategies. Second, adolescents spend more time in external environments—such as schools, neighborhoods, and peer groups—where wealth differences are more visible and consequential. These settings may expose them to class-based norms, social capital, and material disparities that reinforce or constrain their sense of opportunity. Despite these theoretical reasons to expect variation by developmental stage, Miller et al. found no empirical differences: the negative effects of low wealth on children's behavioral and cognitive outcomes did not vary across early, middle, and late childhood.

Study Hypotheses

This study examines four hypotheses. The first is that exposure to NWP will be longer than those of IP. Because NWP reflects cumulative processes, it may be harder to escape than income poverty, in which sources of cash are more likely to ebb and flow. Second, based on previous work examining how NWP negatively correlates with academic achievement (Gibson-Davis et al. 2022), we predict that NWP will be negatively related to both high school completion and college attendance. Third, akin to the effects of income poverty, we hypothesize that the NWP's duration will predict outcomes. In general, we expect that children who experience more and more consistent spells of NWP will have lower levels of human capital

achievement than those who experience it only once or more intermittently (as described below, we measure duration in terms of number of spells and length of those spells; a priori, we do not know if one will be important than the other). Fourth, based on the theoretical model proposed by Miller et al. (2021), we posit that children who experience NWP during adolescence will fare worse on our three educational outcomes than children who experience NWP at earlier ages. Fifth and finally, while we predict that IP will be negatively related to outcomes (Page 2024), we also hypothesize that the associations between NWP and outcomes will be robust to the inclusion of IP measures (Miller et al. 2021; Pfeffer 2018).

Methods

Data

The data for our study come from the PSID, the longest-running longitudinal household survey in the United States. Among the few available datasets, the PSID stands out for its comprehensive collection of household wealth and early human capital attainment outcomes, making it particularly well-suited for our analysis. The PSID has been collected biennially since 1999 and we data from 1999 to 2021, a total of twelve waves.

Our analytical sample included two cohorts of children observed between ages 0 and 5 in 1999 or 2001 (n = 2,825). We tracked these children and their households until the first survey wave in which they reached age 20. To maximize the sample size, we used a five-year age range at the first observation because limiting the sample to a smaller age range (e.g., 0–1) resulted in too few observations. Similarly, we used two cohorts instead of one to increase the sample size. We started with the 1999 cohort because it was the earliest cohort with wealth data collected in every wave. Before 1999, the PSID collected wealth data sporadically, precluding the calculation of spells for those earlier cohorts.

To be included in the sample, children needed to be aged 0–5 in 1999 or 2001 and living in a household headed by their biological parents or grandparents. Among the 2,825 children meeting these criteria, nearly half (44%) entered the sample at birth and were followed for 10 waves, 29% entered at ages 2–3 and were followed for 9 waves, and the remaining 27% entered at ages 4–5 and were followed for 8 waves. Most children (n = 2,494, or 88%) lived in households headed by one of their parents or their parent's spouse. Most children (n = 1,866, or 66%) were observed in all follow-up waves; the remaining 34% missed at least one wave. Conditional on missing waves, children averaged one wave of missing data. To account for missing data, we use multiple imputation in our analysis.

Variables

Dependent Variables

Our dependent variables were two binary measures of human capital attainment: high school completion and college attendance by age 20. Both measures were derived from the reported years of completed education, which were collected during each survey wave for all individuals aged 16 and older. We used the completed years of education reported when the respondent reached age 20. High school completion was defined as either completing 12 years of education or obtaining a high school diploma or a GED (3% of the sample reported receiving a GED). College enrollment was defined as enrollment in any postsecondary education institution, including two- and four-year colleges and universities, vocational schools, or technical institutions.

Independent Variables

Our key independent variable was *net worth poverty*, calculated using the imputed wealth variable from the PSID, with all values converted to 2021 dollars. Wealth was a household's

assets minus its debts. Assets included the values of checking and savings accounts, real estate, and stocks. Debt included, for example, the amount owed on home, medical, educational, or credit card loans. Following others (Haveman and Wolff 2004), we exclude the value of retirement assets and the value of vehicles from our net worth calculations because these are relatively illiquid and are not typically included in measures of NWP (Gibson-Davis, Gennetian and Keister 2021). (Below, we discuss the results of robustness checks that include the value of vehicles and pensions). Households were considered net worth poor if their net worth was less than 25% of the federal poverty line, a threshold that represented the minimum adequate standard of living for at least three months. This threshold was adjusted according to the family size and composition. In 2022, a household with two adults and two children would have been considered net worth poor if their household assets net of debts fell below $7,419.

With this net worth poverty variable, we created two measures of exposure, two measures of duration, one measure that combined exposure and duration, and two measures that analyzed NWP at different points in the child life course. We now explain each of these variables in tun.

Exposure was assessed with two variables. The first was a binary indicator of ever being net worth poor in any wave. The second was a proportion-based exposure measure, defined as the number of waves observed when a child was net worth poor over the number of waves observed. If a child was observed for 10 waves and was net worth poor for 5 of them, then their value on this variable would have been 0.5.

Our next set of variables assessed duration (or spells), again assessed with two measures. First, we counted the number of spells by calculating the number of times a child experienced NWP over consecutive waves. For example, if a child experienced three consecutive waves of poverty, exited NWP for one wave, but then experienced NWP for two consecutive waves, they

would have been counted as having experienced two spells. The other duration measure was the length of the longest spell. In the previous example, the child's longest spell would have been three waves.

We also combined aspects of exposure and duration into one measure to compare the relative effects of these measures in the context of one model. We divided respondents into one of six mutually exclusive categories: (1) never net worth poor, (2) one wave of NWP, (3) short duration and nonconsecutive, (4) short duration but consecutive, (5) long duration but nonconsecutive, and (6) long duration and consecutive. Children in the one-wave category referred to children who experienced one and only one wave of poverty. The classification of duration as short or long was based on whether children spent more than half their observed waves in NWP. The classification of consecutive versus nonconsecutive was based on whether the poverty waves were successive and not interrupted.

Note that the duration measures were inherently limited by the PSID's biennial nature. Because we did not observe NWP yearly, our measures might have been biased. We could have been inflating duration (if a spell ended in a non–survey year) or underestimating it (if spells began in non–survey years). Despite these limitations, the PSID was the best data source for assessing exposure and duration because, to our knowledge, it was the only longitudinal dataset with contemporary measures of wealth and educational attainment.

We had two measures analyzing the effects of NWP at different child ages. The first set measured the proportion of waves spent in poverty relative to the number of waves observed during three stages: early childhood (ages 0–6), middle childhood (ages 7–12), and adolescence (ages 13–18). If a child was observed at ages 2, 4, and 6 and was poor in one of those three waves, then the value for the proportion of poverty in early childhood would have been 0.33; if

the child was poor in all three waves, this value would have been 1. Because these measures were calculated relative to each of the three stages, all children had three separate measures, each ranging between 0 and 1: the proportion of waves spent in poverty in early childhood, the proportion spent in poverty in middle childhood, and the proportion spent in poverty in adolescence.

The second set of variables quantified the share of NWP experienced across each developmental stage, calculated by apportioning the share of poverty experienced by developmental stage. All children again had three variables. However, these three variables were interrelated and summed to 1, with early childhood being the omitted group. If the same child was observed for nine waves, spanning ages 2–18, but they experienced poverty only at age 2, then the value for the share spent in poverty in early childhood was 1, and the values for the share spent in poverty in middle childhood and adolescence was 0.

Measures of income poverty come from the PSID's household income variable, which included wages, salaries, social security, and other income received by the reference person and spouse/partner, taxable and social security income from other household members, and all transfer income (e.g., unemployment compensation). We converted income to constant 2021 dollars using the Consumer Price Index and then calculated IP using the 2021 federal poverty thresholds.

With this variable, we constructed several income poverty indicators. In our main models, we included a proportional exposure measure for IP, measured in the same way as the proportional exposure measure for NWP (e.g., the proportion of waves a child spent in IP over the total number of waves observed). In subsequent models, we included two measures of IP duration, measured in the same way as NWP duration (the count of individual IP spells and the

length of the longest IP spell). These supplementary models thus included measures of exposure and duration for both NWP and IP and indicated whether exposure duration effects of NWP remained when exposure duration measures of IP were included. To ensure that the NWP and IP variables exhibited sufficient variation from each other, we examined the correlation between exposure and duration measures of NWP and IP (please see Appendix Table 1). The exposure variable (the proportion of waves spent in NWP or IP) was correlated at 0.55 ($p < .001$), and the two duration variables – number of poverty spells and length of poverty spells – were correlated at 0.26 and 0.54, respectively ($p < .001$ for both).

Our models also included a set of control variables. Following others (Pfeffer, 2018; Miller et al., 2021), we included a set of time-invariant and time-variant characteristics that likely were related both to NWP and to the outcomes. The six time-invariant characteristics were measured in the wave when children were first observed: the child's gender (female = 1), the child's parity (firstborn = 1), the head's age (age >35 = 1), the head's race and ethnicity (non-Hispanic White, the omitted category; non-Hispanic Black; Hispanic; or other race and ethnicity), the head's education (less than high school, the omitted category; some college; or bachelor's degree or higher), and the head's marital status at the first wave (married = 1). The time-varying characteristics, measured as the proportion of time when the child lived in a household with these specific characteristics, were the head's sex (male, the omitted category; or female), the head's health status (good health with a self-rated score of 3 or lower, the omitted category; or poor health with a score above 3), living with grandparents (yes = 1), and living with three or more children (yes = 1).

Based on past work (Gibson-Davis et al. 2022; Miller et al. 2021; Zang et al. 2024), we expected the following characteristics to be positively associated with human capital outcomes:

the child was female or firstborn, and head's education, age, being married, and having good health. Each of these measures are positively predictive of greater household stability, increased resources, and more support for academic achievement. In contrast, we expected that living with grandparents or in larger households with three or more children might have been negatively associated with human capital outcomes, potentially reflecting resource dilution, caregiving burdens, or broader household instability.

Analyses

We used descriptive and regression techniques to address our five hypotheses. To examine the first hypothesis, the experiences of NWP over a child's life course, we calculated the number of waves and spells that a child experiences NWP. We then compared these experiences with those of IP to understand if NWP was more persistent and durable than IP.

All other hypotheses were analyzed using a variation of a linear probability mode. All models were weighted with standard errors clustered at the household level. In this model, each educational outcome is modeled as a function of NWP status and covariates, as indicated in the following equation:

$$Educ_i = \beta_0 + \beta_1 NWP_i + BX + \epsilon_i.$$

The NWP measure used varied depending on the hypothesis under consideration. To analyze the effects of exposure (our second hypothesis), NWP was measured through the binary and proportion-based exposure measure. To explore the effects of duration (our third hypotheses), NWP was measured through the number of NWP spells, the longest NWP spell, and the six-category variable that combined duration and exposure. To address whether NWP effects differed by developmental age (our fourth hypothesis), we included terms that measured the

share of NWP experienced by specific ages: 0–6, 7–12, and 13–18. All models included the control variables, as described above, as well as measures of IP exposure.

To address our fifth hypothesis, that NWP will be robust to the inclusion of income poverty, we reran the models that had the NWP exclusion and duration measures but also included the parallel IP measures of exposure and duration. In these supplementary models, we also tested whether the NWP exposure and duration estimates differed statistically from the IP exposure and duration estimates.

We chose LPMs over non-linear alternatives such as logistic regression primarily because LPM offered straightforward interpretation. As LPM treated the binary outcome of educational attainment as continuous, the coefficient could be interpreted directly as the change in the probability of the outcome associated with a one-unit change in the predictor. In addition, as our models included many controls and were estimated on a sample of over 2,700 people, concerns such as predicted probabilities outside the [0,1] range were less consequential in practice. To ensure the robustness of our findings, we ran all models as logit models. The direction, magnitude, and statistical significance of the results were substantially the same, indicating that our results were not driven by model specifications.

To address missing data across waves, we used multiple imputation. The imputation models included educational outcomes, wealth measures, and all covariates. We generated five imputed datasets and estimated models separately on each, pooling the results using Rubin's rule.

Appendix Table 2 provided descriptive statistics for the covariates adjusted in the model. Half the children (53%) in our sample were male. Most children lived with married parents in the year they entered the sample, and the most common education level among household heads was

having some college education (51%). Only 24% of the children lived with a household head who had a college degree. On average, children spent a small fraction of their childhood living with grandparents (8%), a household head in poor health (14%), or a female household head (25%).

Results

Experiences of NWP

Exposure to NWP is pervasive, as indicated by our descriptive results of the NWP exposure and duration measures (see Table 1). Remarkably, three-quarters of our sample experienced NWP for at least one wave, with children experiencing NWP an average of 3.4 waves (or 36% of the waves observed). The sample averaged slightly more than 1 spell, with the longest spell lasting an average of 2.6 waves.

To better understand the combined effect duration and exposure, we combined these measures into a categorical variable. Our findings show that only 25% of households were never net worth poor. Of those who experienced NWP at some point in the observed waves, 12% experienced NWP for only one wave, and 32% experienced NWP for less than half the waves. However, 31% of households experienced NWP for more than half the waves, suggesting that the experience of NWP is more prevalent than previous research suggests.

Our results also indicated a diversity of NWP experiences. A minority (12%) experienced only one wave of NWP. All other NWP experiences varied by exposure and duration. Roughly one-third of the sample experienced NWP for less than half the waves; 23% of those experiences were consecutive, and 9% were not. An additional one-third of the sample experienced NWP for more than half the waves observed, with a slightly higher fraction

experiencing those waves consecutively (19%) than nonconsecutively (12%). For those who experienced NWP for more than half the waves and those who did so for less than half the waves, consecutive waves of poverty were more common than nonconsecutive waves.

To provide additional context for models that examine variation in NWP by child age, we next describe differences in NWP experiences across development stages. We find that children experienced poverty at roughly equal rates across the ages considered: nearly 39% experienced NWP at ages 0–6, only slightly higher than the percentages observed at other ages (35% for 7–12 and 37% for 13–18). However, conditional on being net worth poor, experiences of NWP were disproportionately concentrated in the teen years (32%) relative to middle childhood (21%) or early childhood (23%).

These findings suggest that NWP experiences are widespread and tend to be continuous when they occur. However, the lived experience of NWP is somewhat heterogeneous, with substantial variation by exposure, duration, and age. Notably, only a slightly higher percentage of children avoided NWP (25%) than experienced it consecutively for more than half the waves observed (19%**).**

Spells of Net Worth Poverty Versus Income Poverty

Our results also suggest that NWP experiences are much more widespread than IP experiences. To explore this finding, we compared exposure and duration between the two poverty types (Figure 1) and found that a much higher percentage of households (75%) had ever experienced NWP than had ever experienced IP (49%): 52% of households experienced NWP for three or more waves, compared with only 20% for IP. Additionally, a notable fraction (21%) of children were net worth poor for at least seven waves—five times as many who were income poor for at least seven waves. Households were also much more likely to experience consecutive

waves of NWP than consecutive waves of IP (panel B). The most common spell length for both NWP and IP was one wave, with decreases in spell length after that. However, for those who were poor, NWP was harder to exit. For example, 15% of children experienced NWP over two consecutive waves, but 10% of children experienced IP over two consecutive waves. NWP was also stickier at the tail of the distribution. Cumulatively, 21% of children experienced at least five consecutive waves of NWP, but only 5% experienced the same for IP.

Net Worth Poverty and Educational Attainment

Next, we examined how NWP exposure and duration were associated with high school graduation and college completion (Table 2). We used five models to predict each outcome, with each model using a different definition of NWP exposure and/or duration. Most covariates were not significantly predictive of outcomes, but the direction of these coefficients was largely as anticipated (e.g., marriage was positively correlated, and family size was negatively correlated). Male household heads and those with higher education levels had children with higher education levels. One unexpected finding was that Hispanic ethnicity was positively and significantly associated with high school completion (but not college attendance). In bivariate models, however, Hispanic ethnicity was negatively associated with high school graduation, suggesting that the positive coefficient in the full model may reflect the influence of controls for NWP, IP, and other covariates.

In terms of exposure (Models 1 and 2), ever being NWP was not significantly predictive of outcomes. However, the share of time spent being NWP was negatively related to both high school completion and college attendance. Effect sizes were small, but larger for college attendance. For the proportion variable, a 10% increase in the proportion of childhood time spent

in poverty was associated with 0.46% reduction in high school graduation and a 2.5% reduction in college attendance ($p<.001$ for both).

In terms of duration (Models 3 and 4), the longest spell of NWP, but not the total number of spells, was negative and statistically negatively related to both outcomes. Again, the association was larger for college attendance than high school graduation. The effect size for college attendance (-0.032, $p<.001$) was six times as large as the effect for high school graduation (-.0054, $p<.10$).

The combination of NWP exposure and duration were not predictive of high school completion (Model 5). For college attendance, only the most intense duration measures – being NWP for more than half of the waves, either consecutively or non-consecutively – was predictive. Being net worth poor for at least half the waves but not consecutively was associated with an 11% reduction in college attendance; if those waves were consecutive, the effect size was 20% ($p < .001$ for both). Statistical tests indicated that these two coefficients differed at conventional levels from the estimate of experiencing one wave of NWP, but did not differ from each other. These tests provide suggestive evidence that the intensity of the NPW experience is predictive, with larger effects for children who experience it for longer durations.

Results thus far suggest that both exposure and duration predict high school graduation and college attendance, but associations were larger and more consistent across measures for college attendance. For college attendance, all the duration and exposure measures, except for ever being net worth poor and the number of NWP spells were negative. Findings suggest that intensity and duration predict effects, as the largest effect sizes were found for children who experienced a high intensity and high duration of NWP. Relative to children who avoided NWP,

children who experienced NWP for at least half the waves had a 11 to 20% reduction in the likelihood of college attendance.

We next considered how the developmental timing of NWP affected estimates (Table 3). These models incorporated two exposure measures: (1) the proportion of a given age range spent in NWP (e.g., the proportion of waves during age 0–6 where a child was NWP); and (2) for children who experienced NWP, the relative share experienced at each age range, with the share experienced at ages 0–6 serving as the reference category. These models include all control variables.

We found that NWP's developmental effects varied by outcome and by age, with more consistent effects for college attendance and for children who experienced NWP as teenagers. In terms of high school completion, NWP was a significant predictor only for those aged 13–18 (Model 1): a 10% increase in the proportion of adolescence (13-18) spent in NWP was associated with 0.49% reduction in high school graduation. The exposure estimates when children were 0–6 or 7–12 were quite small (e.g., .0002 for age 7-12) and did not approach conventional levels of statistical significance. The results did not indicate that conditional on experiencing NWP (Model 2), associations between NWP and high school graduation varied by the child's age**.** For college attendance, children who experienced NWP before age 7 or after age 12 were statistically less likely to attend college (Model 1). Effects at ages 13-18 (–0.129) were twice as large as those at ages 0–6 (–0.061). Notably, effect sizes for children aged 7–12, albeit not statistically significant, were of a similar magnitude to those for children aged 0–6 (–0.050). Results also show that for college attendance, conditional on age (Model 2), experiencing NWP at ages 7–12 or 13–18 was not associated with an increased risk relative to experiencing NWP at

ages 0–6. These results suggest that NWP might be a risk factor for college attendance, regardless of the age at which it is experienced.

Net Worth Poverty, Income Poverty, and Educational Attainment

The final set of models evaluate whether the effects of NWP persist after controlling for IP exposure and duration (Tables 4 and 5). Results indicate that NWP has a strong, negative association with educational attainment, suggesting that a lack of wealth constrains opportunity in ways not fully captured by income-based measures.

Inclusion of the IP exposure and duration covariates had little effect, either in terms of magnitude or statistical significance, on the NWP exposure and duration estimates (Table 4). When IP exposure and duration measures were not included (see Table 2), two of the three NWP measures (the exception is the number of poverty spells) negatively predicted high school completion and college attendance, with larger effect sizes found for college attendance. When we included IP exposure and duration measures, this pattern of findings remained: measures of NWP exposure and duration consistently and negatively predicted both outcomes, with more pronounced effects for college completion relative to high school completion. NWP estimates in both specifications were also similar in size and significance level. For example, without the IP exposure and duration measures, the longest NWP spell was associated with a 3.2% decline in the likelihood of college attendance ($p < .001$; Table 2, Model 4). When the longest IP spell was included in the model, the longest NWP spell was associated with a 3.1% decline in the likelihood of college attendance ($p < .001$).

These models reveal an important pattern: IP exposure and duration are more strongly associated with high school completion than with college attendance. Specifically, both the proportion of waves spent in IP and the length of the longest IP spell significantly reduce the

likelihood of completing high school, suggesting that IP is particularly detrimental early in the educational process. In contrast, only the longest spell of IP significantly predicted college completion. Additionally, the relative coefficient size indicated that IP has larger effects on high school completion than NWP, whereas the reverse is true for college attendance. In the high school completion models, IP coefficients were three to four times larger than the NWP coefficients (e.g., –0.023 for the longest income spell and –0.005 for the longest NWP spell). These larger effects for IP generally were statistically significantly larger than for NWP. In the college attendance models, the NWP coefficients were two to four times as large as the IP coefficients (–0.031 for the longest NWP spell and –0.016 for the longest IP spell). These estimates did not differ at conventional levels of statistical significance, but the difference in magnitude is nevertheless notable.

Including income in the developmental models (Table 5) had little effect on the associations between NWP and outcomes, consistent with the findings described earlier. Relative to models that excluded IP exposure and duration (Table 3), NWP was negatively related to high school completion for teenagers, with a virtually identical coefficient size. In addition, NWP was negatively related to college attendance for both preschool and teenage children, with the inclusion of IP making little to no difference in the relative sizes of those coefficients. Also consistent with results when all ages were considered together, IP was predictive of high school completion but not college attendance. Children who experienced IP in middle or late childhood had a lower likelihood of high school graduation. Income poverty coefficients were not statistically significant predictors of college attendance; however, the estimate for college attendance (–0.087) was similar in size to that of high school completion (–0.075) but had a

higher standard error. Importantly, there was no significant difference between net worth poverty and income poverty in these models.

Robustness Checks

We conducted several robustness checks. First, we considered the relative difference between asset and debt poverty. We redefined our NWP exposure and duration measures based on whether the poverty experienced reflected asset or debt poverty. Consistent with past findings, our analyses showed that most NWP experiences resulted from a lack of assets rather than the presence of debts. When we reran our models using asset poverty instead of NWP, we replicated our original findings, confirming that exposure to asset poverty largely drives the results. Additionally, very few households (less than 8%) experienced more than one wave of debt poverty. Given this lack of variation, many of the exposure and duration variables for debt poverty had no cases, precluding us from running separate models for debt poverty.

Second, we included the value of vehicles and pensions in our definition of wealth, re-estimated NWP status, and then ran all models using this revised definition of NWP. Using this definition of NWP did not substantively change our results. However, including vehicles and pensions attenuated the size of the estimates for some models of high school completion. For example, the coefficient associated with the longest spell of NWP was –0.0054 ($p < .10$) using our preferred definition and –0.0009 ($p > .10$) using the revised definition. For college attendance, the NWP coefficients attenuated when we used the revised definition relative to the preferred definition, but they remained statistically significant at conventional levels (e.g., –0.0322 for the longest NWP spell in the preferred definition vs. –0.0261 using the revised definition; $p < .001$ for both).

Third, we tested the sensitivity of the NWP measure by redefining the threshold using both 50% and 200% of the federal poverty line. For reference, the NWP threshold that we used in our main analyses—based on 2022 thresholds for a family of four with two children—was $7,419. A 50% NWP threshold was $3,710, and a 200% threshold was $14,838. Using these different thresholds substantively changed the results in only one instance: in models testing the effect of the 50% threshold, the NWP exposure and duration models were negatively related to high school completion. However, these estimates were not statistically significant at conventional levels.

Fourth and finally, we addressed potential left-censoring introduced by our sample construction. To ensure a sufficient sample size, the main analyses included children observed between ages 0 and 5, rather than selecting children at a specific age. As a result, some children contributed more waves of data than others. To assess the implications of this design, we constructed a restricted sample of children who were aged 0–1 at first observation—a group 56% smaller (n = 1,251) than the original sample. The results from this same-age cohort were substantively consistent with our main findings. As expected, standard errors increased due to the reduced sample size, but coefficients that were statistically significant in the broader 0–5 sample remained significant in the 0–1 cohort. These findings suggest that our results are not driven by differential exposure windows and are robust to more tightly defined sampling criteria.

Discussion

This study extended the growing body of research on the consequences of wealth by examining the specific role of wealth deprivation across a child's life course and its association with human capital attainment. Using longitudinal data that follow a cohort of children from

birth through early adulthood, we generated estimates of NWP prevalence from birth to age 18. In doing so, we contribute new information on the cumulative nature of wealth deprivation in childhood and its implications for high school graduation and college attendance.

We explored several hypotheses. First, we hypothesized that NWP would be more enduring than IP. Our results were consistent with these expectations as NWP spells lasted longer than IP spells. The majority of children who were net worth or income poor experienced that poverty state for only one wave. However, 31% of children who were net worth poor remained net worth poor for more than half the waves they were observed, with 19% of children experiencing those waves consecutively. Finding also suggest that once a household has fallen into NWP, it was challenging to move out of that state. More than 20% of children experienced five consecutive waves of NWP, four times higher than the percentage of children who experienced five consecutives of IP.

Second, we proposed that NWP exposure would be negatively related to educational outcomes (Pfeffer, 2018; Zang et al. 2024). Our expectation was based on previous theoretical and empirical work demonstrating that NWP negatively predicted children's cognitive outcomes (Gibson-Davis et al. 2024; Gibson-Davis et al. 2022). Our binary indicator of exposure (1=ever NWP) did not predict educational outcomes. However, the proportion of time experiencing NWP was associated with a small decreased likelihood of graduating high school or attending college (e.g., a 10% increase in the proportion of time spent in NWP decreased college attendance likelihood by 2.5%).

Third, we proposed that NWP would have a dose-response effect such that greater durations of NWP, particularly if spells of NWP were consecutive, would be associated with larger negative effects on educational outcomes. Our results were consistent with this

expectation, at least for college attendance (exposure and duration measures were not predictive of high school graduation). The largest magnitude declines were found for the 31% of the sample who were consecutively net worth poor for at least half the observed waves. If those waves were experienced consecutively, then the likelihood of attending college decreased by 19%; if they were non-consecutive, then the likelihood of attending college decreased by 11%. Both of these effects statistically differed from the effect of experiencing NWP for one wave, suggesting that, like income (Ratcliffe 2015), experiencing NWP for multiple waves carries a larger risk for educational attainment than experiencing for one wave. These two estimates did not differ from each other, but the larger effect size associated with consecutive waves suggests that the biggest risks of NWP are associated with those who experience it most intensely.

Our fourth hypothesize centered on developmental differences, and that any effects of NWP would be more pronounced for adolescents than for younger children. Our findings regarding this expectation were mixed. Adolescence appeared to be a sensitive time, at least for duration: the more waves an adolescent spent in NWP, the less likely they were to graduate from high school or attend college. Estimates for early and middle childhood were substantially smaller and, except for the effect of NWP in early childhood on college completion, were not statistically significant. However, when we summed NWP experiences across the three periods, we found that the association between NWP and outcomes did not differ between early childhood (the omitted category) and middle childhood or adolescence. These latter results indicate that experiencing NWP in middle childhood or adolescence relative to early childhood was not associated with a statistically significant increase or decrease in human capital attainment. While inconsistent with our proposed theoretical mechanisms, these findings do align

with previous work (Miller et al., 2021)., suggesting that wealth's predictive effects do not vary by developmental time period.

Our fifth and final hypothesis examined the effect of NWP when IP exposure and duration were included. Though IP was predictive of outcomes, we found that including IP covariates in models had little statistical effect on the relative size of the NWP covariates. Consistent with past findings (Gibson-Davis et al. 2022), these results indicate that NWP effects were not proxying for IP effects. Wealth and income appear to be capturing different economic constructs and analyzing the effect of income deprivation may not be the same as analyzing the effect of wealth deprivation. Instead, both IP and NWP may be risk factors for educational attainment.

Comparing the effects of NWP and IP on the outcomes was instructive, however, as to how NWP's association may differ between high school completion and college attendance. Across models, as has been found previously (Pfeffer 2018), the effects of NWP were more consistent and larger for college attendance than for high school completion. Additionally, IP, relative to NWP, was more strongly associated with high school completion and had a significantly larger negative effect on high school graduation than NWP. For college attendance, the reverse was true: NWP was associated with larger declines than IP, with estimates that were two to four times as large (though these estimates did not differ from each other at conventional levels of statistical significance). Wealth deprivation likely is more salient for outcomes that are asset-dependent, such as college enrollment. College attendance requires resource accumulation (e.g., sufficient savings, access to loans) in ways that high school completion does not. The resource-intensive nature of college could also leave children in net worth poor households feeling pessimistic about having the means of obtaining a postsecondary degree.

We note limitations to our study and threats to both internal and external validity. We focused on the independent associations of NWP and IP with educational outcomes. We did not explore the combined effects of NWP and IP (i.e., interaction terms) because the arguments and analyses needed to do this would become lengthy and is beyond the scope of what we can do in a single paper. An exploration of interactions between the two poverty types would be a worthwhile direction for future research. Threats to internal validity include the biannual nature of data collection, and that NWP was not observed on a yearly basis. Without year-over-year observations of NWP, we cannot calculate consecutive years spent in NWP and our measures of duration may be mis-specified. An additional threat to internal validity is that, as is common with most survey research, we could not address bias arising from unobserved variables. Our findings contribute to prior research demonstrating the unfavorable associations of low wealth and income poverty on educational attainment; nevertheless, these are not causal estimates. As for external validity, we were able to measure educational attainment only at age 20. We do not know if our results would generalize to educational attainment at later ages. Ideally, we would have included outcomes observed at age 25 (e.g., graduated from college) but our data included too few respondents who were that old at the end of our study period in 2021. Additionally, we addressed racial and ethnic differences only at a basic level despite the strongly racialized nature of NWP (Gibson-Davis et al. 2021). A complete analysis of racial and ethnic differences requires more attention than we could provide here.

. This study examined the relationship between NWP, the modal form of poverty for American children (Gibson-Davis et al. 2022) and children's human capital attainment. In doing so, we contribute to a well-developed literature on the effects of IP that has demonstrated the adverse consequences of income deprivation (traditionally measured as falling below the federal

poverty threshold) on child well-being (Page 2024). An expanded focus on NWP and IP—using thresholds like those that define IP— offers a broader understanding of economic deprivation through childhood and calls to attention the implications of insufficient net worth along with income as influencing children's future economic and social welfare. Areas of future research include identifying and, to the extent possible, uncoupling, the causal effects of low net worth from low income.

References

Aaberge, R.and A. Brandolini. (2015). Multidimensional poverty and inequality. Pp. 141-216 in *Handbook of Income Distribution*, edited by A.B. Atkinson and F. Bourguignon. Amsterdam: Elsevier.

Addo, F.R., J.N. Houle, and D. Simon. (2016). Young, black, and (still) in the red: Parental wealth, race, and student loan debt. *Race and Social Problems* 8(1):64-76.

Alkire, S.and M.E. Santos. (2013). A multidimensional approach: Poverty measurement & beyond. *Social Indicators Research* 112(2):239-257.

Berger, L.M.and J.N. Houle. (2019). Rising household debt and children's socioemotional well-being trajectories. *Demography* 56(4):1273-1301.

Boen, C., L.A. Keister, and N. Graetz. (2021). Household wealth and child body mass index: Patterns and mechanisms. *RSF: The Russell Sage Foundation Journal of the Social Sciences* 7(3):80-100.

Brandolini, A., S. Magri, and T.M. Smeeding. (2010). Asset-based measurement of poverty. *Journal of Policy Analysis and Management* 29(2):267-284.

Conley, D. (2001). Capital for college: Parental assets and postsecondary schooling. *Sociology of Education* 74(1):59-72.

Destin, M.and D. Oyserman. (2009). From assets to school outcomes: How finances shape children's perceived possibilities and intentions. *Psychological Science* 20(4):414-418.

Destin, M., S. Richman, F. Varner, and J. Mandara. (2012). "Feeling" hierarchy: The pathway from subjective social status to achievement. *Journal of Adolescence* 35(6):1571-1579.

Diemer, M.A., A.D. Marchand, and R.S. Mistry. (2020). Charting how wealth shapes educational pathways from childhood to early adulthood: A developmental process model. *Journal of Youth and Adolescence* 49(5):1073-1091.

Dräger, J., K. Pforr, and N. Müller. (2023). Why net worth misrepresents wealth effects and what to do about it. *Sociological Science* 10:534-558.

Duncan, G.J., K. Magnuson, A. Kalil, and K. Ziol-Guest. (2012). The importance of early childhood poverty. *Social Indicators Research* 108(1):87-98.

Duncan, G.J., K. Magnuson, and E. Votruba-Drzal. (2014). Boosting family income to promote child development. *The Future of Children*:99-120.

Duncan, G.J., K.M. Ziol-Guest, and A. Kalil. (2010). Early-childhood poverty and adult attainment, behavior, and health. *Child Development* 81(1):306-325.

Elliott, W., M. Destin, and T. Friedline. (2011). Taking stock of ten years of research on the relationship between assets and children's educational outcomes: Implications for theory, policy and intervention. *Children and Youth Services Review* 33(11):2312-2328.

Faundez, L.and R. Kaestner. 2024. "Wealth at birth and its effect on child academic achievement and behavioral problems." The Journal of Economic Inequality:1-35.

Gibson-Davis, C., C.E. Boen, L.A. Keister, and W. Lowell. (2023). Net worth poverty and adult health. *Social Science & Medicine* 318:115614.

Gibson-Davis, C., L. Gennetian, and L. Keister. (2021). Net worth poverty in child households by race and ethnicity, 1989–2019. *Journal of Marriage and Family* 83:667–682

Gibson-Davis, C.and H.D. Hill. (2021). Childhood wealth inequality in the united states: Implications for social stratification and well-being. *RSF: The Russell Sage Foundation Journal of the Social Sciences* 7(3):1-26.

Gibson-Davis, C., L. Keister, and L.A. Gennetian. (2024). Net worth poverty and child wellbeing: Black-white differences. *Children and Youth Services Review* 169:108047.

Gibson-Davis, C., L.A. Keister, L.A. Gennetian, and W. Lowell. (2022). Net worth poverty and child development. *Socius* 8.

Gibson-Davis, C.M.and C. Percheski. (2018). Children and the elderly: Wealth inequality among america's dependents. *Demography* 55(3):1009-1032.

Grinstein-Weiss, M., T.R.W. Shanks, and S.G. Beverly. (2014). Family assets and child outcomes: Evidence and directions. *The Future of Children*:147-170.

Hartley, R.P., L. Toppenberg, and S. Dhongde. (2024). Poverty and disadvantage throughout childhood in the united states. *Child Indicators Research* 17(6):2709-2737.

Haveman, R.and E.N. Wolff. (2004). The concept and measurement of asset poverty: Levels, trends and composition for the u.S., 1983-2001. *Journal of Economic Inequality* 2:145-169.

Haveman, R.and E.N. Wolff. (2005). Who are the asset poor? Levels, trends, and composition, 1983-1998. Pp. 61-86 in *Inclusion in the American Dream: Assets, Poverty, and Public Policy*, edited by M. Sherraden. New York: Oxford University Press.

Jez, S.J. (2014). The differential impact of wealth versus income in the college-going process. *Research in Higher Education* 55(7):710-734.

Keister, L. (2018). Income and wealth are not highly correlated: Here is why and what it means. *Work in Progress*, 29.

Miller, P., T. Podvysotska, L. Betancur, and E. Votruba-Drzal. (2021). Wealth and child development: Differences in associations by family income and developmental stage. *RSF: The Russell Sage Foundation Journal of the Social Sciences* 7(3):154-174.

Mistry, R.S., C.S. Brown, E.S. White, K.A. Chow, and C. Gillen-O'Neel. (2015). Elementary school children's reasoning about social class: A mixed-methods study. *Child Development* 86(5):1653-1671.

Moulton, V., A. Goodman, B. Nasim, G.B. Ploubidis, and L. Gambaro. (2021). Parental wealth and children's cognitive ability, mental, and physical health: Evidence from the UK millennium cohort study. *Child Development* 92(1):115-123.

Nam, Y. (2020). Parents' financial assistance for college and black-white disparities in post-secondary educational attainment. *Children and Youth Services Review* 110:104828.

National Academies of Sciences, E., & Medicine. (2019). *A Roadmap to Reducing Child Poverty*. Washington, DC: National Academies Press.

Nepomnyaschy, L., A.D. Emory, K.J. Eickmeyer, M.R. Waller, and D.P. Miller. (2021). Parental debt and child well-being: What type of debt matters for child outcomes? *RSF: The Russell Sage Foundation Journal of the Social Sciences* 7(3):122-151.

Page, M.E. (2024). New advances on an old question: Does money matter for children's outcomes? *Journal of Economic Literature* 62(3):891-947.

Pfeffer, F.T. (2018). Growing wealth gaps in education. *Demography* 55(3):1033-1068.

Pfeffer, F.T.and R.F. Schoeni. (2016). How wealth inequality shapes our future. *RSF: The Russell Sage Foundation Journal of the Social Sciences* 2(6):2-22.

Ratcliffe, C. (2015). Child poverty and adult success. *Washington, DC: Urban Institute*:855-902.

Rauscher, E. (2016). Passing it on: Parent-to-adult child financial transfers for school and socioeconomic attainment. *RSF: The Russell Sage Foundation Journal of the Social Sciences* 2(6):172–196.

Shapiro, T.M. (2004). *The Hidden Cost of Being African American: How Wealth Perpetuates Inequality*. New York: Oxford University Press.

Shonkoff, J.P.and D.A. Phillips. (2000). From Neurons to Neighborhoods: The Science of Early Childhood Development. Washington, DC: National Academies Press.

Shutts, K., E.L. Brey, L.A. Dornbusch, N. Slywotzky, and K.R. Olson. (2016). Children use wealth cues to evaluate others. *PloS One* 11(3):e0149360.

Yellen, J.L. (2016). Perspectives on inequality and opportunity from the survey of consumer finances. *RSF: The Russell Sage Foundation Journal of the Social Sciences* 2(2):44-59.

Yeung, W.J.and D. Conley. (2008). Black–white achievement gap and family wealth. *Child development* 79(2):303-324.

Zang, E., C. Gibson-Davis, and H. Li. (2024). Beyond parental wealth: Grandparental wealth and the transition to adulthood. *Research in Social Stratification and Mobility* 89:100878.

Zhan, M.and M. Sherraden. (2003). Assets, expectations, and children's educational achievement in female-headed households. *Social Service Review* 77(2):191-211.

Table 1. Net worth poverty (NWP) descriptive statistics

	Mean (or %)	Std.
Exposure		
Ever net worth (NW) poor	0.75	
Proportion of waves in NWP	36.7	(33.1)
Duration		
Number of NWP spells	1.3	(1.01)
Longest spell of NWP	2.6	(2.73)
NWP exposure and duration		
Never NW poor	0.25	
One wave NW poor	0.12	
NW poor less than 1/2 waves	0.32	
Waves are consecutive	0.23	
Waves not consecutive	0.09	
NW poor more than 1/2 waves	0.31	
Waves are consecutive	0.19	
Waves not consecutive	0.12	(1.00)
Proportion of NWP, by age		
0-6	38.7	(41.7)
7-12	34.8	(39.4)
13-18	37.1	(37.5)
Share of NWP experienced at each age[1]		
0-6	0.23	(0.28)
7-12	0.21	(0.24)
13-18	0.32	(0.33)
Sample size	*2,825*	

[1]Conditional on being net worth poor.

Figure 1. Exposure and Duration, by Poverty Type

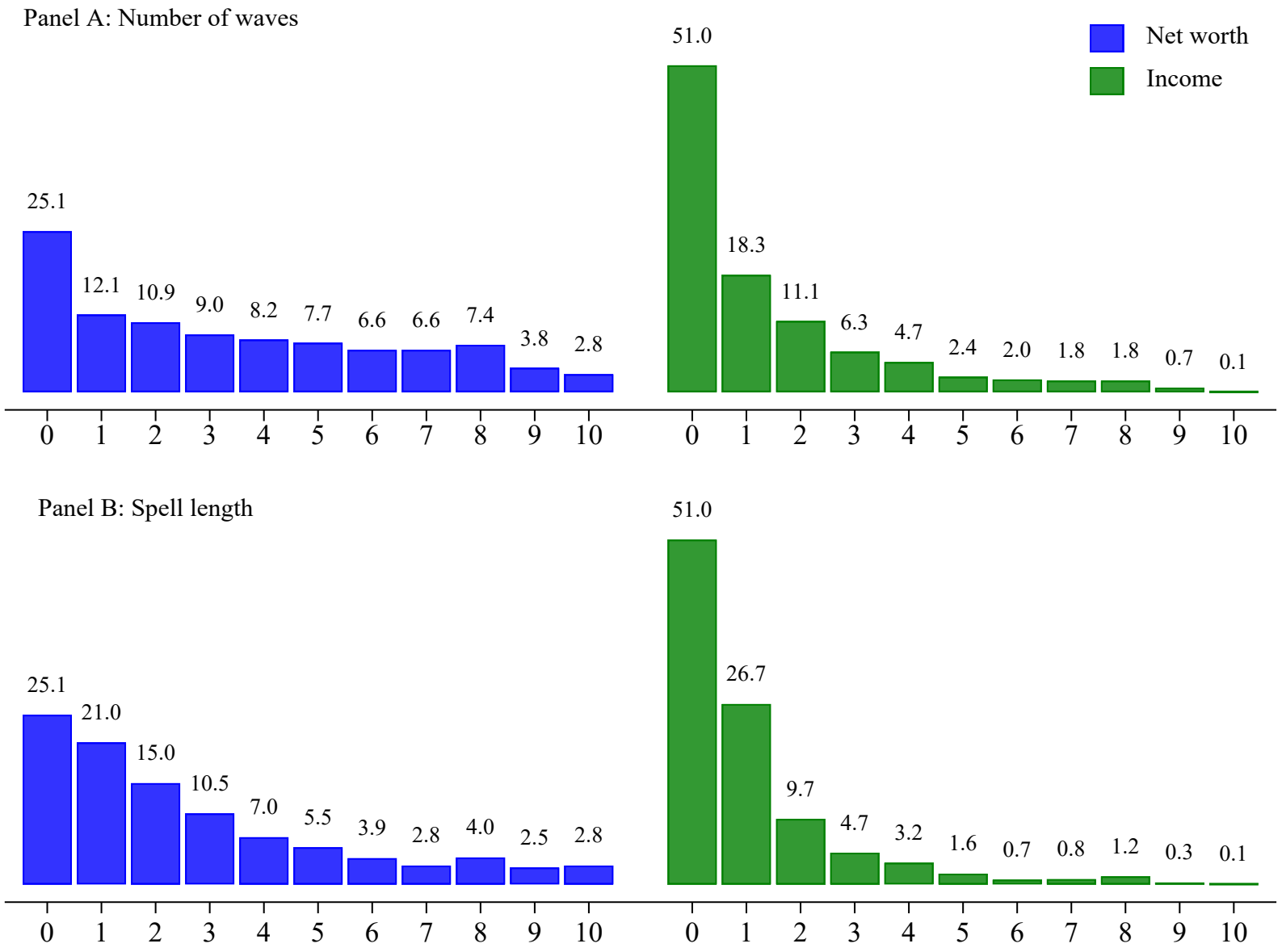

Table 2. Regression of Net Worth Poverty on Children's Educational Attainment

	High school completion					College enrollment				
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 1	Model 2	Model 3	Model 4	Model 5
Exposure										
Ever experienced NWP	.0019					-.0214				
	(.0149)					(.0265)				
Proportion of waves in NWP		-.0462*					-.2469***			
		(.0252)					(.0448)			
Duration										
Number of NWP spells			.0019					.0123		
			(.0071)					(.0113)		
One wave NW poor				-.0054*					-.0322***	
				(.0031)					(.0052)	
Exposure and Duration										
Never NW poor					--					--
One wave NW poor					.0095					.0026
					(.0202)					(.0342)
NW poor < 1/2 waves, not consecutive					.0045					.0244
					(.0181)					(.0309)
NW poor < 1/2 waves, consecutive					.0206					.0185
					(.0242)					(.0398)
NW poor > 1/2 waves, not consecutive					-.0204					-.1108***
					(.0230)					(.0401)

Table 2 (con't)

	High school completion					College enrollment				
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 1	Model 2	Model 3	Model 4	Model 5
NW poor > 1/2 waves, consecutive					-.0244					-.1954***
					(.0275)					(.0462)
Proportion of waves in IP	-.1849***	-.1667***	-.1845***	-.1640***	-.1709***	-.1830***	-.0902	-.1852***	-.0623	-.0917
	(.0502)	(.0507)	(.0498)	(.0511)	(.0507)	(.0667)	(.0680)	(.0664)	(.0682)	(.0671)
Head race/ethnicity										
White	--	--	--	--	--	--	--	--	--	--
Black	-.0084	-.0021	-.0087	-.0028	-.0047	.0054	.0355	-.0012	.0352	.0209
	(.0214)	(.0213)	(.0214)	(.0215)	(.0216)	(.0329)	(.0324)	(.0331)	(.0323)	(.0325)
Hispanic	.0425**	.0420**	.0424**	.0420**	.0406*	.0102	.0066	.0086	.0065	-.0008
	(.0213)	(.0213)	(.0214)	(.0213)	(.0213)	(.0387)	(.0381)	(.0390)	(.0386)	(.0386)
Other race/ethnicity	-.0398	-.0375	-.0400	-.0382	-.0398	.0025	.0112	-.0030	.0084	-.0011
	(.0351)	(.0357)	(.0350)	(.0356)	(.0354)	(.0494)	(.0503)	(.0492)	(.0498)	(.0510)
Head education at first wave										
High school or less	--	--	--	--	--	--	--	--	--	--
Some College	.0391*	.0363*	.0392*	.0367*	.0370*	.0665**	.0522	.0681**	.0530	.0552*
	(.0212)	(.0215)	(.0212)	(.0214)	(.0214)	(.0331)	(.0324)	(.0331)	(.0324)	(.0326)
Bachelor or More	.0599***	.0505**	.0604***	.0523**	.0546**	.1811***	.1381***	.1920***	.1432***	.1558***
	(.0232)	(.0243)	(.0233)	(.0238)	(.0240)	(.0372)	(.0365)	(.0370)	(.0360)	(.0373)
Head age >35 at first wave	.0015	-.0031	.0018	-.0022	.0002	.0312	.0114	.0382*	.0139	.0246
	(.0138)	(.0134)	(.0136)	(.0133)	(.0138)	(.0225)	(.0217)	(.0223)	(.0216)	(.0220)

Table 2 (con't)

	High school completion					College enrollment				
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 1	Model 2	Model 3	Model 4	Model 5
Married at first wave	.0177	.0165	.0177	.0172	.0148	.0316	.0236	.0301	.0268	.0174
	(.0219)	(.0219)	(.0219)	(.0219)	(.0221)	(.0371)	(.0356)	(.0370)	(.0355)	(.0359)
Child is first born	.0127	.0141	.0127	.0139	.0136	.0209	.0277	.0207	.0274	.0257
	(.0129)	(.0129)	(.0129)	(.0129)	(.0129)	(.0200)	(.0196)	(.0202)	(.0196)	(.0199)
Child is male	-.0550***	-.0545***	-.0550***	-.0545***	-.0546***	-.0742***	-.0716***	-.0742***	-.0713***	-.0716***
	(.0122)	(.0121)	(.0122)	(.0121)	(.0121)	(.0185)	(.0183)	(.0185)	(.0183)	(.0184)
Proportion waves live with >=3 children	-.0120	-.0088	-.0124	-.0104	-.0097	-.0509	-.0367	-.0569	-.0446	-.0486
	(.0229)	(.0231)	(.0230)	(.0231)	(.0232)	(.0385)	(.0380)	(.0384)	(.0379)	(.0380)
Proportion waves live with female head	-.0131	-.0047	-.0136	-.0056	-.0099	-.0966*	-.0609	-.1097**	-.0615	-.0797
	(.0309)	(.0307)	(.0303)	(.0309)	(.0310)	(.0517)	(.0503)	(.0505)	(.0500)	(.0506)
Proportion waves head in poor health	.0006	.0052	.0003	.0032	.0023	-.0966*	-.0291	-.0562	-.0384	-.0458
	(.0387)	(.0389)	(.0387)	(.0389)	(.0387)	(.0517)	(.0669)	(.0706)	(.0664)	(.0674)
Proportion waves grandparents in HH	-.0039	-.0079	-.0047	-.0087	-.0141	.0018	-.0254	-.0093	-.0329	-.0545
	(.0476)	(.0478)	(.0475)	(.0478)	(.0488)	(.0817)	(.0788)	(.0814)	(.0777)	(.0792)

*$p < 0.1$; * $p < 0.05$; ***$p < 0.01$

Note. Sample size for all models is 2,825. Clustered standard errors are shown in parentheses.

Table 3. Regression of Net Worth Poverty on Educational Attainment, by Child Age

	High school completion		College enrollment	
	Model 1	Model 2	Model 1	Model 2
Proportion of waves in NWP at each age				
Age 0-6	.0030		-.0607*	
	(.0224)		(.0353)	
Age 7-12	-.0012		-.0499	
	(.0259)		(.0430)	
Age 13-18	-.0485**		-.1294***	
	(.0238)		(.0466)	
Share of NWP experienced at each age				
One wave NW poor		[Ref]		[Ref]
Age 7-12		.0125		.0584
		(.0345)		(.0576)
Age 13-18		-.0022		.0665
		(.0257)		(.0462)
Percent of waves in IP	-.1654***	-.1687***	-.0940	-.1914***
	(.0501)	(.0481)	(.0677)	(.0658)
Head race/ethnicity				
White	--	--	--	--
Black	-.0049	-.0116	.0317	.0035
	(.0213)	(.0206)	(.0322)	(.0300)
Hispanic	.0422**	.0456*	.0076	-.0055
	(.0212)	(.0245)	(.0381)	(.0406)
Other race/ethnicity	-.0366	-.0649	.0125	-.0078
	(.0356)	(.0435)	(.0502)	(.0558)
Head education at first wave				
High school or less	--	--	--	--

Table 3 (con't)

	High school completion		College enrollment	
	Model 1	Model 2	Model 1	Model 2
Some College	.0375*	.0482**	.0541*	.0626*
	(.0214)	(.0217)	(.0324)	(.0339)
Bachelor or More	.0513**	.0713***	.1412***	.1544***
	(.0243)	(.0271)	(.0365)	(.0396)
Head age >35 at first wave	-.0005	-.0118	.0134	.0184
	(.0140)	(.0175)	(.0220)	(.0268)
Married at first wave	.0179	.0210	.0239	.0470
	(.0220)	(.0216)	(.0358)	(.0359)
Child is first born	.0138	.0172	.0269	.0131
	(.0129)	(.0158)	(.0196)	(.0249)
Child is male	-.0549***	-.0560***	-.0724***	-.0759***
	(.0121)	(.0147)	(.0183)	(.0234)
Proportion waves live with >=3 children	-.0088	-.0294	-.0365	-.0535
	(.0232)	(.0278)	(.0380)	(.0438)
Proportion waves live with female head	-.0040	-.0292	-.0620	-.0786
	(.0309)	(.0346)	(.0504)	(.0524)
Proportion waves head in poor health	.0056	.0038	-.0276	-.0505
	(.0390)	(.0426)	(.0672)	(.0746)
Proportion waves grandparents in HH	-.0069	.0389	-.0219	.0362
	(.0478)	(.0510)	(.0783)	(.0876)

*$p < 0.1$; * $p < 0.05$; ***$p < 0.01$

Notes. Model 1 sample size is 2,825. Model 2 is conditional on those who ever experienced NWP; sample size is 2,329. Clustered standard errors are shown in parentheses.

Table 4. Regression of Net Worth Poverty and Income Poverty on Children's Education Attainment

	High school completion				College enrollment			
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
Exposure								
Ever experienced								
NWP	-.0003				-.0311			
	(.0154)				(.0274)			
IP	-.0152				.0171			
	(.0143)				(.0269)			
Proportion of waves in poverty								
NWP		-.0462*				-.2469***		
		(.0252)				(.0448)		
One wave NW poor		-.1667***				-.0902		
		(.0507)				(.0680)		
Duration								
Number of poverty spells								
NWP			.0038				.0120	
			(.0073)				(.0117)	
IP			-.0095				.0056	
			(.0086)				(.0139)	
Longest spell of NWP								
NWP				-.0052*				-.0310***
				(.0031)				(.0051)
IP				-.0233***				-.0166*
				(.0067)				(.0086)

*$p < 0.1$; * $p < 0.05$; ***$p < 0.01$

Estimates that are underlined differ from each other at p<.005.

Notes. Sample size for all models is 2,825. Clustered standard errors at family level are shown in parentheses below the coefficients.

Models adjust for head race/ethnicity, education, health, and marital status; household size and composition; and child gender and if first born.

Table 5. Regression of Net Worth and Income Poverty on Educational Attainment, by Child Age

	High School Completion		College Enrollment	
	Model 1	Model 2	Mode 1	Model 2
Proportion of waves in poverty at each age				
Age 0-6				
Net Worth Poor	.0003		-.0661*	
	(.0226)		(.0352)	
Income Poor	-.0199		.0130	
	(.0317)		(.0500)	
Age 7-12				
Net Worth Poor	.0002		-.0508	
	(.0261)		(.0430)	
One wave NW poor				
Income Poor	-.0658*		-.0181	
	(.0360)		(.0516)	
Age 13-18				
Net Worth Poor	-.0469*		-.1230**	
	(.0242)		(.0472)	
Income Poor	-.0748*		-.0872	
	(.0393)		(.0577)	
Share in Poverty at each age				
Age 0-6				
Net Worth Poor		[Ref]		[Ref]
Income Poor		[Ref]		[Ref]
Age 7-12				
Net Worth Poor		-.0003		-.0142
		(.0281)		(.0483)
Income Poor		-.0066		.0205
		(.0251)		(.0440)

Table 5 (con't)

	High School Completion		College Enrollment	
	Model 1	Model 2	Mode 1	Model 2
Age 13-18				
Net Worth Poor		-.0103		.0050
		(.0187)		(.0388)
Income Poor		.0062		.0242
		(.0185)		(.0358)

*$p < 0.1$; * $p < 0.05$; ***$p < 0.01$

Notes. Model 1 sample size is 2,825. Model 2 is conditional on those who ever experienced NWP and IP; sample size is 1,479. Clustered standard errors are in parentheses.

Models adjust for head race/ethnicity, education, health, and marital status; household size and composition and child gender and if first born.

Appendix Table 1. Correlation Coefficient between Net Worth and Income Poverty Measurement

Measurement	Corr. Coef.	Pearson P
Exposure		
Number of poverty waves	0.548	<.001
Proportion of poverty waves	0.547	<.001
Duration		
Number of poverty spells	0.259	<.001
Longest poverty spell	0.540	<.001

Appendix Table 2. Descriptive Statistics

	Mean (or %)	Std.
Head race/ethnicity		
Black	16.9	
Hispanic	13.7	
White	63.0	
Other	6.5	
Head education at year of entry		
High school or less	25.2	
Some college	51.1	
Bachelor's degree or more	23.7	
One wave NW poor	79.2	
Head's age >35 at year of entry	35.9	
Child is first born	41.2	
Child is male	52.6	
Proportion of waves spent:		
In income poverty	0.15	(0.22)
With three or more children	0.34	(0.31)
With female head	0.25	(0.31)
With head in poor health	0.14	(0.20)
Living with grandparents	0.08	(0.18)
Sample size	*2,825*	