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The research reported herein was performed pursuant to a grant from the U.S. Social Security Administration (SSA) funded as part of the Retirement and Disability Consortium. The opinions and conclusions expressed are solely those of the author(s) and do not represent the opinions or policy of SSA or any agency of the Federal Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of the contents of this report. Reference herein to any specific commercial product, process or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply endorsement, recommendation or favoring by the United States Government or any agency thereof.

Abstract

Access to economic opportunity in the United States is not uniform. In addition to heterogeneous mobility patterns by race/ethnicity and geography, new research suggests children whose parent(s) have work-limiting health conditions also experience lower economic mobility. Since Social Security Disability Insurance (DI) is designed to mitigate adverse economic consequences of work disability by monthly cash transfers, this study investigates whether this policy may also mitigate observed lower economic mobility for beneficiaries' children. Using common measures of intergenerational economic mobility, this study examines economic mobility along two margins: 1) parents' self-report of work-limiting health conditions, and 2) parent DI application history. Data come from the Survey of Income and Program Participation (SIPP) matched with Social Security Administration data. Children of parents with work limitations on average have 4.1 percentiles less upward mobility from the 25th percentile of parent income and 4.3 percentiles more downward mobility from the 75th percentile of parent income relative to children whose parents do not report work-limitations. Children's economic mobility ought to decrease with declining parent health unless DI helps shapes outcomes. Using the SSA's 5-step Disability Determination Process, parents initially awarded DI are hypothesized to have the worst health while parents initially denied (but later accepted) likely have marginally better health. Despite worse parent health, children of initial DI awardees have 3.6 percentiles more upward mobility relative to peers of parents who are initially denied benefits, suggesting DI may moderate economic mobility in the population.

Acknowledgements: The authors would like to acknowledge support from the U.S. Social Security Administration through the Wisconsin Retirement and Disability Research Center (WI20-03). Participants at the University of Wisconsin – Madison (UW) Health Economics working group, UW Center for Financial Security seminar, Wisconsin Retirement and Disability Research Center Fall 2020 workshop, Fordham University Economics seminar, and Population Association of America annual meeting 2021 provided helpful suggestions for improvement.

Introduction

While the US is often thought of as the “land of opportunity”, research demonstrates such opportunity is heterogeneous within the US. For example, children of parents at the 25th percentile of income from Salt Lake City, UT on average achieve the 46th percentile of earnings as adults (21 percentiles of upward mobility), while children from similar socioeconomic circumstances living in Charlotte, NC only achieve the 36th percentile on average (Chetty et al., 2014). Non-Hispanic Black children have significantly lower economic mobility, or opportunity, relative to their non-Hispanic White peers of similar socioeconomic backgrounds (Chetty et al., 2020; Hertz, 2008; Mazumder, 2014), with one study estimating non-Hispanic Blacks whose parents are around the 25th percentile of income on average wind up over 12 percentiles lower in the earnings distribution relative to their non-Hispanic White peers of similar origins (Chetty et al., 2020). Parent health also appears to modify children’s economic opportunity (Halliday et al., 2021; Jajtner, 2020), with one study estimating that children whose parents report work-limiting disability face 5 – 12 percentiles less upward mobility relative to their peers whose parents do not report work limitations (Jajtner, 2020). While anecdotal accounts of children overcoming challenging and disadvantaged circumstances at birth abound; the likelihood of this event in the US appears to be patterned, rendering many disadvantaged youth with relatively low likelihoods of breaking out of their circumstances at birth.

A natural question to ask in this environment is whether public policy may alter these observed patterns. Education, access to healthcare, and cash transfers could plausibly weave together and improve economic opportunity for disadvantaged youth. Mayer and Lopoo (2008) determined areas with relatively high spending on education were associated with low persistence of socioeconomic status across generations, although results from Lefgren et al. (2020) suggest that education expenditures do not meaningfully alter intergenerational persistence. Access to Medicaid in childhood improves educational attainment (Cohodes et al., 2016), and caused increased economic opportunity: specifically, a ten percentage point increase in Medicaid coverage lead to a one point decrease in income persistence and a 0.7 percentile increase in upward mobility (O’Brien & Robertson, 2018). The Earned Income Tax Credit also appears to bolster college enrollment among low-income families (Manoli & Turner, 2018), and may increase economic mobility (Akee et al., 2020). Evidence from one of the earliest cash transfers, the Mother's Pension Program which affected the 1900-1925 birth cohorts, suggests sons of program participants obtained a one third year additional schooling and had higher adult income relative to sons of rejected mothers (Aizer et al., 2016).

We build on this literature examining the role of public policy moderating economic opportunity by investigating if Disability Insurance (DI) may moderate economic opportunity for children whose parents have health conditions that limit work. Not only has research previously identified this population as being at risk of decreased economic opportunity (Jajtner, 2020), but DI also specifically targets severe forms of work limitations in this population aiming to assuage economic disadvantages. We consider competing frameworks where DI could potentially improve economic opportunity with fewer financial constraints and better health or whether it could discourage economic opportunity through learned reliance on benefits . Our results suggest DI may play an important role in improving economic opportunity for children of work-limited parents, although further research using a causal framework is warranted.

Background

DI provides a monthly cash transfer to qualifying US workers deemed unable to participate in gainful employment due to health conditions that are terminal or expected to last at least one year. Around 2 million workers apply to DI annually, and approximately 10 million Americans received DI benefits totaling $10.6 Billion with an average monthly benefit of $1,234 for disabled workers in 2018 (SSA, 2019). Following a 2-year waiting period, beneficiaries receive Medicare health insurance.[1] The program can provide essential resources (both financial and medical) to individuals who are unable to work. It might also create disincentives to work, a behavior that could be passed on to subsequent generations.

There are two pathways by which parent disability might lower children's economic opportunity and DI could mitigate the observed disadvantage. First, economic models of Intergenerational

[1] There are exceptions to this waiting period for individuals with certain medical conditions, such as end stage renal disease and Amyotrophic Lateral Sclerosis (ALS).

mobility are based on parents maximizing utility subject to a budget constraint (Becker & Tomes, 1979; Solon, 2004). Persons with disabilities typically face lower income shortly before and after onset (Jolly, 2013; Meyer & Mok, 2019). Aside from an overall resource contraction, persons with disabilities face higher medical expenditures (Mitra et al., 2009), and those with work capacity could experience more work schedule volatility (Luca & Sevak, 2020). DI could assuage these financial constraints by providing predictable monthly income[2], and Medicare benefits following a 2-year waiting period. Highlighting the possibility of DI easing financial constraints, Deshpande et al. (2019) find that DI decreases the likelihood of adverse financial events such as bankruptcy, foreclosure, or eviction. Second, poor health itself might be intergenerationally transmitted (Fletcher & Jajtner, in press, 2020; Halliday et al., 2021); although, this does not appear to be a primary pathway for lower economic mobility for children of work-limited parents (Jajtner, 2020). Nevertheless, results from Gelber et al. (2018) suggest DI may improve health through decreased mortality. Analysis of a disability program in Canada supports the hypothesis that disability benefits could improve children's economic outcomes. One study suggests that for a $1,000 cut in disability benefits, children's math scores declined by one percent of a standard deviation, hyperactive symptoms increased by 3.7% of a standard deviation, and emotional anxiety increased by 2.8% of a standard deviation (Chen et al., 2015). Benefit reductions for parents also led to reduced likelihood of children attending post-secondary education (Chen et al., 2019).

On the other hand, there is another pathway by which parent disability might still lower children's economic outcomes, but DI could amplify disadvantage. DI decreases labor supply incentives (Autor & Duggan, 2003; Maestas et al., 2013), and applications rise with recessions (Maestas et al., 2018). This supports the hypothesis that some individuals apply due to depressed labor market opportunities. Welfare use is also persistent across generations (Antel, 1992; Hartley et al., 2017). While this could reflect an intergenerational cycle of poverty (Chetty et al., 2014; Mazumder, 2005; Rodgers, 1995; Solon, 1992) or health (Fletcher & Jajtner, In press,

[2] Although DI is available only for those with no work capacity, research demonstrates there is a non-negligible portion of DI recipients who may, absent the DI program, continue to work. There is strong empirical evidence of a causal reduction in labor force participation due to the DI program (Maestas et al., 2013), and recessions can increase DI applications and awards (Maestas et al., 2018). The argument for DI providing regular monthly income mostly applies to these more marginal beneficiaries who might otherwise be subjected to higher income volatility by remaining in the labor market.

2020; Halliday et al., 2021); some research posits it could reflect learned behaviors of welfare use (Antel, 1992; Dahl et al., 2014; Dahl & Gielen, 2018). The latter would potentially depress economic mobility for children of DI beneficiaries further. A 1993 reform in the Netherlands that decreased both the number of beneficiaries and the quantity of benefits received led to improvements in children's educational attainment and earnings (Dahl & Gielen, 2018). Successful DI appeals in Norway based on random assignment to examiners led to a 6 percentage-point increase in DI use in the subsequent generation 5 years later, and 12 percentage point increase 10 years later (Dahl et al., 2014). Each of these studies suggests larger or more generous DI programs affecting parents could potentially depress children's incomes by encouraging substitution of earnings and labor market participation for DI in the next generation. The effect of DI on economic mobility is therefore ambiguous. Importantly, previous studies from Canada, the Netherlands, and Norway each represent different social welfare environments that may not necessarily extrapolate to the US context. Although understanding spillovers of DI is imperative for the SSA to properly weigh costs and benefits of the program, there is limited evidence on this topic in the US context. Jajtner (2020) uncovered a clear gap in economic opportunity for children of work-limited parents that increases with severity and/or chronicity of the parents' condition. Importantly however, among parents with the most chronic and severe limitations (i.e., those most likely eligible for DI) the gap declined modestly (Jajtner, 2020). Unfortunately, data limitations in that study prevented even considering whether DI could produce the pattern. Using a larger sample with administrative data linkages, we overcome this limitation and describe economic mobility patterns for children of work-limited parents according to both self-reports and DI application history.

Although our study does not produce causal estimates, it provides foundational knowledge of economic mobility patterns that support continued research. We first examine economic mobility patterns for children whose parents self-report work-limiting disability. We find evidence of a four-percentile upward mobility gap in the full population, but also provide the first estimates of upward mobility heterogeneity by parent health for Hispanic Americans. Second, we detail economic mobility patterns for children based on their parents' application DI history. We find suggestive evidence that DI may improve economic opportunities for children of work-limited parents. Finally, we examine heterogeneity in economic mobility gaps by race/ethnicity and timing of parent DI application.

Methods and Data

Measuring Mobility

Intergenerational economic mobility metrics are extracted from an ordinary least squares (OLS) regression of parent socioeconomic status on child socioeconomic status (equation 1). We follow the literature (e.g., Chetty et al., 2014; Mazumder, 2005; Solon, 1992) and our specification only controls for age in each generation to adjust for lifecycle bias (Haider & Solon, 2006). We implement the lifecycle adjustment by including a quadratic control for parent age normalized to 40 years old (e.g., Aaronson & Mazumder, 2007; Lee & Solon, 2009) and observing child status only between the ages of 30 – 34 years old[3]. Parent and child socioeconomic status is measured as mean income or earnings, respectively, using all available observations to mitigate attenuation bias (Mazumder, 2005; Solon, 1992). The linear regression assumes parent and child statuses (i.e., income or earnings) are related linearly, which Chetty et al. (2014) demonstrate is not violated when economic outcomes in each generation are ranked. We therefore rank income or earnings in each generation among members of the same birth cohort following their example.

$$(1) \qquad Rank_{c,age\ 30-34} = \beta_0 + \beta_1 Rank_p + \beta_2 (Age - 40)_p + \beta_3 (Age - 40)_p{}^2 + \varepsilon$$

Different mobility metrics may capture slightly different patterns (Deutscher & Mazumder, 2021). Our analysis reports three standard metrics, each derived from the OLS regression, before focusing on a single metric thought to be most applicable to the population of parents with health conditions that limit work ability. The slope coefficient (β_1) captures persistence of socioeconomic status from one generation to the next. It is conceptually similar to a correlation coefficient where a value near one indicates high persistence (or low mobility). Upward and downward mobility metrics (from Chetty et al., 2014) estimate the expected socioeconomic rank for children conditional on parents at the 25th and 75th percentiles, respectively (equation 2). In a

[3] Observing children at an age more comparable to their parents would result in a significantly smaller sample. Previous research has measured child outcomes (i.e., socioeconomic rank) in the early 30s (Chetty et al., 2014, 2020; Jajtner, 2020).

hypothetical context of perfect mobility, predicted child SES is the median regardless of parent rank. Therefore, in that context, parents from the bottom half of the income distribution should expect upward mobility for their children and parents from the top half of the income distribution should expect downward mobility for their children on average. We focus primarily on upward mobility due to lower average socioeconomic status of parents with work-limiting disabilities.

$$E(Rank_c | Rank_p = x) = \beta_0 + \beta_1(x) \quad (2)$$

We are most interested in observed differences in these mobility metrics between children whose parents experience work-limiting disability relative to children of non-limited parents. Following Jajtner (2020), we estimate group-specific mobility using a fully interacted model (equation 3). The stratification variable ($Group_p$) groups parents by work-limiting disability or DI application history. It is interacted across all covariates of equation 1 such that results reflect a fully stratified analysis, but also allow for direct comparison across groups[4].

$$\begin{aligned} Rank_c = {} & \beta_0 + \beta_1 Rank_p + \beta_2 Group_p + \beta_3(Rank_p \times Group_p) + \beta_4(Age-40)_p \\ & + \beta_5 (Age-40)_p{}^2 + \beta_6((Age-40)_p \times Group_p) \\ & + \beta_7((Age-40)_p{}^2 \times Group_p) + \varepsilon \end{aligned} \quad (3)$$

Linking Health and Disability

The five-step disability determination process provides a link between health and disability that is critical to our analysis. To qualify for DI, an applicant must have a health condition that prevents work and is expected to last at least twelve months (or is a terminal condition) – i.e., a severe and chronic health condition. Additionally, applicants must not have evidence of sustained work at the substantial gainful activity level ($1,260 per month in 2020). These two criteria are the first two steps of the five-step determination process. Failure to meet either of these requirements results in a "step 1 or step 2" denial. Step 3 examines whether a health

[4] Intergenerational persistence and upward/downward mobility for the reference group are estimated by β_1 and equation (2) respectively. The difference in persistence for all non-reference groups is estimated from the coefficient β_3 in equation (3), which is a vector of coefficients for each group. The difference in absolute mobility is a group-specific linear combination of coefficients: $(\beta_2 + \beta_3(x))$.

condition meets or equals one of SSA's medical listings. If an individual's condition does not meet or equal a medical listing at step 3, they move on to the final two steps of the determination process. The final steps determine if an individual's health condition is sufficiently severe conditional on his/her previous job (step 4) and whether, considering age, education, and work experience, they could work in an alternative job (step 5). Persons denied benefits may appeal the decision at what is referred to as reconsideration. The reconsideration follows the same five-step process outlined above, although the case is assigned to a different disability examiner. Additional appeals are possible from a hearing to a federal court review (SSA, 2019).

Latent health is assumed to be directly related to this five-step process. Individuals without chronic and severe conditions are least likely to apply for DI in the first place and should have the best underlying health while those who apply and are rejected at the step 1 or step 2 level have worse health prompting an application. As a group, applicants who are initially accepted should have the most severe health conditions, although we note that idiosyncratic individual allowance/denial exists (Maestas et al., 2013). Persons who are initially denied benefits likely have better health than those initially accepted, but with significant variation. Some appeal the decision, and those who are accepted upon appeal should have marginally better health relative to initially accepted individuals because at least one examiner determined the case did not qualify. Those who appeal and are denied again, or those who do not appeal likely have the best health among DI applicants with severe health conditions. In recent years one to two million workers who reported a disabling health condition and met basic employment criteria applied for DI benefits annually. Around a third receive a DI award in the initial review. Among those who appeal, about 10% are awarded benefits upon reconsideration. For those who persist further, 50 – 60% are awarded. More than 40% of applications meeting initial criteria (i.e., steps 1 and 2) result in a denial (SSA, 2018). In the absence of DI, economic mobility is expected to progressively decline for children as their parents' health worsens. As laid out in the previous section, DI could either improve or deteriorate economic mobility for children based on underlying mechanisms.

Data

Equations 1 – 3 highlight the relative simplicity of data required to estimate the relationship between work-limiting disability and economic mobility. There are four key data pieces required: (1) identifying parent-child pairs, (2) parent socioeconomic status, (3) child socioeconomic status, and (4) parent disability status.

We conduct the analysis using data from the Survey of Income and Program Participation (SIPP) linked with Social Security Administration (SSA) administrative records. SIPP is a series of nationally representative panel datasets interviewing between 14,000 and 52,000 households in each panel. Identified households are followed for 8 to 12 quarters depending on the panel and gather important information on socioeconomic status and health. The first data requirement is identifying parent-child pairs. We rely on the family structure from the 1984, 1990, 1991, 1992, 1993, 1996, 2001, 2004, and 2008 SIPP panels to create these pairs, focusing on all unique matches. This means that parents map to multiple children and the unit of analysis is a parent-child pair. All pairs containing a child age 25 or under are eligible for inclusion[5].

Parent socioeconomic status is identified as the mean of annual reported household income (including all earnings and transfers) over all waves in the SIPP panel[6]. Following Chetty et al. (2014), this measure is ranked among parents of children in the same birth cohort, which helps alleviate concerns of nonlinearity and provide more appropriate subpopulation comparisons (Chetty et al., 2014; Hertz, 2005). Child's socioeconomic status is unavailable in SIPP because children are too young. We instead use linked data from the Detailed Earnings Records (DER), which is available up to 2018, on adult earnings at age 30-34 for children's socioeconomic status as adults. Earnings include wages and tips from employment, as well as self-employment income, and are indexed using CPI-U to 2020 dollars. As with parent socioeconomic status, children's socioeconomic status is ranked within a birth cohort between ages 30 and 34.[7] Percentiles represent total earnings for the five-year period within calendar year birth cohorts. (For instance, percentiles for the 1965 birth cohort include total earnings between the years 1995

[5] Children from age 19 – 25 are included primarily to keep a larger sample. Initial analyses restricting the sample to children under age 19 suggested similar patterns. This is consistent with other research in intergenerational economic mobility using early SIPP panels matched with SSA earnings data (e.g., Mazumder, 2014).
[6] Each panel has a different number of waves (quarterly) as SIPP continues to change. The 1984, 1992, 1993, and 2001 panels each had 9 waves, and the 1990 and 1991 panels each had 8 waves. The 1996 and 2004 panels each had 12 waves.
[7] Table A1 in the Appendix shows the sample size of annual child birth cohorts for data from each SIPP panel.

and 1999.) We exclude individuals with zero earnings over the five-year period, but those who have positive earnings at least one year are retained.

The final data element, parent disability status, is characterized by either (a) self-reports of work limitations in SIPP or (b) linked SSA administrative records on DI application history. All SIPP participants over the age of 15 are recorded to either have a health condition (physical or mental) that limits the kind or amount of work they can do[8]. An additional question asks whether the condition prevents an individual from working, which we utilize as a marker for severe work-limiting disability[9]. Not all persons, even those with work limitations, are asked the follow up question. Therefore, we construct two samples using these questions: the first dichotomously divides parents who either report a work-limitation or do not. The second categorizes parents as without work limitations, non-severe limitations, and severe limitations.

To categorize parents' DI application history, we consider their first application record before the child turns 26 using data from the SSA-831 disability determination records and the Master Beneficiary Record (MBR). The SSA-831 records capture initial level disability determinations (available from 1978 forward), but do not follow applicants through appeals levels. We supplement SSA-831 data with MBR data that identify whether a parent eventually received benefits, after receiving an initial-level denial. Using this information, we divide parents into five groups: (1) those who never apply for DI before a child turns 26; (2) those who apply, and receive a step 1 or step 2 denial, i.e., they do not meet medical, financial, or employment history criteria for DI; (3) those who apply and are never accepted; (4) those who apply and are later accepted; and (5) those who are initially accepted (i.e., within six months of the application).

Sample

Our main sample consists of 52,575 parent-child pairs with administrative data matches. Tables 1 and 2 highlight that parents with work-limiting disability are typically older and have lower socioeconomic status (as measured by income rank and educational attainment). Children of

[8] The exact wording of the question changes slightly over time, with earlier panels asking if SIPP individuals ever experienced such a condition and later panels asking if the individual currently experiences such a condition.
[9] This question comes from Topical Modules (earlier waves) or the core survey (later waves).

work-limited parents are disproportionately minorities. Although self-reported work limitations and their corresponding severity are subjective in nature, Table 1 demonstrates that around one percent or fewer of parents without work limitations report any limitation in Activities of Daily Living (ADLs). Over 11 percent of parents with any work limitation also report ADLs, and among parents with severe limitations, 28 percent report ADL limitations. This suggests a work-limitation partition captures an element of health limitations, and the severity has some correspondence with ADL limitations.

Application to DI though is relatively rare. Only 22 percent of parents who report work limitations apply, but the portion among parents with severe limitations is 39 percent. Five to six percent of parents who do not report limitations also apply to DI; however, the application to DI may occur after the work limitation report in SIPP. Correspondingly, on average parents who do not report work limitations receive just $6,071 in DI benefits from the child's birth to when they turn 25 years old. Meanwhile, parents with any limitation receive significantly more, and parents with severe limitations receive around $82,500 in DI benefits over the first 25 years of the child's life. On average, children whose parents report work limitations also have lower socioeconomic status in their early thirties. Relative to children whose parents do not report a work limitation in SIPP, children whose parents ever report such a limitation are about seven percentiles lower in the earnings distribution. This gap is magnified among children whose parents report severe limitations, as they have a gap of around 11 percentiles (53.65 vs. 42.86).

Table 1: Descriptive statistics by parent reported work-limitation status

	No versus Any Work Limit		Work Limitation Severity		
	No Work Limit	Any Work Limit	No Work Limit	Non-Severe Work Limit	Severe Work Limit
Parent Characteristics					
Mean parent Age	41.92	44.26***	42.80	43.41***	46.46***
< HS	8.84	16.57***	7.57	10.48***	26.57***
HS	29.65	34.55***	28.46	33.49***	37.55***
> HS	61.51	48.88***	63.97	56.03***	35.88***
% reporting at least one ADL	0.58	11.49***	1.06	11.16***	27.55***
% Applied DI	5.83	21.75***	5.42	18.67***	39.41***
DI Amount	6071.45	34781.71***	5093.23	25005.08***	82535.9***
# Parents present in household	1.83	1.84*	1.85	1.88***	1.82***
Income Rank	60.98	50.04***	62.46	54.36***	40.12***
Child Characteristics					
% Male	52.80	53.96*	53.01	53.33	56.02**
% Female	47.20	46.04*	46.99	46.67	43.98**
% nH White	74.38	68.03***	74.41	73.44	59.33***
% nH Black	11.57	14.06***	10.99	10.68	19.56***
% Hispanic	9.60	12.43***	9.92	11.65*	14.34***
% Other R/E	4.45	5.47**	4.69	4.24	6.78*
Child Age	14.88	16.24***	15.63	15.94**	17.33***
Earnings Rank	53.65	46.31***	53.88	47.6***	42.86***
N	39,589	13,741	35,371	5,180	2,919

Source: Authors' calculations using matched SIPP-SSA data.
Notes: Parents match with multiple children in SIPP. Parent age is the average age of parents in the SIPP household when income is reported. Income Rank is estimated in SIPP among all parents with children in a particular birth cohort. ADLs include reported limitations in mobility, bathing, dressing, eating, or toileting. MBR and SSR data are used to calculate the amount of DI and SSI disability income, respectively, that parents receive between the child's birth month and the month that the child turns 26. Disability income is in 2020 dollars. Child earnings rank is assigned based on W2 earnings between ages 30 and 34 among peers in the same birth cohort. The sample sizes in the first two and the final three columns do not equal each other because the questions about severe work limitations was asked only in select waves of the SIPP panels. + p < 0.1, * p < 0.5, ** p < 0.01, *** p < 0.001 relative to reference category (Non-Limited)

Focusing on partitioning the sample by parent DI application history, Table 2 highlights similar patterns. More minorities' parents apply to DI, and more are rejected with a step 1 or step 2 denial (insufficient work history or severity of condition). Parents who ever apply to DI before the child turned 26 are about 20 percentiles lower in the income distribution relative to parents who never apply. Educational attainment is also correspondingly lower among parents who apply to DI. There is an indication of more ADLs among parents who are accepted to DI, even though the timing of ADL reports and DI applications does not align. Finally, children of DI applicants have ten to fourteen percentiles lower earnings in their early 30s compared to the children of non-DI applicants.

Table 2: Descriptive statistics by parent based on disability application history

	Never Apply	Apply, Step 1/2	Apply, Never Accepted	Apply, Later Accepted	Apply, Initially Accepted	Gap Between Accepted
Parent Characteristics						
Parent Age	42.52	40.47***	38.57***	40.46***	42.88	-2.42***
< HS	9.09	20.64***	22.39***	25.26***	23.67***	1.59
HS	29.97	39.34*	41.3***	39.9***	38.1***	1.8
> HS	60.94	40.02***	36.32***	34.84***	38.23***	-3.39
% ADLs	1.95	4.39	7.92***	17.83***	16.68***	1.15
DI Amount	0	0	0	95468.83***	86243.13***	9225.70
Number of Parents	1.83	1.7***	1.72***	1.76***	1.86*	-.1***
Income Rank	60.10	39.55***	39.85***	38.1***	44.06***	-5.96***

Child Characteristics						
% Male	53.13	54.71	48.11*	52.97	53.95	-.98
% Female	46.87	45.29	51.89*	47.03	46.05	.98
% nH White	74.60	50***	54.31***	57.22***	59.58***	-2.36
% nH Black	11.20	29.65***	22.55***	20.55***	19.3***	1.25
% Hispanic	9.68	---	18.55***	16.48***	13.22**	3.26+
% Other R/E	4.51	---	4.59	5.76	7.9*	-2.15
Child Age	15.35	14.02***	13.14***	13.24***	13.87***	-.64**
Earnings Rank	52.88	38.57***	41.2***	40.08***	44.48***	-4.4***
SIPP Panel						
All Panels	100.0	100.0	100.0	100.0	100.0	
1984	20.7	26.02	28.81	25.49	25.15	
1990	17.88	29.26	25.11	22.16	21.12	
1991	11.51	10.07	9.45	9.41	11.62	
1992	11.12	8.34	10.66	8.8	10.7	
1993	10.53	6.5	6.9	8.56	8.71	
1996	13.77	10.55	11.27	13.75	13.99	
2001	8.17	6.11	3.59	6.49	4.03	
2004	5.25	---	---	4.18	3.84	
2008	1.08	---	---	1.16	0.84	
N	48,136	345	765	1,454	1,875	

Source: Authors' calculations using matched SIPP-SSA data.
Notes: Notes from Table 1 apply. + p < 0.1, * p < 0.5, ** p < 0.01, *** p < 0.001 relative to reference category (Never Applied). Cells denoted with --- are censored for the purposes of primary or secondary disclosure. SIPP panel percentages are column percentages. Lower prevalence of observations in later panels reflects fewer birth cohorts eligible for sample inclusion.

Results

Do children of parents with self-reported work limitations have different economic opportunities?

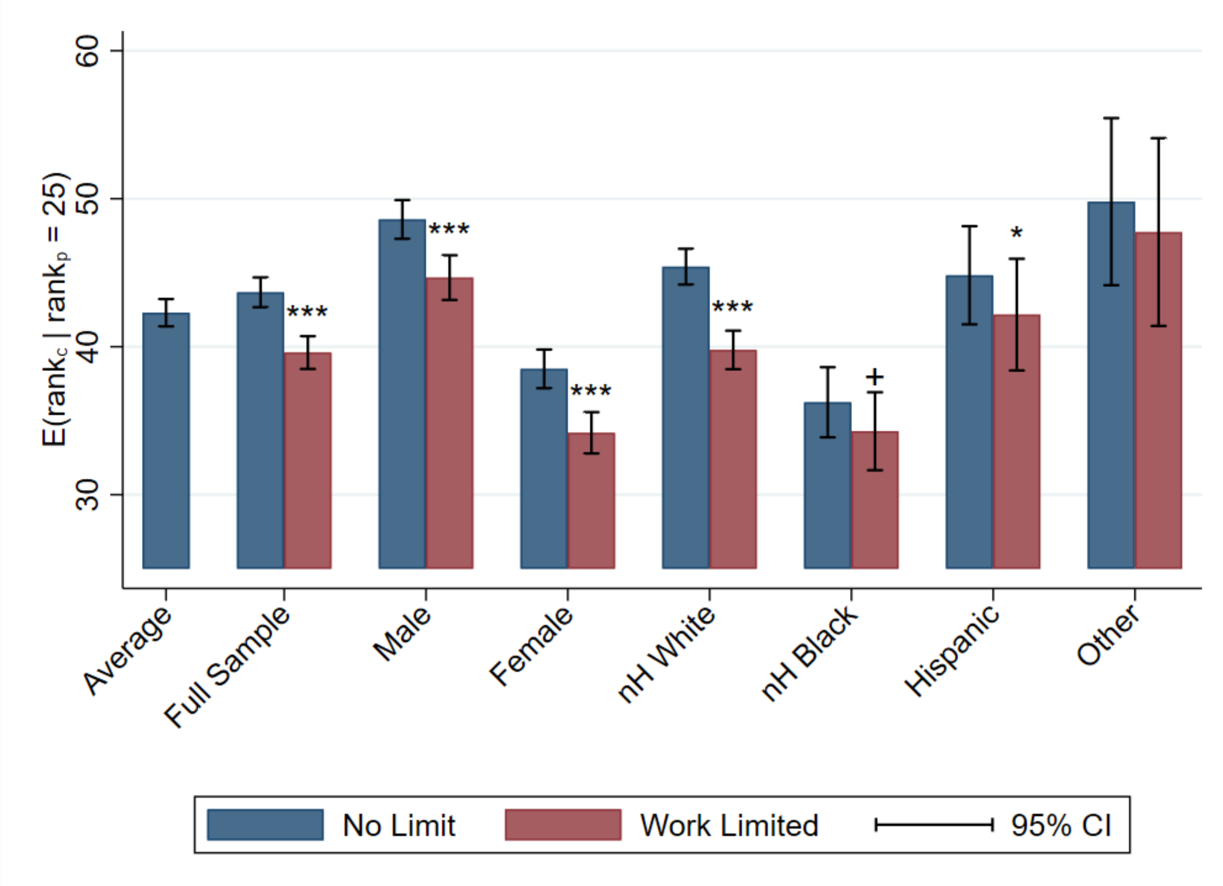
Children of parents who report work-limiting disability in SIPP on average have less upward mobility and more downward mobility[10] Upward mobility displayed in Figure 1 and Table 3 in

[10] We rank parents' income by percentiles and also separately rank children of the same birth cohort by their earnings. Then, for those parents at the 25th percentile consider the mean percentile rank of their children's earnings. Upward mobility is present if the mean percentile rank of children is higher than the 25th percentile of

the appendix and downward mobility displayed in Table 3 in the appendix. Children whose parents do not report work-limitations on average have 19 percentiles of upward mobility and 16 percentiles of downward mobility (i.e., conditional on parents at the 25th percentile of income, children are expected to reach the 44th percentile and conditional on parents at the 75th percentile of income, children are expected to reach the 59th earnings percentile). However, children whose parents report work limitations have 4.06 percentiles less upward mobility compared to children of parents without work-limitations—with average earnings percentiles of 44.67 versus 48.60 percentiles, respectively (Table 3). Children of parents at the 75th percentile of parent income with a work-limitation on average have 4.30 percentiles greater downward mobility (Table 3). We do not detect a meaningful difference in intergenerational persistence across groups. Males and females experience similar gaps relative to their parents' work limitations, although the upward mobility gap is slightly larger among females while the downward mobility gap is slightly larger among males. The upward mobility gap between children of work-limited parents and non-limited parents is largest for non-Hispanic whites at 5.62 percentiles (Figure 1). Hispanic Americans also have statistically lower upward economic mobility when their parents report a work-limiting disability. Non-Hispanic Black Americans and Americans of other races and ethnicities do not have statistically different upward mobility if their parents have a work disability relative to their peers whose parents do not have a work disability. Notably, these two groups have vastly different upward mobility trajectories. Americans of other races/ethnicities have relatively high upward mobility, regardless of their parents' work limitation status. Non-Hispanic Black Americans by contrast have very low upward economic mobility – expected upward mobility for children of parents with advantaged health backgrounds still falls short of the expected upward mobility for children of any other race/ethnicity even when their parents have a disadvantaged health background.

parent. Downward mobility is present if the mean percentile rank of children is lower than the 75th percentile of the parent.

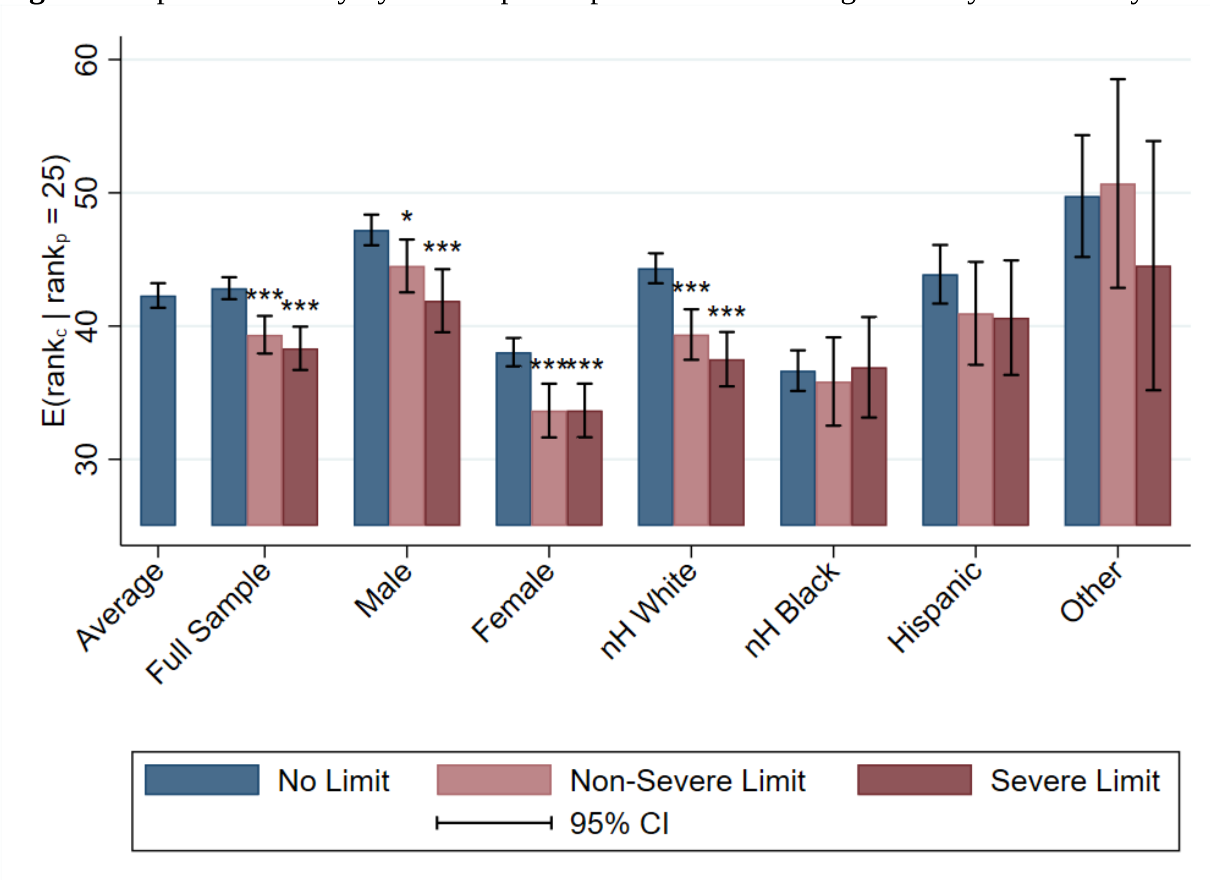
Figure 1: Upward mobility by SIPP-reported parent work-limiting disability



Source: Authors' calculations using matched SIPP-SSA data.
Notes: Parents match with multiple children in SIPP. Demographic subpopulations refer to the child's characteristics. Upward mobility is defined as the expected earnings rank conditional on parents at the 25th percentile of income. + $p < 0.1$, * $p < 0.5$, ** $p < 0.01$, *** $p < 0.001$ relative to reference category (Non-Limited). Average upward mobility for the full sample is pictured in the first column (42.3 percentiles). The second group is upward mobility for children of work-limited parents relative to non-limited parents (43.7 percentiles relative to 39.6 percentiles). Upward mobility by parent work limitation status is separately accessed by child sex: Male and Female, and child race/ethnicity: non-Hispanic (nH) White, nH Black, Hispanic and Other. Figure 1 corresponds to results in Table 3, columns 1 and 2.

Upward mobility is typically lower for children of severely limited parents (Figure 2 and Table 3). Recall that the available sample size in this figure decreases as not all persons in SIPP respond to the severity question. In the full sample, non-limited parents' children have 18 percentiles of upward mobility and 17 percentiles of downward mobility. Non-severe limitations are associated with 3.54 percentiles less upward mobility and 4.12 percentiles more downward mobility. Severe limitations are associated with 4.54 percentiles less upward mobility but only 3.42 percentiles more downward mobility (Table 3). Women have similar downward mobility regardless of parent work limitation severity, whereas men face more of a gradient in mobility by parent work-limitation severity. Non-Hispanic Whites again tend to have larger upward mobility gaps (but also higher upward mobility for children of non-limited parents). Hispanics have smaller gaps that are not precisely measured. Non-Hispanic Black estimates indicate little difference in upward mobility by parent work-limitation severity, but again, upward mobility of non-Hispanic Black children of non-limited parents is low.

Figure 2: Upward mobility by SIPP-reported parent work-limiting disability and severity

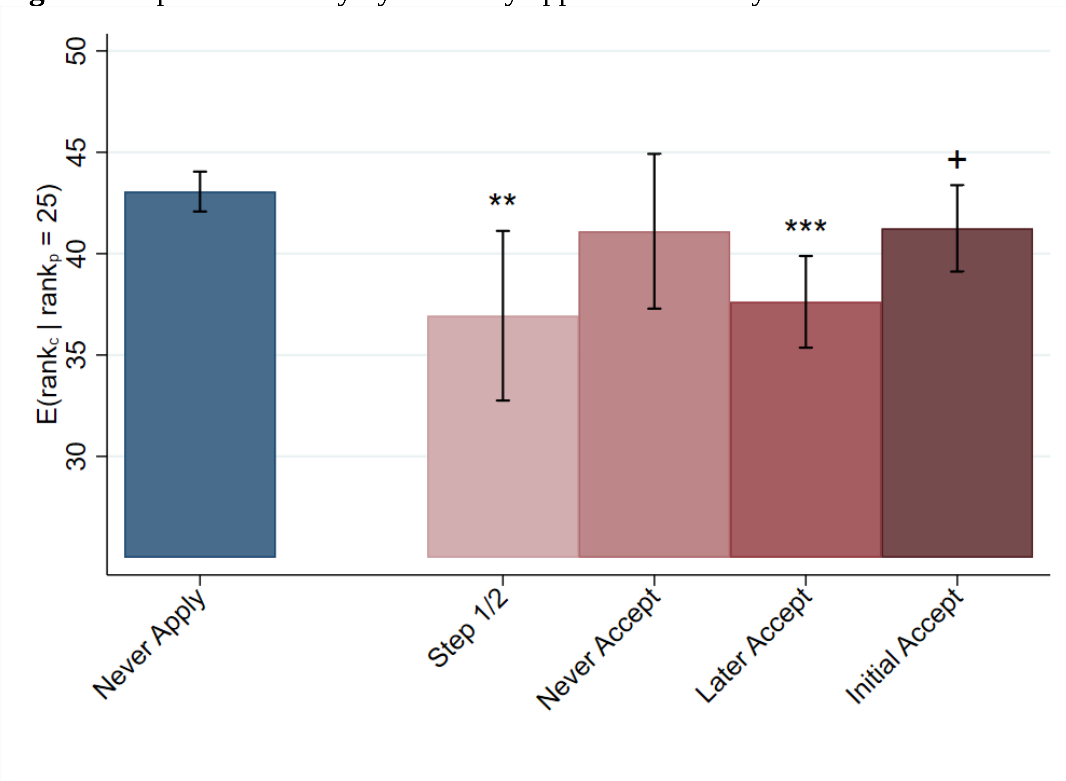


Source: Authors' calculations using matched SIPP-SSA data.
Notes: Parents match with multiple children in SIPP. Upward mobility is defined as the expected earnings rank conditional on parents at the 25th percentile of income. + p < 0.1, * p < 0.5, ** p < 0.01, *** p < 0.001 relative to reference category (Non-Limited). Average upward mobility for the full sample is pictured in the first column (42.3 percentiles). The second group is upward mobility for children of non-limited parents (reference group) relative to children with less severe and more severe conditions (42.8, 39.4, and 38.3, respectively). Upward mobility by parent work limitation status severity is separately accessed by child sex: Male and Female, and child race/ethnicity: non-Hispanic (nH) White, nH Black, Hispanic and Other. Figure 2 corresponds to results in Table 3, columns 3 – 5.

What is the association between a parent's history of DI application to their children's economic opportunities?

Figure 3 and Table 4 in the appendix highlight that upward economic mobility for children whose parents never apply to DI (the reference group) is around 18 percentiles (i.e., children on average reach the 43rd percentile) and downward mobility is around 16 percentiles (i.e., children on average attain the 59th percentile. Upward mobility for children whose parents apply to DI is 2 – 6 percentiles lower, and it is statistically lower than the reference group for step 1 or step 2 denials (6.12 percentiles) and for parents who are later accepted to DI (5.44 percentiles). Children of parents who apply and are never accepted are estimated to face a statistically insignificant mobility gap of just 2 percentiles. Children of parents with the worst hypothesized health (i.e., parents who apply and are initially accepted to DI) are estimated to have the smallest upward mobility gap (1.8 percentiles), and it is not significant. Notably, children of parents who apply and are only later accepted to DI, *who are marginally healthier*, face a statistically significant 3.62 percentile deficit in upward mobility relative to children of parents who apply and are initially accepted. Groups where children do not experience statistically different upward mobility are the same groups where persistence of economic status is also statistically lower across generations. Downward mobility for children whose parents apply to DI is more consistent across application groups – 6 – 10 percentiles more downward mobility relative to the reference group (Table 4). However, children of parents who apply and are initially accepted to DI also face the smallest gap in downward mobility, although it is not statistically different from children of other awarded beneficiaries.

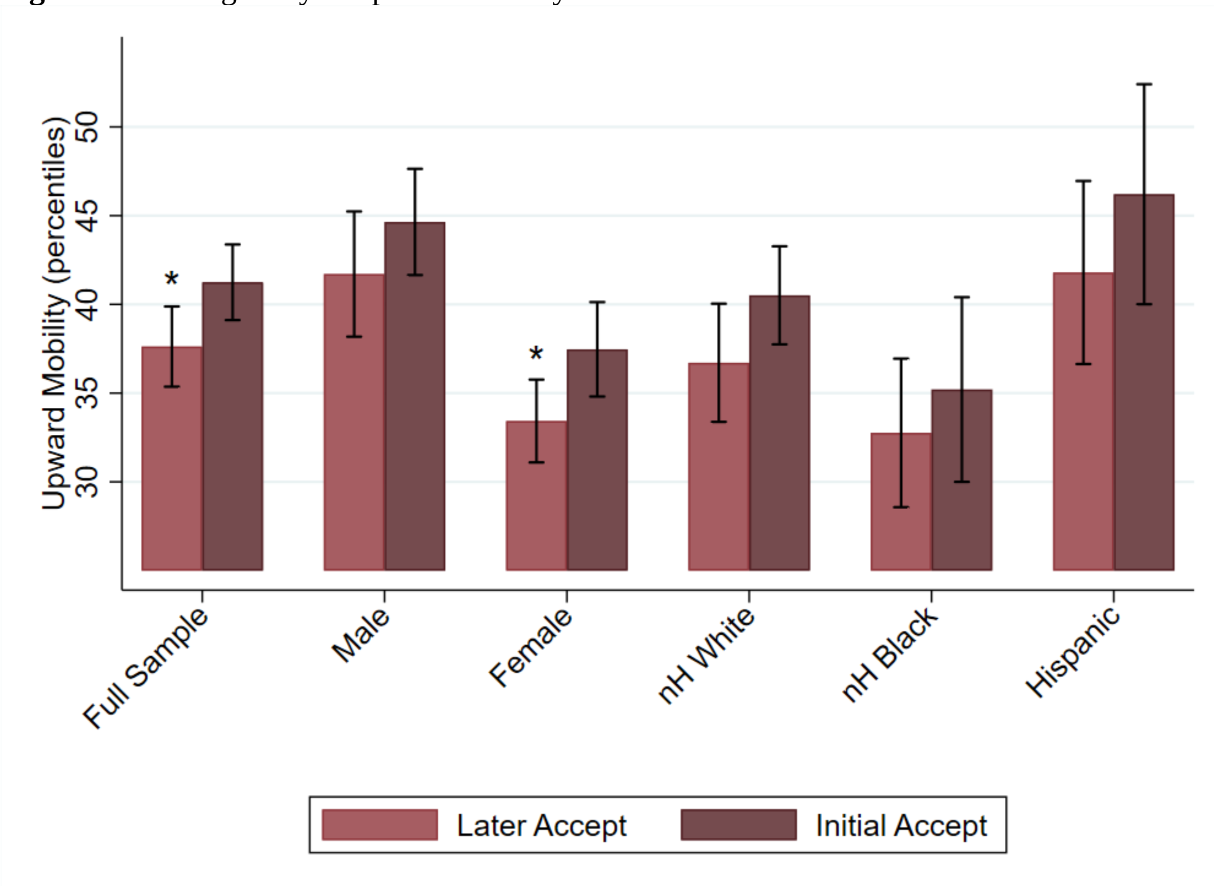
Figure 3: Upward mobility by disability application history



Source: Authors' calculations using matched SIPP-SSA data.
Notes: Parents match with multiple children in SIPP. Upward mobility is defined as the expected earnings rank conditional on parents at the 25th percentile of income. + $p < 0.1$, * $p < 0.5$, ** $p < 0.01$, *** $p < 0.001$ relative to reference category (Never Apply). The full sample is split into 5 categories going from left to right: children of parents who never apply, parents who receive a technical denial (step 1/2), parents who are never accepted, parents who are initially denied and later accepted, and parents who are initially accepted. Figure 3 corresponds to full results from Table 4.

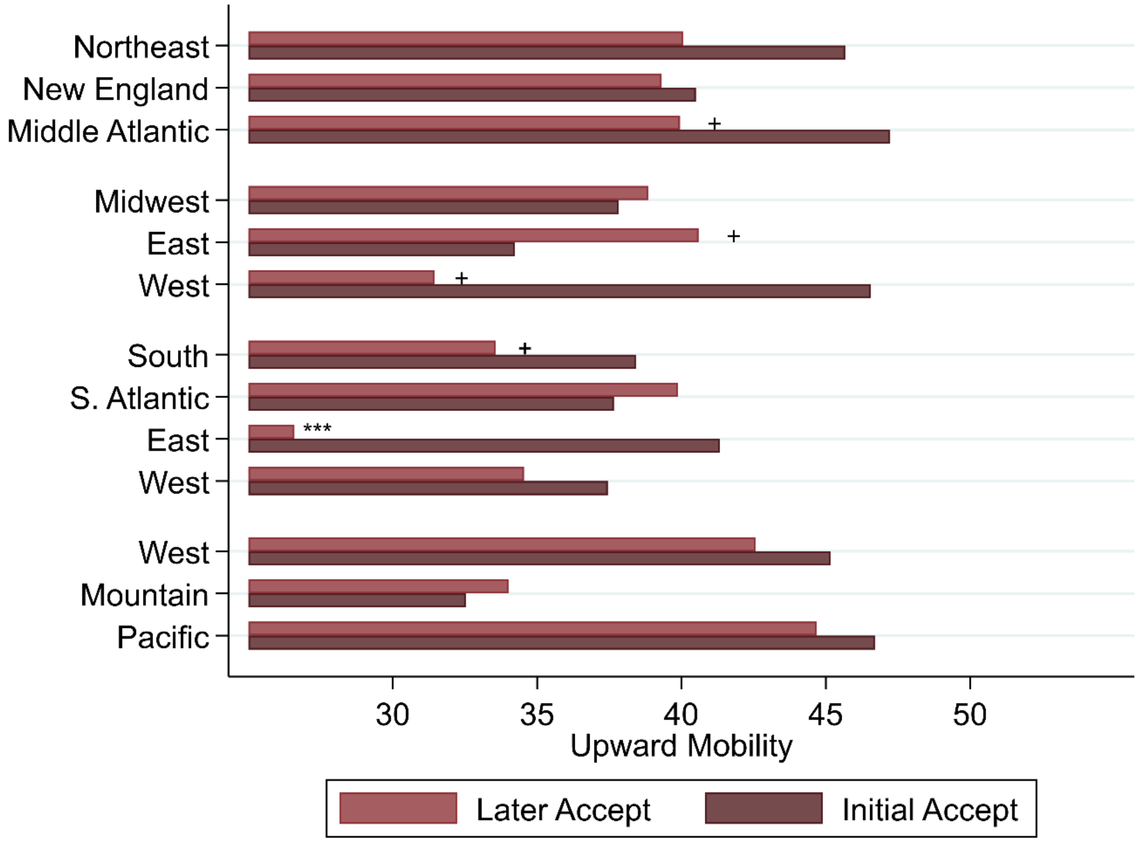
We narrow in on observed differences in upward mobility for the later accept and initial acceptance (reference) groups in Figure 4. Recall that in the absence of DI, children of parents who are initially accepted to DI should have worse economic mobility due to hypothesized worse underlying health of their parents. Our results suggest the opposite is true. Despite worse underlying health of parents, children of initial DI awardees have significantly greater economic mobility. This pattern is apparent across all sexes, race/ethnicities (Figure 4). However, there is significant heterogeneity by Census region and division (Figure 5). More than half of these geographic areas conform to the main pattern, although some observe children of parents who are initially accepted with lower mobility. Many splits are no longer statistically significant with smaller sample sizes.

Figure 4: Heterogeneity in upward mobility for children of DI beneficiaries



Source: Authors' calculations using matched SIPP-SSA data.
Notes: Parents match with multiple children in SIPP. Upward mobility is defined as the expected earnings rank conditional on parents at the 25th percentile of income. + $p < 0.1$, * $p < 0.5$, ** $p < 0.01$, *** $p < 0.001$ relative to reference category (Initial Accept). This figure zooms in on differences between children of parents initially accepted (reference) relative to children of parents initially denied and later accepted. Results are shown by child sex: Male and Female, and child race/ethnicity: non-Hispanic (nH) White, nH Black, and Hispanic. Figure 4 corresponds to full results in Table 4.

Figure 5: Heterogeneity in upward mobility for children of DI beneficiaries: Census regions/divisions



Source: Authors' calculations using matched SIPP-SSA data.
Notes: Parents match with multiple children in SIPP. Upward mobility is defined as the expected earnings rank conditional on parents at the 25th percentile of income. + p < 0.1, * p < 0.5, ** p < 0.01, *** p < 0.001 relative to reference category (Never Apply).

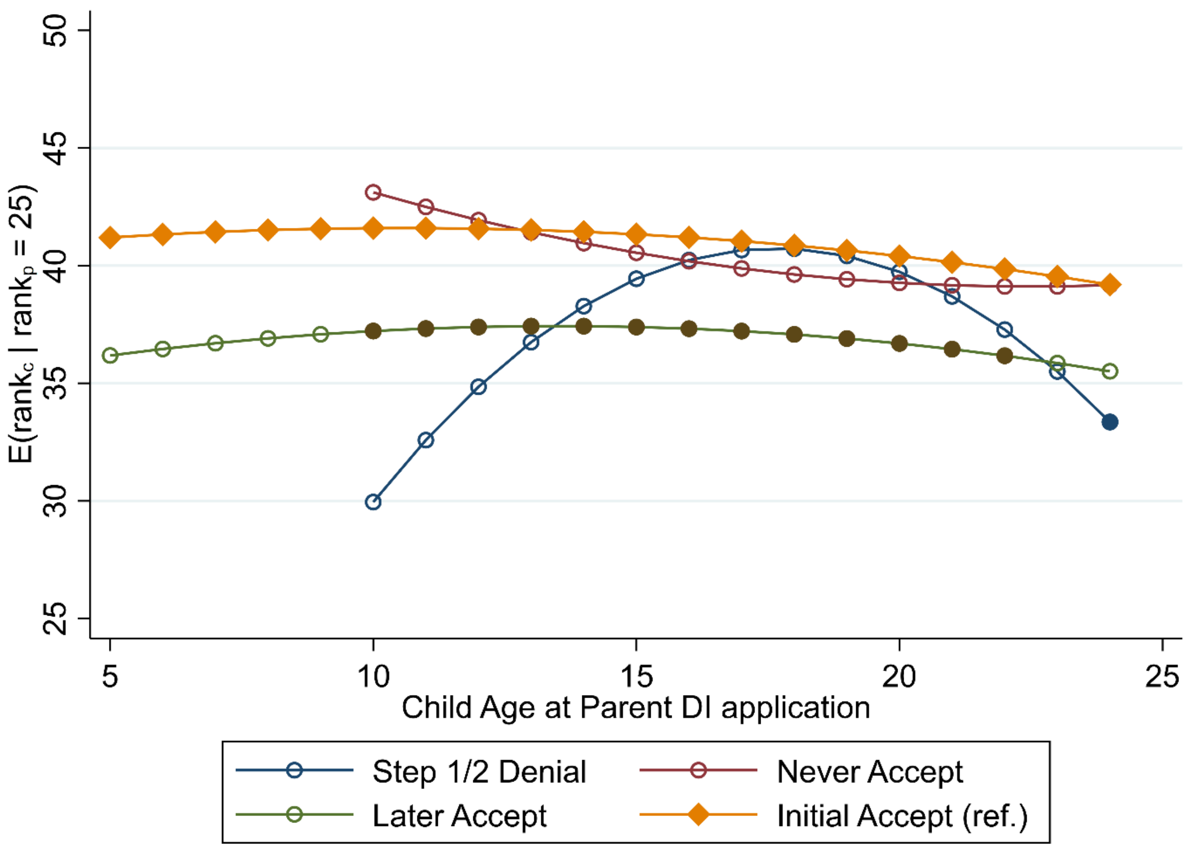
Timing and Child Age at Parent Application

To investigate how the timing of parent application to DI relates to a child's upward mobility, we add a fully-interacted quadratic age control to the main specification (equation 3)[11]. Figure 6 below maps out upward mobility for children of each parent group that applies to DI based on

[11] With Z representing the quadratic age control for the child's age at parent DI application, the full equation is:
$$Rank_c = \beta_0 + \beta_1 Rank_p + \beta_2 Group_p + \beta_3(Rank_p \times Group_p) + \beta_4(Age-40)_p + \beta_5(Age-40)_p{}^2 + \beta_6((Age-40)_p \times Group_p) + \beta_7((Age-40)_p{}^2 \times Group_p) + \beta_8(Rank_p \times Z) + \beta_9(Group_p \times Z) + \beta_{10}(Rank_p \times Group_p \times Z) + \beta_{11}((Age-40)_p \times Z) + \beta_{12}((Age-40)_p{}^2 \times Z) + \beta_{13}((Age-40)_p \times Group_p \times Z) + \beta_{14}((Age-40)_p{}^2 \times Group_p \times Z) + \beta_{15}(Rank_p \times Z^2) + \beta_{16}(Group_p \times Z^2) + \beta_{17}(Rank_p \times Group_p \times Z^2) + \beta_{18}((Age-40)_p \times Z^2) + \beta_{19}((Age-40)_p{}^2 \times Z^2) + \beta_{20}((Age-40)_p \times Group_p \times Z^2) + \beta_{21}((Age-40)_p{}^2 \times Group_p \times Z^2) + \varepsilon$$

those results. Relative to children of parents who apply and are initially accepted, children whose parents are later accepted consistently have lower upward mobility regardless of the child's age at parent DI application (Figure 6). Children of parents who are never accepted to DI have some evidence of declining upward mobility as the child ages; however, it is not statistically different from the reference category (initially accepted parents). Point estimates for children of parents with a step 1 or step 2 denial suggest better upward mobility prospects if children are in their late teens to early 20s when the parent applies. However, it is important to recall sample sizes for the latter two categories of applicants are small. This figure nevertheless underscores potential heterogeneity in results by the child's age at parent application.

Figure 6: Upward economic mobility trajectory by age of parent application



Source: Authors' calculations using matched SIPP-SSA data.
Notes: Parents match with multiple children in SIPP. Upward mobility is defined as the expected earnings rank conditional on parents at the 25th percentile of income. Solid shapes indicate statistically different (at the 10% level) from the reference category (Initial Accept). Simple averages across ages may not visually appear completely consistent with Figure 3 due to smoothing across ages.

Discussion

Work-limiting disability is associated with lower upward economic mobility from the 25th percentile of parent income in a subsequent generation. This pattern emerges both in self-reports of work limitations as well as when considering parent history of DI application. In the case of self-reports, our results suggest children of work-limited parents on average have 4 percentiles lower upward economic mobility relative to their peers of non-limited parents. This is remarkably similar to Jajtner (2020) which finds a mobility gap of 5 percentiles using a smaller sample and without administrative data linkages. Because we only observe parent work limitation reports over a short period of time – at most 3 years in the 1996 panel – our estimates likely understate the expected upward mobility gap associated with parent work disability. The reference category (non-limited parents) undoubtedly includes parent-child pairs where parents face work limitations either before or after observation in SIPP. This exacts a downward bias on upward mobility for the reference group and decreases our estimate of the mobility gap. Thus, our estimates should be viewed as lower bounds.

DI is awarded to individuals deemed to have a severe underlying health condition. A priori, the effect of DI on intergenerational economic mobility might be ambiguous as DI can alleviate budget constraints or improve health, but evidence also suggests welfare use may be intergenerationally transmissible. We hypothesize parents who are initially accepted to DI have marginally worse health relative to parents who are initially denied. Since economic mobility is also expected to deteriorate with parents' health in the absence of DI, we view our results as suggestive evidence that DI may improve the economic mobility of children whose parents have severe work limitations that prevent work. This result is in line with results from Chen et al. (2019) – who found DI improves educational attainment for children of beneficiaries. Relatedly, Aneja and Xu (2020) found discrimination policies introduced into the Federal Government in 1913 under President Wilson resulted in less work and lower earnings for Black civil servants relative to their White peers. Importantly, these policies that constrained budgets also affected the subsequent generation as adults: reducing their educational attainment by 1.5 years and lowering their earnings rank by 9 percentiles (Aneja & Xu, 2020).

Studies from Norway and Denmark indicate DI usage in one generation could increase usage in a subsequent generation (Dahl et al., 2014; Dahl & Gielen, 2018). In our study's context, one could expect children of DI beneficiaries to have lower observed economic opportunity in this case with lower adult earnings. Dahl et al. (2014) suggests that one pathway through which children are more likely to use DI if their parents also did is through a changed perception of the opportunity cost of DI application among those whose parents were assigned more lenient appeals judges. If this were a pathway for intergenerational DI use in the US, one might expect children of initially accepted applicants to have a more favorable view of the opportunity costs involved in DI application (relative to children of parents who were only accepted to DI upon appeal) and be more likely to apply for DI themselves. With work-exit requirements for DI, earnings (and upward economic mobility) would surely be lower among children of initially accepted applicants. Not only do we find statistically higher upward economic mobility among these children, but Figure 7 (Table 5) also indicates that children of initially accepted beneficiaries have the *lowest* incidence of any zero-earnings between ages 30 and 34 among children whose parents ever apply to DI. Recall though that children with no earnings are excluded from our sample and thus could still threaten the validity of our conclusions. While children of DI beneficiaries are indeed more likely to have zero earnings for all five years between ages 30 and 34 (Figure 7), fewer children of initially accepted beneficiaries have consistent zero earnings relative to children of beneficiaries accepted upon appeal. While we cannot rule out increased DI use among children of DI beneficiaries, our results highlight that positive intergenerational spillovers likely exist and dominate the intergenerational process.

Figure 7: Portion of children with zero earnings

Source: Authors' calculations using matched SIPP-SSA data.
Notes: Parents match with multiple children in SIPP. Children with any zero earnings (i.e., at least one tax year with zero earnings between ages 30 – 34) are retained in the sample. Children with no earnings for all tax years are excluded. Full results in Table 5.

Further supporting our claim of likely positive intergenerational spillovers of DI is the fact that we are unable to account for changing marital patterns for parents in our sample. At the time of SIPP observation, we find remarkably similar patterns in children's upward and downward economic mobility regardless of whether they are observed in a single or two-parent homes in SIPP. Recall however that SIPP at most observes parents over 3 years. Parent health and work-limitations can predict marital dissolutions (Percheski & Meyer, 2018), suggesting our categorization of either no work limitations or never applying to DI could miss some poor parent health if that health preceded a union dissolution. In this case, our upward mobility gap estimates would have a downward bias.

Our analysis also faces a few other limitations. We are observing parent characteristics at different times and combining all cohorts in different SIPP panels. For example, the 1980 birth cohort can be found in any of the SIPP panels. In the 1984 panel, children are 4 years old and in the 2004 panel they are 24 years old. Parents of this birth cohort in the 2004 panel are also correspondingly older, and as such we expect there to be different life-cycle patterns in income and likelihood of disability. The former issue we attempt to mitigate using age controls in the OLS specification. The latter we note is a key measurement issue above that is present in the work-limitation sample partitions and may contribute to downward bias of the upward mobility gap for children of work-limited parents. This limitation is however not present when considering parental DI application history as all parents are observed up until the child turns 26. Our results broadly point to positive intergenerational spillovers of DI and, specifically, that DI may improve upward economic mobility at low incomes. The most important caveat of our results is that our methods cannot uncover a causal link and we urge continued research on this issue.

We also note our results demonstrate that DI benefits may not fully equalize economic opportunity for children whose parents have disabilities, particularly among children whose parents are initially denied benefits. We recognize this is not an explicit goal of DI; however, in determining benefit levels and extensive margin participation in the program, policy makers should be aware that there are potential positive spillovers to the subsequent generation. Again, future research needs to establish whether this relationship is causal, and if it is, the degree to which DI can mitigate lower economic opportunity for children whose parents are unable to work due to health conditions. Since DI is a cash transfer targeted at a population that experiences decreased economic mobility, knowledge of whether the transfer can causally improve mobility outcomes might be of broader interest outside of SSA.

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Tables of Full Results

Table 3: Mobility metrics by work-limitation reports

	No versus Any Work Limit		Work Limitation Severity		
	No Work Limit	Any Work Limit	No Work Limit	Non-Severe Work Limit	Severe Work Limit
Persistence	0.304	.299	0.304	.292	.326
$E(rank_c \mid rank_p=25)$	43.67	39.6***	42.840	39.35***	38.33***
$E(rank_c \mid rank_p=75)$	58.87	54.56***	58.030	53.92***	54.61**
N	39,589	13,741	35,371	5,180	2,919
Subpopulations					
Male					
Persistence	0.338	.32	0.330	.292	.344
$E(rank_c \mid rank_p=25)$	48.60	44.67***	47.210	44.51*	41.9***
$E(rank_c \mid rank_p=75)$	65.52	60.66***	63.730	59.12***	59.1**
N	20,857	7,316	18,679	2,738	1,586
Female					
Persistence	0.260	.268	0.269	.29	.292
$E(rank_c \mid rank_p=25)$	38.50	34.18***	38.040	33.66***	33.67***
$E(rank_c \mid rank_p=75)$	51.51	47.58***	51.480	48.16**	48.27
N	18,732	6,425	16,692	2,442	1,333
nH White					
Persistence	0.285	.31	0.287	.297	.348*
$E(rank_c \mid rank_p=25)$	45.41	39.78***	44.340	39.36***	37.51***
$E(rank_c \mid rank_p=75)$	59.63	55.28***	58.690	54.2***	54.93**
N	29,753	9,418	26,455	3,848	1,732
nH Black					
Persistence	0.290	.241	0.299	.284	.213
$E(rank_c \mid rank_p=25)$	36.25	34.29	36.660	35.84	36.91
$E(rank_c \mid rank_p=75)$	50.75	46.32*	51.620	50.04	47.58
N	4,367	1,911	3,781	539	584
Hispanic					
Persistence	0.223	.24	0.223	.318	.298
$E(rank_c \mid rank_p=25)$	44.83	42.17*	43.890	40.95	40.63
$E(rank_c \mid rank_p=75)$	55.98	54.17	55.060	56.85	55.55
N	3,724	1,608	3,457	554	397
Other R/E					
Persistence	0.276	.21	0.244	-.006*	.414
$E(rank_c \mid rank_p=25)$	49.80	47.75	49.750	50.7	44.53
$E(rank_c \mid rank_p=75)$	63.58	58.25*	61.960	50.39*	65.23
N	1,745	804	1,678	239	206

Source: Authors' calculations using matched SIPP-SSA data.
Notes: Notes from Table 1 apply. + p < 0.1, * p < 0.5, ** p < 0.01, *** p < 0.001 relative to reference category (Never Applied)

Table 4: Mobility metrics by parent DI application history

	Never Apply	Apply, Step 1/2	Apply, Never Accepted	Apply, Later Accepted	Apply, Initially Accepted	Gap Btwn Accepted
Persistence	0.311	.247	.203*	.285	.235*	.05
$E(rank_c \mid rank_p=25)$	43.06	36.94**	41.1	37.62***	41.25	-3.62*
$E(rank_c \mid rank_p=75)$	58.63	49.27**	51.23**	51.86***	53***	-1.14
N	48,136	345	765	1,454	1,875	
Subpopulations						
Male						
Persistence	0.342	.177	.286	.341	.28	.061
$E(rank_c \mid rank_p=25)$	48.11	44.66	46.16	41.71***	44.64*	-2.94
$E(rank_c \mid rank_p=75)$	65.18	53.5**	60.44	58.75**	58.63***	.11
N	25438	193	371	766	1010	
Female						
Persistence	0.273	.331	.134*	.218	.165**	.053
$E(rank_c \mid rank_p=25)$	37.65	27.54***	36	33.43***	37.47	-4.04*
$E(rank_c \mid rank_p=75)$	51.32	44.06	42.7**	44.35**	45.73**	-1.39
N	22698	152	394	688	865	
nH White						
Persistence	0.301	.197	.178	.282	.275	.007
$E(rank_c \mid rank_p=25)$	44.16	38.38	41.81	36.71***	40.51*	-3.8
$E(rank_c \mid rank_p=75)$	59.22	48.25**	50.72**	50.79***	54.25***	-3.46
N	36179	173	421	862	1140	
nH Black						
Persistence	0.279	.436	.217	.346	.189	.157
$E(rank_c \mid rank_p=25)$	36.58	31.57	35.84	32.76*	35.2	-2.44
$E(rank_c \mid rank_p=75)$	50.53	53.36	46.71	50.06	44.66	5.39
N	5242	98	166	280	325	
Hispanic						
Persistence	0.24		.236	.31	.117	.194
$E(rank_c \mid rank_p=25)$	44.32		43.37	41.8	46.21	-4.41
$E(rank_c \mid rank_p=75)$	56.3		55.19	57.3	52.04	5.27
N	4514		143	228	256	
Two Parent						
Persistence	0.298	.201	.186	.285	.217*	.067
$E(rank_c \mid rank_p=25)$	43.77	37.98	41.94	37.69***	41.77	-4.08*
$E(rank_c \mid rank_p=75)$	58.69	48.05**	51.24**	51.92***	52.63***	-.71
N	38148	230	528	1079	1568	

<u>Single Parent</u>						
Persistence	0.317	.357	.152	.216	.393	-.176
$E(rank_c \vert rank_p=25)$	42.53	36.74*	39.23	36.48***	40.74	-4.26
$E(rank_c \vert rank_p=75)$	58.37	54.57	46.82	47.31*	60.39	-13.08
N	9988	115	237	375	307	

Source: Authors' calculations using matched SIPP-SSA data.
Notes: Notes from Table 1 apply. + p < 0.1, * p < 0.5, ** p < 0.01, *** p < 0.001 relative to reference category (Never Applied). Portion of Hispanic and Other Race/Ethnicity in Step 1/2 denials omitted for disclosure.

Table 5: Portion of children with zero earnings

	Any Zero	No Earnings
Never apply	19.2%	7.5%
	(0.2)	(0.1)
Step 1/2 applicants	25.6%	8.2%
	(2.1)	(1.4)
Apply and are never accepted	25.6%	8.8%
	(1.5)	(1.0)
Apply and are later accepted	26.5%	10.8%
	(1.1)	(0.8)
Apply and are initially accepted	24.3%	10.1%
	(0.9)	(0.7)

Source: Authors' calculations using matched SIPP-SSA data.
Notes: Children with any zero earnings (i.e., at least one tax year with zero earnings between ages 30 – 34) are retained in the sample. Children with no earnings for all tax years are excluded. Standard errors in parentheses.

Appendix

Table A1. Child birth cohort by SIPP panel

Birth Cohort	SIPP Panel 1984	1990	1991	1992	1993	1996	2001	2004	2008	Total
1965	765	283	0	0	0	0	0	0	0	1,048
1966	753	280	68	0	0	0	0	0	0	1,101
1967	743	371	75	101	0	0	0	0	0	1,290
1968	648	399	109	124	101	0	0	0	0	1,381
1969	533	567	132	159	144	0	0	0	0	1,535
1970	415	604	180	245	176	0	0	0	0	1,620
1971	378	637	183	273	189	305	0	0	0	1,965
1972	338	714	255	290	231	297	0	0	0	2,125
1973	297	695	235	285	256	379	0	0	0	2,147
1974	259	762	291	362	306	508	0	0	0	2,488
1975	308	651	262	382	345	567	0	0	0	2,515
1976	254	668	294	402	380	709	131	0	0	2,838
1977	282	707	279	431	377	833	168	0	0	3,077
1978	274	680	302	396	408	927	186	0	0	3,173
1979	254	681	270	429	424	1,049	248	283	0	3,638
1980	248	744	278	462	468	1,107	326	374	0	4,007
1981	230	747	349	446	450	1,109	365	454	0	4,150
1982	205	656	301	477	414	1,089	496	592	0	4,230
1983	160	712	314	437	445	1,172	538	638	373	4,789
1984	9	700	317	457	423	1,099	605	829	454	4,893
Total	7,353	12,258	4,494	6,158	5,537	11,150	3,063	3,170	827	54,010

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