MATHEMATICA
CENTER FOR
STUDYING DISABILITY POLICY

DRC Working PAPER

WORKING PAPER NUMBER: 2019-09

Child Disability, Maternal Labor Supply, and Household Well-Being

September 20, 2019

Dara Lee Luca*
Purvi Sevak

***Corresponding author's contact information:**
Mathematica
955 Massachusetts Avenue
Cambridge, MA 02139
Telephone: (617) 588-6708
Email: DLeeLuca@mathematica-mpr.com
Reference Number: 40112.D-MP-18-06

The research reported herein was performed pursuant to a grant from the U.S. Social Security Administration (SSA) funded as part of the Disability Research Consortium. The opinions and conclusions expressed are solely those of the authors 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, expressed 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.

This page has been left blank for double-sided copying.

CONTENTS

ABSTRACT VII

I. BACKGROUND 1

II. EXISTING LITERATURE 3

III. DATA DESCRIPTION 5

A. Fragile Families and Child Wellbeing Study 5

B. Definition of child disability 8

IV. EMPIRICAL STRATEGY 11

V. RESULTS 13

A. Maternal labor supply 13

B. Benefit receipt and program participation 16

C. Household economic outcomes and well-being 17

VI. SUBGROUP EFFECTS 19

VII. SENSITIVITY ANALYSES 23

VIII. CONCLUSION 25

REFERENCES 27

APPENDIX A SUPPLEMENTARY TABLES 31

This page has been left blank for double-sided copying.

TABLES

1 Summary statistics of key variables 7

2 Prevalence of child disability, by wave and type 10

3 Child disability and maternal labor market activity 16

4 Child disability and benefit receipt 17

5 Child disability and household well-being 18

6 Subgroup effects, by baseline characteristics 20

7 Sensitivity analyses: using different definitions of child disability 23

This page has been left blank for double-sided copying.

ABSTRACT

Project Number

D-MP-18-06

Title

Child Disability, Maternal Labor Supply, and Household Well-Being

Authors

Dara Lee Luca and Purvi Sevak

Date

September 20, 2019

Key Findings and Policy Implications

Using a 15-year panel from the Fragile Families Study, we examine the prevalence of child disability and its association with a wide range of economic and social outcomes in a dynamic context. We find the prevalence of child disability among urban families is high. Further, child disability is associated with reductions in maternal labor supply on both the intensive and extensive margins, as well as increases in benefit receipt from Supplemental Security Income and other public assistance programs. There is limited evidence that child disability is associated with changes in household income or poverty.

This page has been left blank for double-sided copying.

I. BACKGROUND

The prevalence of child disability, which puts children at high risk of future poor outcomes, has been rising over the past several decades in the United States. Since 1980, when 3.8 percent of children had health-related activity limitations (Newacheck et al., 1986), the rate has risen to 7.9 percent in 2010 (Houtrow et al., 2014).[1] Mental health conditions in particular have increased in prevalence; between 2000 and 2010, prevalence of child disabilities related to mental health increased 21 percent (Houtrow et al., 2014). Concurrent with the increase in disability prevalence, the number of children receiving cash benefits from the Supplemental Security Income (SSI) program, which provides cash benefits to low-income individuals with disabilities, more than quadrupled from approximately 300,000 in 1990 to 1.2 million in 2015, a time during which the child population grew just 15 percent, from 64.2 million to 73.8 million. (SSA, 2018a).[2]

Despite the worrying growth in child disability rates and SSI rolls, gaps remain in our understanding of the economic consequences of child disability. The dynamic nature of disability imply the need for longitudinal data that measure changes in its prevalence and its association with economic circumstances of the affected family. To date, however, few studies have explored beyond cross-sectional relationships or outcomes associated with the child at a very young age. Our study aims to fill this gap in the literature.

In this paper, we study the prevalence of child disability and how families fare before and after the onset or identification of a child's disability with data from the Fragile Families and Child Wellbeing Study, a longitudinal survey that follows approximately 5,000 children born between 1998 and 2000—and their parents—from birth to age 15. We leverage the longitudinal aspect of the Fragile Families Study to examine the dynamic nature of the timing of disability onset (reported by the primary caregiver) and its association with a wide range of outcomes that measure household well-being, including maternal labor supply, safety net program participation, household income, poverty, and parental relationship, from the cohort's birth through age 15.

Understanding how families who are at greater risk of poverty fare in the face of child disability is especially critical in helping formulate and evaluate policies designed to support them. A child with a disability may require more financial resources and parental time investment than a child without a disability due to factors such as additional medical attention and specialized childcare (Kuhlthau et al., 2005; Newacheck & Kim, 2005). Compounding the risks associated with child disability is the fact that prevalence is higher among families with low income. Children who are born to mothers in low-income households are more likely to be born pre-term, to have worse birth outcomes, and to demonstrate higher proportions of developmental disadvantage (NRC and IOM, 2000). In addition, the prevalence of most chronic physical and mental conditions, such as attention deficit hyperactivity disorder (ADHD) and asthma, is higher among poor families (Houtrow & Okumura, 2011). And yet, children who grow up in poverty

[1] Estimates vary across studies, depending on the data source and definition of disability.

[2] For more information on the SSI program, Duggan et al. (2015) provides a through description of the disability determination process and SSA (2018) provides information on the current eligibility limitations for income and assets.

are less likely to be treated for their conditions, as they generally have more limited access to care and credit, and even those with insurance might face additional barriers and consequently have poorer health outcomes (Van Cleave et al., 2010). The findings from our study will help shed new light on the consequences of child disability among such families.

We present several key findings. First, a high share of children from urban families have a chronic medical condition or disability. By the time the children reach age 3, about 3.7 percent of them have some kind of chronic condition or disability. By age 15, that number rises to as high as 40 percent. The most common conditions among these teens are attention deficit hyperactivity disorder (ADHD) (18.2 percent), followed by developmental issues (6.6 percent). Second, child disability is associated with decreased labor market participation of mothers on both the intensive and extensive margins, with hours worked declining even before onset or diagnosis. Third, the diagnosis of a child's disability is associated with increases in benefit receipt from SSI and other public assistance programs. However, diagnosis of a child's disability is not associated with measurable changes in household income or poverty. Estimated changes are consistent when we use alternate definitions of disability, such as by excluding ADHD, which may have large degrees of variation in severity. Finally, we find evidence of heterogeneous effects in maternal labor market activity. For example, mothers who were not married to the child's father or did not have a high school degree at baseline households tend to experience smaller changes in hours worked or labor force participation, suggesting that their labor supply is less elastic.

The rest of the paper proceeds as follows. Section II briefly surveys the related literature. Section III describes the data, followed by a discussion of the empirical strategy in Section IV. Section V reports and discusses the key findings. Section VI provides an exploratory analysis of subgroup effects by parental characteristics at baseline. Section VII offers several sensitivity analyses to test the robustness of our results. Section VIII concludes.

II. EXISTING LITERATURE

In order to better understand the contributions of this paper, we discuss the existing literature on the consequences of child disability on the household. The first related strand of the literature focuses on child disability and maternal labor supply. Multiple studies have documented a negative correlation between poor child health and maternal labor supply using various datasets. Kuhlthau and Perrin (2001) conducted a cross-sectional study using data from the 1994 National Health Interview Survey to show that having a child with poor health status is associated with reduced employment of parents. Using data from the Panel Study of Income Dynamics, Gould (2004) finds that this cross-sectional relationship is significant for time-intensive or unpredictable medical conditions (for example, autism, diabetes, or heart conditions) but not others. Powers (2003) examines the relationship between maternal labor supply (measured in levels and changes over a two-year horizon) and, having a child with a disability using data from the Survey of Income and Program Participation, and finds that child disability is associated with a lower probability of entering the labor force for female heads but not for married mothers. Controlling for labor supply prior to the child's birth, along with individual and local area characteristics, Corman et al. (2005) use data from the Fragile Families Study and estimate that having a child in poor health reduces by the probability the mother works and hours worked among working mothers when their child is around age one.

Other studies have examined the relationship between child disability and benefit receipt. Reich et al. (2004) use data from the Fragile Families Study to show that mothers with children in poor health are more likely to rely on TANF and/or SSI than those with healthy children when the child was between 1 and 1.5 years old. Duggan and Kearney (2007) examine a slightly different question about the impact of child SSI receipt and find that enrolling a child in SSI is not associated with significant offsets from other transfer programs or earnings. Guldi (2018) find that among a narrower population of extreme low-birth-weight babies, eligibility for SSI shifts maternal labor supply from full to part time, as well as improves child outcomes in several dimensions. Recent work by Deshpande (2016) estimates the effect of removing children with disabilities from the SSI program on parental earnings and household disability receipt, and finds that parents fully offset the SSI loss with increased earnings, but do not find any evidence of substitution towards alternative sources of disability income.

Child disability is associated with other poor economic outcomes as well. Case et al. (2001) document a strong inverse relationship between family income and child health using data from multiple sources. Using the repeated waves of the NLSY79, Porterfield and Tracy (2003) demonstrate that families with at least one child born with a disability are more likely to be in poverty three to six years after the child is born, relative to families without a disabled child, even though their characteristics pre-birth are not significantly different.

Finally, several studies have also examined the effects of child health on parents' relationship status. Reichman et al. (2005) use the Fragile Families data to find that having an infant in poor health reduces the likelihood that parents will live together by the time the child is between 12 to 18 months old, particularly among parents with low socioeconomic status. Hartley et al. (2010) find that parents of children with an autism spectrum disorder had an elevated rate of divorce through the child's adolescence than a matched comparison group of parents of children without disabilities. Similarly, Swaminathan et al. (2006) find that parents of a very low

birth weight infant have two-fold higher odds of divorce or separation two years post after delivery, when compared with parents of a child with a birth weight greater than 1500 grams.

Our study contributes to the existing literature in several ways. First, the data we use follow children from birth to age 15, which allows us to examine the dynamics of the outcomes of interest from before to after a child's disability onset. Second, the data allows us to provide estimates of disability prevalence as children age. By using six waves of longitudinal data spanning 15 years, we are able to shed light on the risk of disability over a child's life from birth through adolescence. As we will show, the types of disabilities or chronic conditions, and their prevalence, change markedly over time. With the growing rates of child disability in the US, understanding how the face of disability could shift during the years of childhood is a particularly pertinent question. Third, we analyze a comprehensive range of outcomes that capture the economic circumstances and well-being of the families who have a child with a disability: maternal earnings, work hours, employment, income, public transfer receipt, poverty, and household dissolution. In taking this broader perspective, we obtain a more inclusive picture of how such families fare in the face of a child's disability. The data we use—which cover the years from 1998 through 2017—include the post welfare reform period (which changed the incentives for low-income mothers to work) and the Great Recession, and hence also provide insight on how these economic and policy changes affected the welfare and program participation of families with children with disabilities. To our knowledge, this analysis represents both the longest panel used in the analysis of child disability as well as the most recent data. Finally, by using child fixed effects models, we can better control for time-invariant or unobservable characteristics of the parents that may affect both the likelihood of the child having a disability and the outcome of interest.

III. DATA DESCRIPTION

A. Fragile Families and Child Wellbeing Study

To examine how child disability affects the family, we use data from the Fragile Families and Child Wellbeing Study, a rich, longitudinal data set that follows for more than 15 years a cohort of approximately 5,000 children born between 1998 and 2000. The survey is designed to be representative of births in cities with a population of 200,000. A goal of the study was to obtain data to develop an understanding of how children born into families that are more vulnerable to poverty and breakup ("fragile families") fare, and how policies and environmental conditions affect these families. Forty percent of all children born in the U.S. today are born to unmarried parents; the proportions are even higher among low-income and minority populations (Martin et al., 2017). With more than half of the births in the sample covered by Medicaid, a large proportion of the sample is poor or near-poor, providing a unique opportunity to study how a child's disability could affect this especially vulnerable population. The survey currently has six waves of data. The baseline interview ("wave 1") took place in the hospital at the time of the focal child's birth. Follow-up interviews occurred when the focal child was age 1 ("wave 2"), 3 ("wave 3"), five ("wave 4"), 9 ("wave 5"), and 15 ("wave 6").

To understand the potential generalizability of the findings from this study, we briefly describe the survey's sampling scheme. The study used a complex, multi-stage clustered sampling design, with an oversample of unmarried parents. Thus, although non-marital births accounted for only about one-third of U.S. births at the time the study began, they make up about three-quarters of the sample (Reichman et al., 2001). The sampling occurred in three stages: first by cities, then by hospitals within cities, and finally by births within hospitals. In the first stage, all U.S. cities with 200,000 or more people were stratified based on welfare generosity, the strength of the child support system, and the strength of the local labor market. Cities in each strata were then selected randomly, with the selection probability for each city proportional to its population. In the second stage of sampling, birthing hospitals were sampled within each city to be representative of non-marital births in that city. Within each of the hospitals, random samples of births by both married and unmarried mothers were drawn until preset quotas (based on the percentage of births among unmarried women in the city) were reached. The study provides national-level and city-level weights. Although there was oversampling of births among unmarried females, the data, when weighted or regression adjusted, represent all hospital births in large cities between 1998 and 2000 (see Reichman et al., 2001 for details). Using the national weighting scheme, our results should provide a nationally representative picture of children from urban households and shed light on how to strengthen supports for families who have a child with a disability.[3]

The study has several features that make it particularly valuable for assessing the effects of child disability on the household. Beginning in the first follow-up (wave 2), the survey asks the primary caregiver about whether the child has any of a series of chronic conditions or disabilities

[3] The sample does not draw from home births or births in birthing centers which made up less than 1% of births nationally during this time period (MacDorman, 2014).

(described further below).[4] There is also rich information on parental labor market activity, household income and poverty, and safety net program participation. The survey asks each parent to report his or her labor market status, including whether currently working, hours of work, and earnings at each job. However, we focus on only maternal labor market outcomes because of the high rate of family dissolution and consequent father attrition from the survey. The Fragile Families Study provides constructed measures of poverty status based on self-reported household income.[5]

The study also contains detailed information on the different safety net programs the household participates in, including Temporary Assistance to Needy Families (TANF); Supplemental Nutrition Assistance Program (SNAP, which is commonly referred to as food stamps because the program was previously called the Food Stamp Program); Supplemental Security Income (SSI), and other forms of public assistance programs, such as unemployment insurance or Worker's Compensation. Under the SSI program, the Social Security Administration (SSA) can provide cash payments to children who medically qualify as disabled under SSA rules and whose families have little income or resources. TANF is the nation's primary need-based welfare program for single, underemployed, or under-employed, low-income mothers. SNAP is a means-tested program that provides eligible households with monthly supplements to purchase food.

Table 1 reports summary statistics of key outcomes, overall and by child disability status. These and all estimates use sample weights to approximate nationally representative estimates of children from urban households. Panel A reports the summary statistics of variables available in the baseline survey, delineated by whether the family ever reported a child with a disability in subsequent waves. It is evident that even at baseline, families who will eventually have a child with a disability are different: mothers work more, households have lower income, and parents are less likely to be married. In Panel B, we examine the same variables and additional variables in subsequent waves.[6] It appears that families who have a child with a disability do worse in a number of dimensions: they have lower income, higher poverty, and higher receipt of TANF, SNAP, and other types of assistance. However, the fact that the families are already different at baseline calls for a fixed effects estimation to help disentangle changes due to a child's disability from pre-existing differences.

[4] Since the baseline survey does not ask about child disability, we do not explicitly use data from the baseline survey in the main analysis. However, we make use of baseline survey data in the subgroup analysis (for the purposes of defining subgroups).

[5] Refer to the Data Appendix and Fragile Families public use data guide for more information on income and poverty measures: https://fragilefamilies.princeton.edu/sites/fragilefamilies/files/ff_public_guide_0to5.pdf.

[6] We can examine more variables in Panel B because many of the variables in the subsequent waves are not available in the baseline survey.

Table 1. Summary statistics of key variables

Panel A. Baseline variables

Baseline variables	Child did not ever report disability	Child reported disability	Overall
Labor supply			
Mom's hours worked last week[a]	34.9	34.7	34.8
Mom worked last year	69.4	78.7	73.6
Household income and poverty			
Total household income	66,155	54,736	61,074
Household poverty	26.4	24.7	25.6
Parents separated or divorced	6.9	6.8	6.9
Control variables			
Age of mother	27.3	26.8	27.1
Number of adults in household	2.3	2.2	2.3
Number of children in household	1.2	1.0	1.1
Parents are married	61.6	59.3	60.5
Parents are cohabitating	20.1	19.8	20.0
Local unemployment rate	3.8	3.8	3.8
Welfare generosity index	15.7	14.9	15.3

Panel B. Variables measured in subsequent waves

Variable	Child has no disability	Child has a disability	Overall
Labor supply			
Mom worked last week	58.6	62.3	59.7
Mom's hours worked last weeka	35.5	37.2	36.0
Mom’s earnings last year (in 2017 $)	21,336	24,086	22,153
Household Income and poverty			
Total household income (in 2017 $)	70,797	66,655	69,576
Household poverty (%)	28.4	31.0	29.1
Benefit receipt (%)			
Child receives SSI	1.46	7.60	2.86
Mom receives SSI	1.53	2.93	1.85
Mom receives TANF	9.29	13.95	10.63
Mom receives SNAP	24.4	34.5	27.4
Mom receives other type of public assistance	3.75	6.68	4.60
Control variables			
Age of child (years)	5.5	9.2	6.6
Age of mother (years)	32.7	36.1	33.7
Number of adults in household	2.1	2.0	2.1
Number of children in household	2.3	2.4	2.3
Mother has work-limiting medical condition	7.9	14.5	9.8
Parents are married	58.3	41.0	53.3
Parents are cohabitating	10.8	7.3	9.8
Local unemployment rate	5.9	7.2	6.3
Welfare generosity index	26.2	26.0	26.1
Number of observations	8,638	4,052	12,690

Notes: Unit of observation is at the child-wave level.

[a.] Hours worked are conditional upon working

SSI = Supplemental Security Income; TANF = Temporary Aid to Needy Families; SNAP = Supplemental Nutrition Assistance Program.

B. Definition of child disability

Given its importance as our main explanatory variable, we provide additional detail on how we define child disability. Overall, we are inclusive in the conditions we include when identifying whether a child has a disability, recognizing that the symptoms and severity of a condition will vary across children, with some conditions becoming "disabling" for some children but not for others. In our sensitivity analyses, we demonstrate that our results are robust to different ways of specifying disability.

The Fragile Families Study asks the primary caregiver in each wave whether the child has any disabilities. The questions and specific conditions vary somewhat from wave to wave, partly to reflect the age of the children. In the second and third waves, when the focal child is approximately 1 and 3, respectively, the primary caregiver is asked whether the child has any disabilities, and after that binary response, the respondent is further asked to classify the disability type among a given list (refer to the data appendix for the full list). Starting in the fourth wave, the pertinent question changed to "has a doctor or health professional ever told you that (CHILD) has any of the following health conditions?" The set of conditions asked also changed slightly from wave to wave (refer to the appendix for a more detailed description of the survey questions and list of disabilities). In particular, ADHD and autism were added beginning in wave 4, when the child was approximately 5. The addition in later waves makes sense because it is often not possible to diagnose such conditions at earlier ages.

We broadly code our disability variable as 1 if the primary caregiver responded "yes" to the binary question in waves 2 and 3, and responded yes to any of the listed disabilities in wave 4 onward. Due to the way the question is asked, and the changing set of disabilities by wave, the aggregate set of disabilities that make up the disability variable varies slightly from wave to wave. The consistent set of disabilities across waves include: blindness, deafness, speech problem, Down syndrome,[7] problem with limbs, cerebral palsy, heart disease, developmental delay, with the addition of ADHD and autism in wave 4 onward. There is also an "other category" that captures remaining disabilities that are not consistently classified, such as blood disorders and seizures.

We interpret a change in the disability variable (i.e., from zero to one) as the new diagnosis or identification of a child's disability. We recognize that in some cases, actual onset, or presentation of the symptoms of the disability, may precede diagnosis, so the effects on the household could occur prior to the observed change in the disability variable. For example, onset may be clear cut in certain situations (such as when an accident leads to loss of a limb or vision), whereas in other cases, symptoms may be present before a diagnosis is possible (e.g. autism). Yet other disabilities, such as cerebral palsy, could be congenital or due to birth trauma, but might not be diagnosed until symptoms emerge in early childhood.[8] Unfortunately, it is not feasible to cleanly distinguish actual onset from diagnosis in our data. As such, we broadly

[7] Down syndrome is the only condition in our sample that is a definite congenital disorder. As such, although we include Down syndrome in our definition of child disability, it does not contribute to the estimates in the fixed effects models because the condition is diagnosed at birth and does not vary across waves.

[8] Cerebral palsy can be acquired or congenital. Even in congenital cerebral palsy, symptoms may often not present until months or years later.

interpret any changes in the disability variable as identification or a new diagnosis of the disability, which may coincide with or follow onset.

While some researchers have questioned the validity of self-reported disability status, others have argued that self-reported disability status is an unbiased or even preferred way to define disability given the many forms disability could take (Benítez-Silva et al. 2004; Stern 1989). Using more objective measures such as SSI receipt may not be ideal, especially as there may be conditions that do not qualify for SSI but could be nonetheless disabling, or families may not be aware of their eligibility. The rate of child SSI receipt in our sample among children who were identified to have a disability is around 32 percent among families with reported monthly income less than $2,000, which we use as an approximate maximum threshold for SSI eligibility. This may be because the child's disability is not eligible to qualify for SSI, or because there is incomplete take-up. Regardless, we believe that using self-reported measures, while imperfect, offers the best available method of measurement.

Table 2 shows the prevalence of child disability, by wave, type, and overall. Since the list of medical conditions shifts from wave to wave, it is important to note that the table lists only the set of disabilities that are asked consistently across all waves, and hence does not include the full set of medical conditions that are asked in each wave (see the data appendix for more details). In wave 2 (the first follow-up), when the children in the sample are approximately 1 year of age, approximately 2.5 percent of children in the sample has a self-reported disability. The proportion grows over time, jumping to almost one-quarter of the sample by wave 4, and to 40 percent by wave 6. Notably, in waves 4 onward, speech, autism, and ADHD become increasingly prevalent. This could be driven both by the fact that intellectual or learning disabilities tend to emerge in later childhood, and also that some of these disabilities are being diagnosed through the school system as the children enter school. Given the increasing prevalence of ADHD in the later waves, and recognizing that ADHD can vary significantly in severity, we conduct a robustness check using an alternate version of child disability that excludes ADHD in its definition. Because the primary caregiver can report more than one type of disability (for example, speech and developmental delays are often correlated), and there are other disabilities that are not listed in the table, the percentages for each condition do not add up to the overall prevalence rate. While the prevalence rates may seem high, they are consistent with published estimates of prevalence among groups in or close to poverty, highlighting the vulnerability of these families to chronic child health problems (Pulcini et al., 2017).

Table 2. Prevalence of child disability, by wave and type

Disability type	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6	Overall
Any (%)	2.5	3.7	23.6	28.0	40.1	19.2
Blindness	0.0	0.1	0.3	1.0	0.2	0.3
Deafness	0.2	0.1	1.1	0.7	0.2	0.5
Cerebral palsy	0.0	0.0	0.1	0.1	0.1	0.1
Down syndrome	0.0	0.0	0.1	0.1	0.1	0.1
Problem with limbs	1.0	0.6	0.7	0.5	3.5	1.3
Heart	0.1	0.1	2.0	2.0	2.1	1.2
Speech	NA	0.2	17.0	13.2	1.3	7.8
Developmental	0.0	0.6	3.8	4.0	6.6	2.9
Autism	NA	NA	1.3	1.9	3.7	2.3
ADHD	NA	NA	5.1	14.9	18.2	13.2
Other	2.1	3.0				
More than one (%)	6.3	7.4	8.5	10.8	13.4	9.1
Mean child's age (years)	1.1	2.9	5.1	9.3	15.3	5.2
Number of observations	4,345	3,258	2,955	3,621	3,572	17,751

Note: Summing across disability types does not add up to the “Any” percentage because disability categories are not mutually exclusive nor exhaustive. Refer to the data appendix for the full list of medical conditions that are asked about in each wave. ADHD = attention deficit hyperactivity disorder. NA = not applicable.

IV. EMPIRICAL STRATEGY

Our preferred approach is to examine the changes in the outcome associated with the identification of a child's disability using a fixed effects specification. In other words, we estimate the *change* in the relevant outcome (e.g. household income or benefit receipt) associated with the *change* in disability status of a child. The fixed effects model will also allow us to control for unobservable family characteristics that may be correlated with disability and outcomes. Specifically, it allows us to control for time-invariant characteristics associated with the focal child, including those that are observed (for example, race) and unobserved (for example, parental behavior and motivation to work).[9] We focus on event study estimates because examining mean changes before and after identification could mask the timing of dynamic effects or non-linear effects.

The regression model is specified as:

$$[1] \qquad Y_{it} = \alpha_i + \gamma_t + \sum_k \vartheta_k D_{kit} + \boldsymbol{X}_{it}\pi + \varepsilon_{it}$$

Where *Y* is the outcome of interest; *D* is an indicator variable that equals 1 if in year t child i is k waves from the wave of identification, with k ranging from –2 to 3. *D* is defined as 1 if in year t the child is three or more waves after onset). Given the inclusion of individual fixed effects, the coefficient on *D* measures the change in the dependent variable *k* waves away from the wave of identification relative to the value of the dependent variable three or more waves prior to the wave of identification. In all analyses, the sample consists of both families with and without a disabled child, where the children without disabilities are included to improve the precision of the estimated effects of the control variables. This way of modeling the dynamic effects of disability is similar to the approach of Jacobson et al. (1993); Stephens (2001); Charles (2003); and more recently Meyer & Mok (2018).

X contains a number of time-varying control variables, including child and parental age (linear and squared), parental relationship status, parental health, number of children and adults in the household, local labor market conditions (unemployment rate in the city in the year), and a state welfare generosity index (Fox et al., 2017). α is a child fixed effect which absorbs time-invariant characteristics that may affect both the outcome of interest and whether the child has a disability. γ represents interview year fixed effects to absorb national macroeconomic trends, which may be important for capturing the Great Recession and the subsequent recovery period, and ε captures the effect of residual time-varying unobservable characteristics. Standard errors

[9] However, this approach does not necessarily identify causal effects of child disability, since it is possible that reported disability onset is caused by time-varying factors within families that also matter for the outcomes we examine (for example, if disability is endogenously reported as a response to declining economic circumstances of the family in order to qualify for benefits)

are clustered by child.[10] All regressions are weighted using the mother's national baseline weight.[11]

[10] We have also produced estimates clustering at the primary sampling unit (see description of sampling in Section IIIA), which generally leads to smaller standard errors (results available by request).

[11] Longitudinal weights, which would make cases interviewed at every wave representative of the original sampling frame, are not available. Instead, the survey documentation suggests using the weight of the wave in which the most people were interviewed, which would be the baseline survey in our analysis (last accessed here: https://fragilefamilies.princeton.edu/sites/fragilefamilies/files/ff_using_wgts.pdf).

V. RESULTS

In this section, we present the event study estimates using child fixed effects models.[12] For ease of comparison with other studies and to reveal the extent to which the inclusion of fixed effects changes estimated coefficients, we also estimate models for each outcome using ordinary least squares. These results are reported in Appendix Tables A1 to A3. Visual depictions of the event study estimates of key outcomes are presented in Figure 1.

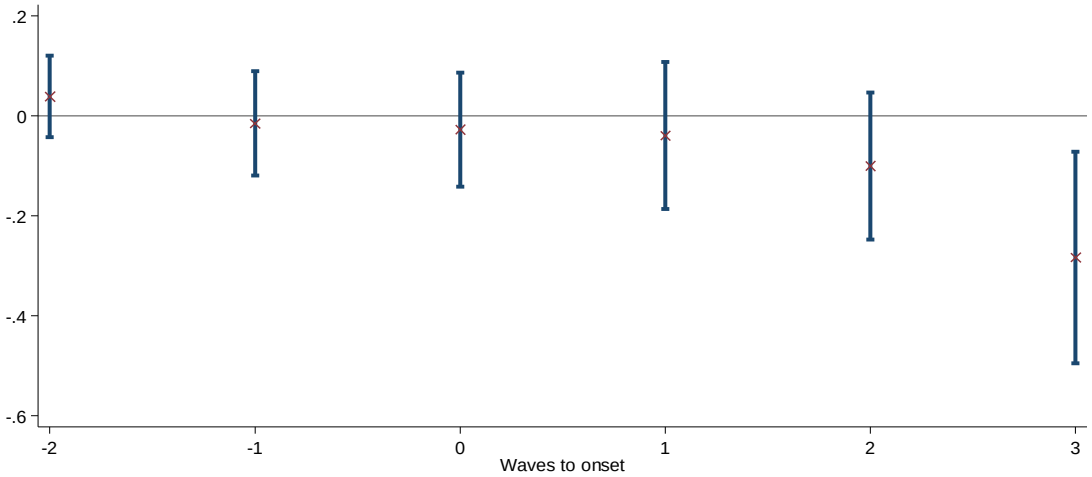
A. Maternal labor supply

We first examine how maternal labor supply and earnings change with child disability identification (Table 3, Figures 1A-1C). The estimates reveal an interesting pattern where working mothers begin reducing hours worked (conditional on reporting positive hours) starting as early as two waves before the disability was identified. Post identification, mothers are more likely to withdraw from the labor force at the extensive margin. The pattern in mothers' earnings are consistent with the changes in labor market activity, with earnings beginning to fall two waves before identification, but experiencing greater reductions after identification onset when mothers are more likely to withdraw from the labor force. The pattern of results is consistent with a story that symptoms of the disability may already surface prior to identification, leading mothers to reduce work at the intensive margin. The fact that mothers are more likely to withdraw from the labor force at the extensive after the identification of the disability may reflect the worsening of an existing condition or development of a serious chronic health condition.

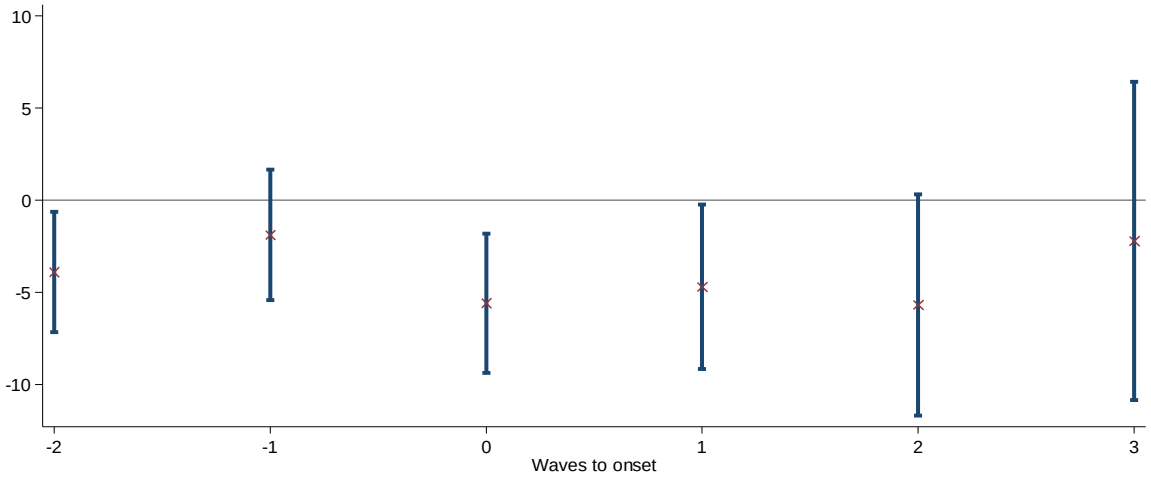
[12] Sample sizes vary across regressions depend on how the outcome variable is defined and response rates to the survey question the outcome variable is based on.

Figure 1. Figures from event study estimates

A. Mother worked last week



B. Mother's hours worked last week



C. Mother's earnings last year

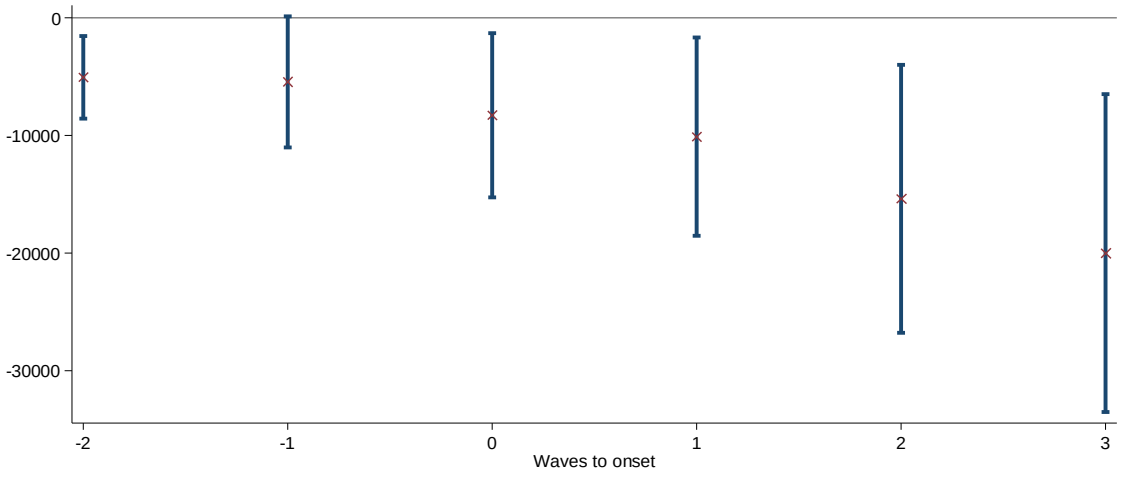
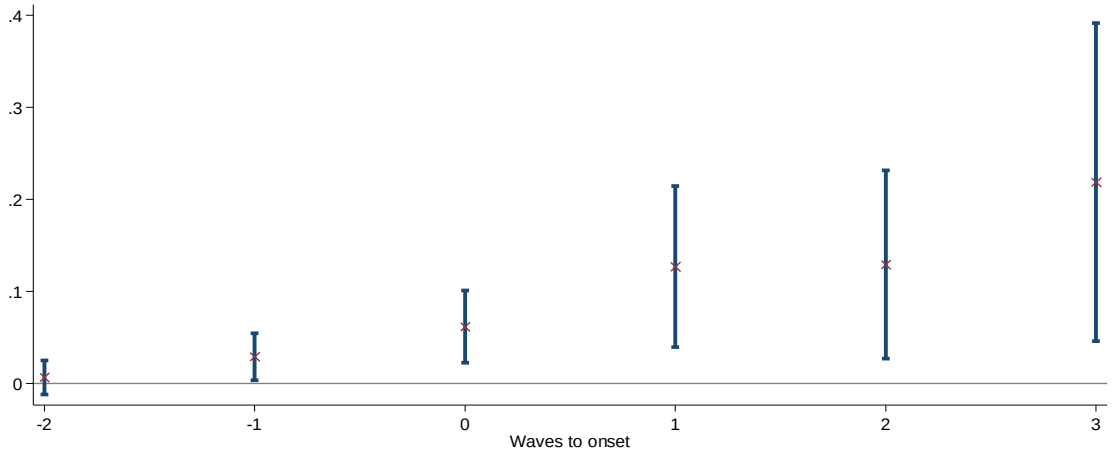
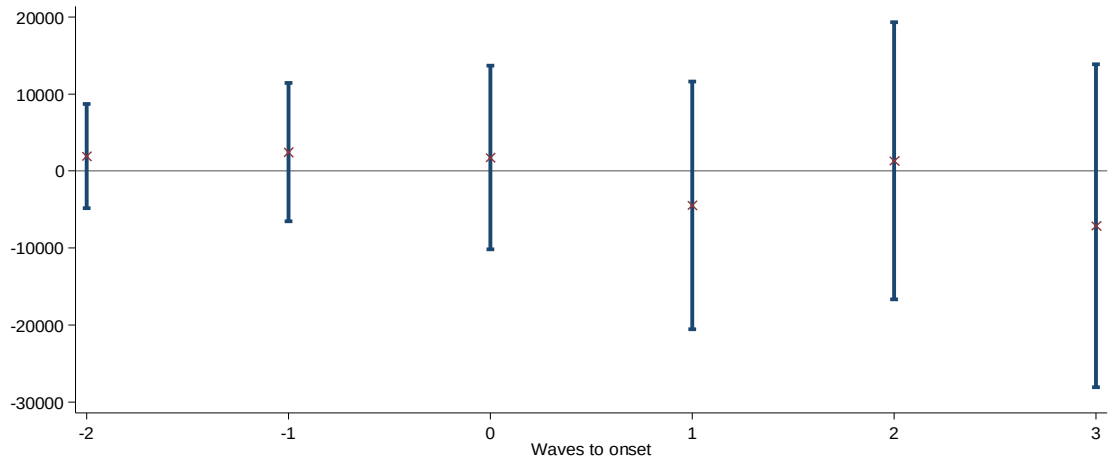


FIGURE 1 (*continued*)

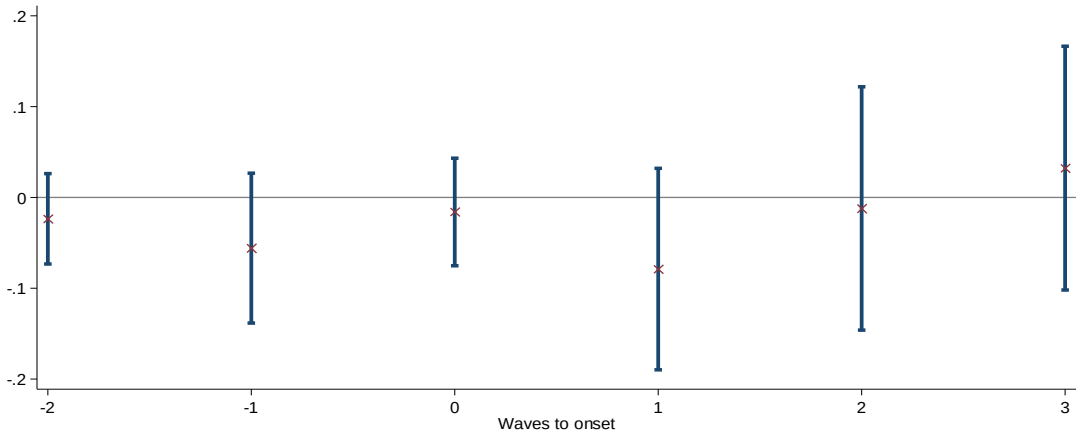
D. Child SSI receipt



E. Household income last year



F. Household poverty



Notes. Each figure presents the event study graphs plotting the coefficients ϑ_k from Equation 1 where k ranges from -2 to 3. Each ϑ_k measures the difference in the outcome measured in wave k relative to three or more waves prior to onset.

Table 3. Child disability and maternal labor market activity

Waves from identification	Worked last week	Hours worked last week	Hours worked last week, logged	Worked last year	Hours worked last year	Hours worked last year, logged	Earnings last year	Earnings last year, logged
-2	0.06	-3.90**	-0.12**	0.03	-218.95**	-0.27**	-5068***	-0.16
	(0.04)	(1.66)	(0.05)	(0.04)	(84.99)	(0.12)	(1786)	(0.10)
-1	0.01	-1.89	-0.09*	-0.02	-147.77	-0.18*	-5456*	-0.17
	(0.04)	(1.81)	(0.05)	(0.05)	(96.47)	(0.10)	(2843)	(0.11)
0	-0.02	-5.59***	-0.20***	-0.05	-290.70***	-0.27***	-8297**	-0.28**
	(0.04)	(1.92)	(0.06)	(0.05)	(101.50)	(0.11)	(3568)	(0.13)
1	-0.03	-4.70**	-0.19**	-0.06	-264.51**	-0.26**	-10114**	-0.30*
	(0.05)	(2.27)	(0.08)	(0.06)	(118.24)	(0.13)	(4300)	(0.16)
2	-0.11*	-5.68*	-0.21**	-0.10	-184.67	-0.08	-15387***	-0.19
	(0.06)	(3.06)	(0.10)	(0.07)	(165.63)	(0.21)	(5810)	(0.26)
3	-0.21**	-2.22	-0.02	-0.25**	-161.88	-0.05	-20010***	-0.41
	(0.10)	(4.40)	(0.23)	(0.11)	(225.77)	(0.26)	(6883)	(0.26)
No. of observations	12,367	10,508	10508	13600	9861	9861	9421	9421
No. of children	3,260	3,019	3,019	3,253	2,966	2,966	2928	2,928

Note: Standard errors in parentheses are clustered by child. All regressions include child and year fixed effects. Controls include child's age, mother's age, father's age (and quadratic terms), the number of adults in the household, number of children in the household, whether the mother has a work limiting health condition, whether the biological parents are married or together, the unemployment rate in the area, and a state welfare generosity index.

*/**/*** indicates statistical significance at the .1/.05/.01 levels.

B. Benefit receipt and program participation

Next, we examine whether benefit receipt and program participation changes with child disability, which may be a particularly relevant question given the lower socioeconomic background of the families in the sample. At the same time, existing literature has noted that take-up of safety net programs can vary, depending on access to information and other factors. There is legitimate concern that the population most needing such services does not receive them due to lack of information or other systematic barriers (e.g. difficulty in navigating the application process) (Currie, 2004).

We find that child SSI receipt increases markedly with the identification of child disability and further increases with each wave after (Table 4, Figure 1D). The rate of child SSI receipt post identification remains fairly low at approximately 15 percent (authors' calculations; not shown in tables). Among families with reported monthly income less than $2,000, which we use as an approximate maximum threshold for SSI eligibility, the proportion of children who receive SSI is around 32 percent. More research is needed to understand why a large proportion of the families do not receive SSI even when potentially eligible. If there is incomplete take-up due to lack of information or other barriers, then further targeting of the SSI program may be called for. Other forms of public assistance such as unemployment insurance also increases with child disability onset. We do not find evidence of either increases or decreases in maternal receipt of TANF or SNAP. We also do not find any changes in maternal SSI receipt, which is reassuring since it is unlikely maternal health and income would be affected to such a degree to make a difference to SSI receipt.

Table 4. Child disability and benefit receipt

Waves from identification	Child SSI	Child SSI amount	Mom SSI	SNAP	TANF	Other public assistance
-2	0.01	210.29**	0.01	-0.01	-0.01	-0.00
	(0.01)	(93.20)	(0.01)	(0.02)	(0.02)	(0.02)
-1	0.03**	236.94*	0.01	0.03	0.03	-0.02
	(0.01)	(125.10)	(0.01)	(0.03)	(0.03)	(0.02)
0	0.06***	724.58***	0.00	0.02	0.03	0.05*
	(0.02)	(254.56)	(0.01)	(0.03)	(0.03)	(0.03)
1	0.13***	1253.82***	0.01	-0.01	-0.01	0.03
	(0.04)	(361.31)	(0.01)	(0.04)	(0.04)	(0.03)
2	0.13**	935.30***	-0.01	0.07	-0.02	0.04
	(0.05)	(316.33)	(0.01)	(0.07)	(0.04)	(0.03)
3	0.22**	2449.29***	0.01	0.11	-0.07	0.14**
	(0.09)	(795.24)	(0.03)	(0.09)	(0.07)	(0.07)
No. of observations	11312	11273	11312	13716	13720	13715
No. of children	3255	3253	3255	3261	3261	3261

Note: Standard errors in parentheses are clustered by child. All regressions include child and year fixed effects. Controls include child's age, mother's age, father's age (and quadratic terms), the number of adults in the household, number of children in the household, whether the mother has a work limiting health condition, whether the biological parents are married or together, the unemployment rate in the area, and a state welfare generosity index

SSI = Supplemental Security Income, SNAP = Supplemental Nutrition Assistance Program.,TANF = Temporary Assistance for Needy Families.

*/**/*** indicates statistical significance at the .1/.05/.01 levels.

C. Household economic outcomes and well-being

We find limited evidence of significant changes in household income or poverty, suggesting that households are able to make up shortfalls in maternal earnings via influxes from cash assistance programs and other means, such as compensating labor market activity of other family members (Table 5, Figures 1E and 1F). It is also possible that meaningful changes could not be detected due to measurement error in the self-reported income data. Nonetheless, it is reassuring to see that household income and poverty status do not sharply change following child disability onset.

Table 5. Child disability and household well-being

Waves from identification	Household income	Household income, logged	Household poverty	Parents married or cohabitating
-2	1930	0.05	-0.02	0.03
	(3465)	(0.09)	(0.03)	(0.03)
-1	2446	0.12	-0.06	0.01
	(4598)	(0.08)	(0.04)	(0.04)
0	1746	0.05	-0.02	-0.04
	(6088)	(0.09)	(0.03)	(0.05)
1	-4462	0.13	-0.08	-0.10*
	(8211)	(0.13)	(0.06)	(0.06)
2	1307	0.19	-0.01	-0.10
	(9176)	(0.14)	(0.07)	(0.07)
3	-7134	-0.15	0.03	-0.08
	(10700)	(0.23)	(0.07)	(0.09)
No. of observations	13728	13613	13730	13552
No. of children	3261	3261	3260	3260

Note: Standard errors in parentheses are clustered by child. All regressions include child and year fixed effects. Controls for the first three outcomes include the child's age, mother's age, father's age (and quadratic terms), the number of adults in the household, number of children in the household, whether the mother has a work limiting health condition, whether the biological parents are married or together, the unemployment rate in the area, and a state welfare generosity index. Controls for the last outcome include the child's age, mother's age, father's age (and quadratic terms), the number of adults in the household, number of children in the household, whether the mother has a work limiting health condition, the unemployment rate in the area, and a state welfare generosity index.

*/**/*** indicates statistical significance at the .1/.05/.01 levels.

Finally, we examine whether parental relationship changes with child disability identification.[13] We find that the identification of a child's disability is followed by a decrease in the likelihood of the parents being married or cohabitating (Table 5). This result is consistent with previous literature, which has documented the pressures of having a child with a disability on household stability (Corman & Kaestner, 1992; Hartley et al., 2010; Swaminathan et al., 2006). However, it could also be possible that the causal relationship is in the reverse, for example, if parental separation increases the likelihood of disability identification in order to qualify for program benefits. If children are best off in two-parent families, as much of the literature on child well-being has found, the results suggest that beyond cash support, additional resources such as mental health or counseling support may be helpful for families with a child with a disability.

[13] In the regressions examining this outcome, the set of time-varying controls excludes parental marital status.

VI. SUBGROUP EFFECTS

We examine how changes in household outcomes vary by parental characteristics at baseline, including parental marital status, parental educational attainment, and maternal labor market characteristics. We focus on characteristics at baseline because some of these characteristics may endogenously evolve with child disability. As Table 6 shows, the magnitude of the effects of child disability varies depending on parental baseline characteristics, although the estimates are too noisy to be statistically differentiable across groups in most cases. As such, we treat this exercise as exploratory to help guide future research.

It is nonetheless worth noting several interesting patterns. First, the labor market activity of mothers who are more likely to face a binding household budget constraint appears to change *less* when compared to their counterparts with such a constraint. For example, mothers reduce their hours *more* if the parents were married at baseline and less so otherwise. One potential explanation is that mothers without spouses may not be able to afford to reduce labor force activity to care for the child due to only having a single source of income. A similar pattern is observed for mothers who have at least a high school degree at baseline. Again, these mothers may be those who cannot "afford" to cut back hours and earnings.

Another pattern of note is that mothers who worked at baseline are more likely to reduce hours, whereas mothers who did not work at baseline are more likely to be drawn into the labor force, and these changes occur in the waves prior to onset. One explanation is that the disability presents symptoms before its diagnosis, leading working mothers to cut back hours in order to care for the child, and drawing non-working mothers into the labor force to pay for additional related expenses. These patterns suggest heterogeneous and non-linear effects of child disability on maternal labor activity that deserve further exploration.

Consistent with the main results, child SSI receipt increases with child disability identification, and household income does not change measurably for any of the groups. However, poverty rates increase with child disability among the subgroups of families where the mother or at least on parent does not have a high school degree.

Table 6. Subgroup effects, by baseline characteristics

	Mom worked last week		Mom's hours worked last week		Mom's earnings last year		Child SSI receipt		Household income last year		Poverty status	
Waves from identification	**Parents married**	**Parents not married**	**Parents married**	**Parents not married**	**Parents married**	**Parents not married**	**Parents married**	**Parents not married**	**Parents married**	**Parents not married**	**Parents married**	**Parents not married**
-2	0.09	-0.05	-5.84**	-1.20	-7256**	-2968**	0.00	0.01	3953	-683	-0.04	0.01
	(0.06)	(0.04)	(2.59)	(0.97)	(2863)	(1476)	(0.01)	(0.01)	(5651)	(2470)	(0.03)	(0.04)
-1	-0.02	-0.01	-2.13	-1.51	-9234**	-335	0.01	0.06***	4403	172	-0.09	-0.00
	(0.08)	(0.04)	(2.92)	(1.29)	(4179)	(3083)	(0.01)	(0.02)	(7125)	(3025)	(0.06)	(0.05)
0	-0.01	-0.06	-7.43***	-1.77	-11961**	-4523**	0.01	0.14***	4898	-508	-0.03	0.01
	(0.09)	(0.05)	(2.86)	(1.43)	(5253)	(2209)	(0.02)	(0.03)	(9389)	(3428)	(0.04)	(0.05)
1	0.00	-0.11*	-7.27**	-0.50	-13252**	-5123*	0.09	0.16***	-4481	-585	-0.12	-0.02
	(0.11)	(0.06)	(3.43)	(1.67)	(6581)	(2872)	(0.06)	(0.04)	(13218)	(4059)	(0.08)	(0.06)
2	-0.13	-0.06	-7.80*	-2.59	-20906**	-6257*	0.04	0.27***	6713	-3496	-0.06	0.08
	(0.11)	(0.07)	(4.30)	(2.16)	(8719)	(3683)	(0.04)	(0.10)	(14353)	(5167)	(0.10)	(0.08)
3	-0.35**	-0.13	-2.65	1.14	-32620***	-1539	0.20	0.28***	-5085	-3042	0.00	0.04
	(0.16)	(0.13)	(6.30)	(4.12)	(9921)	(6133)	(0.13)	(0.09)	(16351)	(5706)	(0.10)	(0.09)
Waves from identification	**Mom has HS deg**	**Mom has no HS deg**	**Mom has HS deg**	**Mom has no HS deg**	**Mom has HS deg**	**Mom has no HS deg**	**Mom has HS deg**	**Mom has no HS deg**	**Mom has HS deg**	**Mom has no HS deg**	**Mom has HS deg**	**Mom has no HS deg**
-2	0.03	0.05	-4.07**	-1.32	-6687***	-2013	0.00	-0.00	2624	-879	-0.04	0.01
	(0.05)	(0.08)	(1.97)	(1.54)	(2118)	(2749)	(0.01)	(0.01)	(4252)	(4988)	(0.03)	(0.05)
-1	-0.02	-0.01	-2.42	0.59	-7464**	-1535	0.02*	0.03	1378	4693	-0.04	-0.14
	(0.06)	(0.09)	(1.66)	(4.36)	(3105)	(3092)	(0.01)	(0.02)	(5514)	(5400)	(0.03)	(0.12)
0	-0.06	0.06	-5.23**	-4.16	-11311***	-4927*	0.06**	0.06	1807	1008	-0.05*	0.07
	(0.07)	(0.11)	(2.22)	(2.67)	(3736)	(2955)	(0.02)	(0.04)	(7467)	(6649)	(0.03)	(0.08)
1	-0.11	0.18	-6.02**	2.42	-15139***	1675	0.15***	0.04	-9221	10963	-0.06	-0.13
	(0.08)	(0.15)	(2.43)	(3.70)	(4937)	(4228)	(0.06)	(0.03)	(10344)	(10289)	(0.05)	(0.13)
2	-0.15*	0.07	-6.80*	1.77	-19453***	-4307	0.09**	0.22	3091	547	-0.01	0.01
	(0.08)	(0.15)	(3.47)	(3.70)	(6469)	(4688)	(0.04)	(0.14)	(11518)	(7472)	(0.07)	(0.12)
3	-0.31**	-0.17	-3.48	8.38	-27030***	-492	0.31***	0.02	-4244	-11087	-0.06	0.31*
	(0.12)	(0.19)	(5.22)	(6.24)	(7950)	(6602)	(0.11)	(0.05)	(13663)	(10327)	(0.07)	(0.18)

TABLE 6 (*continued*)

	Mom worked last week		Mom's hours worked last week		Mom's earnings last year		Child SSI receipt		Household income last year		Poverty status	
Waves from identification	**Both parents have HS deg**	**One or no parent has HS deg**	**Both parents have HS deg**	**One or no parent has HS deg**	**Both parents have HS deg**	**One or no parent has HS deg**	**Both parents have HS deg**	**One or no parent has HS deg**	**Both parents have HS deg**	**One or no parent has HS deg**	**Both parents have HS deg**	**One or no parent has HS deg**
-2	0.06	-0.01	-5.16**	-1.02	-7397***	-657	0.00	0.00	3236	-726	-0.04	0.01
	(0.05)	(0.07)	(2.18)	(1.76)	(2444)	(2021)	(0.01)	(0.01)	(4823)	(3784)	(0.03)	(0.05)
-1	-0.00	-0.06	-2.48	-0.70	-7865**	-1382	0.01	0.04*	2396	2109	-0.04	-0.10
	(0.07)	(0.08)	(1.80)	(3.61)	(3477)	(2458)	(0.01)	(0.02)	(6193)	(4197)	(0.03)	(0.10)
0	-0.04	0.02	-5.66**	-3.81	-12197***	-3739	0.05*	0.08**	2828	291	-0.05**	0.07
	(0.07)	(0.09)	(2.45)	(2.37)	(4092)	(2575)	(0.02)	(0.04)	(8400)	(4958)	(0.03)	(0.07)
1	-0.11	0.14	-7.03***	1.85	-15814***	173	0.13**	0.10***	-9578	6761	-0.06	-0.09
	(0.09)	(0.13)	(2.65)	(3.10)	(5472)	(3872)	(0.06)	(0.03)	(11799)	(7987)	(0.05)	(0.11)
2	-0.17*	0.10	-7.34*	-0.14	-20653***	-3165	0.02	0.22**	5308	-1735	-0.01	0.02
	(0.09)	(0.12)	(3.81)	(3.18)	(7070)	(3962)	(0.05)	(0.10)	(12971)	(5667)	(0.08)	(0.11)
3	-0.41***	-0.07	-4.29	3.19	-31127***	-30	0.33**	0.12*	-3548	-9102	-0.08	0.27**
	(0.15)	(0.16)	(5.85)	(4.66)	(8178)	(6917)	(0.15)	(0.06)	(16403)	(8576)	(0.09)	(0.13)
Waves from identification	**Mom worked**	**Mom did not work**	**Mom worked**	**Mom did not work**	**Mom worked**	**Mom did not work**	**Mom worked**	**Mom did not work**	**Mom worked**	**Mom did not work**	**Mom worked**	**Mom did not work**
-2	0.01	0.18**	-4.08**	-1.37	-5794***	-3816	0.01	-0.00	743	7390	0.01	-0.14**
	(0.05)	(0.09)	(1.79)	(3.44)	(2006)	(4899)	(0.01)	(0.02)	(4021)	(6080)	(0.03)	(0.07)
-1	-0.02	0.05	-1.98	1.08	-6652**	-1289	0.02	0.05*	2287	3273	-0.02	-0.18*
	(0.06)	(0.11)	(1.93)	(3.90)	(2955)	(5126)	(0.01)	(0.03)	(5210)	(7589)	(0.04)	(0.11)
0	-0.06	0.15	-5.95***	-0.14	-9910***	-6698	0.04**	0.13**	1624	2830	-0.00	-0.06
	(0.07)	(0.10)	(2.06)	(3.98)	(3551)	(5189)	(0.02)	(0.06)	(6828)	(10689)	(0.03)	(0.09)
1	-0.10	0.24**	-4.72**	-1.42	-12149***	-2039	0.13**	0.12*	-7139	6625	-0.02	-0.29**
	(0.09)	(0.11)	(2.31)	(6.34)	(4658)	(6862)	(0.06)	(0.06)	(9195)	(16785)	(0.06)	(0.15)
2	-0.10	0.01	-5.36*	-8.07	-17177***	-12121	0.06	0.26*	1871	6724	0.09	-0.32**
	(0.09)	(0.14)	(3.24)	(6.40)	(6049)	(10290)	(0.04)	(0.14)	(10360)	(16373)	(0.08)	(0.15)
3	-0.34***	-0.00	-1.66	2.61	-23152***	1133	0.30***	0.07	-4513	-8166	0.06	-0.05
	(0.13)	(0.20)	(4.70)	(9.76)	(7392)	(11571)	(0.11)	(0.09)	(11662)	(19512)	(0.07)	(0.17)

Note: Each column is a separate regression. All regressions control for child and year fixed effects, and time varying controls.

*/**/*** indicates statistical significance at the .1/.05/.01 levels. Standard errors in parentheses are clustered by child.

This page has been left blank for double-sided copying.

VII. SENSITIVITY ANALYSES

We perform several sensitivity analyses to ensure the robustness of our key results. In the first set of sensitivity analyses, we experiment with alternate definitions of disability. First, we re-estimate impacts when only including families with children with a disability that is likely to be permanent, which we define as disabilities that are consistently reported in subsequent waves after the wave of onset. The results in this exercise are similar to the main results, except household income falls and poverty increases significantly after onset, suggesting that persistent disabilities are associated with greater changes among the household (Table 7 Panel A).

In the second check, we re-estimate impacts excluding ADHD in the definition of disability, as ADHD was the most common disability in the later waves but also likely varies in the degree of severity.[14] The results from this exercise are very similar to the main results (Table 7 Panel B).

Table 7. Sensitivity analyses: using different definitions of child disability

Waves from identification	Mom worked last week	Mom's hours worked last week	Mom's earnings last year	Child SSI receipt	Household income	Poverty status
A. Using only permanent disabilities						
-2	0.01	-2.25	-5116***	0.00	825	-0.01
	(0.04)	(1.45)	(1975)	(0.01)	(3397)	(0.03)
-1	-0.04	0.99	-4813*	0.03**	623	-0.03
	(0.05)	(1.80)	(2698)	(0.01)	(4536)	(0.04)
0	-0.07	-3.57**	-7885**	0.09***	-21	0.02
	(0.05)	(1.56)	(3166)	(0.03)	(6094)	(0.03)
1	-0.13*	-3.66*	-8042*	0.26***	-10588	-0.00
	(0.07)	(2.22)	(4477)	(0.09)	(10038)	(0.07)
2	-0.18**	-2.73	-13675*	0.16***	-11147	0.12
	(0.08)	(3.76)	(7036)	(0.06)	(9565)	(0.11)
3	-0.38***	6.34	-17475**	0.51***	-20929**	0.18*
	(0.14)	(4.94)	(8683)	(0.16)	(10413)	(0.11)
B. Excluding ADHD from definition of disability						
-2	-0.02	-4.34**	-5663***	0.01	2899	-0.02
	(0.04)	(1.78)	(1836)	(0.01)	(3793)	(0.03)
-1	-0.06	-2.35	-6430**	0.03**	2950	-0.03
	(0.05)	(1.98)	(2752)	(0.01)	(4844)	(0.04)
0	-0.10*	-6.26***	-9522***	0.06***	2422	0.01
	(0.06)	(1.97)	(3314)	(0.02)	(6283)	(0.03)
1	-0.12	-4.90**	-10878***	0.13***	-4829	-0.05
	(0.08)	(2.39)	(4058)	(0.05)	(8576)	(0.06)
2	-0.18**	-6.33**	-15980***	0.13**	2270	0.02
	(0.07)	(3.00)	(5576)	(0.05)	(9171)	(0.07)
3	-0.36***	-1.92	-20695***	0.22**	-5928	0.06
	(0.11)	(4.42)	(6828)	(0.09)	(10563)	(0.08)

Note: Each cell reports the coefficient on the child disability variable from a separate regression. All regressions control for child and year fixed effects.

*/**/*** indicates statistical significance at the .1/.05/.01 levels. Standard errors in parentheses are clustered by child.

[14] We also performed an additional check where we re-run the regressions omitting the sample of children with each disability at a time to ensure that it is not one disability that is driving the results. The results are largely consistent with those reported in previous tables, confirming that they are not driven by one particular type of disability. Results are available upon request.

This page has been left blank for double-sided copying.

VIII. CONCLUSION

Using a 15-year panel from the Fragile Families Study, this study offered a unique examination of the prevalence of child disability among urban families and how such households fare in the face of the onset or diagnosis of a child's disability. We show that the prevalence of chronic health conditions and disability among children in these families is high. Prevalence increases from 2.5 percent when the child is age 1 to 40 percent by the time the child has reached age 15. In the earlier waves when the children are 5 or younger, the most common condition relates to developmental issues. In later waves, the most common condition is ADHD.

Using a specification of child fixed effects, we find that maternal labor supply changes non-linearly with child disability onset, with hours falling in the waves before the disability is diagnosed, and labor market participation on the extensive margin falling after diagnosis. Post diagnosis, the affected children are much more likely to receive SSI, and mothers are more likely to receive support from other public assistance programs. Household poverty and income, however, do not appear to change substantially after onset, suggesting that support from safety net programs play an important role, and that families are able to compensate for the loss in maternal earnings in other ways. At the same time, household dissolution increases with the onset of child disability.

While the finding that neither household income or poverty change significantly, on average, is encouraging and highlights the resiliency of families, our subgroup estimates and sensitivity tests revealed that impacts of child disability are larger for some families. The finding that married and more educated mothers who have children with disabilities significantly reduce labor supply while unmarried and less educated mothers do not suggests that the ability of families to reallocate time in response to their child's disability is a luxury that not all families can access. Despite maintaining their labor supply, families with less education experience significant increases in poverty after the onset of their child's disability. Further research is warranted to understand the multifaceted and varied effects of child disability on the family, and on how best to support vulnerable families who have a child with a disability.

This page has been left blank for double-sided copying.

REFERENCES

Benıtez-Silva, H., Buchinsky, M., Chan, H. M., Rust, J., & Sheidvasser, S. (1999). An empirical analysis of the social security disability application, appeal, and award process. Labour Economics, 6(2), 147-178.

Brooks-Gunn, J., & Duncan, G. J. (1997). The effects of poverty on children. *The Future of Children*, 7(2):55-71.

Case, A., Lubotsky, D., & Paxson, C. (2002). Economic status and health in childhood: The origins of the gradient. *American Economic Review*, 92(5):1308-34.

Case, A., Fertig, A., & Paxson, C. (2005.) The lasting impact of childhood health and circumstance. *Journal of Health Economics*, 24(2), 365-89.

Charles, K. K. (2003). The longitudinal structure of earnings losses among work-limited disabled workers. *Journal of Human Resources*, 38(3), 618-46.

Corman, H., Noonan, K., & Reichman, N. E. (2005). Mothers' labor supply in fragile families: The role of child health. *Eastern Economic Journal*, 31(4), 601-16.

Corman, H., & Kaestner, R. (1992). The effects of child health on marital status and family structure. *Demography*, 29, 389-408.

Currie, Janet, & Hyson, Rosemary. (1999) Is the impact of health shocks cushioned by socioeconomic status? The case of low birthweight. *American Economic Review*, 89(2) 245-50.

Currie, Janet, & Stabile, Mark. (2003) "Socioeconomic status and health: Why is the relationship stronger for older children?" *American Economic Review*, 95(3), 1813-23.

Deshpande, M. (2016). The effect of disability payments on household earnings and income: Evidence from the SSI children's program. *Review of Economics and Statistics*, 98(4), 638-654.

Duggan, M., Kearney, M. S., & Rennane, S. (2015). The Supplemental Security Income program. NBER working paper no. 21209. Cambridge, MA: National Bureau of Economic Research.

Earle, A., & Heymann, S.J. (2002). What causes job loss among former welfare recipients: The role of family health problems. *Journal of the American Medical Women's Association*, 57(1), 5-10.

Gould, E. (2004). Decomposing the effects of children's health on mother's labor supply: Is it time or money? *Health Economics*, 13, 525-541.

Grossman, Michael, & Kaestner, Robert. (1997). Effects of education on health in J. R. Behrman and N. Stacey, eds., *The social benefits of education.* Ann Arbor, MI: University of Michigan Press, 69-123.

Guldi, Melanie, Hawkins, A., Hemmeter, J., & Schmidt, L. (2018). Supplemental Security Income and child outcomes: Evidence from birth weight eligibility cutoffs (NBER working paper no. 24913). Cambridge, MA: National Bureau of Economic Research.

Hartley, S. L., Barker, E. T., Seltzer, M. M., Floyd, F. J., Orsmond, G. I., Greenberg, J. S., Orsmond, G., & Bolt, D.(2010). The relative risk and timing of divorce in families of children with an autism spectrum disorder. *Journal of Family Psychology,* 24, 449-57.

Houtrow, A. J., & Okumura, M.J. (2011). Pediatric mental health problems and associated burden on families. *Vulnerable Children and Youth Studies,* 6(3), 222-33.

Houtrow A. J, Larson, K. Olson, L.M., Newacheck, P.W., & Halfon, N. (2014). Changing trends of childhood disability, 2001–2011. *Pediatrics,* 134(3), 530-38.

Kuhlthau, K.A., & Perrin, J.M. (2001). Child health status and parental employment. *Archives of Pediatric and Adolescent Medicine,* 155, 1346-50.

Kuhlthau, K., Hill, K., Yucel, R., & Perrin, J. (2005). Financial burden for families of children with special health care needs. *Maternal and Child Health Journal,* 9(2), 207-218.

Jacobson, Louis S., LaLonde, Robert J., & Sullivan, Daniel G. (1993). Earnings losses of displaced workers. *American Economic Review,* 83(4), 685-709.

Lee, Sunhwa, Sills, Melissa, & Oh, Gi Tak. (2002). Disabilities among children and mothers in low-income families. Research-in-brief, Washington, DC: Institute for Women's Policy Research.

MacDorman, Marian F., & Mathews, T.J., DeClercq, E. (2014). Trends in Out-of-Hospital Births in the United States, 1990-2012. Hyattsville, MD: National Center for Health Statistics Data Brief No. 144.

Meyer, Bruce, & Mok, Wallace K.C. (Forthcoming). Disability, earnings, income and consumption. *Journal of Public Economics*.

NRC and IOM (National Research Council and Institute of Medicine). (2000). From neurons to neighborhoods: The science of early childhood development. Committee on Integrating the Science of Early Childhood Development. Jack P. Shonkoff and Deborah A. Phillips, eds. Board on Children, Youth, and Families, Commission on Behavioral and Social Sciences and Education. Washington, DC: National Academy Press.

Newacheck, P. W., & Kim, S.E. (2005). A national profile of health care utilization and expenditures for children with special health care needs. *Archives of Pediatric and Adolescent Medicine,* 159(1), 10-17.

Newacheck, P. W., Halfon, N., & Budetti, P.P. (1986). Prevalence of activity limiting chronic conditions among children based on household interviews. *Journal of Chronic Diseases,* 39(2), 63-71.

Porterfield, Shirley L., & Tracey, Colleen. (2003). Disentangling the dynamics of family poverty and child disability: Does disability come first? St. Louis, MO: Center for Social Development, Washington University, working paper no. 03-01.

Powers, E. T. (2003). Children's health and maternal work activity estimates under alternative disability definitions. *Journal of Human Resources,* 38(3), 522-556.

Pulcini, Christian, D., Zima, B.T., Kelleher, K.J., Houtrow, A.J. (2017). Poverty and Trends in 3 Common Chronic Disorders. *Pediatrics.* 139(3), 1-9.

Reichman, N. E., Corman, H., & Noonan, K. (2004). Effects of child health on parents' relationship status. *Demography*, 41(3), 569-584.

Reichman, N. E., Corman, H., & Noonan, K. (2008). Impact of child disability on the family. *Maternal and child health journal*, 12(6), 679-683.

Reichman, N. E., Corman, H., & Noonan, K. (2006). Effects of Child Health on Sources of Public Support. Southern Economic Journal, 136-156.

Reichman, N. E., Teitler, J. O., Garfinkel, I., & McLanahan, S. S. (2001). Fragile families: Sample and design. Children and Youth Services Review, 23(4-5), 303-326.

Schmidt, Lucie, & Sevak, Purvi (2017). Child participation in Supplemental Security Income: Cross- and within-state determinants of caseload growth. *Journal of Disability Policy Studies,* 28(3), 131-140.

Smith, James. (2009). The impact of childhood health on adult labor market outcomes. *The Review of Economics and Statistics,* 91(3), 478-489.

Social Security Administration Office of Retirement and Disability Policy. 2015. "Fast facts and figures about Social Security, 2015." SSA Publication no. 13-11785.

Social Security Administration. (2018a) *Annual Report of the Supplemental Security Income Program*. Washington, DC: Social Security Administration.

Social Security Administration. (2018b). Understanding Supplemental Security Income for children—2018 edition" https://www.ssa.gov/ssi/text-child-ussi.htm, accessed July 17, 2019.

Stegman, Michelle, & Hemmeter, Jeffrey. (2014). Characteristics of noninstitutionalized DI and SSI program participants, 2010 Update. Research and Statistics note no.2014-02, Social Security Administration, Office of Retirement and Disability Policy.

Stern, S. (1989). Measuring the effect of disability on labor force participation. Journal of human Resources, 361-395.

Swaminathan, S., Alexander, G., & Boulet, S. (2006). Delivering a very low birth weight infant and the subsequent risk of divorce or separation. *Maternal and Child Health Journal,* 10, 473-79.

Van Cleave, J.,Gortmaker, S.L., & Perrin, J.M. (2010). Dynamics of obesity and chronic health conditions among children and youth. *Journal of the American Medical Association,* 303(7), 623-30.

Wittenburg, D., Tambornino, J., Brown, E., Rowe, G., DeCamillis, M., & Crouse, G. (2015). The changing role of the child SSI program in the safety net. Washington, DC: U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation. https://aspe.hhs.gov/sites/default/files/pdf/139261/rb_ChildSSInet.pdf

Martin, J. A., Hamilton, B. E., Osterman, M. J., Driscoll, A. K., & Mathews, T. J. (2017). Births: Final data for 2015. National vital statistics reports. Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System, 66(1), 1.

Reichman, N. E., Teitler, J. O., Garfinkel, I., & McLanahan, S. S. (2001). Fragile families: Sample and design. *Children and Youth Services Review,* 23(4-5), 303-326.

Rupp, K., Davies, Paul S., Newcomb, Chad, Iams, Howard, Becker, Carrie, Mulpuru, Shanti, Ressler, Stephen, Romig, Kathleen, & Miller, Baylor. (2005). Profile of children with disabilities receiving SSI: Highlights from the National Survey of SSI Children and Families. *Social Security Bulletin,* 66, 21.

APPENDIX A

SUPPLEMENTARY TABLES

This page has been left blank for double-sided copying.

Table A.1. Child disability and maternal labor market activity, OLS results

Waves from identification	Worked last week	Hours worked last week	Hours worked last week, logged	Worked last year	Hours worked last year	Hours worked last year, logged	Earnings last year	Earnings last year, logged
-2	0.04	-1.00	-0.03	0.09***	-124.57*	-0.22*	-4501**	-0.21*
	(0.04)	(0.97)	(0.04)	(0.03)	(68.28)	(0.13)	(2289)	(0.12)
-1	-0.02	1.49	0.04	0.04	12.80	0.02	-4013	-0.06
	(0.05)	(1.50)	(0.04)	(0.04)	(95.92)	(0.07)	(2505)	(0.09)
0	-0.03	-1.63	-0.06	-0.00	-103.93	-0.07	-6882**	-0.20**
	(0.06)	(1.16)	(0.05)	(0.03)	(71.70)	(0.08)	(2796)	(0.09)
1	-0.04	-0.02	-0.03	-0.00	-75.38	-0.17	-5053	-0.25
	(0.08)	(1.72)	(0.06)	(0.04)	(107.19)	(0.15)	(4179)	(0.19)
2	-0.10	-1.19	-0.07	-0.09	-73.05	-0.09	-14179***	-0.27**
	(0.08)	(2.38)	(0.07)	(0.05)	(140.51)	(0.10)	(4824)	(0.11)
3	-0.28***	-2.13	-0.07	-0.22**	-133.30	-0.05	-19915***	-0.43**
	(0.11)	(2.34)	(0.07)	(0.09)	(103.43)	(0.08)	(6639)	(0.20)
No. of observations	13716	10508	10508	13600	9861	9861	9421	9421
No. of children	0.07	0.06	0.05	0.07	0.14	0.12	0.17	0.17

*/**/*** indicates statistical significance at the .1/.05/.01 levels.

Note: Standard errors in parentheses are clustered by child. All regressions include year fixed effects. Controls include child's age, mother's age, father's age (and quadratic terms), the number of adults in the household, number of children in the household, whether the mother has a work limiting health condition, whether the biological parents are married or together, the unemployment rate in the area, and a state welfare generosity index.

Table A.2. Child disability and benefit receipt, OLS results

Waves from identification	Child SSI	Child SSI amount	Mom SSI	SNAP	TANF	Other public assistance
-2	0.02*	277.81***	0.01*	-0.01	-0.01	0.00
	(0.01)	(91.96)	(0.01)	(0.03)	(0.02)	(0.01)
-1	0.03***	185.27**	0.01	0.02	0.02	-0.01
	(0.01)	(91.22)	(0.01)	(0.03)	(0.02)	(0.01)
0	0.06***	583.80***	0.01	0.02	0.03	0.04
	(0.02)	(191.66)	(0.01)	(0.03)	(0.02)	(0.03)
1	0.11***	768.97**	-0.01	-0.02	-0.01	0.00
	(0.04)	(319.70)	(0.01)	(0.04)	(0.02)	(0.02)
2	0.11**	305.83	-0.03**	0.07	-0.01	0.00
	(0.05)	(286.09)	(0.01)	(0.05)	(0.03)	(0.02)
3	0.21**	1781.10**	0.00	0.18**	0.01	0.06
	(0.10)	(764.90)	(0.03)	(0.09)	(0.03)	(0.05)
No. of observations	11312	11273	11312	13716	13720	13715
No. of children	3255	3253	3255	3261	3261	3261

Note: Standard errors in parentheses are clustered by child. All regressions include year fixed effects. Controls include child's age, mother's age, father's age (and quadratic terms), the number of adults in the household, number of children in the household, whether the mother has a work limiting health condition, whether the biological parents are married or together, the unemployment rate in the area, and a state welfare generosity index

SSI = Supplemental Security Income, SNAP = Supplemental Nutrition Assistance Program.,TANF = Temporary Assistance for Needy Families.

*/**/*** indicates statistical significance at the .1/.05/.01 levels.

Table A.3. Child disability and household well-being, ols results

Waves from identification	Household income	Household income, logged	Household poverty	Parents married or cohabitating
-2	-1279	-0.03	0.00	-0.00
	(4615)	(0.09)	(0.03)	(0.01)
-1	-4730	0.01	-0.03	0.01***
	(4895)	(0.08)	(0.04)	(0.00)
0	-4564	-0.11	0.03	0.00
	(5049)	(0.08)	(0.03)	(0.01)
1	-8529	-0.09	-0.01	0.01*
	(5539)	(0.11)	(0.05)	(0.00)
2	-10850	-0.14	0.08	-0.00
	(8958)	(0.11)	(0.05)	(0.01)
3	-25710***	-0.54**	0.14	0.01
	(9908)	(0.26)	(0.09)	(0.01)
No. of observations	13728	13613	13730	13499
No. of children	3261	3261	3260	3257

Note: Standard errors in parentheses are clustered by child. All regressions include year fixed effects. Controls for the first three outcomes include the child's age, mother's age, father's age (and quadratic terms), the number of adults in the household, number of children in the household, whether the mother has a work limiting health condition, whether the biological parents are married or together, the unemployment rate in the area, and a state welfare generosity index. Controls for the last outcome include the child's age, mother's age, father's age (and quadratic terms), the number of adults in the household, number of children in the household, whether the mother has a work limiting health condition, the unemployment rate in the area, and a state welfare generosity index

*/**/*** indicates statistical significance at the .1/.05/.01 levels.

This page has been left blank for double-sided copying.

DATA APPENDIX

This page has been left blank for double-sided copying.

This appendix provides a more detailed description of how we constructed several key outcome measures.

A. Child disability

We constructed a binary indicator for whether or not the focal child had a disability at the time of the interview. This variable was not constructed for the wave 1 (birth), since parents did not report child's disability status during the baseline interview. Wave 2 asked about focal child's disability status in the mother and father surveys. Our construct favored the mother's response, and used the father's response if the mother's response was unavailable. All other waves reported child's disability or health condition status in the primary caregiver survey.

The survey questions where respondents reported the child's disability status varied across waves (Table B.1). The wave 2 and wave 3 surveys asked about the focal child's disability status through a series of two questions:

1. Does (CHILD) have any physical disabilities?
2. What type of physical disability does he/she have?

Table B.1. Child disability survey questions across waves

	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6
Question	n/a	Does (CHILD) have any physical disabilities?		Has a doctor or health professional ever told you that (CHILD) has any of the following health conditions?		Has a doctor or health professional ever told you that {YOUTH} has any of the following conditions?
Survey	n/a	Mother survey and Father survey	Primary caregiver survey			

Source: Fragile Families & Child Well Being Study baseline and year 1 mother and father surveys, and year 3, year 5, year 9, and year 15 primary caregiver surveys

If respondents answered "yes", they had the opportunity to answer question 2 and circle as many conditions that apply. It should be noted that although the question specified "physical disability", the listed conditions included intellectual disabilities such as developmental disorders. Conditions listed varied across waves (Table B.2).

The question in waves 4 to 6 differs from this structure in two ways. First, instead of asking the parents to self-report physical disabilities present in their child, the survey in waves 4 to 6 asks respondents if a doctor or health professional has told the respondent that their child has a health condition. Second, the surveys in waves 4 to 6 eliminated the upfront binary question, and instead collected information on a series of specific health conditions.

The varied question structure across waves has implications for how we constructed our physical disability variable. For waves 2 and 3, we used the binary variable to construct our child disability indicator. For waves 4 to 6, we used the series of questions that listed health conditions to construct the indicator.

Table B.2 shows the conditions included in the child disability variable across waves. Note that certain conditions are not included in all waves. The wave 6 survey does not ask respondents if the focal child has cerebral palsy, blindness, deafness, or Down's syndrome. We considered cerebral palsy and Down's syndrome to be permanent and extrapolated responses from previous waves to Wave 6. We considered deafness and blindness to be permanent if the child reported the same conditions consistently in previous waves.

Table B.2. Conditions covered in child disability variable across waves

	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6
Cerebral palsy		✓	✓	✓	✓	*
Blindness		✓	✓	✓	✓	*
Deafness		✓	✓	✓	✓	*
Down's syndrome		✓	✓	✓	✓	*
Problem with limbs		✓	✓	✓	✓	✓
Other		✓	✓			✓
Heart disease		✓[a]	✓[a]	✓	✓	✓
Developmental disorder		✓[a]	✓[a]	✓	✓	✓
Autism or Asperger's Syndrome[+]				✓	✓	✓
Speech or language problem			✓[a]	✓	✓	
Attention Deficit Disorder or Attention Deficit Hyperactivity Disorder (ADHD)				✓	✓	✓
Blood condition (i.e. anemia, leukemia)				✓	✓	✓
Depression or anxiety						✓
Diabetes					✓	✓
Seizures				✓	✓	✓

Source: Fragile Families & Child Well Being Study baseline and year 1 mother and father surveys, and year 3, year 5, year 9, and year 15 primary caregiver surveys

Notes: Respondents were not asked about their child's disability status in the baseline survey.

* The Wave 6 survey did not ask respondents about their child's cerebral palsy, blindness, deafness, or Down's syndrome status. For the purpose of variable construction, these conditions are considered to be permanent and extrapolate to wave 6.

[+] Waves 4, 5 and 6 asked respondents if a doctor or health professional told them that their child had autism. The wave 6 survey included Asperger's Syndrome in the autism response option.

[a] These conditions were specified based on the "other" response and not asked as their own survey questions

B. Mother's earning from all jobs last year, survey response

We constructed mother's earnings from all jobs last year using the following survey question and probe from the mother survey:

1. About how much did you earn from (all of) your regular job(s) in the last 12 months? Please do not count any earnings from off-the-books or under-the-table jobs.
2. I just need to have a range. Can you tell me if it was (1) less than $5,000 (2) $5001 to $10,000 (3) $10,001-$15,000 (4) $15,001-$20,000 (5) $20,001 to $25,000 (6) $25,001 to $30,000 (7) $30,001 to $40,000 (8) $40,001 to $60,000 (9) More than $60,000?

The question wording and structure was consistent across all six waves and was from the mother's survey. We used the responses from the first question when available, and when not, we used the midpoint of the range reported in the second question. Respondents who never

worked for two consecutive weeks or had never worked since the focal child was born skipped this question, and were assigned a value of zero for this variable. We conducted some simple top and bottom coding to the earnings measures, determined by being five standard deviations from the mean, and adjusted to 2017 dollars using the CPI-U index published by the Bureau of Labor Statistics.

C. Household income

We use the household income measure constructed by the Fragile Families survey team at the Center for Research on Child Wellbeing. We provide a brief description here of how the measure was constructed, but further details can be found in the Fragile Families data documentation. The survey asks both parents to report their household income using the following question and probe. Respondents were instructed to include the income of everyone living in the household, money earned from jobs, rent, interest, dividends, and public assistance programs when reporting their total household income.

1. What was your total household income for the last year before taxes?
2. I just need to know a range. Can you tell me if it was (1) $4,999 or less (2) $5,000 – $9,999 (3) $10,000 – $14,999 (4) $15,000 – $19,999 (5) $20,000 – $24,999 (6) $25,000 – $34,999 (7) $35,000 – $49,999 (8) $50,000 – $74,999 (9) Greater than $75,000

For married and cohabiting couples, the household income measure was based on the mother's report of income if available; otherwise, the father's report was used if the mother's report was missing. For those who provided bracketed household income at baseline, household income was imputed using the mean value of the bracket. If neither parent reported income, household income was imputed using Stata's regression-based impute command and a number of covariates for mothers and fathers: city, age, years of education, race/ethnicity, earnings, immigrant, employed last year, hours worked, total adults in household, earnings, received welfare, and marital status. For couples that were not married or cohabiting, the mother or father report was used if available; otherwise, missing data was imputed using the same method and covariates as was used for married and cohabiting couples. For father constructed baseline household income, mother reports were used if the couple was married or cohabiting, with the exception of marital status. The percent imputed varies by wave, ranging from 4.1 percent to 6.9 percent across waves 2 to 6. Household income was imputed for 17 percent of the sample in wave 1 (baseline sample), but we do not use data from the baseline wave for our analysis. We conducted similar top and bottom coding to the income measures, determined by being five standard deviations from the mean, and adjusted to 2017 dollars using the CPI-U index published by the Bureau of Labor Statistics.

References

"The Introduction to the Fragile Families Public Use Data: Baseline, One-Year, Three-Year, and Five-Year Core Telephone Data." Prepared by the staff at the Bendheim-Thoman Center for Research on Child Wellbeing (CRCW), Princeton University. http://www.fragilefamilies.princeton.edu/

This page has been left blank for double-sided copying.

www.mathematica-mpr.com

Improving public well-being by conducting high quality, objective research and data collection

PRINCETON, NJ ■ ANN ARBOR, MI ■ CAMBRIDGE, MA ■ CHICAGO, IL ■ OAKLAND, CA ■ TUCSON, AZ ■ SEATTLE, WA ■ WASHINGTON, DC ■ WOODLAWN, MD

MATHEMATICA
CENTER FOR
STUDYING DISABILITY POLICY