



Katie Jajtner  
Ph.D.  
*University of Wisconsin - Madison*

Yang Wang  
Ph.D.  
*University of Wisconsin - Madison*

# The Effect of Childhood Public Policies on Adult Work Disability

## Center for Financial Security

University of  
Wisconsin-Madison

1300 Linden Drive  
Madison, WI 53706

608-890-0229  
cfs@mailplus.wisc.edu  
cfs.wisc.edu

The research reported herein was derived in whole or part from research activities 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**

This study estimates the impact of childhood exposure to three welfare-enhancing policies – Medicaid, Food Stamps, and the Earned Income Tax Credit (EITC) – on work disability in adulthood. Work disability is richly characterized by duration and severity, with more chronic and severe conditions identifying individuals at a higher risk of applying to and claiming Disability Insurance (DI). We leverage the initial rollout of these policies in the 1960s and 1970s for exogenous variation in exposure. Using the Panel Study of Income Dynamics, work disability in adulthood is observed during the 1980s – 2019 when individuals are between 30 and 60 years old. In contrast to our initial hypotheses, our study results suggest that exposure to these three policies in childhood does not impact the probability of acquiring a work disability later in life.

**Keywords:** Social Policy, Work Disability

**JEL Classification:** J14, J18

## 1. Introduction/Literature Review

Over 2 million workers apply for Disability Insurance (DI) annually (Social Security Administration 2019). It is important to understand the pathways and contexts that improve individual health and well-being to reduce the risk of needing DI. Public policy can improve individual health, resources, or labor force attachment (Bastian and Michelmore 2018; Goodman-Bacon 2021; Hoynes, Schanzenbach, and Almond 2016). Importantly, health, resources, and work also characterize work disability defined as a “condition that limits the type of work or the amount of work” an individual performs (PSID 2022). Existing literature partially recognizes the potential impact public policy may have on work disability. For example, Hoynes et al. (2016) and Goodman-Bacon (2021) find exposure to Food Stamps and Medicaid, respectively, could reduce work disability. However, in each paper, a single policy is investigated; work disability is classified in a limited binary fashion, and effects can be imprecise<sup>1</sup>. While the existing evidence supports our hypothesis that public policy may reduce the incidence of work disability, further research is required.

Our study considers three public policies – Medicaid, Food Stamps, and the Earned Income Tax Credit (EITC) – that could affect work disability reports and acknowledges work disability heterogeneity to identify the pool at risk of DI applications and claims. We further investigate the possibility that policy impacts could be heterogeneous by demographic groups or across early-, middle-, or late-childhood. We choose these three policies because they interact with the three key elements of work limitations – health, resources, and work, and they all first rolled out in the 1960s and 1970s, so we can examine their long-term impacts. We hypothesize that exposure to these policies in childhood could improve health, resources, and work sufficiently to decrease the prevalence of work disability in adulthood.

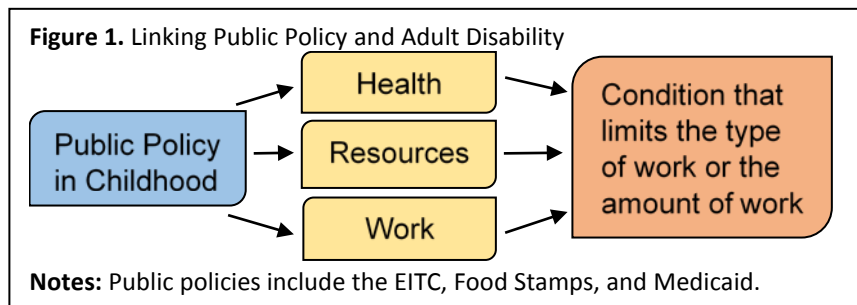
Our work contributes to several strands of existing literature. First, it is related to the large and growing literature on the long-term effects of early childhood experience, including (negative) natural events, disease outbreaks, and public policies (see reviews by Almond and Currie 2011; Currie 2009; Currie and Almond 2011). All studies in this literature, to our knowledge, focus on one natural shock (usually negative) or a single public policy. In contrast, we aim to look at the impact of three welfare-enhancing policies both individually and jointly,

---

<sup>1</sup> Imprecise effects are found in Hoynes et al. (2016) and for non-whites in Goodman-Bacon (2021).

which allows us to parse out the individual effect of each policy while controlling for the other major policies that could be correlated with the outcomes of interest.

Second, our work contributes to the literature on work disability and DI. Many large-scale household surveys, including the Current Population Survey, Health and Retirement Study, Panel Study of Income Dynamics, and Survey of Income and Program Participation, ask respondents whether they have a health condition that limits the type or amount of work they can perform. There is clearly a health element in this kind of survey question. Persons with worse health would be more prone to reporting work limitations or work disability. There is also a work element – the health condition needs to limit typical work activities in some way. Finally, there is a resource element where the resources people have could affect whether they report a work limitation or not (Figure 1). For example, employers who offer accommodations may mitigate work limitations for employees. Or if an individual has more education or versatile employment history, they might be able to shift to a new line of work. Work disability, however, is rarely considered as an outcome when linking policy impacts and health. When it is, it is usually a rigid binary construction where individuals either have it or not. In reality, work disability can have a lot of heterogeneity. Spells can be temporary, episodic, or permanent, and they can also vary in terms of severity. Our work contributes to the literature on work disability by thinking about work disability in terms of both the duration and severity.



Our study also has important policy implications. First, the policies we study rolled out between 1960-90, so their full effects have not yet manifested. Our study will inform current and projected future trends in the prevalence of work disability and subsequent DI claims, which is particularly important for the Social Security Administration and other federal and state government agencies. Second, the policies we study have been the center of attention for both researchers and policymakers for decades and are still playing an essential role in helping Americans with low socio-economic status. These policies have also been constantly going

through changes at both the federal and state levels. It is therefore important for all policymakers to understand not just the direct but also the unintended spillover effects of these policies to properly weigh their costs and benefits to make informed decisions regarding their future direction. Our study provides evidence on one particular unintended effect of these policies --- how the childhood exposure to these policies could influence the probability of work limitation and/or DI awards years later.

Using the PSID data and the generalized difference-in-differences method, we do not find a long-term effect of the social safety net on adult work disability. However, future research is warranted in a larger sample. The rest of the paper is organized as follows. In Section 2, we provide the background information on these three policies and briefly summarize the related economic literature. In Section 3, we describe our data and empirical method. In Section 4, we present our results. We conclude in Section 5.

## **1.1 Background**

Social policies can have meaningful impacts on health, the labor market, and economic outcomes for recipients. These benefits can be felt in the short-run and in the long-run. The US social safety net is fragmented, with various programs available to different populations and at different points in the lifecourse. Below we highlight the history and impact of three specific social programs that lend themselves to examining long-term impacts of the social safety net on the acquisition of work disability in adulthood.

### **Timeline of social policies.**

President Kennedy announced a pilot Food Stamp Program (FSP) in eight impoverished counties in 1961. This small pilot program was later expanded to 43 counties in 1962 and 1963. The success of these pilot programs led to the 1964 Food Stamp Act, which gave local areas the authority to start up the FSP in their county. Medicaid, a means-tested public health insurance, was established a year later by the 1965 amendments to the Social Security Act (SSA) in an effort to improve the health of the poor. States were required to implement Medicaid by 1970. If not, they would lose federal reimbursements for existing medical programs. All states, except for Alaska and Arizona, adopted Medicaid before 1970, and about half of US counties had a Food

Stamp program at that time. The 1973 Amendments to the Food Stamp Act further mandated that all counties offer FSP by 1975. Our third social policy began precisely when these first two had reached nearly all US geographic areas. The Federal Government implemented the earned income tax credit (EITC) in 1975 to compensate low-wage workers for regressive payroll taxes. Benefits were modest by today's standards – just \$400 for low-income households with children (\$1,869 in 2018 dollars). By 1986 the Federal benefit was \$550 regardless of family size, although inflation had eroded the real benefit to less than \$1,300<sup>2</sup>. Rhode Island implemented the first state EITC policy in 1986, valued at approximately \$280. In 1991 the Federal benefit began to offer higher benefits to families with two or more children (around \$2,300), and six states had their own EITC benefits to supplement the Federal policy. By 1999, the final year of EITC data for our sample cohorts, the Federal benefit surged to over \$5,700 for families with two or more children and nearly \$3,500 for families with one child. Additionally, there were 11 states offering benefits ranging from \$140 (Wisconsin with one qualifying child) to nearly \$2,500 (Wisconsin with three qualifying children), depending on state and family size.

### **Impacts of social policies.**

The FSP is the only public assistance program available to all eligible families. Eligibility for FSP is income-based and eligible families can use vouchers to purchase most grocery store food. It is federally funded and currently one of the largest US cash or near-cash means-tested transfer programs. Although the FSP is typically understood as an income transfer (Hoynes, Schanzenbach, and Almond 2016; Hoynes and Schanzenbach 2009), a large portion of FSP benefits is spent on food. Consistent with the strong link between early-life nutrition and later-life outcomes, the literature has found that the FSP rollout had positive effects not only on contemporaneous health, as measured by birth weight (Almond, Hoynes, and Schanzenbach 2011; Currie and Moretti 2008), but also on health and income self-sufficiency decades later (Hoynes, Schanzenbach, and Almond 2016).

After more than fifty years and some expansions, today Medicaid covers over 80 percent of poor children (Cohen, Martinez, and Zammitti 2012). The introduction of Medicaid between 1966 and 1970 has been found to reduce infant and child mortality rates, especially for nonwhite children (Goodman-Bacon 2018) and adult health (Boudreaux, Golberstein, and McAlpine

---

<sup>2</sup> All benefits are in 2018 real US dollars unless otherwise specified.

2016). Another study found childhood exposure to Medicaid reduced mortality and disability while increasing employment for adults up to 50 years later (Goodman-Bacon 2021). Echoing these findings, an analysis of the 1980s expansion found children whose mothers gained access to Medicaid while they were in utero or the first year of life on average had fewer chronic conditions and hospitalizations related to diabetes and obesity later in life. They also had increased high school graduation rates (Miller and Wherry 2019).

The EITC is perhaps one of the most effective anti-poverty programs in the US social safety net (Scholz 1994). Not only does it have meaningful impacts on labor market participation (e.g., Bastian 2020; Bastian and Micheltore 2018; Dickert, Houser, and Scholz 1995; Eissa and Hoynes 2006; Grogger 2003; Hoynes 2009; Meyer 2010) and income, but it also affects health (Averett and Wang 2013; Evans and Garthwaite 2014; Lenhart 2019; Cowan and Tefft 2012; Gangopadhyaya et al. 2020; Muennig et al. 2016). Previous research has found that \$1,000 of additional EITC benefits lead to a 2–3 percent reduction in the incidence of low birth weight (Hoynes, Miller, and Simon 2015), while a \$100 average annual increase in *exposure* to the EITC in childhood increases the likelihood of reporting very good or excellent health at ages 22–27 by 2.6 percent and decreases the probability of obesity by 4.1 percent (Braga, Blavin, and Gangopadhyaya 2020). Mothers who receive EITC benefits also appear more likely to concurrently report better health, and \$500 additional EITC benefits decreases poor mental health days by 19 percent (Evans and Garthwaite 2014). Similarly, another study found that the federal EITC expansions in 1993 increased the probability of reporting very good or excellent health by 8.5 percentage points (Lenhart 2019).

We hypothesize that these demonstrated positive effects of social policies on health, work, and resources will meaningfully affect health – decreasing the likelihood of experiencing a work disability. In contrast to expectations, our results suggest these three policies do not have any meaningful impact on work disability later in life. This is surprising, as previous literature found suggestive evidence in support of our hypothesis. For example, Hoynes et al. (2016) looked at the relationship between the prevalence of work limitations and the FSP rollout, and Goodman-Bacon (2021) examined the effects of Medicaid implementation on work limitations (among other disability measures). While Hoynes et al. (2016) did not find significant results, Goodman-Bacon (2021) did find a meaningful decrease in the prevalence of work disability for early childhood Medicaid coverage for white Americans. To our knowledge, no study has

examined the impact of the EITC on work disability. We hypothesize that classifying work disability in a narrow fashion as a binary characteristic instead of allowing for more heterogeneity and/or thinking about work disability in terms of both the duration and severity could account for less robust results in previous literature.

## 2. Data and Methods

### Data.

The Panel Study of Income Dynamics (PSID) is uniquely suited to answer our research question. Beginning in 1968, the PSID surveyed approximately 18,000 individuals in 5,000 US families (PSID 2022). Each year, and biennially since 1997, it continues to collect economic, health, and demographic data on these individuals and their descendants.

Our sample consists of individuals born between 1955 and 1981<sup>3</sup>. These cohorts witnessed the bulk of available variation in policy exposure during childhood when policies were rolling out. Additionally, the PSID began 13 years later, allowing direct observation of key characteristics defining policy exposure: location and family structure over several years. Furthermore, the impressively long duration of the PSID means that we are able to also observe work disability during adulthood, which we define as ages 30 – 60.

The outcome of interest is whether the individual acquires a work disability. We utilize several survey questions from the PSID to ascertain the presence and degree of work disability. First, heads of households and spouses/partners consistently begin reporting work limitations in 1972 and 1981, respectively, from a two- to three-question series. Each survey wave, individuals are asked whether they have a health condition that limits the type or amount of work they can do. Those who answer no are categorized as “non-limited” for that wave. Individuals who answer affirmatively are asked follow-up question(s) to gauge severity. Prior to 1986, individuals simply indicated if the health condition limited work “a lot”, “somewhat”, or “just a little/not at all”. We categorize individuals with these responses as having a severe, moderate, or mild work limitation each wave. Beginning in 1986, work-limited individuals are also asked whether their limitation prevents some types of work, and if affirmative, they are categorized with a severe

---

<sup>3</sup> We had initially proposed a wider cohort set; however, due to low variation in policy exposures for early cohorts, we opted for a smaller sample with more concentrated variation.



limitation (see Meyer and Mok 2019). In our most inclusive definition of work disability, all individuals who ever report a work limitation between the ages of 30 and 60 are categorized with a work disability.

Moving beyond this elementary definition of work disability, we leverage the panel structure of PSID to capture both duration and severity of work limitations. We hypothesize that individuals with both chronic and severe limitations are most likely to fit the Social Security Administration's definition of work disability – not only having the highest likelihood of applying for benefits but also the highest likelihood of receiving benefits. Based on the categorization in Meyer and Mok (2019), we examine a second definition of work disability that only includes both chronic and severe conditions. To qualify for this definition of work disability, individuals must report a work limitation in at least 25 percent of the waves they are observed between ages 30 and 60, and of the positive work limitation reports, 50 percent of the reports are severe in nature<sup>4</sup>. Our third definition of work disability accounts for duration and severity using a continuous work limitation index (Jajtner 2020). Each wave, no, mild, moderate, and severe conditions are assigned a score of 0, 1, 2, and 3, respectively. The average score over all available waves divided by three (the maximum) is the resulting work limitation index. Individuals with scores near one are most likely to fit the SSA definition of work disability. Many individuals who report work limitations in household surveys never claim Social Security Disability Insurance (DI). DI is available to individuals with severe work limitations that prevent labor market involvement and are expected to last at least one year or result in death. As mentioned previously, individuals who are categorized as having a chronic and severe limitation, or who have index values near one, are expected to be at highest risk of applying to and claiming DI. Even among these individuals, however, not everyone is, or will become, a DI beneficiary. Unfortunately, directly observing DI benefits in the PSID is not feasible during the late 1990s and early 2000s. Therefore, we leverage a feature of the DI program where beneficiaries are eligible for Medicare after a two-year waiting period. Since Medicare is only available for American seniors (age 65+) and DI beneficiaries, we proxy DI receipt with “early” reports of Medicare coverage (i.e., before age 65).

---

<sup>4</sup> Meyer and Mok (2019) only observe individuals in the PSID prior to introducing the biennial wave structure. They implement a definition of chronic disability when three years of 10 years following disability onset are positive reports, but also require the 50 percent threshold for severity.

## Modeling.

The effect of childhood social policies on later-life work disability is modeled as in equation 1. The coefficient of interest is  $\beta_1$  – the effect of a childhood social policy on work disability in adulthood. We first examine the effect of the EITC, Medicaid, and Food Stamps over the course of childhood (Ages 0 – 18), each in turn. Second, we examine the effect of each policy in three phases of childhood – ages 0 – 5, 6 – 12, and 13 – 18 – to determine if a particular part of childhood might be most influential. In this case,  $\beta_1$  is a vector of coefficients representing the three phases of childhood. Finally, we examine the joint effect of all three policies from age zero to 18. Again,  $\beta_1$  is a vector of policy coefficients.

$$(1) \quad \text{Work Disability}_i = \beta_0 + \beta_1 \text{Policy}_{it} + \sum \beta_j X_{ij} + \sum \beta_j V_{ij} + \sum \beta_j Z_{ij} + \delta + \gamma + \varepsilon_i$$

These social policies are targeted toward low-income Americans, and we expect a stronger effect in the targeted population. Therefore, the main sample consists of individuals whose parents did not attend college. Subpopulation analyses by sex and race/ethnicity are also examined to determine if social policies may close existing health disparities.

Following the existing literature (Bastian and Michelmore 2018; Boudreaux, Golberstein, and McAlpine 2016; Goodman-Bacon 2021; Hoynes, Schanzenbach, and Almond 2016), we additionally control for individual factors ( $\sum \beta_j X_{ij}$ ): age, age-squared, race/ethnicity, educational attainment, marital status, and poverty ratio during the observed adulthood period<sup>5</sup>. Individual characteristics in childhood ( $\sum \beta_j V_{ij}$ ) include family income, household size, and whether the head of household is female<sup>6</sup>. Finally, to ensure that other state and county characteristics are not the root of any effects we uncover, we control for state and county characteristics in childhood ( $\sum \beta_j Z_{ij}$ ). We use data from Goodman-Bacon (2021) on state income per capita and Hoynes et

<sup>5</sup> Characteristics that change over time (i.e., age, marital status, and the poverty ratio) are calculated as the average value from ages 30 – 60. So, age is the average age for all survey waves falling in this age-range. Marital status is dichotomized as whether the individual is married or not and the resulting covariate represents the portion of time an individual is married in adulthood. Finally, the poverty ratio is the average ratio over adulthood.

<sup>6</sup> In PSID, heads of household are by default male (with rare exceptions). A female head of household is therefore an indicator for single parenthood. Childhood individual characteristics are observed from ages 0 – 18 and represent the average over that period.

al. (2016) on county-level hospitals per capita and the presence of a community health center. In models with Food Stamps, we additionally control for non-Food Stamp welfare benefits<sup>7</sup>. Birth state ( $\delta$ ) and cohort ( $\gamma$ ) fixed effects are also included.

An individual's decision to participate in the labor market is at least partially tied to health. Men reporting very good or excellent health on average work 94 hours per year more and earn \$6.22 an hour more relative to men who report poor, fair, or good health (Hokayem and Ziliak 2014). Indeed, work disability itself is defined as a health condition that limits work ability. Healthy individuals might therefore be more likely to receive EITC benefits (because they are able to work), and less likely to receive Medicaid (if employers provide alternative health insurance).

We circumvent this selection issue by relying on *exposure* to policies rather than actual participation. Individuals in the sample are considered exposed to a policy if they live in the geographic area where the policy is available (i.e., state for the EITC and Medicaid or county for Food Stamps). The EITC also varies by the number of children in the household, so the assigned exposure is the maximum benefit available for the household type. Not all Medicaid programs were of similar size at the time of implementation. The existing Aid to Families with Dependent Children (AFDC) program at the time of Medicaid's rollout colored exposure not only within states but also by race/ethnicity (Goodman-Bacon 2021). Following Goodman-Bacon (2021) – and using that data – we adjust state-level Medicaid exposure by the probability of coverage based on race-specific AFDC rates in each state and year.

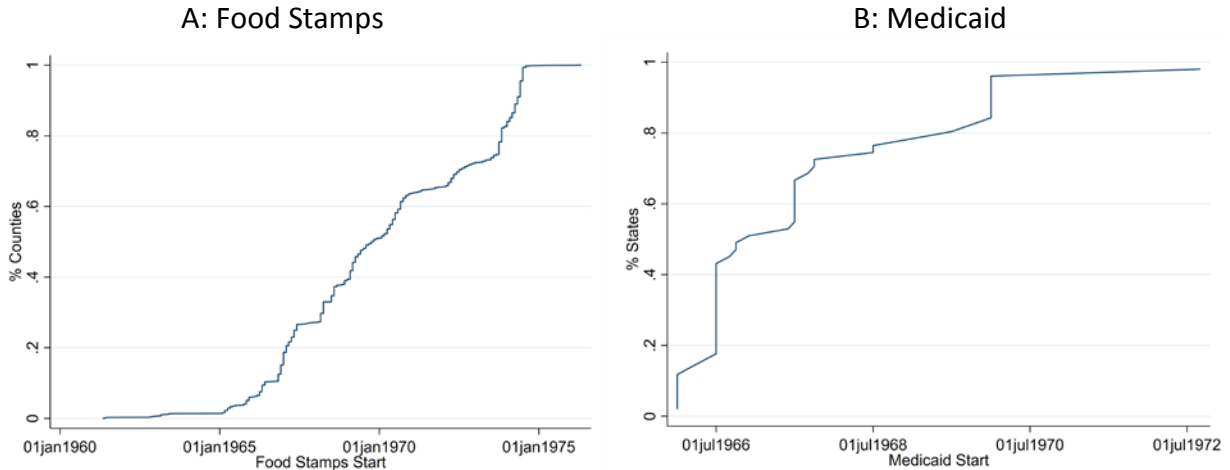
### **Spatial variation in policy and work disability.**

Food stamps rolled out county-by-county in the 1960s and 1970s. In 1970, individuals living in about 50 percent of US counties had access to food stamps (Figure 2A). Medicaid rolled out in a similar time frame, but more quickly and state-by-state. About 50 percent of US states had Medicaid in the first two years, and the rollout slowed thereafter (Figure 2B). The EITC rolled out at the Federal level only from 1975 – 1985 and did not differentiate between households with differing numbers of qualifying children. In later years, states added supplemental EITC policies,

---

<sup>7</sup> Non-Food Stamp welfare programs at the county level are omitted from models with the EITC and Medicaid policy due to concerns that these programs are part of the county safety net. Inclusion of this covariate, however, does not materially alter results.

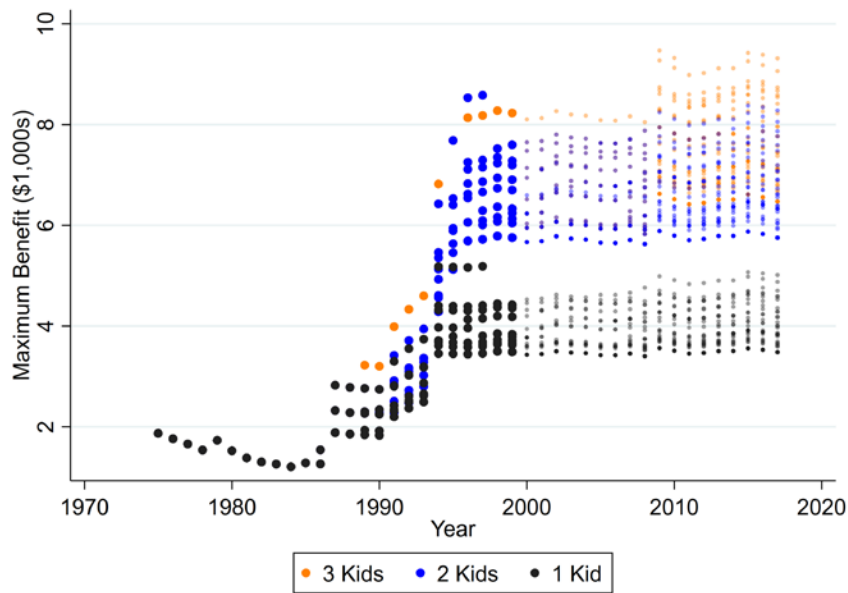
**Figure 2: Portion of areas with Food Stamps or Medicaid**



**Notes:** Food stamps rolled out county-by-county while Medicaid rolled out state-by-state. One state (Arizona) did not adopt Medicaid until January 1982.

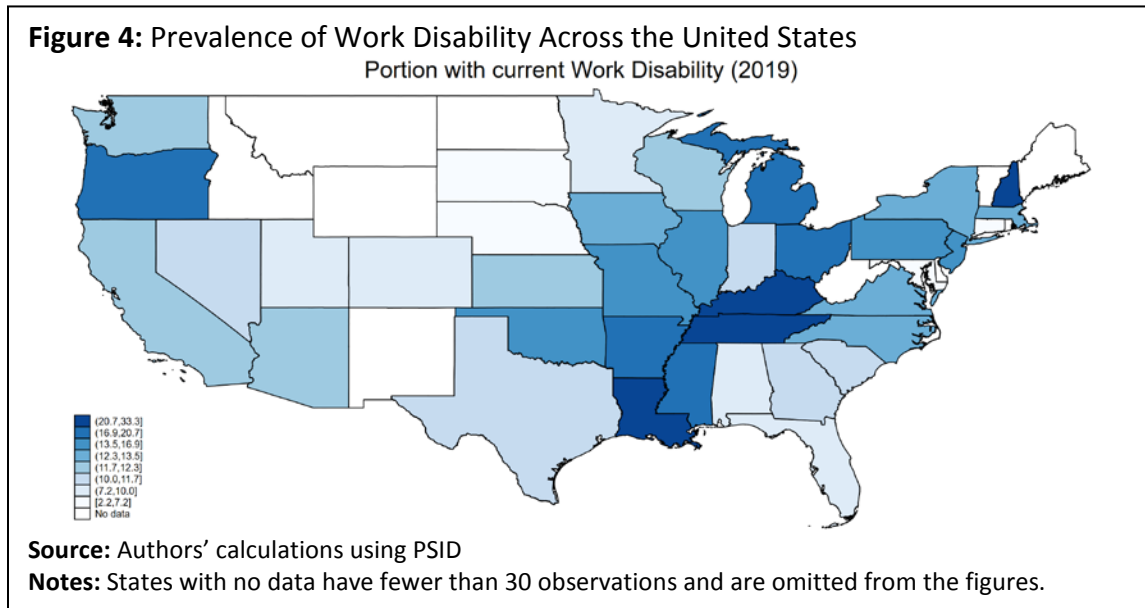
and both Federal and state policies differentiated benefits by the number of household children. The EITC continues to evolve even today. Figure 3 summarizes the EITC variation we leverage in our study.

**Figure 3: Variation in Maximum EITC benefits**



**Notes:** Darker and larger dots represent the available variation during childhood periods for the 1955 – 1981 birth cohorts. Lighter and smaller dots represent available variation in cohorts up to 1999 for robustness.

Work disability varies across US states (Figure 4). In 2019, the most recent wave of PSID, around 2 percent of individuals between ages 30 and 59 reported a work limitation in Washington D.C. and 34 percent of individuals in Louisiana did so. We anticipate that this spatial variation in work disability prevalence is at least partially linked to safety net access decades earlier.



**Sample descriptive statistics.**

Tables 1-3 report the descriptive statistics for our sample of individuals whose parents did not attend college. In all tables, columns 1 and 2 split the sample by whether the individual ever reports a work limitation between ages 30 and 60. Columns 3 and 4 split the same sample by whether the individual has DI in adulthood<sup>8</sup>. Health statistics in Table 1 show that while less than 5 percent of the non-work limited sample receives DI, 28 percent of those with reported work limitations are DI recipients. 32 percent of individuals with DI are categorized as having a chronic and severe work limitation while just 4 percent of those without DI have a chronic and severe work limitation. Self-reported health<sup>9</sup> is also statistically better among individuals without a work limitation or disability insurance.

<sup>8</sup> Note there is a smaller sample of individuals who observe DI. This is due to health insurance coverage types being reported for the first time in PSID beginning in 1999.

<sup>9</sup> Self-reported health is an average of HALex adjusted health reports of poor (0.15), fair (0.5), good (0.775), very good (90), or excellent (97.5) health.

**Table 1:** Health Statistics of the Sample

	<b>Never Work Limited</b>	<b>Any Work Limitation</b>	<b>No Disability Insurance</b>	<b>Disability Insurance</b>
Work Limitation Index	0 (0)	0.2295*** (0.011)	0.0601 (0.0047)	0.2903*** (0.0213)
Chronic & Severe Limitation	0 (0)	0.196*** (0.0179)	0.0400 (0.0062)	0.3242*** (0.0371)
Disability Insurance †	0.044017777 (0.0063)	0.2755*** (0.0241)	0.0000 (0)	1 (0)
Self-Reported Health †	0.859471917 (0.0031)	0.7436*** (0.0081)	0.8261 (0.0039)	0.727*** (0.0159)
N	1794	1013	1653	331

Notes: † In-sample observations are reduced slightly.

Table 2 highlights that persons with identified work disability (either work limitations or disability insurance) are a little older at observation, have significantly lower income, lower educational attainment, and spend more time in adulthood unemployed. A slightly lower percentage of Hispanic Americans have work disability. However, while the proportion of non-Hispanic White and Black Americans is roughly similar among those with and without work limitations, there is a higher proportion of non-Hispanic Black Americans in the subpopulation with Disability Insurance. Echoing disadvantage observed in adulthood, family income is lower in childhood for individuals who eventually develop work disability, and they spend a greater portion of their youth in single-parent families.

**Table 2:** Demographic characteristics of the sample

	<b>Never Work Limited</b>	<b>Any Work Limitation</b>	<b>No Disability Insurance</b>	<b>Disability Insurance</b>
% nH White	0.690192938 (0.0345)	0.6924 (0.0315)	0.7092 (0.0297)	0.5915** (0.0493)
% nH Black	0.201709718 (0.0306)	0.2296 (0.027)	0.1915 (0.0259)	0.3474*** (0.0479)
% Hispanic	0.107550681	0.0734+	0.0968	0.0599*

	(0.0228)	(0.0147)	(0.0205)	(0.0154)
Average Age	38.76085663	39.9475***	39.4970	40.9126***
	(0.0994)	(0.1187)	(0.0915)	(0.1634)
Education	13.5689888	12.9433***	13.5094	12.6711***
	(0.0873)	(0.1163)	(0.093)	(0.1555)
Income	\$87,765	\$71,994**	\$88,369	\$49,593***
	(2293)	(5095)	(3422)	(3316)
% Time Unemployed <sup>†</sup>	0.060276046	0.102***	0.0655	0.112**
	(0.0049)	(0.0083)	(0.0049)	(0.0159)
Income in Childhood	68765.16406	63795.9961*	68601.5938	59765.3477+
	(1906.4591)	(2425.4126)	(1751.7074)	(4902.4893)
% Time with Female Head	0.043938749	0.0277+	0.0424	0.0196*
	(0.008)	(0.0069)	(0.0065)	(0.0069)
N	1794	1013	1653	331

Notes: <sup>†</sup> In-sample observations are reduced slightly.

Table 3 illustrates that individuals who develop work disability in adulthood had considerably less exposure to the public safety net in childhood. They had on average \$4,000 - \$5,000 fewer EITC dollars available and spent approximately 3 percent less of childhood covered by Medicaid and 6-8 percent of childhood covered by Food Stamps. Lower exposure levels to Medicaid and Food Stamps are heavily concentrated in early childhood, and Medicaid exposure in later childhood for individuals with work disability is *higher* relative to those without work disability.

**Table 3:** Policy exposure of the sample

	Never Work Limited	Any Work Limitation	No Disability Insurance	Disability Insurance
EITC: Ages 0 – 18 (\$1,000s)	18.33994293	14.2451***	18.2619	13.0413***
	(0.4563)	(0.6032)	(0.4614)	(0.8825)
Medicaid: Ages 0 – 18 (%)	0.652642846	0.624*	0.6560	0.625+
	(0.0087)	(0.0115)	(0.0092)	(0.0132)
Food Stamps: Ages 0 – 18 (%)	0.753531873	0.6947***	0.7571	0.6806**
	(0.012)	(0.0129)	(0.0113)	(0.0225)
N	1794	1013	1653	331

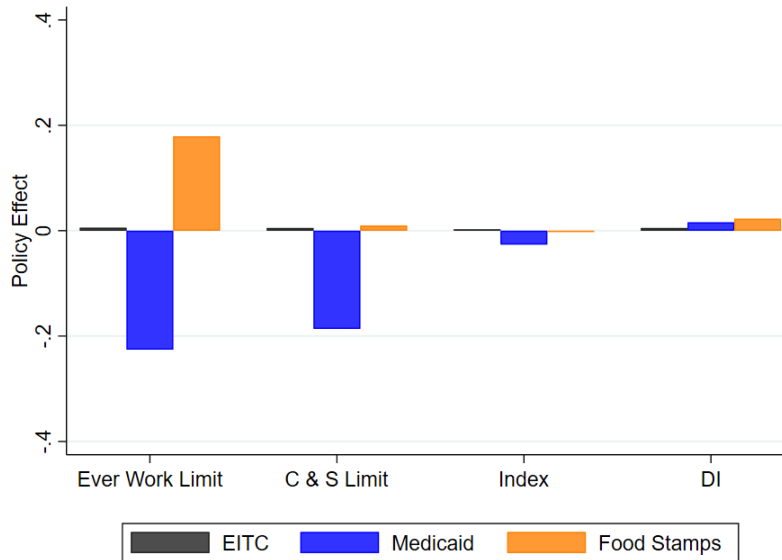
### 3. Results

In contrast to our hypotheses, we find little evidence that the social safety net in childhood has any meaningful impact on the acquisition of work disability in adulthood. Results are robust across all examined demographic subgroups (males, females, non-Hispanic Whites, and non-Hispanic Blacks separately). They are robust to a sparser specification that excludes all controls, save birth cohort and birth state fixed effects. They are also consistently insignificant across all phases of childhood. In the case of the EITC, not only are results statistically insignificant, but they are also quite precise. We do observe some coefficients that are in the expected direction and statistically significant; however, given the quantity of regressions and the fact that we also observe some coefficients that are statistically significant in the opposite direction, we assume these are type-I errors. We support these findings with the figures below, and full results are available upon request.

Figure 5 illustrates the impact of each childhood social policy on adult work disability – defined as ever reporting a work limitation, having a chronic and severe work limitation, the work limitation index, and DI – in turn. Each bar in the figure is from a separate regression model. Point estimates suggest going from zero to full Medicaid exposure in childhood could reduce the probability of reporting any work limitation or chronic and severe limitations by around 20 percent. However, it is not statistically significant. Table 4 includes policy effect estimates for all demographic subpopulations (male, female, non-Hispanic White, and non-Hispanic Black), with similar results. Widening the sample to include the full socioeconomic spectrum, we find similar results.



**Figure 5:** Aggregate Childhood Policy Effects in a low SES Population on Adult Work Disability



**Source:** Authors calculations using PSID restricted data.

**Notes:** "C & S Limit" is a chronic and severe work limitation. The "Index" is the continuous work limitation index. Each bar represents a separate regression. + p < 0.1, \* p < 0.05, \*\* p < 0.01, and \*\*\* p < 0.001.

**Table 4:** Aggregate Policy Effects in a Low SES population

	Low SES Aggregate Childhood Policy Exposures: 1955-1981 Birth Cohorts						N
	EITC: Age 0 - 18		Medicaid: Age 0 - 18		Food Stamps: Age 0 - 18		
	Estimate	s.e.	Estimate	s.e.	Estimate	s.e.	
Ever Work Limited	0.00558	(0.00688)	-0.226	(0.441)	0.179	(0.137)	2807
Male	0.00118	(0.00906)	0.141	(0.708)	-0.00475	(0.234)	1309
Female	0.00706	(0.00831)	-0.879	(0.547)	0.444*	(0.199)	1498
nH White	-0.00876	(0.0103)	5.298**	(1.814)	0.201	(0.200)	1180
nH Black	0.0221	(0.0119)	0.117	(0.552)	0.0310	(0.159)	1394
Chronic & Severe Limitation	0.00502	(0.00592)	-0.186	(0.156)	0.00980	(0.0609)	2807
Male	-0.00272	(0.00508)	-0.0227	(0.181)	-0.157*	(0.0753)	1309
Female	0.0103	(0.00857)	-0.617*	(0.274)	0.190*	(0.0892)	1498
nH White	-0.000719	(0.00464)	2.575	(1.422)	-0.0474	(0.0732)	1180
nH Black	0.00511	(0.0114)	-0.555	(0.604)	0.106	(0.122)	1394
Continuous Work Limitation Index	0.00250	(0.00298)	-0.0262	(0.124)	-0.00246	(0.0485)	2807
Male	0.00125	(0.00422)	0.182	(0.202)	-0.114*	(0.0542)	1309
Female	0.00370	(0.00377)	-0.403	(0.202)	0.114	(0.0708)	1498
nH White	-0.000225	(0.00360)	1.732*	(0.789)	-0.0135	(0.0705)	1180
nH Black	0.00270	(0.00640)	-0.229	(0.305)	0.0179	(0.0736)	1394
Disability Insurance	0.00512	(0.00331)	0.0158	(0.348)	0.0227	(0.112)	1984
Male	0.00905	(0.00676)	0.577	(0.441)	-0.112	(0.144)	869
Female	0.000691	(0.00370)	-0.606	(0.318)	0.152	(0.157)	1115
nH White	0.00230	(0.00448)	0.607	(2.105)	0.0320	(0.128)	842
nH Black	0.00958	(0.00724)	0.223	(0.369)	0.0831	(0.150)	998

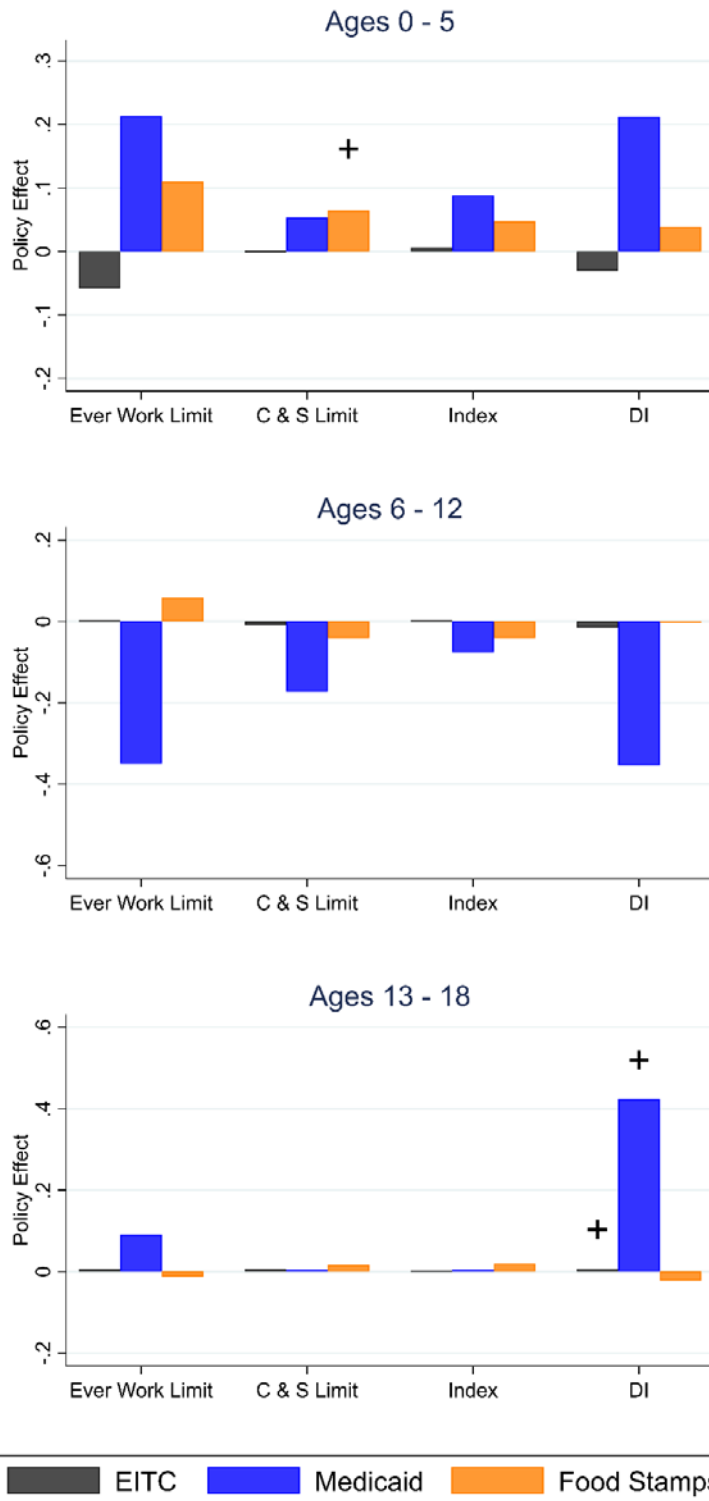
Note: Each coefficient is from a separate regression. Sample sizes are consistent across rows.

Figure 6 disaggregates each policy exposure into early (ages 0 – 5), middle (ages 6 – 12), and late (ages 13 – 18) childhood. As with the aggregate exposure, we do not find significant impacts of childhood social policies on later-life work disability. In fact, only a few estimates are statistically different from zero at the ten-percent level, and these estimates are in the opposite direction of expectations<sup>10</sup>. Consistently, we see very little evidence of any childhood social policy on later-life work disability, regardless of the childhood period.

---

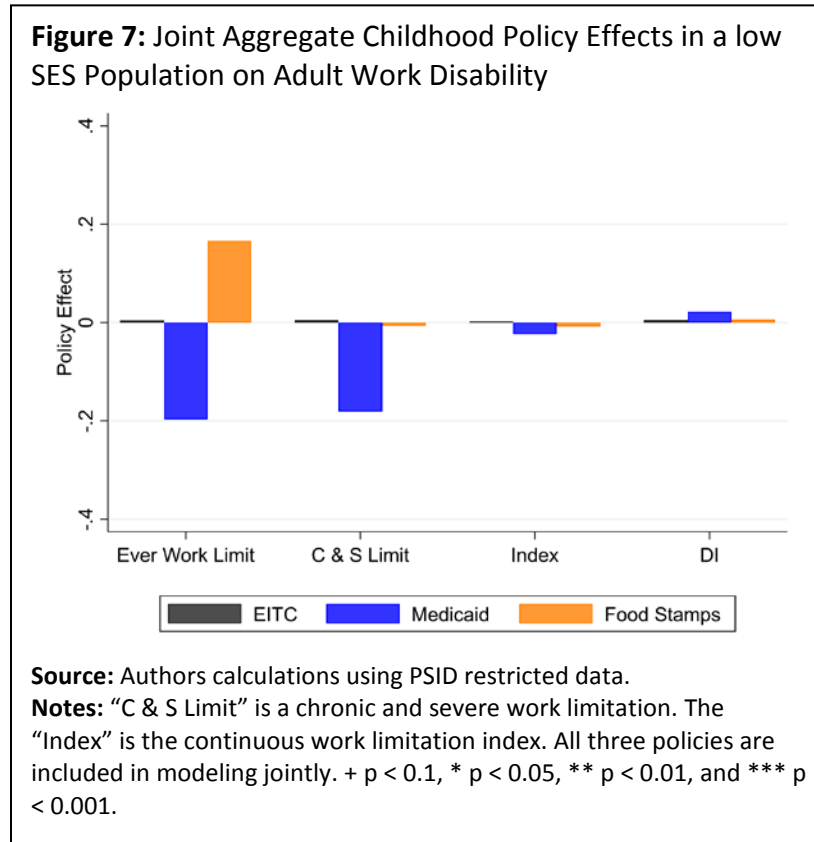
<sup>10</sup> We attribute these to type-I error.

**Figure 6:** Disaggregate Childhood Policy Effects in a low SES Population on Adult Work Disability



**Source:** Authors calculations using PSID restricted data.  
**Notes:** "C & S Limit" is a chronic and severe work limitation. The "Index" is the continuous work limitation index. + p < 0.1, \* p < 0.05, \*\* p < 0.01, and \*\*\* p < 0.001.

Although we do not detect any meaningful impact of individual childhood social policies on adult work disability, we examine joint effects of these policies considering the possibility that one of those policies could enhance the effect of another which would lead to significant joint effects. We find that our initial estimates in Figure 5 are robust to controlling for the other social programs in childhood (Figure 7).



Finally, we investigate what mechanisms could be driving our unexpected results. Table 5 provides estimates for policy effects on years of completed education, employment, income, self-reported health status, the presence of an Activity of Daily Living (ADL) limitation, the presence of a health condition, a limiting health condition, and portion of time in the previous two years the individual had health insurance. We generally find policy effects in directions consistent with existing literature (i.e., that social policies improve educational attainment, income, and health), but little that is statistically significant.

**Table 5:** Select Mechanisms

	(1) Years Education	(2) Employment	(3) Income	(4) SRHS	(5) Any ADL	(6) Any Health Condition	(7) Limiting Health Condition	(8) Health Insurance
EITC: Age 0 – 18	0.00816 (0.0236)	-0.000229 (0.00447)	-50.20 (466.4)	-0.00239 (0.00234)	0.00458 (0.00293)	-0.000595 (0.00693)	0.00281 (0.00350)	0.00678+ (0.00400)
Medicaid: Age 0 – 18	-0.322 (1.277)	-0.196 (0.170)	50789.5 (47300.3)	0.253* (0.114)	-0.226 (0.195)	-0.457 (0.387)	-0.529* (0.259)	-0.0369 (0.212)
Food Stamps: Age 0 – 18	-0.303 (0.503)	-0.0680 (0.0894)	5359.2 (12485.7)	-0.0488 (0.0321)	-0.00647 (0.0723)	0.235* (0.109)	0.104 (0.0813)	0.171** (0.0628)
N	2250	2248	2250	2250	1799	1835	1835	1843

Notes: Each coefficient is from a separate regression. All models from each column however, have the same sample size.

## 4. Discussion

In this paper, we examine the effects of childhood exposure to three large social safety net programs – EITC, Medicaid, and Food Stamps – on work limitations and DI in adulthood. Using PSID data and exogenous county- and state-level variation<sup>11</sup> in the original rollout of these programs, we do not detect a causal impact of these programs on work limitation or DI. These results do not conform with our initial hypotheses. We anticipated that the safety net in childhood would meaningfully improve health such that work disability in adulthood would decline. Our results instead suggest early investments in the US safety net may not influence work disability in adulthood.

The source of these null results remains unclear but warrants further investigation. We may not have sufficient exogenous variation to identify effects in an environment with state and birth cohort fixed effects. For example, in the case of the EITC, early birth cohorts have relatively little variation in the maximum benefit available (Figure 3) relative to later birth cohorts that are excluded from our study. However, later birth cohorts with potentially more identifying variation are also observed in adulthood at younger ages – resulting in a lower incidence of work disability at younger ages. In the case of Medicaid, without adjusting exposure for race- and state-specific AFDC rates, identifying variation would rely on the month of birth with state and birth cohort fixed effects. For that reason, we adjusted our model specification from the initial proposal to include the AFDC rates in Goodman-Bacon (2021). Alternatively, results may represent true null effects. Social policies can increase labor market participation (e.g., Bastian and Michelmore 2018; Goodman-Bacon 2021), which may put upward pressure on the prevalence of work disability due to social policies simply because individuals are afforded the health capacity to work in the first place.

Another important limitation to this study is that we are currently only considering safety net exposures in childhood. This may be particularly true for early cohorts that we classify as “never exposed” to the safety net. While it is true that they are never exposed in childhood, the 1955 birth cohort, for example, begins having exposure to EITC benefits at age 20. Even though some members of this early birth cohort experience exposure to Medicaid and Food Stamps in

---

<sup>11</sup> In the case of EITC, variation by family size is also utilized. In the case of Medicaid, prevailing race-specific AFDC rates in each state provide additional variation.

childhood, with the programs near universal geographic coverage by the mid-70s, the cohort almost certainly has coverage in adulthood. This represents another source of variation that could be leveraged to increase variation and improve the analysis.

## 5. Conclusion

Despite the null results, this paper contributes to the literature on evaluating the long-term effects of childhood exposure to public programs in a few distinct ways. First, we provide important and new estimates of the impact of these three important programs on work limitations and DI. While minimal research investigating the impact of Medicaid or Food Stamps is available (Goodman-Bacon 2021; Hoynes, Schanzenbach, and Almond 2016), this is the first estimate of the effect of the EITC program on work disability to our knowledge. Second, we are the first to use multiple measures of work limitations to provide a comprehensive picture of the effects of these programs on work limitations. The limited previous research investigating the effect of social policies (i.e., Medicaid and Food Stamps) on work disability used a limited and narrow definition of work disability (e.g., Bastian and Michelmore 2018; Goodman-Bacon 2021). However, narrowly classifying work disability could lead to misunderstanding of the effects. Indeed, research highlights strongly heterogeneous patterns in the type of work disability (Meyer and Mok 2019). Finally, we are one of the first studies to test the effects of several programs jointly. Various safety net programs might complement each other in terms of program effects or cancel each other out; it is therefore important to take that into consideration. Without considering these important interactions and heterogeneous work disability characterizations, the government could under- or over-state broader impacts of these programs.



## References

- Almond, Douglas, and Janet Currie. 2011. "Killing Me Softly: The Fetal Origins Hypothesis." *Journal of Economic Perspectives* 25 (3): 153–72.
- Almond, Douglas, Hilary W. Hoynes, and Diane Whitmore Schanzenbach. 2011. "Inside the War on Poverty: The Impact of Food Stamps on Birth Outcomes." *The Review of Economics and Statistics* 93 (2): 387–403.
- Averett, Susan, and Yang Wang. 2013. "The Effects of Earned Income Tax Credit Payment Expansion on Maternal Smoking." *Health Economics* 22 (11): 1344–59.
- Bastian, Jacob. 2020. "The Rise of Working Mothers and the 1975 Earned Income Tax Credit." *American Economic Journal: Economic Policy* 12 (3): 44–75.
- Bastian, Jacob, and Katherine Micheltore. 2018. "The Long-Term Impact of the Earned Income Tax Credit on Children's Education and Employment Outcomes." *Journal of Labor Economics* 36 (4): 1127–63.
- Boudreaux, Michel H., Ezra Golberstein, and Donna D. McAlpine. 2016. "The Long-Term Impacts of Medicaid Exposure in Early Childhood: Evidence from the Program's Origin." *Journal of Health Economics* 45: 161–75.
- Braga, Breno, Fredric Blavin, and Anuj Gangopadhyaya. 2020. "The Long-Term Effects of Childhood Exposure to the Earned Income Tax Credit on Health Outcomes." *Journal of Public Economics* 190: 104249.
- Cohen, Robin A., Michael E. Martinez, and Emily P. Zammitti. 2012. "Health Insurance Coverage: Early Release of Estimates from the National Health Interview Survey, January–March 2012." *Atlanta, GA: Centers for Disease Control and Prevention*.
- Cowan, Benjamin, and Nathan Tefft. 2012. "Education, Maternal Smoking, and the Earned Income Tax Credit." *The BE Journal of Economic Analysis & Policy* 12 (1).
- Currie, Janet. 2009. "Healthy, Wealthy, and Wise: Socioeconomic Status, Poor Health in Childhood, and Human Capital Development." *Journal of Economic Literature* 47 (1): 87–122.
- Currie, Janet, and Douglas Almond. 2011. "Human Capital Development before Age Five." In *Handbook of Labor Economics*, 4:1315–1486. Elsevier.

- Currie, Janet, and Enrico Moretti. 2008. "Did the Introduction of Food Stamps Affect Birth Outcomes in California?" *Making Americans Healthier*, 122–42.
- Dickert, Stacy, Scott Houser, and John Karl Scholz. 1995. "The Earned Income Tax Credit and Transfer Programs: A Study of Labor Market and Program Participation." *Tax Policy and the Economy* 9: 1–50.
- Eissa, Nada, and Hilary Hoynes. 2006. "Behavioral Responses to Taxes: Lessons from the EITC and Labor Supply." *Tax Policy and the Economy* 20: 73–110.
- Evans, William N., and Craig L. Garthwaite. 2014. "Giving Mom a Break: The Impact of Higher EITC Payments on Maternal Health." *American Economic Journal: Economic Policy* 6 (2): 258–90.
- Gangopadhyaya, Anuj, Fredric Blavin, Breno Braga, and Jason Gates. 2020. "Credit Where It Is Due: Investigating Pathways from Earned Income Tax Credit Expansion to Maternal Mental Health." *Health Economics* 29 (9): 975–91.
- Goodman-Bacon, Andrew. 2018. "Public Insurance and Mortality: Evidence from Medicaid Implementation." *Journal of Political Economy* 126 (1): 216–62.
- . 2021. "The Long-Run Effects of Childhood Insurance Coverage: Medicaid Implementation, Adult Health, and Labor Market Outcomes." *American Economic Review* 111 (8): 2550–93.
- Grogger, Jeffrey. 2003. "The Effects of Time Limits, the EITC, and Other Policy Changes on Welfare Use, Work, and Income among Female-Headed Families." *Review of Economics and Statistics* 85 (2): 394–408.
- Hokayem, Charles, and James P. Ziliak. 2014. "Health, Human Capital, and Life Cycle Labor Supply." *American Economic Review* 104 (5): 127–31.
- Hoynes, Hilary. 2009. "The Earned Income Tax Credit, Welfare Reform, and the Employment of Low-Skilled Single Mothers." *Strategies for Improving Economic Mobility of Workers: Bridging Theory and Practice*. Kalamazoo, MI: WE Upjohn Institute for Employment Research.
- Hoynes, Hilary, Doug Miller, and David Simon. 2015. "Income, the Earned Income Tax Credit, and Infant Health." *American Economic Journal: Economic Policy* 7 (1): 172–211.

- Hoynes, Hilary, and Diane Whitmore Schanzenbach. 2009. "Consumption Responses to In-Kind Transfers: Evidence from the Introduction of the Food Stamp Program." *American Economic Journal: Applied Economics* 1 (4): 109–39.
- Hoynes, Hilary, Diane Whitmore Schanzenbach, and Douglas Almond. 2016. "Long-Run Impacts of Childhood Access to the Safety Net." *American Economic Review* 106 (4): 903–34.
- Jajtner, Katie M. 2020. "Work-Limiting Disability and Intergenerational Economic Mobility." *Social Science Quarterly* 101 (5): 2001–16.
- Lenhart, Otto. 2019. "The Effects of Income on Health: New Evidence from the Earned Income Tax Credit." *Review of Economics of the Household* 17 (2): 377–410.
- Meyer, Bruce D. 2010. "The Effects of the Earned Income Tax Credit and Recent Reforms." *Tax Policy and the Economy* 24 (1): 153–80.
- Meyer, Bruce D., and Wallace K. C. Mok. 2019. "Disability, Earnings, Income and Consumption." *Journal of Public Economics* 171: 51–69.  
<https://doi.org/10.1016/j.jpubeco.2018.06.011>.
- Miller, Sarah, and Laura R. Wherry. 2019. "The Long-Term Effects of Early Life Medicaid Coverage." *Journal of Human Resources* 54 (3): 785–824.  
<https://doi.org/10.3368/jhr.54.3.0816.8173R1>.
- Muennig, Peter A., Babak Mohit, Jinjing Wu, Haomiao Jia, and Zohn Rosen. 2016. "Cost Effectiveness of the Earned Income Tax Credit as a Health Policy Investment." *American Journal of Preventive Medicine* 51 (6): 874–81.
- PSID. 2022. "Panel Study of Income Dynamics, Public Use Dataset." Produced and distributed by the Survey Research Center, Institute for Social Research, University of Michigan, Ann Arbor, MI.
- . 2022. "Panel Study of Income Dynamics, Restricted Use Dataset." Produced and distributed by the Survey Research Center, Institute for Social Research, University of Michigan, Ann Arbor, MI. <https://psidonline.isr.umich.edu/>.
- Scholz, John Karl. 1994. "The Earned Income Tax Credit: Participation, Compliance, and Antipoverty Effectiveness." *National Tax Journal*, 63–87.

Social Security Administration. 2019. "Annual Statistical Report on the Social Security Disability Insurance Program, 2018." No. 13-11826. Social Security Administration.  
[https://www.ssa.gov/policy/docs/statcomps/di\\_asr/index.html](https://www.ssa.gov/policy/docs/statcomps/di_asr/index.html).



**Center for Financial Security**

School of Human Ecology  
University of Wisconsin-Madison

1300 Linden Drive  
Madison, WI 53706

608-890-0229  
cfs@mailplus.wisc.edu  
cfs.wisc.edu