April 13, 2023

NBER Summer Institute
1050 Massachusetts Avenue
Cambridge, MA 02138

Dear Members of the Selection Committee,

Please consider the enclosed application for the Review of Economics and Statistics (REStat) Fellowship for the NBER Summer Institute. I am a female of African descent and currently a Postdoctoral Fellow at Howard University. I began this position in August 2022 after completing my Ph.D. in Economics at Temple University in May 2019 and then postdoctoral research training at Johns Hopkins Bloomberg School of Public Health. Following a successful job search this year, I am excited to note that I will join the Department of Economics at Howard University as an Assistant Professor in the Fall of 2023.

I am an applied microeconomist, and most of my current research lies at the intersection of health and public economics, policy analysis, applied microeconometrics, and studies of poverty and inequality. As a part of my research agenda, I have worked independently and collaboratively on two streams of research. One stream of my research estimates the impact of hospital- and state-level programs/policies that may impact access to opioid use disorder treatment or mental healthcare on health behaviors and socioeconomic factors – including education and crime. The second stream of my research examines the impact of family-specific characteristics and social welfare policies/programs – including the Earned Income Tax Credit and Supplemental Nutrition Assistance Program – on health and human capital accumulation.

Because the majority of my postdoctoral research training and experience has been with interdisciplinary research teams, which primarily consist of non-economists, most of my publications are in health services journals. However, to be successful as a faculty in an economics department, I believe it is vital to restructure my research portfolio by publishing manuscripts in primarily economics journals. To make such changes, I must network and collaborate with economists. Besides networking and collaboration opportunities, attending economics conferences, such as the prestigious NBER Summer Institute, will help me enhance my knowledge of new economic studies and the application of recent advances within the econometrics literature. Due to the benefits of attending the NBER Summer Institute, it would be a great honor to receive the fellowship to participate in the conference in-person. I am most interested in attending the Summer Institute sessions on Health Economics, Public Economics, and the Economics of Children.

I am attaching my curriculum vitae and a working paper to support my application.

Thank you for considering this application.

Sincerely,

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March 2023

KEISHA T. SOLOMON

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Employment and Affiliations:

2022-present: Research Scientist, Department of Economics, Howard University
2019-2022: Postdoctoral Researcher, Health Policy and Management, Johns Hopkins Bloomberg School of Public Health
Primary Mentors: Brendan Saloner and Elizabeth Stuart
2016-2019: Graduate Research Assistant, Department of Economics, Temple University
Primary Mentor: Johanna Catherine Maclean
2014-2016: Graduate Teaching Assistant, Department of Economics, Temple University
2014-2015; 2018: Graduate Instructor, Department of Economics, Temple University
2011-2013: Assistant Lecturer, Department of Economics, University of Guyana

Education:

Temple University	Ph.D.	2019	Economics
Dissertation Title: "Three Essays on Health Economics"			
Committee Members: Michael Leeds, Johanna Catherine Maclean (chair), and Douglas Webber			
Temple University	M.A.	2015	Economics
University of Guyana (Distinction)	B.S.	2011	Economics

Fields of Specialization:

Health Economics, Applied Microeconomics, Public Policy, Labor Economics

Published Journal Articles:

(12) Gibbons, J. B., Harris, S. J., Solomon, K. T., Sugarman, O., Hardy, C., & Saloner, B. (2023) The Rising Tide of Overdose Deaths Among Black Americans: A Review of the Literature. *The Lancet Psychiatry*. Accepted.

(11) Solomon, K. T., O'Connor, J., Gibbons, J. B., Kilaru, A. S., Feder, K. A., Xue, L., Saloner, B., Stuart, E. A., Cole, E. S. Hulsey, E., Meisel, Z., Patel, E., & Donohue, J. M. (2023) Association between hospital adoption of an emergency department treatment pathway for opioid use disorder and patient initiation of buprenorphine after discharge. *JAMA Health Forum*, 4(3): e230245. doi:10.1001/jamahealthforum.2023.0245

(10) Carroll. G., C., Solomon, K. T., Heil, J., Saloner, B., Stuart, E. A., Patel, E., Greifer, N., Salzman, M., Murphy, E., Baston, K., & Haroz, R. (2023). Impact of Administering Buprenorphine to Overdose Survivors Using Emergency Medical Services. *Annals of emergency medicine*, 81(2), 165-175.

(9) Solomon, K. T., & Dasgupta, K. (2022). State mental health insurance parity laws and college educational outcomes. *Journal of Health Economics*, 86, 102675.

(8) Krawczyk, N., Allen, S. T., Schneider, K. E., Solomon, K., Shah, H., Morris, M., Harris, S. J., Sherman, S. G., & Saloner, B. (2022). Intersecting substance use treatment and harm reduction services: exploring the characteristics and service needs of a community-based sample of people who use drugs. *Harm reduction journal*, 19(1), 95.

(7) Deza, M., Maclean, J. C., & Solomon, K. (2022). Local access to mental healthcare and crime. *Journal of Urban Economics*, *129*, 103410.
- NBER Working Paper 2761.

(6) Saloner, B., Krawczyk, N., Solomon, K., Allen, S. T., Morris, M., Haney, K., & Sherman, S. G. (2022). Experiences with substance use disorder treatment during the COVID-19 pandemic: Findings from a multistate survey. *International Journal of Drug Policy*, 101, 103537.

(5) Patel, E., Solomon, K., Saleem, H., Saloner, B., Pugh, T., Hulsey, E., & Leontsini, E. (2022). Implementation of buprenorphine initiation and warm handoff protocols in emergency departments: A qualitative study of Pennsylvania hospitals. *Journal of Substance Abuse Treatment*, 136, 108658.

(4) Solomon, K. T., Bandara, S., Reynolds, I. S., Krawczyk, N., Saloner, B., Stuart, E., & Connolly, E. (2022). Association between availability of medications for opioid use disorder in specialty treatment and use of medications among patients: A state-level trends analysis. *Journal of Substance Abuse Treatment*, 132, 108424.

(3) Krawczyk, N., Garrett, B., Ahmad, N. J., Patel, E., Solomon, K., Stuart, E. A., & Saloner, B. (2021). Medications for opioid use disorder among American Indians and Alaska natives: Availability and use across a national sample. *Drug and Alcohol Dependence*, *220*, 108512.

(2) Hill, S.C., Solomon, K.T., Maclean, J.C., Pesko, M.F. (2019) Effects of improvements in the CPS on the estimated prevalence of medical financial burdens. *Health Services Research*. 54(4): 920–929.

(1) Dasgupta, K., & Solomon, K. T. (2018). Family size effects on childhood obesity: Evidence on the quantity-quality trade-off using the NLSY. *Economics & Human Biology*, 29, 42-55.

Working Papers:

"Implementation of a statewide quality improvement collaborative for opioid use disorder treatment in hospitals." (First author; Joint with Elli Leontsini, Esita Patel, Haneefa Saleem, and Brendan Saloner).

"Mother's marital status at child's birth and early health and educational attainment: Evidence from sibling fixed-effects."

"Effects of public insurance expansions on SSI program among young adults and previous SSI Child participants: Evidence from ACA Medicaid expansions."

"Health, health insurance, and financial Security." (Joint with Katie Fitzpatrick)

Conference Presentations:

2022: Southern Economic Association Conference (Presidential Sessions).
2021: American Society of Health Economists Conference; AcademyHealth Annual Research Meeting; Southern Economic Association Conference (Presential Sessions).
2020: American Economic Association.
2019: Association for Public Policy Analysis and Management.
2018: Association for Public Policy Analysis and Management Conference; American Society of Health Economists Conference; Association for Public Policy Analysis and Management Regional Student Conference.

External Funding:

Social Security Administration Retirement and Disability Research Consortium, Co-investigator, 10/2022-09/2023

- The effect of public policies on work disability: a life course perspective

Social Security Administration Retirement and Disability Research Consortium, Co-investigator, 10/2021-09/2022

- Health, health insurance, and financial security

Social Security Administration Retirement and Disability Research Consortium, Junior Scholars Intensive Training (JSIT), 10/2020-7/2021

- Effects of public insurance expansions on SSI program among young adults and previous SSI child participants: Evidence from ACA Medicaid expansions

Invited Lectures:

"Health, health insurance, and financial Security."
- Presented (online) at the Federal Reserve and the Global Financial Literacy Excellence Center (GFLEC) at George Washington University, Washington, DC. April 2023.

"Health, health insurance, and financial Security."
- Presented (online) at the University of Wisconsin-Madison Center for Financial Security, Madison, WI. January 2023.

Impact of administering buprenorphine to overdose survivors using emergency medical services
- Presented (online) at Maryland Department of Health, Baltimore, MD. October 2022.

Impact of administering buprenorphine to overdose survivors using emergency medical services
- Presented (online) at Office of New Jersey Governor, Trenton, NJ. September 2022.

"State Mental Health Insurance Parity Laws and College Educational Outcomes."
- Presented (online) at the Indiana University O'Neill School of Public and Environmental Affairs, Bloomington, IL. October 2020.

Courses Taught:

American economy, mathematics for economists, introductory mathematics, principles of microeconomics, principles of macroeconomics, applied microeconomics, introductory statistics

Professional Activities and Services:

Referee for *Administration and Policy in Mental Health, American Journal of Health Economics, Economics and Human Biology Journal, JAMA Pediatrics, Journal of Addiction Medicine, Journal of Adolescent Health, Health Affairs, Journal of Policy Analysis and Management, and Preventive Medicine*; and Ad Hoc Grant Reviewer for *District of Columbia Department of Behavioral Health*

Departmental and University Services:

Johns Hopkins Bloomberg School of Public Health Postdoctoral Committee (2019-2022); mentor in Johns Hopkins Diversity Postdoctoral Alliance Committee (DPAC) and Historically Black Colleges and Universities (HBCU) Mentoring program (2021-2022)

Professional Organizations:

National Economic Association
American Economic Association
American Society of Health Economists
Association for Public Policy Analysis & Management
AcademyHealth

The Effect of Insurance Expansion on SSI Participation: Evidence from the ACA

Keisha Solomon

Abstract

Before states expanded their Medicaid programs, low-income adults without dependent children were typically only eligible for Medicaid insurance coverage through the Supplemental Security Income Program (SSI) due to a disability. The expansion of Medicaid eligibility due to the Affordable Care Act (ACA) provides an opportunity for low-income childless adults to obtain health insurance coverage without having to complete an intensive SSI application process and thus removes the need to satisfy the SSI asset and disability criteria. Previous research has established that pre-ACA Medicaid expansions and very short-term ACA Medicaid expansions reduced SSI participation among nonelderly childless adults. Further, there is evidence that there are disparities in the coverage gains from the ACA Medicaid expansions by demographic groups, with gains largest among young adults, non-whites, and unmarried individuals. Given these disparities and insurance coverage barriers to transitioning from pediatric to adult healthcare, this study examines the long-term impact of the ACA Medicaid expansions on SSI participation among low-income childless young adults and the Medicaid expansions-SSI relationship across different demographic groups. To estimate these relationships, I use survey data on SSI benefits from the American Community Survey (ACS) in a two-way fixed-effects model to uncover the causal effects of ACA Medicaid expansions on SSI participation. These findings suggest that Medicaid expansions reduced SSI participation by nine percent among young adults, with reductions primarily among unmarried individuals. However, there is no statistically significant evidence that the impact of ACA Medicaid expansions on SSI participation differs by race/ethnicity, gender, and educational attainment.

Keywords: Supplemental Security Income; Health insurance; Medicaid; Affordable Care Act
JEL codes: I1; I18; I38

1 Introduction

This study examines the interaction between two social programs by estimating the impact of the Affordable Care Act (ACA) Medicaid expansions on Supplemental Security Income Program (SSI) participation among young adults. Before states expanded their Medicaid programs, low-income adults without dependent children were typically only eligible for Medicaid insurance coverage through the SSI due to a disability (Burns & Dague, 2017; Courtemanche et al., 2017; Wagner, 2015).[1] The expansion of Medicaid eligibility provides an opportunity for low-income childless adults to obtain health insurance coverage without having to complete the intensive SSI application process, thus removing the need to satisfy the SSI asset and disability criteria (Wagner, 2015).[2] Examining the extent to which alternative options for health insurance coverage could affect SSI participation among young college-aged adults (18 to 25 years old) is important because SSI recipients generally face higher disincentives to earn income and accumulate assets (Burns & Dague, 2017). Further, empirical evidence suggests Medicaid expansions increase employment among individuals with disabilities (Hall et al., 2017, 2018).

In theory, the impact of Medicaid expansions on SSI participation is ambiguous. The value of SSI benefits would decline with ACA Medicaid expansions if health coverage were a primary factor for young adults to apply to the SSI. The reduced value of SSI benefits and the higher transaction cost of obtaining Medicaid through the SSI could lead to reductions in SSI enrollment as states expand their Medicaid program (Burns & Dague, 2017; Yelowitz, 2000). Further, as the expansion of Medicaid typically leads states to increase their Medicaid income eligibility thresholds to levels higher than their SSI income eligibility thresholds, individuals close to the SSI income threshold may exist the SSI and increase their labor supply (Yelowitz, 1995). Alternatively, if there is any public discourse and increased awareness of social programs associated with the expansion of

[1] Low-income working-age adults can also access public health insurance through the Social Security Disability Insurance Program (SSDI). Specifically, SSDI beneficiaries qualify for Medicare after a 24-month waiting period. SSI and SSDI are federal disability programs administered by the Social Security Administration (SSA), have medical eligibility criteria, and provide cash payments to beneficiaries. While SSI is a means-tested program and has no prior work requirement, individuals must have a qualifying work history to be eligible for SSDI benefits (Kaiser Family Foundation, 2021; National Council on the Aging, 2020; Social Security Administration, 2006, 2021a). Given SSDI's work history criteria, SSDI beneficiaries are typical in their late 50s (Center on Budget and Policy Priorities, 2021).

[2] To be eligible for SSI, the applicant's assets and resources must be less than $2000. The SSA considers an individual disabled if they have a medically determinable physical or mental impairment that prevents their engagement in any substantial gainful activity (SGA) and can last at least 12 months or result in death (Social Security Administration, 2021b).

Medicaid programs, there could be increases in SSI enrollment. Further, the increases in healthcare access facilitated by newly available Medicaid coverage could increase opportunities for SSI disability determination and thus increase SSI participation (Government Accountability Office, 2012; Levere et al., 2019). Given that the impact of Medicaid expansion on SSI participation is theoretically unclear, an empirical examination of this relationship is needed.

Previous research that examines the impact of pre-ACA Medicaid expansions and very short-term ACA Medicaid expansions has found evidence of reductions in SSI participation among the nonelderly childless adult population after states expanded their Medicaid eligibility programs. In particular, Burns and Dague (2017) find that pre-ACA Medicaid expansions reduce SSI participation by seven percent. Using data that spanned two years after the ACA Medicaid expansions in 2014, Soni et al. (2017) find that SSI participation decline by three percent following the expansion of a state's Medicaid program. While these studies find that Medicaid expansions could lead to substitution effects away from the SSI program among childless nonelderly adults, the authors estimate this relationship using samples of the entire nonelderly adult US population and did not examine the disparities by demographic groups. However, understanding the relationship between ACA Medicaid expansions and SSI participation among young adults is important because uninsured rates have been historically highest among young adults, particularly those with disabilities (Huang & Porterfield, 2019; US Census Bureau, 2020). Further, previous ACA Medicaid expansion studies find that coverage gains from ACA Medicaid expansions were higher for younger adults than older nonelderly adults (Courtemanche et al., 2017; Wehby & Lyu, 2018) and increased insurance coverage and healthcare access for young adults with disabilities (Huang & Porterfield, 2019). Moreover, improving our understanding of the value that young adults (including former child SSI beneficiaries) place on health insurance coverage relative to SSI cash benefits is essential since the potential substitutability between the Medicaid and SSI programs could improve a young adult's labor market and savings outcomes. Further, as some young adults might participate in SSI mainly for health insurance coverage and SSI beneficiaries also receive cash benefits that lead to substantial federal government expenditures, particularly for young adults, the decoupling of Medicaid coverage could lead to cost savings in the SSI program (Levere et al., 2021; Riley & Rupp, 2015). In addition to disparities in the insurance coverage gains from the ACA Medicaid expansions by age, there are disparities in insurance rates and the ACA Medicaid coverage gains by race/ethnicity, educational attainment, and marital status

(Courtemanche et al., 2017). Thus, I also examine the impact of ACA Medicaid expansions on SSI participation by demographic characteristics.

This study contributes to the interaction of the SSI and Medicaid expansions literature by (1) estimating the longer-term impacts of the ACA Medicaid expansions on SSI participation; (2) focusing primarily on the effects among young adults given the implications of SSI participation on their future labor market, earnings, and asset accumulation decisions; and (3) examining the effects of ACA Medicaid expansions on SSI participation across different demographic groups: gender, race/ethnicity, educational attainment, and marital status. To study these relationships, I estimate two-way fixed-effects models using individual-level data on income sources from the American Community Survey (ACS) to construct a measure of SSI participation.

Findings suggest that Medicaid expansions lead to modest reductions in SSI participation among low-income childless young adults. In particular, expanding the Medicaid program reduces the probability of SSI participation by 0.16 percentage points, which is equivalent to 9.41 percent of the sample mean. The findings show that the effects on Medicaid expansions differ across demographic groups and appear to be higher for females, non-Hispanic whites, unmarried individuals, and individuals with less than high school education.

2 Data and methods

2.1 Data

To examine the effect of Affordable Care Act (ACA) Medicaid expansions on Supplemental Security Income Program (SSI) participation, I primarily use data from the American Community Survey (ACS). The ACS is an annual nationally representative survey of US households conducted by the US Bureau of Census for the Bureau of Labor Statistics (US Census Bureau, 2017). These data are well suited for this study because the ACS contains information on sources of income, geographic identifiers, as well as individual and household characteristics. Specifically, the ACS asks about income source and receipt in the previous year, including SSI benefits receipt. For this study, the main analytical sample consists of low-income childless college-aged adults, 18-25 years old, from 2011 to 2019. The study sample is restricted to adults with incomes below 100

percent of the federal poverty level (FPL) because adults with incomes of 100-138 percent of FPL in non-expansion states became eligible for Marketplace subsidies in 2014 (Soni et al., 2017). The sample excludes individuals who are not US citizens.

2.2 Methods

I use a two-way fixed-effects model to empirically test the impact of ACA Medicaid expansions on SSI participation among young adults. The identifying variation for the primary analysis comes from the within-state variation in Medicaid expansions. The basic specification that I use to isolate this effect is:

$$(1)\ Y_{ist} = \beta_0 + Expand'_{st}\,\beta_1 + X_{ist}\beta_2 + C_{st}\beta_3 + \tau_t + \gamma_s + \varepsilon_{ist}$$

where Y_{ist} is an outcome for an individual i in state s during year t. The primary outcome variable is an indicator for receiving any SSI. The variable of interest is $Expand_{st}$. $Expand_{st}$ is an indicator variable for whether the individual's state of residence has expanded its Medicaid program under the ACA in year t. In the main analysis, Medicaid expansion status is lagged by one year to allow time for changes in SSI claims. Table 1 reports the date (month and year) that a state expanded its Medicaid program. Twenty-eight states expanded their Medicaid program between 2011 and 2019, with most states expanding their program on January 1, 2014. The District of Columbia and three states (Massachusetts, New York, and Vermont) expanded their program before 2011.

X_{ist} is a vector of individual covariates - race/ethnicity, sex, educational attainment, and marital and US-born status. C_{st} is a vector of state-level covariates. Measures of state-level characteristics are included to address omitted variable bias by controlling for state time-varying socioeconomic factors that are likely to be correlated with the state's decision to expand its Medicaid program and SSI participation among young adults. Using information from the University of Kentucky Center for Poverty Research (2020), the regression controls for the unemployment rate, poverty rate, state minimum wage, maximum monthly Temporary Assistance for Needy Families (TANF) benefits for a family of four, and whether the governor is a Democrat. From the Annual Social and Economic Supplement of the Current Population Survey (ASEC-CPS), I use the state-level percentage of males, percentage of single and separated, divorced, or widowed population,

percentage of less than high school, high school, and college educated population. γ and τ are vectors of state and year fixed effects, respectively. Inclusion of the state fixed effects controls for time-invariant factors that impact the SSI participation within a state. The year fixed effects control for national secular trends in SSI participation. ε_{ist} is the error term.

I estimate regressions using unweighted linear probability models and cluster standard errors around the state and D.C. The standard errors are clustered at the state-level (Cameron & Miller, 2015).

Table 1. Medicaid expansion date

State	Medicaid expansion date
Alaska	9/1/2015
Arizona	1/1/2014
Arkansas	1/1/2014
California	1/1/2014
Colorado	1/1/2014
Connecticut	1/1/2014
Delaware	1/1/2014
DC	7/1/2010
Hawaii	1/1/2014
Illinois	1/1/2014
Indiana	2/1/2015
Iowa	1/1/2014
Kentucky	1/1/2014
Louisiana	7/1/2016
Maryland	1/1/2014
Massachusetts	1/1/2010
Michigan	4/1/2014
Minnesota	1/1/2014
Montana	1/1/2016
Nevada	1/1/2014
New Hampshire	8/15/2014
New Jersey	1/1/2014
New Mexico	1/1/2014
New York	1/1/2010
North Dakota	1/1/2014
Ohio	1/1/2014
Oregon	1/1/2014
Pennsylvania	1/1/2015
Rhode Island	1/1/2014
Vermont	1/1/2010
Washington	1/1/2014
West Virginia	1/1/2014

Notes: Medicaid expansion dates derived from Simon et al. (2016) and Maclean et al. (2017).

3 Results

3.1 Main results

Table 2 reports the descriptive statistics for the analysis sample. The means indicate that 1.7 percent of low-income childless young adults received Supplemental Security Income Program (SSI) benefits during the study period, 2011-2019. The study sample predominantly consists of individuals born in the US (96 percent) and unmarried individuals (97 percent). The sample has a slightly higher percentage of males (52 percent) and non-Hispanic whites (60 percent). About 10 percent of the sample did not complete high school and 6.2 percent completed college.

Table 3 reports the main regression results for the effect of Medicaid expansions on SSI participation. The findings show that the expansion of Medicaid eligibility reduces the probability of SSI participation by 0.16 percentage points for low-income childless young adults, which is equivalent to 9.41 percent of the sample mean. The coefficient estimate is statistically significantly different from zero at the 5 percent level.

Table 2. Summary statistics ACS: 2011-2019

Variable:	Mean/proportion
Individual received SSI benefits	0.017
Individual characteristics	
Age	20.4
Male	0.52
Female	0.48
Less than high school	0.10
High school	0.43
Some college	0.41
College	0.062
Married	0.022
Separated/divorced/widowed	0.0074
Never married	0.97
Non-Hispanic White	0.60
Non-Hispanic African American	0.16
Hispanic	0.14
Other race	0.094
U.S. born	0.96
State-level characteristics	
Unemployment rate (lagged by year)	6.55
Poverty rate (lagged by year)	13.9
Democratic governor	0.43
State minimum wage ($)	8.08
Max monthly TANF benefit t for a family of 4 ($)	535.8
Female	0.48
Hispanic	0.19
Non-Hispanic White	0.77
Non-Hispanic African American	0.14
Less than high school	0.19
High school	0.28
Some college	0.18
Married	0.40
Single	0.47
Observations	838815

Notes: The American Community Survey (ACS) 2011-2019 is the dataset. The unit of observation is an individual in a state in a year. Observations are unweighted.

Table 3. Effect of Medicaid expansions on Supplemental Security Income (SSI) program participation among young adults: 2011-2019

Outcome:	Receipt of SSI benefits
Mean:	0.017
Medicaid expansion	-0.0016**
(lagged one year)	(0.0443)
	[0.0008]
Observations	838815

Notes: The dataset is the ACS 2011-2019. Medicaid expansion status is lagged one year. The unit of observation is an individual in a state in a year. Data are unweighted. All models estimated with a linear probability model and control for individual characteristics (age, gender, marital status, race/ethnicity, educational attainment, and born in the US) and time-varying state characteristics (lagged unemployment rate and proportions of female, Hispanic, Whites, African Americans, married, single, less than high school, high school, and some college education), and state-by-year fixed effects. 95 percent confidence intervals incorporate within-state clustering. *P*-values are reported in brackets and standard errors are reported in square brackets. ***, **, * = statistically different from zero at the 1%,5%,10% level.

3.3 Internal validity

An important potential threat to the empirical strategy in this study is reverse causality. Put differently, SSI participation could influence states' decisions to expand Medicaid eligibility. If true, the estimated "β_1" in Equation 1 would be biased due to reverse causality. In order to test for policy endogeneity in the expansion of Medicaid policies, the pattern of lead and lag effects of the policy is examined in an event study (Autor, 2003). That is, Equation 1 is re-estimated with the inclusion of a series of dummies coding the year of Medicaid expansion and one to three years of both pre- and post-Medicaid expansion. Policy endogeneity is not a concern if the coefficients of the policy leads are statistically insignificant from zero. The use of policy lags allows me to examine the policy dynamics. Table 4 reports the results from the event study model and shows the estimated coefficients and their associated 95 percent confidence intervals that account for within-state clustering for each lead or lag. The results show that all the estimated coefficients for the leads are not statistically distinguishable from zero. These findings provide suggestive evidence of the absence of policy endogeneity. However, the estimated coefficients for the lags are also statistically insignificant. The change in precision could be due to models with leads and lags being data hungry.

Table 4. Effect of Medicaid expansions on Supplemental Security Income (SSI) program participation among young adults using a distributed lag model: 2011-2019

Outcome:	Receipt of SSI benefits
Mean:	0.017
Two year lead in Medicaid expansions	-0.0006
	(0.7215)
	[0.0017]
One year lead in Medicaid expansions	0.0010
	(0.4507)
	[0.0013]
Contemporaneous Medicaid expansions	-0.0005
	(0.6773)
	[0.0013]
One year lag in Medicaid expansions	-0.0011
	(0.4624)
	[0.0015]
Two year lag in Medicaid expansions	0.0007
	(0.5882)
	[0.0013]
Three year lag in Medicaid expansions	-0.0001
	(0.9372)
	[0.0011]
Observations	752448

Notes: The dataset is the ACS 2011-2019. The unit of observation is an individual in a state in a year. Data are unweighted. All models estimated with a linear probability model and control for individual characteristics (age, gender, marital status, race/ethnicity, educational attainment, and born in the US) and time-varying state characteristics (lagged unemployment rate and proportions of female, Hispanic, Whites, African Americans, married, single, less than high school, high school, and some college education), state fixed effects, and year fixed effects. The reference period is three years lead. 95 percent confidence intervals incorporate within-state clustering. *P*-values are reported in brackets and standard errors are reported in square brackets. ***, **, * = statistically different from zero at the 1%,5%,10% level.

3.2 Heterogeneity

Given that there are established differences in insurance coverage gains due to Medicaid expansions (Courtemanche et al., 2017), next, I explore whether there is heterogeneity in the effect of Medicaid expansions across gender, race/ethnicity, marital status, and educational attainment. To examine these effects, the regression controls for interactions between Medicaid expansion status and demographic characteristics. Results suggest that unmarried individuals reduce their SSI participation by 10 percent following the expansion of a state's Medicaid program (Table 5). However, married individuals are likely to increase their SSI participation. Table 6 reports the impact of Medicaid expansions across racial/ethnicity groups (non-Hispanic white versus other racial/ethnic groups). The findings show no statistically significant evidence that Medicaid expansions differentially impact SSI participation across race/ethnicity. Results also suggest that

the impact of Medicaid expansions on SSI participation does not differ by educational attainment (Table 7) and gender (Table 8).

Table 5. Effect of Medicaid expansions on Supplemental Security Income (SSI) program participation among young adults, by marital status (married versus single, separated, or widowed): 2011-2019

Outcome:	**Receipt of SSI benefits**
Mean:	0.017
Medicaid expansion	-0.0017**
	(0.0327)
	[0.0008]
Medicaid expansion*Married	0.0052**
	(0.0125)
	[0.0020]
Observations	838815

Notes: The dataset is the ACS 2011-2019. The unit of observation is an individual in a state in a year. Data are unweighted. All models estimated with a linear probability model and control for individual characteristics (age, gender, marital status, race/ethnicity, educational attainment, and born in the US) and time-varying state characteristics (lagged unemployment rate and proportions of female, Hispanic, Whites, African Americans, married, single, less than high school, high school, and some college education), state fixed effects, and year fixed effects. 95 percent confidence intervals incorporate within-state clustering. *P*-values are reported in brackets and standard errors are reported in square brackets. ***, **, * = statistically different from zero at the 1%,5%,10% level.

Table 6. Effect of Medicaid expansions on Supplemental Security Income (SSI) program participation among young adults, by race/ethnicity (Non-Hispanic White versus Hispanic, Non-Hispanic African American, and other race): 2011-2019

Outcome:	**Receipt of SSI benefits**
Mean:	0.017
Medicaid expansion	-0.0019
	(0.1116)
	[0.0012]
Medicaid expansion*White	0.0004
	(0.6822)
	[0.0010]
Observations	838815

Notes: The dataset is the ACS 2011-2019. The unit of observation is an individual in a state in a year. Data are unweighted. All models estimated with a linear probability model and control for individual characteristics (age, gender, marital status, race/ethnicity, educational attainment, and born in the US) and time-varying state characteristics (lagged unemployment rate and proportions of female, Hispanic, Whites, African Americans, married, single, less than high school, high school, and some college education), state fixed effects, and year fixed effects. 95 percent confidence intervals incorporate within-state clustering. *P*-values are reported in brackets and standard errors are reported in square brackets. ***, **, * = statistically different from zero at the 1%,5%,10% level.

Table 7. Effect of Medicaid expansions on Supplemental Security Income (SSI) program participation among young adults, by educational attainment: 2011-2019

Educational attainment:	Less than high school	High school	Some college	College
Mean:	0.017	0.017	0.017	0.017
Medicaid expansion	-0.0021	-0.0015*	-0.0009	-0.0016**
	(0.1106)	(0.0624)	(0.3710)	(0.0306)
	[0.0013]	[0.0008]	[0.0010]	[0.0007]
Medicaid expansion*	0.0058	-0.0003	-0.0017	0.0001
Educational attainment	(0.5255)	(0.7867)	(0.4478)	(0.9754)
	[0.0091]	[0.0010]	[0.0022]	[0.0025]
Observations	838815	838815	838815	838815

Notes: The dataset is the ACS 2011-2019. The unit of observation is an individual in a state in a year. Data are unweighted. All models estimated with a linear probability model and control for individual characteristics (age, gender, marital status, race/ethnicity, educational attainment, and born in the US) and time-varying state characteristics (lagged unemployment rate and proportions of female, Hispanic, Whites, African Americans, married, single, less than high school, high school, and some college education), state fixed effects, and year fixed effects. 95 percent confidence intervals incorporate within-state clustering. *P*-values are reported in brackets and standard errors are reported in square brackets. ***, **, * = statistically different from zero at the 1%,5%,10% level.

Table 8. Effect of Medicaid expansions on Supplemental Security Income (SSI) program participation among young adults, by gender (female versus male): 2011-2019

Outcome:	Receipt of SSI benefits
Mean:	0.017
Medicaid expansion	-0.0003
	(0.6891)
	[0.0008]
Medicaid expansion*Female	-0.0027**
	(0.0148)
	[0.0011]
Observations	838815

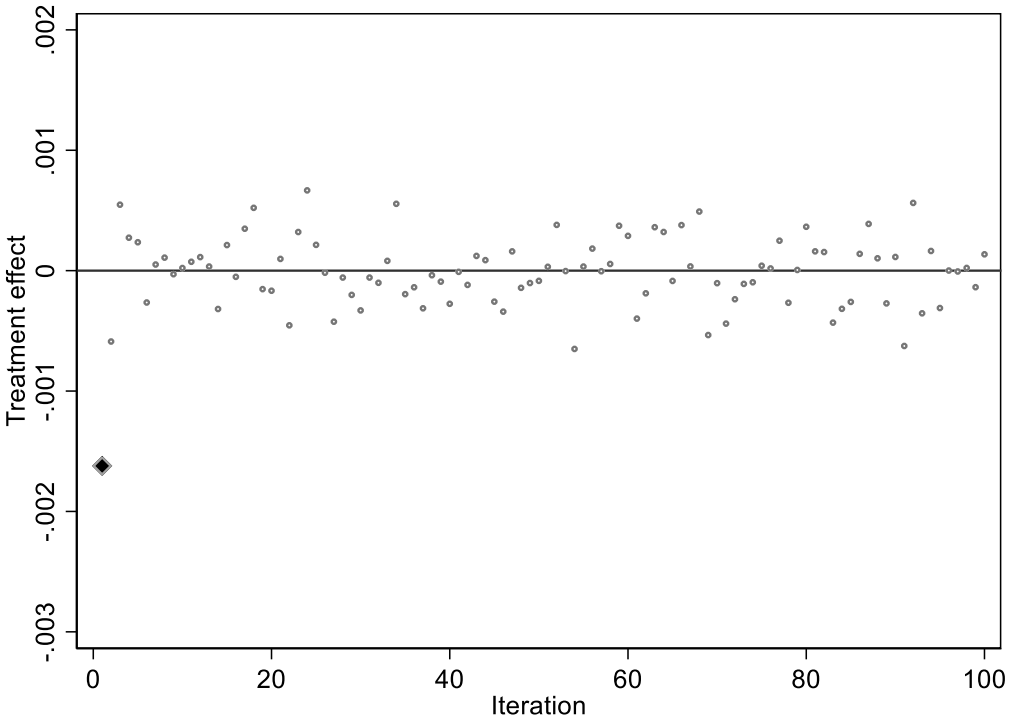
Notes: The dataset is the ACS 2011-2019. The unit of observation is an individual in a state in a year. Data are unweighted. All models estimated with a linear probability model and control for individual characteristics (age, gender, marital status, race/ethnicity, educational attainment, and born in the US) and time-varying state characteristics (lagged unemployment rate and proportions of female, Hispanic, Whites, African Americans, married, single, less than high school, high school, and some college education), state fixed effects, and year fixed effects. 95 percent confidence intervals incorporate within-state clustering. *P*-values are reported in brackets and standard errors are reported in square brackets. ***, **, * = statistically different from zero at the 1%,5%,10% level.

3.4 Sensitivity analysis and extensions

I perform an analysis with placebo laws to further test the validity of the two-way fixed effect design. Specifically, I conduct a falsification exercise to ensure that I am not erroneously attributing Medicaid expansion effects to some other variable that follows the same evolution across US states. To do so, I randomly assign the Medicaid expansion variable across states and

re-estimate Equation 1 100 times, generating 'placebo estimates.' The main estimate is expected to be an outlier relative to all placebo effects if the main specification, Equation 1 captures the 'true' effect of Medicaid expansion. Results are reported in Figure 1. The main estimate is an outlier to the placebo estimates, and the placebo exercise suggests that the main estimate is not capturing the effect of some other factor or policy. Thus, these regressions provide further support to the validity of the two-way fixed-effects design.

Figure 1. Falsification Test



As an additional falsification test, I examine the impact of Medicaid expansions on SSI participation among young adults who are eligible for SSI if they are disabled and unlikely to benefit from Medicaid expansions. In particular, the analysis includes a sample of young childless adults with incomes above 150 percent of the FPL. Results are reported in Table 9 and show that the estimated coefficients are not statistically distinguishable from zero.

Table 9. Effect of Medicaid expansions on Supplemental Security Income (SSI) program participation among young adults, with income above 150% of FPL: 2011-2019

Outcome:	Receipt of SSI benefits
Mean:	0.018
Medicaid expansion	0.0001
(lagged one year)	(0.8518)
	[0.0004]
Observations	1,399,125

Notes: The dataset is the ACS 2011-2019. Medicaid expansion status is lagged one year. The unit of observation is an individual in a state in a year. Data are unweighted. All models estimated with a linear probability model and control for individual characteristics (age, gender, marital status, race/ethnicity, educational attainment, and born in the US) and time-varying state characteristics (lagged unemployment rate and proportions of female, Hispanic, Whites, African Americans, married, single, less than high school, high school, and some college education), and state-by-year fixed effects. 95 percent confidence intervals incorporate within-state clustering. *P*-values are reported in brackets and standard errors are reported in square brackets. ***, **, * = statistically different from zero at the 1%,5%,10% level.

Next, I report the results of alternative model specifications: inclusion of state-by-year fixed effects and alternative coding of the Medicaid expansion variable. First, given that there could be unobserved time-varying state-level factors that influence SSI participation and a state's decision to expand its Medicaid program, the regression includes state-by-fixed effects to examine the validity of my findings. Specifically, state-by-year fixed effects replace the state-level controls and year and state fixed effects. The inclusion of the state-by-year fixed effects controls for national changes in SSI participation and socioeconomic factors that influence SSI participation. The state-by-year fixed effects also account for state-specific shocks, such as changes in housing assistance programs that may impact the demand for SSI. Results are reported in Table 10 and are similar to the main estimates. Second, as Medicaid expansions could have an immediate or a delayed impact on SSI participation, I examine the contemporaneous and two-year lagged effects of the Medicaid expansions. I find no evidence that Medicaid expansions have an immediate impact on SSI participation (Table 11). This finding suggests that Medicaid expansions do not influence individuals' decisions to claim SSI benefits in the year a state expands its Medicaid program. Further, as there is no evidence Medicaid expansions influence SSI participation two years after a state expands its Medicaid program (Table 12), substitution from the SSI program may be temporary.

Table 10. Effect of Medicaid expansions on Supplemental Security Income (SSI) program participation among young adults, inclusion of state-by-year fixed effects: 2011-2019

Outcome:	Receipt of SSI benefits
Mean:	0.017
Medicaid expansion (lagged one year)	-0.0015* (0.0618) [0.0008]
Observations	838815

Notes: The dataset is the ACS 2011-2019. Medicaid expansion status is lagged one year. The unit of observation is an individual in a state in a year. Data are unweighted. All models estimated with a linear probability model and control for individual characteristics (age, gender, marital status, race/ethnicity, educational attainment, and born in the US) and time-varying state characteristics (lagged unemployment rate and proportions of female, Hispanic, Whites, African Americans, married, single, less than high school, high school, and some college education), and state-by-year fixed effects. 95 percent confidence intervals incorporate within-state clustering. *P*-values are reported in brackets and standard errors are reported in square brackets. ***, **, * = statistically different from zero at the 1%,5%,10% level.

Table 11. Effect of Medicaid expansions on Supplemental Security Income (SSI) program participation among young adults: 2011-2019

Outcome:	Receipt of SSI benefits
Mean:	0.017
Medicaid expansion (current year)	-0.0013 (0.1118) [0.0008]
Observations	838815

Notes: The dataset is the ACS 2011-2019. Medicaid expansion status is lagged one year. The unit of observation is an individual in a state in a year. Data are unweighted. All models estimated with a linear probability model and control for individual characteristics (age, gender, marital status, race/ethnicity, educational attainment, and born in the US) and time-varying state characteristics (lagged unemployment rate and proportions of female, Hispanic, Whites, African Americans, married, single, less than high school, high school, and some college education), and state-by-year fixed effects. 95 percent confidence intervals incorporate within-state clustering. *P*-values are reported in brackets and standard errors are reported in square brackets. ***, **, * = statistically different from zero at the 1%,5%,10% level.

Table 12. Effect of Medicaid expansions on Supplemental Security Income (SSI) program participation among young adults: 2011-2019

Outcome:	Receipt of SSI benefits
Mean:	0.017
Medicaid expansion	-0.0010
(lagged two years)	(0.1538)
	[0.0007]
Observations	838815

Notes: The dataset is the ACS 2011-2019. Medicaid expansion status is lagged one year. The unit of observation is an individual in a state in a year. Data are unweighted. All models estimated with a linear probability model and control for individual characteristics (age, gender, marital status, race/ethnicity, educational attainment, and born in the US) and time-varying state characteristics (lagged unemployment rate and proportions of female, Hispanic, Whites, African Americans, married, single, less than high school, high school, and some college education), and state-by-year fixed effects. 95 percent confidence intervals incorporate within-state clustering. *P*-values are reported in brackets and standard errors are reported in square brackets. ***, **, * = statistically different from zero at the 1%,5%,10% level.

4 Discussion and conclusion

Before the Affordable Care Act (ACA), low-income, non-disabled, childless adults were primarily eligible for Medicaid through the Supplemental Security Income Program (SSI). However, the ACA Medicaid expansions provided low-income, non-disabled, childless adults with an opportunity to increase earnings and savings without jeopardizing health insurance coverage. This additional pathway to receiving health insurance may decrease SSI participation if it reduces the transaction costs associated with obtaining Medicaid and decreases the relative value of an SSI award. Indeed, previous research finds that the pre-ACA Medicaid expansions and very short-term Medicaid expansions due to the ACA reduce SSI participation among low-income childless adults (Soni et al. 2017; Burns and Dague 2017). Given that uninsured rates have been historically highest among young adults and there are disparities in the coverage gains from the ACA Medicaid expansions by age, race/ethnicity, educational attainment, marital status, and household characteristics (Courtemanche et al. 2017), this study explores the effects of the ACA Medicaid expansions on SSI participation among young adults across demographic groups.

The main findings suggest that Medicaid expansions modestly reduce SSI participation among young adults. The results of this analysis are similar to Burns and Dague (2017). The effects of Medicaid expansions on SSI participation differ across demographic groups and appear to be higher among unmarried young adults. The findings also suggest that the substitution away from the SSI program following Medicaid expansions is temporary.

The study findings should be considered in light of some limitations. (i) The American Community Survey (ACS) data do not include information on SSI applications. Thus, I cannot explore the impact of ACA Medicaid expansions on the decision to apply to the SSI program. (ii) Information provided by respondents in the ACS may suffer from reporting errors, which can bias my regression coefficients. (iii) The cross-sectional nature of the ACS does not allow for the examination of individuals' SSI participation over time. Thus, this study cannot explore the impact of ACA Medicaid expansions on individuals who were child SSI beneficiaries. To better examine such effects, future research should utilize the restricted Social Security Administrative data. (iv) Given that recent two-way fixed-effects literature has highlighted potential bias in estimates from two-fixed-effects strategies, future work should conduct additional sensitivity analyses to examine the robustness of the results in this study (Callaway & Sant'Anna, 2020; de Chaisemartin & D'Haultfœuille, 2020; Goodman-Bacon, 2021; Sun & Abraham, 2020). Despite these limitations, the findings of this study provide new evidence of the impact of Medicaid expansions on SSI participation among young adults across demographic groups, and these findings are important for understanding the value of access to health insurance coverage independent of SSI eligibility.

The findings suggest that separating Medicaid eligibility from SSI eligibility might reduce the net SSI program costs and increase human capital and savings over the long term for young adults. Since literature has shown that Medicaid expansions increased access to healthcare and improved health (Dworsky & Eibner, 2016; Simon et al., 2016), this study finding also suggests that the SSA Ticket to Work programs could increase the labor force participation among low-income SSI participants on the margin of disability when they become healthier (Social Security Administration, 2021c). Given the impact and costs of the Medicaid and SSI programs, understanding the factors that could improve their efficiency and interaction is important for policymakers.

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