How Does Losing Health Insurance Affect Disability Claims? Evidence from the Affordable Care Act's Dependent Care Mandate[*,†]

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Abstract

We estimate the impacts of losing access to parental health insurance on Supplemental Security Income (SSI) participation, focusing on the age-26 limit for dependent coverage. We analyze the age pattern of SSI claims to develop counterfactual predictions that assume no change in access to insurance. Relative to this prediction, we find a 3.4 percent spike in SSI applications in the months immediately surrounding the 26th birthday, along with a slightly smaller increase in awards. These claims are primarily motivated by losing coverage; there might be more direct ways to address unmet insurance needs without also increasing reliance on cash payments.

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1 Introduction

Health insurance helps protect people from significant financial harm when they experience adverse health shocks. For people with disabilities, whose health care can be particularly expensive, obtaining insurance may be especially desirable. Because people with disabilities are much less likely to be employed than the overall population (Houtenville et al. 2009), they are less likely to have employer-sponsored health insurance (Hill and Schimmel Hyde 2019).

One potential path to coverage in the United States is through disability benefits programs, which offer a safety net for people with medical conditions but might also have the unintended consequence of eroding human capital. Nearly all Supplemental Security Income (SSI) recipients qualify for Medicaid, and Social Security Disability Insurance (SSDI) beneficiaries qualify for Medicare (after a two year waiting period). Both programs also offer monthly cash payments. Some evidence suggests that health insurance is a motivating factor in applications to these programs for some people with disabilities, as discussed below. However, disability benefits programs also have work disincentives, as beneficiaries with sufficiently high earnings eventually lose eligibility. The receipt of benefits, and even the application process itself, can reduce earnings and employment (Maestas et al. 2013, Gelber et al. 2017, Autor et al. 2015, Levere 2019).

In this paper, we assessed whether access to health insurance among young adults affects their applications and awards for SSI. This group might be particularly important to consider because of their long potential horizons for collecting disability benefits or working. For example, Riley and Rupp (2015) estimated average lifetime government expenditures of over $650,000 (adjusted to 2019 dollars) among 18- to 30-year-olds who were newly awarded an SSI or SSDI entitlement, more than double the average expenditures across all new awardees. Almost two-thirds of that amount was tied to Medicaid and Medicare expenditures. The potential to receive benefits for so long means that young adults also may experience the most substantial losses in human capital as a result of the programs' work disincentives (Levere 2019).

We focused specifically on how SSI claims change when young adults no longer qualify as dependents on a parent's health insurance plan. Under a provision of the Patient Protection and Affordable Care Act of 2010 (ACA), young adults can remain covered as dependents until age 26. Other studies of this ACA provision have shown that losing access to dependent coverage through a parent's plan resulted in a modest decrease in health insurance rates among young adults as they reach age 26 (Antwi et al. 2013; Dillender 2015). We hypothesized that this loss of access to health insurance could increase SSI applications for young adults with disabilities. If an increase in SSI applications directly coincides with the loss of access to health insurance, it would suggest that health insurance affected disability benefit claims. Of course, other provisions of the ACA also affected the availability of health insurance more broadly; we consider in particular how the ACA's Medicaid expansions mediated this effect.

We found that the loss of access to parental health insurance at age 26 is associated with modest but statistically significant spikes in SSI applications and awards around that age. Using administrative count data by state, year, and age in months, we estimated the rate of "excess" applications submitted and awards made in a narrow response window around age 26[1] that we can attribute to the potential loss of parental health insurance; the "excess" is the amount beyond a prediction based on claims activity at surrounding ages. Our preferred specification indicates that applications increased by more than 3 percent, and awards increased by about 2.5 percent, relative to the predicted level in the absence of the age-26 provision. Further supporting the hypothesis that losing access to insurance increases SSI participation, we found similar results when we looked at dependent-care age thresholds that were in effect in various states before the ACA's age-26 provision took effect nationwide. We also found no evidence of excess applications or awards around age 26 during the pre-ACA period, and our results are robust to a variety of specification checks. Finally, our results suggest that the ACA's Medicaid expansions reduced the extent of excess SSI applications around age 26, consistent with the availability of alternative sources of coverage reducing health insurance-motivated disability benefit claims.

The spike at age 26 implies that SSI is not the first choice for some beneficiaries who are looking for health insurance. Even while covered under a parent's plan, young adults could still apply for SSI to start receiving cash payments. The fact that many apparently wait to apply until they lose that coverage suggests that health insurance is a driving factor in their decision to seek benefits. However, SSI eligibility rules disincentivize work, which can lead to a poverty trap of sorts (Stapleton et al. 2006). Providing additional stand-alone options for health insurance to young adults might better meet their need for help in managing the costs of a disabling condition, while increasing their self-sufficiency.

Our paper makes two key contributions to the literature showing that health insurance expansions reduce participation in disability benefits programs (e.g., Burns and Dague 2017; Levere et al. 2019; Yelowitz 2000). First, prior studies focus on public health insurance coverage, but we looked at whether changes in *private* coverage are similarly important. Young adults who are covered through their parents' plans most likely have private, employer-sponsored health insurance.[2] The substitutability between SSI and health insurance may depend on whether the alternative source of coverage is private or public, which may vary in the types of services covered and the quality of care. Together with the prior literature, our results indicate that greater public and private coverage can reduce participation in disability benefit programs. Second, we explored the effects of *losing* coverage rather than the effects of gaining coverage, as considered by most past research. The impacts of gaining and losing health coverage may be asymmetric—those who lose coverage may have acquired a preference for coverage, achieved improved work or personal outcomes because of the previous coverage, and be more motivated to maintain it.

2 Institutional context

SSI offers monthly cash benefits and (in most states) Medicaid coverage immediately after enrollment for low-income people with significant disabilities. In 2017, about 366,000 people ages 18 to 34 applied for SSI, and about 106,000 received an award (Social Security

[1] Our main specification is based on a five-month response window, corresponding to ages 25 and 9 months through 26 and 1 month. For more details, see Section 4.

[2] Among those with health insurance, more than half are covered through their employer (Kaiser Family Foundation 2018).

Administration 2018). Means testing for young adults 18 and older is based solely on their own (and potentially a spouse's) earnings and assets and does not account for their parents' earnings or assets. SSI participants with disabilities may work, in which case their monthly benefits are generally reduced by $1 for every $2 in earned income above a modest disregard amount of up to $85.

The ACA, passed in March 2010, sought to make health insurance available more broadly. The first key provision of the ACA to go into effect, in September 2010, allowed young adults to maintain dependent-care coverage on a parent's health insurance plan until age 26.[3] Before the ACA, dependent-care coverage was typically offered to all young adults until age 19, or until age 23 for full-time students. However, some states had policies that extended dependent coverage to different ages (Dillender 2014). Under the ACA's new rule, anyone who had previously aged out of dependent-care coverage but had not yet reached age 26 was eligible to return to parental coverage.

In 2014, three other key provisions broadening the availability of health insurance took effect. First, the federal government offered funding to encourage states to expand Medicaid to adults with incomes below 138 percent of the federal poverty limit. Second, health insurance exchanges offering individual coverage opened, potentially with a subsidy for people with modest incomes. Third, insurance companies could no longer deny coverage or charge higher premiums for people with pre-existing conditions.

Increased access to health insurance, either through private carriers or Medicaid, could reduce the incentive to apply for SSI. Studies have generally shown that expanding health insurance reduced participation in disability benefit programs (Levere et al. 2019; Burns and Dague 2017; Maestas et al. 2014; Yelowitz 2000). The notable exception is studies that focus on the effects of the ACA Medicaid expansions, which showed mixed effects (Anand et al. 2019; Chatterji and Li 2017; Gouskova 2016; Soni et al. 2017; Schmidt et al. 2019). However, unlike studies that consider the effects of earlier expansions, those that focus on the ACA Medicaid expansions tend to base their estimates on variation across states in whether that state expanded, an endogenous policy decision that could introduce bias into the results.

Conversely, losing access to parental health insurance could increase SSI participation among young adults. This increase, which would occur around age 26, could be the result of two types of changes. First, some people who may have applied at younger ages could decide to delay their application until they lose insurance at age 26. Second, some people may apply for SSI who would not have applied without the age-26 provision. For example, with the ACA's age-26 provision, some young adults with disabilities might be able to better manage their disability given access to care covered by insurance. This could lead to a stronger preference to maintain health insurance, thus driving them to apply for SSI when they lose access at age 26.

[3] The age-26 rule applies to group-plan or individual-policy years beginning on or after September 23, 2010. Parental health coverage ceases for most young adults at the end of the month when they turn 26. An exception is for the small share of young adults whose parents' insurance plan was purchased through an ACA exchange; they may remain covered through the end of the calendar year. For this population, the loss in insurance occurs after turning 26, which attenuates the discontinuity in coverage directly around one's birthday.

Additionally, other young adults might be more likely to be diagnosed with a new disability through health care covered by insurance in their early 20s.

We therefore expected the percentage of people applying for and being awarded SSI benefits to increase around age 26, compared to older and younger ages, starting in 2010 when the new provision took effect. These changes in application behavior would have been driven by young adults with disabilities who have limited capacity for work and whose families could afford health insurance. Particularly before the ACA health care exchanges opened in 2014, these young adults would likely be from families with relatively higher incomes, but their own income and assets would need to be low enough to qualify for SSI. (Means testing for young adults 18 and older does not account for their parents' earnings or assets.) In the general population, Dillender (2015) found a decrease of 9 percentage points in the share of people covered by employer-sponsored health insurance at age 26. However, we do not know how many of those who lost health insurance at age 26 might also have a disability and ultimately qualify for SSI. This ultimately is an empirical question that we address below through our analysis.

All else the same, we might have expected the spike in SSI claims to grow larger over time as young adults maintained parental health insurance for longer periods of time, but other important secular changes could have dampened this potential increase. Young adults turning 26 in 2011 would have had access to parental coverage under the ACA rule for only one year, but would have lost coverage through their parents as many as five years prior.[4] Many of these youth might therefore have already established SSI awards to maintain coverage before 2010. Absent any other changes, the spike in applications at age 26 might have increased over time—as subsequent cohorts reaching age 26 experienced progressively smaller gaps in coverage before the ACA provision went into effect. If health insurance was a key factor in SSI applications, fewer people in these later cohorts would have already sought health insurance through SSI before age 26 because of the relatively shorter lapse in coverage.[5] However, in practice, two major changes after 2010 could have offset or reversed this age-related increase. First, the ACA's provisions related to Medicaid expansions and the insurance exchanges went into effect in 2014; these additional routes to health insurance might have lessened the extent to which young adults turned to SSI at age 26. Second, as the economy improved after the recession, SSI applications and awards declined substantially (Social Security Administration 2018).

Our analysis of patterns around age 26 may provide important insights into how disability claims are related to health insurance, but our results cannot speak to how the age-26 provision affected SSI applications and awards as a whole. Though applications may increase at age 26 relative to other ages, some people who delay applying may avoid applying altogether if they find jobs while on their parents' insurance, potentially because they did not face the work disincentives associated with SSI. Before the ACA, young adults seeking SSI primarily for the Medicaid coverage would have needed to remain jobless or maintain low earnings given SSI's

[4] Five years corresponds to age 19, although it could have been a shorter time if the person was a full-time student.

[5] Though in principle the pre-ACA age-19 threshold for parental coverage could represent another opportunity to identify similar excess applications associated with the loss of coverage, in practice other factors influence applications around age-19. Applications are substantially higher for 18 and 19 year olds due to changes in eligibility rules: the definitions of disability for adults (ages 18 and older) and youth (younger than 18) are different, and parental income and resources no longer count for adults.

work rules. With the age-26 provision, young adults with disabilities could have tried to work while being assured health insurance as a dependent through their parents' plan. If they were able to find employment during this period, they may have been able to avoid applying for benefits. Additionally, health insurance coverage has been shown to improve overall health (Sommers et al. 2017), which might also lead to reductions over time in the share of young adults who apply once they reach age 26, while other health insurance dynamics (discussed earlier) may have led some people to apply who would not have done so otherwise. But measuring this compositional shift in total applicants is beyond the scope of this paper. The Great Recession, which overlaps with the period immediately following ACA implementation, had a substantial impact on disability program participation (Maestas et al. 2018), and so identifying these temporal changes in total participation is challenging. Future research could attempt to further disentangle whether offering dependent-care coverage induces some people to avoid SSI who otherwise would have applied.

3 Data

We obtained annual counts of SSI applications and awards covering the period of 2005 to 2016 from the Social Security Administration's (SSA) Supplemental Security Record, aggregated by state and age in months. We grouped some small states together to avoid having data reported as missing because of SSA's rules for mitigating disclosure risks arising from small cells.[6] Age and year are measured as of the date of the application for both applications and awards. We therefore identified awards by the age someone was when he or she applied, rather than when the award was made. This approach accounts for the fact that the duration of the application process varies (Autor et al. 2015). Though people may choose when to apply in anticipation of losing insurance at age 26—and thus attempt to receive an award at 26—they cannot control exactly when the award occurs.

We obtained annual population estimates by state and single year of age from the U.S. Census Bureau, dividing these estimates by 12 to produce an annualized approximation of the count of people by state and age in months.[7] We took the ratio of SSI application and award counts to the population for each age/state-group/year cell to obtain the annualized rate of applications and awards for each cell (in percentage points). In the remainder of this paper, we refer to these annualized measures simply as "applications" and "awards."

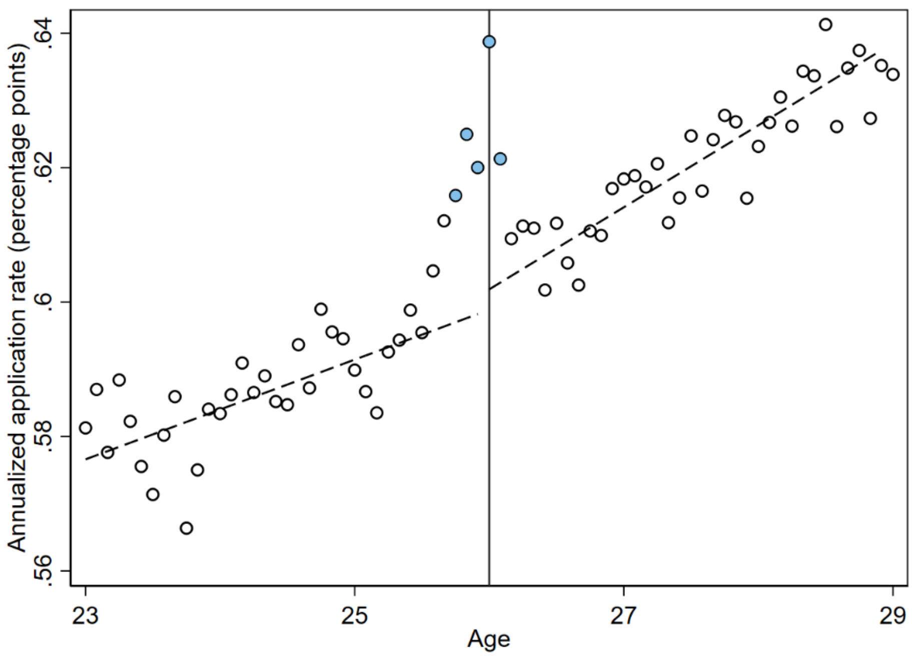
As an illustrative example of our data, applications after the age-26 rule took effect appear to increase around age 26 compared with slightly younger or older ages (Figure 1). These increases represent excess applications that are attributable to the loss of parental health insurance. Each data point in Figure 1 shows the average annualized application rate at a given

[6] We grouped states together that were similar in terms of whether the state expanded Medicaid, whether the state had any additional criteria needed to qualify for Medicaid after an SSI award, and, where possible, geography. Cells with insufficient sample size are considered a disclosure risk and are reported as missing. After we grouped the states, 0.05 percent of cells had missing data for applications, and 0.17 percent had missing data for awards. See Appendix Table A5 for the state groupings.

[7] Though the population is not evenly distributed across months of age as of a given point in time (for example, more people would be born in months that have 31 days than in February), our measures of applications and awards are as of any point throughout the year. We assume that the distribution of timing of the submitted applications is uniform across the whole year, so simply dividing by 12 is a fair approximation.

age, measured in months, over six full calendar years (2011 through 2016). (We calculated the age-specific rate by taking a population-weighted average across states within a year and a simple average across years.) Applications around age 26 appear to differ notably from counterfactual predictions based on application trends at older and younger ages (indicated by the dashed lines). Appendix Figure A1 shows that from 2005 to 2009, before the age-26 rule took effect, there were no differences in application rates in the months surrounding age 26 compared to nearby ages.

Figure 1. Average annualized SSI applications by age, 2011–2016



Note: The circles show the national percentage of people at each age, measured in months, submitting SSI applications. The data are adjusted to remove month-after-birthday effects; see footnote 7 for more details. Unadjusted data are shown in Appendix Figure A2. The two lines are trends fit separately below and above age 26, excluding the window from age 25 and 9 months to age 26 and 1 month (signified by the blue points).

We did not conduct a similar analysis of young adult participation in SSDI, which also offers cash benefits and, after a 24-month waiting period, Medicare coverage to people with disabilities who have a work history. Our analysis framework (described below) is unlikely to produce reliable estimates of impacts on SSDI participation because of the waiting period for Medicare.[8] However, because more than 80 percent of SSA disability program participants ages

[8] The Medicare waiting period may result in "anticipatory" SSDI applications that are spread out over several years before young adults lose parental health insurance at age 26. However, as discussed below, we identified the effect of losing parental health insurance based on changes in applications and award rates over a relatively narrow range of monthly ages near 26. A similar approach to analyze impacts on SSDI outcomes focusing only on the range of ages near 26 would therefore likely underestimate the true impact of losing parental insurance.

18 to 29 receive SSI, our results should still measure policy-relevant effects, though they may understate the total impacts of losing parental health insurance on disability benefit claims.

4 Empirical strategy

To determine whether losing health insurance affects SSI applications and awards, we used young adults aging out of eligibility for parental health insurance as an exogenous source of variation in health insurance coverage. Our approach formalizes the framework in Figure 1. Our model estimated the reduced form effect of losing access to insurance on excess SSI applications and awards around age 26 by first predicting counterfactual SSI outcomes in a narrow response window around age 26 and then comparing observed SSI outcomes to this counterfactual.

Taking applications as an example, we first fit trends on either side of age 26 using the observed SSI applications by age in months, excluding a response window around age 26 where applications may be affected. We then extended the trends into the response window to predict what applications would be if they had the same relationship with age for people slightly younger and older than 26. Finally, we calculated excess applications as the mean deviation between observed and predicted applications within the response window.[9] We use the same approach for awards as well.

In practice, these steps occur simultaneously in the following regression model using age/state-group/year data, weighting each cell by its population size:

[1] $$R_{ast} = I(a < 26)(\mu_0 + \gamma_0 a) + I(a \geq 26)(\mu_1 + \gamma_1 a) + I_{a\in RW}\delta + \theta_s + \theta_t + \varepsilon_{ast},$$

where R_{ast} is the annualized rate of applications or awards at age a (measured in months) for state-group s in year t, and $I(\cdot)$ and $\mu_{.} + \gamma_{.}a$ together represent trend lines with separate slopes and intercepts (which subsume the regression's constant) for ages below or above 26. θ_s and θ_t capture state and year fixed effects. ε_{ast} is an error term that we assume is clustered by state.

The coefficient of interest, δ, measures deviations between actual applications or awards and the trend-based component of the regression within a response window of a given group of ages a surrounding age 26. In the context of Figure 1, this coefficient measures the average gap at those ages between the blue points (actual applications) and the dashed lines (predicted applications). Our main impact is based on a response window size of five months, as discussed below. A positive coefficient for δ would indicate excess applications. The coefficient measures an intent-to-treat effect of removing access to parental health insurance at age 26 on disability claims outcomes. It does not explicitly measure the impact of losing health insurance – given our data, we cannot estimate a first-stage effect of the age-26 provision on the change in health insurance coverage for the population applying for SSI, which would be necessary to measure

[9] Based on our initial work with the data, we also used month-after-birthday indicators—indicators for all people who apply in the first month after their birthday, all who apply in the second month after their birthday, and so on—to account for a strong seasonal-like pattern in SSI applications by age. We first estimated a similar model using a response window of 12 months that also includes these month-after-birthday indicators. We used the predicted coefficients on the month-after-birthday indicators to adjust the outcome variable. We then estimated the regression a second time to get the final impact estimates. Though we prefer this specification, Appendix Table A3 shows that our results are similar when these month-after-birthday fixed effects are excluded.

treatment-on-treated effects. The magnitude of this intent-to-treat effect is dictated by the share of 26 year olds who both have access to parental health insurance and believe they could qualify for SSI, as discussed in Section 2.

We used data from a 60-month bandwidth of ages around 26 to estimate the regression, which implied a potential sample size of 15,120 for applications and 11,520 for awards given the state groupings and six years of data. To demonstrate the robustness of our results, we also considered how our findings would change if we varied the bandwidth, used quadratic instead of linear age trends, and required the trend lines to have equal slopes above and below age 26. We also estimated the counterfactual trend using only data for people older than 26, extending the trend down into the response window. This specification could be more robust to young adults who delayed applying until they lost their insurance at age 26; such delays could affect the relationship between age and applications for people younger than age 26, which would threaten the validity of the counterfactual predictions. Sample sizes differed for specifications that varied the bandwidth or based the counterfactual prediction on people older than 26, as shown in Appendix Tables A1 and A2.

Excess applications could occur throughout a response window around age 26, rather than happening exactly at that age. Our main specification is based on a five-month response window, corresponding to ages 25 and 9 months through 26 and 1 month (the five blue-shaded points in Figure 1). The window covers up to four months before the 26th birthday, which aligns with SSA's stated estimate that a typical decision takes three to five months.[10] Some young adults might submit anticipatory applications during this period, hoping to receive a decision by the time they turn 26 and thus avoid a gap in coverage. We set the other edge of the window to include the month after the 26th birthday. This accounts for those who wait to apply until they lose insurance (which occurs at the end of the month in which a person turns 26) because they procrastinated or because they were not aware of the age-26 limit. We also considered smaller or larger response windows to demonstrate that the significance of our results is not sensitive to the number of months in the response window.

Our estimates reflect the causal effect of losing parental health insurance under two assumptions that are similar in spirit to those of a regression discontinuity design. First, there should be no other policy changes at age 26 that could cause the prevalence of applications to differ sharply from that of slightly older or younger ages. We are aware of no such policy changes. Second, the underlying relationship between SSI applications and age must be stable and predictable. This lets us produce a reliable counterfactual around age 26 by extrapolating the age trends from below and above. Figure 1 presents strong empirical evidence for this assumption.

Our approach is most similar to a bunching strategy, as used by Chetty et al. (2013) or Cengiz et al. (2019) to identify the effects of the earned income tax credit (EITC) or minimum wage on outcomes. A regression discontinuity would estimate impacts by comparing average values for people above and below age 26 based on a sustained change in outcomes above that age, but our approach allows for a jump in applications and awards near age 26 that is not sustained. The outcome of interest, SSI applications, is a flow rather than a stock, so it would not

[10] SSA provides this estimate in the factsheet at https://www.ssa.gov/disability/Documents/Factsheet-AD.pdf.

experience a persistent change. We estimated the additional mass of people submitting applications right around age 26 to measure the impact of losing parental health insurance. This is similar to a bunching strategy (Kleven 2016), which seeks to identify how a discontinuity in rules translates into excess mass in the distribution of an outcome that can be manipulated, and subsequently uses this information to estimate an elasticity. The EITC literature estimates earnings elasticities based on the excess number of people filing taxes near a kink point in the tax schedule. We are primarily interested in estimating the excess mass attributable to the age-26 rule, rather than using this excess mass to identify an elasticity.

5 Results

5.1 Impact on applications

Our results indicate that SSI applications among young adults near age 26 increased by a modest amount each year when the age-26 provision was in effect (top panel of Table 1). Over that period, we estimated a 0.0203 percentage-point increase in applications across the five-month window around age 26. This amounts to a 3.4 percent change relative to the underlying counterfactual prediction that 0.6 percent of people would apply for SSI in the absence of the age-26 provision (as shown in Figure 1). The impact estimate is statistically significant and suggests that a lack of health insurance is a driving factor behind young adults applying for SSI.

Table 1. Excess annualized SSI applications near age 26

Period	Years	Base rate	Regression estimate	Standard error	Percentage difference
Estimated impacts of age-26 provision					
Post-ACA period as a whole	2011–2016	0.6026	0.0203***	(0.0027)	3.4
Early ACA implementation period	2011–2013	0.7011	0.0217***	(0.0037)	3.1
Late ACA implementation period	2014–2016	0.5112	0.0189***	(0.0038)	3.7
Placebo estimate of pre-existing excess applications at age 26					
Pre-ACA period	2005–2009	0.6775	0.0042	(0.0034)	0.6
Estimate of excess applications using state-specific age thresholds pre-ACA					
Pre-ACA period	2005–2009	0.6278	0.0190**	(0.0083)	3.0

Note: Estimates and standard errors are expressed in percentage points and are based on the response window from age 25 and 9 months to age 26 and 1 month (for the bottom panel, they are based on the analog five-month window around the specific age cutoff). Percentage differences are the estimates divided by the predicted values for the same window of ages. These results are based on estimated annualized application rates by age in months for a 60-month bandwidth around age 26. We estimated cluster-robust standard errors under the assumption of clustering at the state level.

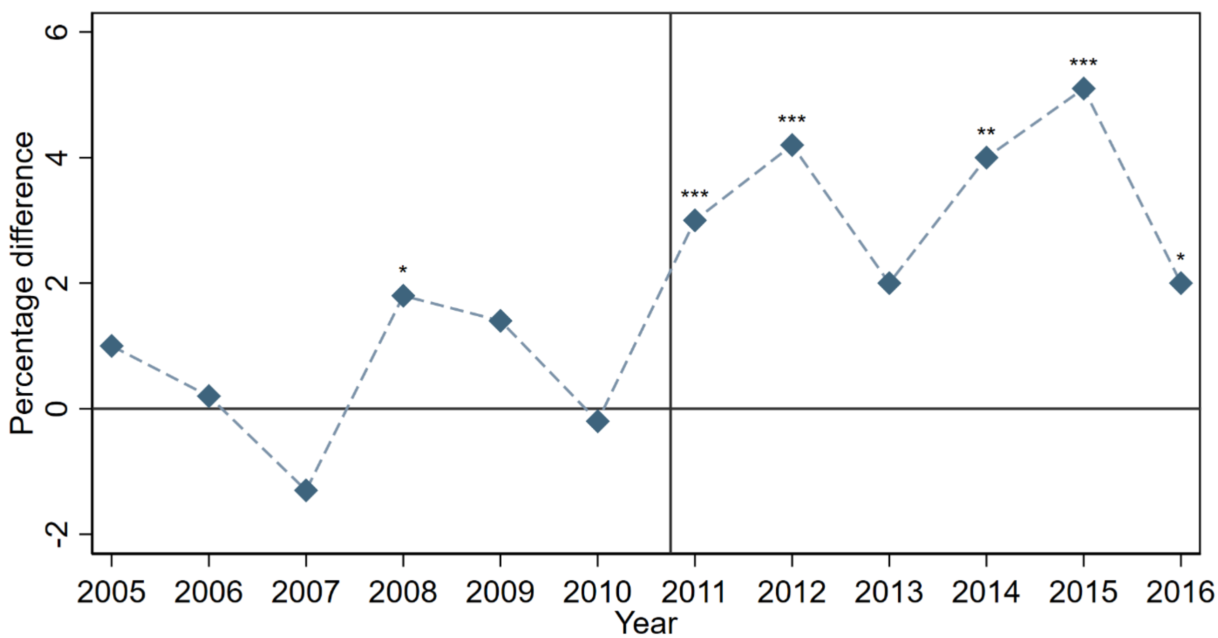
*/**/*** indicates a statistically significant regression estimate at the 10/5/1 percent level based on a two-tailed test.

The rate of excess applications at age 26 was similar in both the early and late periods of ACA implementation—that is, both before and after the exchanges were created and the Medicaid expansions went into effect in 2014. This might be the product of two offsetting changes over time, as discussed in Section 2. First, as alternative health insurance options offered as part of the ACA became available in 2014, the expected impact of losing parental health insurance could decrease; people motivated by health insurance could more easily access coverage through other sources. However, without such changes, excess applications at age 26 could grow over time as people reaching age 26 experienced shorter potential gaps in coverage.

All told, excess applications were stable over time, suggesting that the presence of alternative health insurance options starting in 2014 counteracted the effects of shorter gaps in coverage.

We conducted additional analyses that lent further credence to the idea that the excess applications around age 26 are the result of losing insurance at that age. As a placebo test, we estimated the change in applications in the same five-month window from 2005 to 2009 before the age-26 rule took effect. We precisely estimated no increase in applications (middle panel of Table 1).[11] We also estimated the excess applications submitted in the five-month response window around age 26 in each year between 2005 and 2016 (Figure 2). Significant excess applications first appeared in 2011, the first full year after the policy began, with most years since then showing a significant increase in applications around age 26.

Figure 2. Excess annualized SSI applications near age 26, by year



Note: The graph shows regression estimates of the excess in SSI applications divided by predicted values for a five-month response window around age 26 in each year. Estimates and predicted values were based on the regression model described in the notes to Table 1. The vertical line between 2010 and 2011 indicates when the age-26 policy took effect.

*/**/*** indicates that the underlying regression estimate for excess applications was statistically significant at the 10/5/1 percent level based on a two-tailed test.

When we examined state-specific dependent-care policies before the full implementation of the ACA, we found evidence that the results are not specific to age 26 or to the period following the Great Recession. Some states had alternative age thresholds at which young adults could remain covered as dependents (Dillender 2014), although all states were required to have

[11] Using an approach analogous to a differences-in-discontinuities that combines the baseline and placebo test, we found that our primary estimate of excess applications in 2011 to 2016 was significantly larger than the placebo estimate in 2005 to 2009 (results available on request).

thresholds of at least 26 after the ACA. We estimated a similar model for the years 2005 to 2009, placing states in the response window only if they had an age threshold of at least 23 that year for all young adults.[12] This model centered the response window around each state's particular threshold, rather than age 26. The final panel of Table 1 shows that using these different age thresholds in different years yields similar results to our main specification, which supports the idea that our results are the causal impact of the loss of parental health insurance.

Our estimates for excess applications are also robust to the use of other modeling assumptions. We fit age trends using a quadratic instead of linear functional form, set bandwidths for the regression based on wider and narrower age ranges, and varied the size of the response window for excess applications around age 26. We also considered different assumptions about the relationship between age and applications: allowing the relationship to differ above and below age 26 (the default specification), constraining the relationship to be the same above and below 26, and only using ages above 26 to predict the counterfactual. As shown in Appendix Table A1, all of these alternate specifications produce statistically significant estimates. Most sensitivity checks produced estimates that are slightly larger than the main estimates shown in Table 1. One exception is that using larger response windows yields impact estimates that tend to be smaller. This is to be expected because ages slightly farther from 26 appear to have a smaller excess of applications (as shown in Figure 1), and our impact estimate takes the average of excess applications across all ages in the response window. Although some people likely file anticipatory applications before losing their health insurance, the strongest response occurs closest to age 26. Finally, our results are robust to the use of a wild bootstrap, which can produce more accurate p-values when there are a small number of clusters.

5.2 Impact on awards

The increase in SSI applications stemming from the loss of parental health insurance at age 26 appears to have translated into a smaller but non-negligible excess of SSI awards around that age (Table 2). SSI awards from 2011 to 2016 increased by 0.0041 percentage points for young adults near age 26—which is a 2.6 percent increase relative to the predicted 0.16 percent of people who would have gotten an award without the age-26 provision. The percentage-point estimate of excess awards is only one-fifth of what we found for SSI applications over the same period; however, much of this difference in magnitude is because just over a quarter of applications by people in their mid-20s are successful.[13] Additionally, though the percentage difference in awards due to the age-26 effect is lower than the corresponding change for

[12] We did not include policies that required the person to be a student to get coverage. In addition, because some states were paired to avoid having data reported as missing, we only considered states in a grouped pair as having a policy if the larger state had a policy. For example, Delaware covered young adults through age 24 starting in 2007. However, we paired Delaware with Pennsylvania, which is larger, and so the observations including both Delaware and Pennsylvania are not considered to have this policy. On the other hand, Maryland had a policy covering young adults through age 24 starting in 2008. Though we paired Maryland with Washington, DC, the state pair is still considered to have the policy because Maryland is larger, even though not all young adults in the pooled state group were subject to the age-24 threshold. For a complete list of states with dependent-care provisions before 2010, including which policies were included in the estimation strategy, see Appendix Table A5.

[13] In unreported results, we found that the share of applications that were accepted was slightly smaller—but not significantly so—for applications submitted by young adults who were around age 26 compared with applications from those who were slightly older or younger.

applications, this could partly be a function of the disability adjudication process. This process can be quite lengthy, especially for young adults whose applications are initially denied and then appeal this decision. Hence, our data likely understate the final rate of awards, particularly for those who applied in later years, because some decisions were still pending when we collected the data. This could partially explain the apparent decline in point estimates between the early and late ACA implementation periods.

Supplemental analyses of the SSI awards results follow a similar pattern to the analogous analyses for SSI applications. As with applications, our estimates of excess awards for the same five-month window of ages before the age-26 provision took effect is indistinguishable from zero (middle panel of Table 2). Using the state-specific dependent-care policies before the full implementation of the ACA, we found an insignificant impact estimate of the loss in insurance coverage on SSI awards; even so, the magnitude is very similar to the estimated change in awards around age 26 in the post-ACA period as a whole (bottom panel of Table 2). The estimate has larger standard errors—and is thus less precise—because fewer states and years contributed to the estimated impact. Our findings for awards are also generally robust to alternative regression specifications. The sensitivity checks on functional form and bandwidth in Appendix Table A2 suggest that (as with applications) our main estimate might be on the conservative side.

Table 2. Excess annualized SSI awards near age 26

Period	Years	Base rate	Regression estimate	Standard error	Percentage difference
Estimated impacts of age-26 provision					
Post-ACA period as a whole	2011–2016	0.1581	0.0041***	(0.0015)	2.6
Early ACA implementation period	2011–2013	0.1820	0.0054***	(0.0018)	3.0
Late ACA implementation period	2014–2016	0.1359	0.0029	(0.0021)	2.1
Placebo estimate of pre-existing excess awards at age 26					
Pre-ACA period	2005–2009	0.1839	0.0012	(0.0021)	0.7
Estimate of excess awards using state-specific age thresholds pre-ACA					
Pre-ACA period	2005–2009	0.1786	0.0036	(0.0042)	2.0

Note: Estimates and standard errors are expressed in percentage points and are based on the response window from age 25 and 9 months to age 26 and 1 month (for the bottom panel, they are based on the analog five month window around the specific age cutoff). Percentage differences are the estimates divided by the predicted values for the same window of ages. These results are based on estimated annualized award rates by age in months for a 60-month bandwidth around age 26. We estimated cluster-robust standard errors under the assumption of clustering at the state level.

*/**/*** indicates a statistically significant regression estimate at the 10/5/1 percent level based on a two-tailed test.

5.3 The moderating effects of ACA Medicaid expansions

If a need for health insurance is a motivating factor for SSI participation, any increase in applications at age 26 might be moderated by the availability of easily accessible, affordable coverage. With more alternative insurance options, people primarily motivated by a need for coverage could avoid applying for SSI because they could get coverage elsewhere. Starting in 2014, the full implementation of the ACA increased the availability of health insurance, through both the Medicaid expansions and the creation of exchanges.

To assess the importance of outside insurance options, we compared the changes in excess SSI claims over time between states that did and did not expand Medicaid. We extended the model in Equation [1] by estimating excess applications and awards separately for Medicaid expansion and non-expansion states both in the early and late ACA implementation periods (that is, before and after the expansion occurred). We then calculated the change in excess applications between the early to late implementation periods for each group of states. We hypothesized that excess SSI claims around age 26 in Medicaid expansion states would show a distinctive decrease—or less of an increase than in other states—after the expansion took effect because people filing health insurance-motivated applications could get coverage elsewhere.

We found suggestive evidence that the presence of outside insurance options through the ACA moderated growth in excess SSI applications over time. The number of SSI applications declined significantly in Medicaid expansion states from the early to late ACA implementation period (Table 3). Moreover, this change was significantly smaller than the marginally significant ($p = 0.117$) increases observed for states that did not expand Medicaid. These results are consistent with the availability of alternative sources of coverage reducing health insurance-motivated enrollments. However our findings using this approach should be considered more cautiously because the analogous estimates for SSI awards are not significant.

6 Conclusion

In this paper, we show that young adults' SSI applications and awards increase by 2 to 4 percent in response to the loss of access to health insurance coverage through a parent's plan. After the age-26 dependent care provision in the ACA took effect in 2010, excess applications and awards began to occur in the months around people's 26th birthday. Similar patterns emerged in the months around the dependent-care age thresholds in place in various states before the nationwide enactment of the ACA.

Our results indicate that health insurance can play an important role in young adults' decision to apply for SSI benefits, as some who lose coverage through their parents appear to use SSI as an alternative path to get insured (through Medicaid). But the spike at age 26 suggests that SSI is not the first choice for some beneficiaries who are looking for health insurance. Even while covered under a parent's plan, young adults could still seek out SSI, but many of them apparently wait until they no longer have coverage to apply. The work disincentives associated with SSI may discourage people from applying, or they may view Medicaid less favorably than private insurance options.

Expanding health insurance options more broadly may help reduce dependence on SSI. Although some young adults might seek SSI primarily for the Medicaid coverage, SSI awards also provide cash payments that can add up to substantial expenditures for the federal government, particularly for young adults (Riley and Rupp 2015). SSI receipt may also discourage work and weaken beneficiaries' human capital over the long term (Levere 2019). Providing additional stand-alone options for health insurance to young adults might better meet their need for help in managing the costs of a disabling condition, while increasing their self-sufficiency. These stand-alone options would presumably cover both potential SSI recipients and the broader population. Nonetheless, analyses of such policy proposals should account for potential reductions in SSI payments that might help offset some of the costs of providing comprehensive insurance.

Table 3. Estimates of excess applications and awards, by Medicaid expansion status and time period

Period	Expansion states	Non-expansion states	p-value of difference
Applications			
Early ACA implementation period (2011-2013)	0.0271***	0.0127**	0.055
	(0.0039)	(0.0062)	
Late ACA implementation period (2014-2016)	0.0161***	0.0236***	0.311
	(0.0050)	(0.0052)	
Change between periods	-0.0110*	0.0108	0.022
	(0.0062)	(0.0068)	
Awards			
Early ACA implementation period (2011-2013)	0.0076***	0.0017	0.106
	(0.0024)	(0.0026)	
Early ACA implementation period (2014-2016)	0.0041	0.0010	0.440
	(0.0026)	(0.0031)	
Change between periods	-0.0035	-0.0007	0.550
	(0.0032)	(0.0034)	

Note: Each estimate in the first two columns is a measure of excess applications or awards for the specific group of states for a given time period—2011-2013 (before the Medicaid expansion took effect) and 2014-2016 (after the Medicaid expansion took effect)—or the difference in excess claims between time periods. All group- and time-specific estimates are based on the same underlying model as used to produce the estimates in Tables 1 and 2 using a 60-month bandwidth around age 26 and a response window from age 25 and 9 months to age 26 and 1 month. These estimates, the estimated change between time periods, and the associated standard errors are all expressed in percentage points. *p*-values reported in the final column come from a test of the null hypothesis that the estimates for expansion and non-expansion states are equal. States considered as expansion states as those that had expanded by the end of 2016 (see the list in Appendix Table A5).

*/**/*** indicates a statistically significant regression estimate at the 10/5/1 percent level based on a two-tailed test.

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Appendix Table A1. Sensitivity checks for excess SSI applications near age 26 during 2011–2016 period

Functional form	Bandwidth	Response window size	Base rate	Estimate	Standard error	Cluster robust p-value	Wild cluster bootstrap p-value	Percentage difference	Sample size
Functional forms									
Linear									
Different slopes above/below 26	*60 months*	*5 months*	*0.6026*	*0.0203****	*(0.0027)*	*0.000*	*0.000*	*3.4*	15,109
Equal slopes above/below 26	60 months	5 months	0.6010	0.0220***	(0.0026)	0.000	0.000	3.7	15,109
Observations above 26 only	33 months	5 months	0.6013	0.0217***	(0.0031)	0.000	0.000	3.6	8,311
Quadratic									
Different slopes above/below 26	60 months	5 months	0.6027	0.0202***	(0.0037)	0.000	0.000	3.4	15,109
Equal slopes above/below 26	60 months	5 months	0.6018	0.0211***	(0.0025)	0.000	0.000	3.5	15,109
Observations above 26 only	33 months	5 months	0.6031	0.0198***	(0.0055)	0.001	0.004	3.3	8,311
Bandwidths									
Linear	48 months	5 months	0.6033	0.0197***	(0.0031)	0.000	0.000	3.3	12,089
Linear	*60 months*	*5 months*	*0.6026*	*0.0203****	*(0.0027)*	*0.000*	*0.000*	*3.4*	*15,109*
Linear	72 months	5 months	0.6011	0.0219***	(0.0025)	0.000	0.000	3.6	18,131
Response window sizes									
Linear	60 months	4 months	0.6029	0.0209***	(0.0026)	0.000	0.000	3.5	15,109
Linear	*60 months*	*5 months*	*0.6026*	*0.0203****	*(0.0027)*	*0.000*	*0.000*	*3.4*	*15,109*
Linear	60 months	6 months	0.6016	0.0201***	(0.0027)	0.000	0.000	3.3	15,109
Linear	60 months	7 months	0.6008	0.0190***	(0.0021)	0.000	0.000	3.2	15,109

Note: Estimates and standard errors are expressed in percentage points and are based on the response window from age 25 and 9 months to age 26 and 1 month. Percentage differences are the estimates divided by the predicted values from the linear trend component of the regression model. Within each panel of the table, the italicized row reproduces our main estimate for 2011–2016 from Table 1. The other rows in each panel show estimates produced using variations on the functional form, bandwidth, or window size for estimating excess applications. All impacts are based on a response window that includes ages 26 and 26 and 1 month, along with a varying number of months preceding age 26.

*/**/*** indicates a statistically significant regression estimate at the 10/5/1 percent level based on a two-tailed test.

Appendix Table A2. Sensitivity checks for excess SSI awards near age 26 during 2011–2016 period

Functional form	Bandwidth	Response window size	Base rate	Estimate	Standard error	Cluster robust p-value	Wild cluster bootstrap p-value	Percentage difference	Sample size
Functional forms									
Linear									
Different slopes above/below 26	*60 months*	*5 months*	*0.1581*	*0.0041****	*(0.0015)*	*0.009*	*0.017*	*2.6*	*11,494*
Equal slopes above/below 26	60 months	5 months	0.1560	0.0062***	(0.0011)	0.000	0.000	4.0	11,494
Observations above 26 only	33 months	5 months	0.1580	0.0042**	(0.0018)	0.027	0.030	2.7	6,324
Quadratic									
Different slopes above/below 26	60 months	5 months	0.1576	0.0046**	(0.0017)	0.013	0.018	2.9	11,494
Equal slopes above/below 26	60 months	5 months	0.1573	0.0049***	(0.0013)	0.001	0.004	3.1	11,494
Observations above 26 only	33 months	5 months	0.1577	0.0046**	(0.0019)	0.023	0.025	2.9	6,324
Bandwidths									
Linear	48 months	5 months	0.1578	0.0044***	(0.0016)	0.009	0.021	2.8	9,199
Linear	*60 months*	*5 months*	*0.1581*	*0.0041****	*(0.0015)*	*0.009*	*0.017*	*2.6*	*11,494*
Linear	72 months	5 months	0.1575	0.0047***	(0.0014)	0.002	0.007	3.0	13,792
Response window sizes									
Linear	60 months	4 months	0.1585	0.0041**	(0.0017)	0.019	0.024	2.6	11,494
Linear	*60 months*	*5 months*	*0.1581*	*0.0041****	*(0.0015)*	*0.009*	*0.017*	*2.6*	*11,494*
Linear	60 months	6 months	0.1584	0.0022	(0.0015)	0.138	0.137	1.4	11,494
Linear	60 months	7 months	0.1575	0.0033**	(0.0014)	0.025	0.039	2.1	11,494

Note: Estimates and standard errors are expressed in percentage points and are based on the response window from age 25 and 9 months to age 26 and 1 month. Percentage differences are the estimates divided by the predicted values from the linear trend component of the regression model. Within each panel of the table, the italicized row reproduces our main estimate for 2011–2016 from Table 2. The other rows in each panel show estimates produced using variations on the functional form, bandwidth, or window size for estimating excess awards. All impacts are based on a response window that includes ages 26 and 26 and 1 month, along with a varying number of months preceding age 26.

*/**/*** indicates a statistically significant regression estimate at the 10/5/1 percent level based on a two-tailed test.

Appendix Table A3. Sensitivity checks for removing month-after-birthday fixed effects

Functional form	Bandwidth	Response window size	Base rate	Estimate	Standard error	Cluster robust p-value	Wild cluster bootstrap p-value	Percentage difference	Sample size
Applications									
Linear									
Removes effects	*60 months*	*5 months*	*0.6026*	*0.0203****	*(0.0027)*	*0.000*	*0.000*	*3.4*	*15,109*
No month-after-birthday effects	60 months	5 months	0.6046	0.0183***	(0.0027)	0.000	0.000	3.0	15,109
Quadratic									
Removes effects	60 months	5 months	0.6027	0.0202***	(0.0037)	0.000	0.000	3.4	15,109
No month-after-birthday effects	60 months	5 months	0.6063	0.0167***	(0.0037)	0.000	0.001	2.8	15,109
Awards									
Linear									
Removes effects	*60 months*	*5 months*	*0.1581*	*0.0041****	*(0.0015)*	*0.009*	*0.017*	*2.6*	*11,494*
No month-after-birthday effects	60 months	5 months	0.1589	0.0033**	(0.0015)	0.030	0.043	2.1	11,494
Quadratic									
Removes effects	60 months	5 months	0.1576	0.0046**	(0.0017)	0.013	0.018	3.0	11,494
No month-after-birthday effects	60 months	5 months	0.1586	0.0036**	(0.0017)	0.048	0.061	2.3	11,494

Note: Estimates and standard errors are expressed in percentage points and are based on the response window from age 25 and 9 months to age 26 and 1 month. Percentage differences are the estimates divided by the predicted values from the linear trend component of the regression model. Within each panel of the table, the italicized row reproduces our main estimate for 2011–2016 from Table 1 (applications) or Table 2 (awards). The other rows in each panel show estimates produced using variations on functional form, with a regression run first to remove month-after-birthday fixed effects. For further details, see footnote 7.

*/**/*** indicates a statistically significant regression estimate at the 10/5/1 percent level based on a two-tailed test.

Appendix Table A4. Excess SSI application and award estimates during 2005–2009 period

Functional form	Bandwidth	Response window size	Base rate	Estimate	Standard error	Cluster robust p-value	Wild cluster bootstrap p-value	Percentage difference	Sample size
Applications									
Placebo estimate at age 26	60 months	5 months	0.6775	0.0042	(0.0034)	0.223	0.238	0.6	12,596
Using state-specific age thresholds	60 months	5 months	0.6278	0.0190**	(0.0083)	0.026	0.059	3.0	12,596
Awards									
Placebo estimate at age 26	60 months	5 months	0.1839	0.0012	(0.0021)	0.563	0.574	0.7	9,587
Using state-specific age thresholds	60 months	5 months	0.1786	0.0036	(0.0042)	0.398	0.452	2.0	9,587

Note: Estimates and standard errors are expressed in percentage points and are based on the response window from age 25 and 9 months to age 26 and 1 month. For the state-specific age threshold estimates, they are based on the analog five month window around the specific age cutoff. Percentage differences are the estimates divided by the predicted values for the same window of ages. For details of the states that have separate age thresholds in the years before 2010, see Appendix Table A5.

*/**/*** indicates a statistically significant regression estimate at the 10/5/1 percent level based on a two-tailed test.

Appendix Table A5. State details on groupings, pre-ACA dependent care policy, and ACA Medicaid expansion status

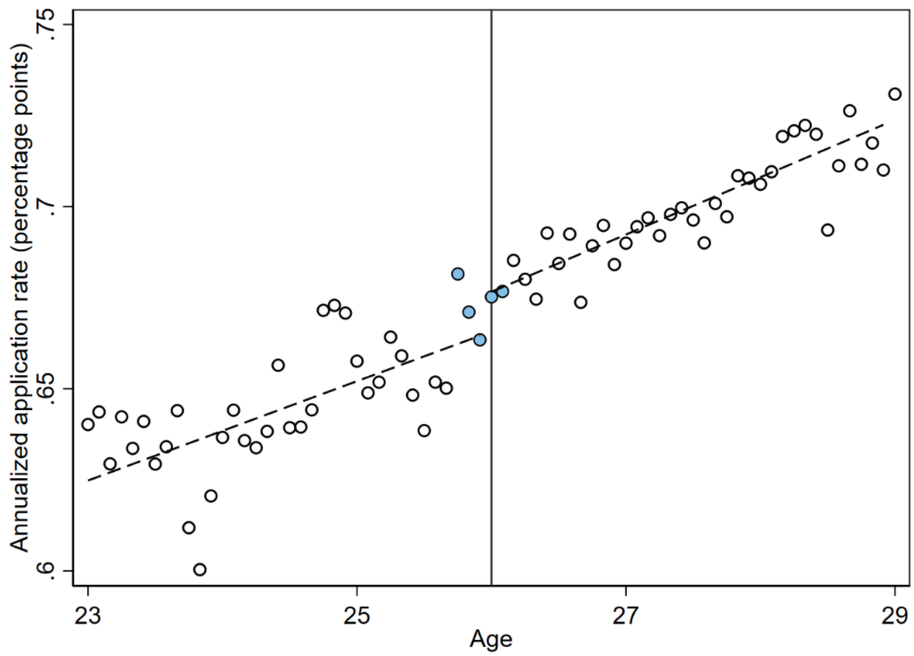
	States grouped to avoid disclosure risks		Pre-ACA dependent care policy		ACA Medicaid expansion state
State	Applications	Awards	Age threshold	Year	
Alabama					
Alaska	Oregon	Oregon, Nevada			✓
Arizona		Colorado			✓
Arkansas		West Virginia			✓
California					✓
Colorado		Arizona	25[a]	2006	✓
Connecticut		New Hampshire	26	2009	✓
Delaware	Pennsylvania	Pennsylvania	24[a]	2007	✓
District of Columbia	Maryland	Maryland			✓
Florida			25	2007	
Georgia					
Hawaii	Minnesota	Minnesota			✓
Idaho		Utah			
Illinois			26	2004	✓
Indiana			24	2007	✓
Iowa		Louisiana	24[a]	2008	✓
Kansas		Nebraska			
Kentucky		New Mexico	25	2008	✓
Louisiana		Iowa			✓
Maine		Wisconsin	25[a]	2007	
Maryland	District of Columbia	District of Columbia	24	2008	✓
Massachusetts	Vermont	Vermont	26	2007	✓
Michigan					✓
Minnesota	Hawaii	Hawaii	25	2008	✓
Mississippi	South Dakota	South Dakota			
Missouri					
Montana	Washington	Washington	25[a]	2008	✓
Nebraska		Kansas			
Nevada		Alaska, Oregon			✓

State	States grouped to avoid disclosure risks		Pre-ACA dependent care policy		ACA Medicaid expansion state
	Applications	Awards	Age threshold	Year	
New Hampshire		Connecticut	26[a]	2007	✓
New Jersey		Rhode Island	30	2006	✓
New Mexico		Kentucky	25[a]	2003	✓
New York			29	2009	✓
North Carolina					
North Dakota	Ohio	Ohio			✓
Ohio	North Dakota	North Dakota			✓
Oklahoma					
Oregon	Alaska	Alaska, Nevada			✓
Pennsylvania	Delaware	Delaware			✓
Rhode Island		New Jersey			✓
South Carolina	Wyoming	Wyoming	22	2008	
South Dakota	Mississippi	Mississippi			
Tennessee			24	2008	
Texas			25	2004	
Utah		Idaho	26	1995	
Vermont	Massachusetts	Massachusetts			✓
Virginia					
Washington	Montana	Montana	25	2007	✓
West Virginia		Arkansas	25[a]	2007	✓
Wisconsin		Maine			
Wyoming	South Carolina	South Carolina			

Note: We grouped states together with a larger state if more than 2 percent of cells would have needed to be reported as missing because of disclosure risks. To determine state grouping possibilities, we considered states that had similar policies both in terms of Medicaid expansion and in terms of the relationship between SSI and Medicaid coverage. In particular, where possible, we selected a grouped state that had the same policy in terms of ACA Medicaid expansion, pre-ACA Medicaid expansion (if the state offered Medicaid to childless adults before the ACA), if the state required additional criteria to qualify for Medicaid after a new SSI award, and if one additional criterion included having a more stringent income requirement for Medicaid than for SSI. See Levere et al. (2019) for a discussion of the relationship between SSI and Medicaid. If multiple states matched on these policies, we then selected the state with the closest geographic proximity to group with. Pre-ACA dependent care policy age thresholds and year come from Dillender (2014). We excluded policies that only covered dependents who were also full-time students. For ACA Medicaid expansion status, we included all states that had expanded by the end of 2016 because our data end as of 2016. Thus, states like Maine and Virginia that expanded after 2016 are still treated as non-expansion states for this analysis.

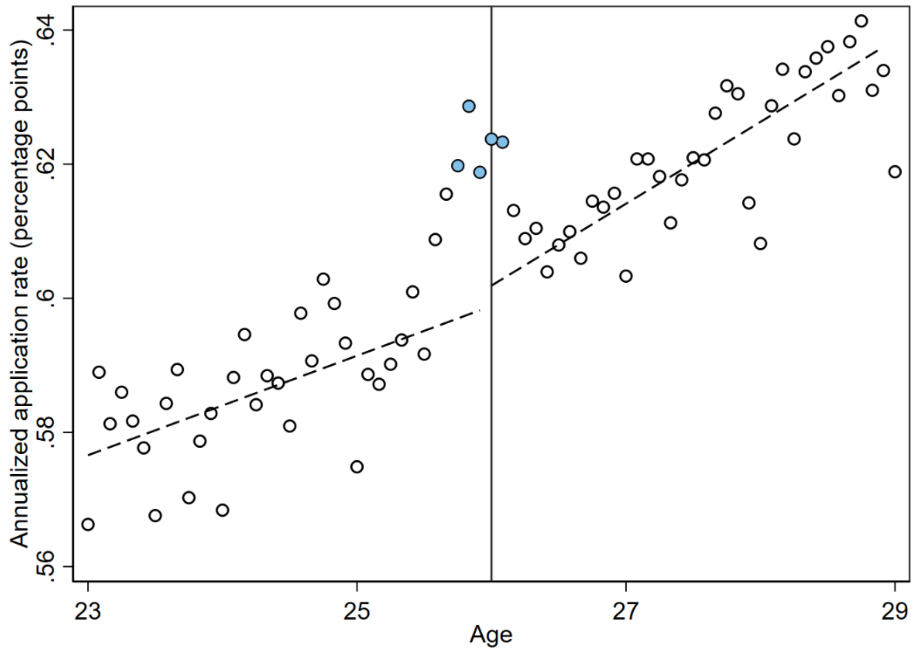
[a] This policy is not accounted for in the state-specific threshold analysis when the state is grouped because has a smaller population than the state(s) it is grouped with. Thus, the policy status is determined by the larger state.

Figure A1. Average annualized SSI applications by age, 2005–2009



Note: The circles show the national percentage of people at each age, measured in months, submitting SSI applications. The data are adjusted to remove the month-after-birthday effects; see footnote 7 for more details. The two lines are trends fit separately below and above age 26, excluding the window from age 25 and 9 months to age 26 and 1 month (signified by the blue points).

Figure A2. Average annualized SSI applications by age using raw data, 2011–2016



Note: The circles show the national percentage of people at each age, measured in months, submitting SSI applications. The two lines are trends fit separately below and above age 26, excluding the window from age 25 and 9 months to age 26 and 1 month (signified by the blue points).