*Accessing the Safety Net: How Medicaid Affects Health and Recidivism**

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Abstract

We estimate the causal impact of access to means-tested public health insurance coverage (Medicaid) on health outcomes and recidivism for those recently released from incarceration. To do so, we leverage a policy change in South Carolina that simplified Medicaid enrollment for ex-offenders. Using linked administrative data on criminal convictions and health insurance claims, we find that reducing barriers in access to Medicaid for vulnerable populations increases enrollment and utilization of some health care services. However, we do not find that this improved health insurance access reduces 1-year or 3-year recidivism, suggesting that policy effectiveness is context-dependent.

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I. Introduction

The U.S. has one of the highest recidivism rates in the world. Nearly half of those returning to the community are rearrested within one year, and 77 percent are rearrested within five years. Moreover, a large proportion of inmates have high rates of chronic medical conditions like diabetes and hypertension, as well as severe mental health disorders, and substance use issues, which can lead to a higher likelihood of recidivism (Bronson and Berzofsky, 2017). Despite the need for timely and continuous access to care, many offenders do not receive necessary medical treatment while incarcerated or upon release and return to prison with existing behavioral health issues (Mallik-Kane and Visher, 2008; Wilper, Woolhandler, Boyd, Lasser, Mc-Cormick, Bor, and Himmelstein, 2009).

These statistics suggest that there is scope for public health care services, like Medicaid, to assist inmates upon reentry into society in several ways. In this paper, we use administrative, individual-level data to build on a growing literature on Medicaid access and recidivism by addressing three largely unanswered questions: (i) Do policies that reduce barriers to Medicaid access for recently released inmates affect insurance coverage?; (ii) Do changes in health insurance take-up correspond to changes in health care utilization?; and (iii) Could increases in health care utilization reduce recidivism?

To answer these questions, we combine individual-level linked criminal justice and Medicaid claims data with a significant targeted expansion in Medicaid to investigate the health and crime effects of access to public health insurance. Specifically, our data contain detailed information on Medicaid enrollment, health care utilization, and re-offending outcomes for the universe of offenders in South Carolina, including over 137,000 individuals between 2007–2020. Nearly 53 percent of offenders are eligible for Medicaid at some point prior to incarceration, although only half of those eligible enroll. To address this gap in take-up, in July 2016 the state of South Carolina implemented a policy to enroll more eligible ex-offenders in Medicaid. Practically, the initiative also sought to reduce application hurdles and lapses in coverage due to waiting times. This policy

change, which focused on helping those released after July 2016 gain access to health insurance coverage, allows us to compare enrollment, health care utilization, and recidivism outcomes across ex-offenders with differential access to Medicaid.

To control for socioeconomic background and risk factors for recidivism that vary across individuals, we use a regression discontinuity (RD) approach to compare ex-offenders released just after the July 1, 2016 policy implementation date, i.e., those first eligible for simplified Medicaid enrollment, to those released just prior to this date. We show that there are not meaningful differences in sentencing or composition of convicted offenders at the policy change cutoff. In other words, individuals released just prior to and after the Medicaid expansion policy implementation are, on average, similar both on demographic characteristics like sex and race, and on characteristics related to the types of crimes committed, yielding as-good-as-random variation in the population eligible for continued Medicaid coverage. We also show that the policy change did not affect the number of individuals released around this cutoff.

Our RD estimates indicate that reducing barriers for enrollment leads to a 10.4 percentage point, or 48 percent, increase in the probability of an ex-offender being enrolled in Medicaid within six months upon release. Next, we show that the observed increase in Medicaid enrollment is mirrored by a relatively small (2 percentage point) increase in Medicaid utilization. Effects are largest for male and non-White ex-offenders. Although enrollment increases within 3 months after release, utilization effects take at least 6 months to appear.

We show that this increase in health care utilization in the first six months is driven by outpatient care rather than prescription usage or inpatient services. When exploring what types of drugs recently released individuals are more likely to use once enrolled in Medicaid, or what types of outpatient care is most affected, we find no systematic patterns.

If mental health conditions or substance use disorders (SUD) cause people to be more likely to need treatment, Medicaid access should affect prescription use for mental health drugs or opioids commonly used for SUD treatment. In investigating potential mechanisms, we can rule out effects on both outcomes. We do not estimate any meaningful change in utilization for mental health drugs

or opioids, even for those individuals with prior use.

Moreover, despite estimating consistent increases in Medicaid enrollment and utilization, we do not find that individuals released after July 2016 are less likely to re-offend within 1 and 3 years after release as compared to those released earlier. This effect holds for all crime types, including violent, drug, and property crimes. Estimates are precise enough to rule out reductions of 4 percent (3-year recidivism) to 26 percent (1-year recidivism).

These null effects on recidivism stand in opposition to much of the existing literature on Medicaid access and crime outcomes; throughout the paper we discuss potential reasons for this divergence. For example, He and Barkowski (2020) show that Medicaid expansion reduced violent crime rates for homicide, robbery and aggravated assault by 2.7–7.7 percent, with the largest effects on homicide. Similarly, Vogler (2020) estimates no statistically significant change in overall crime rate at the state level but finds a 5.3 percent drop in violent crime rates, driven by decreases in aggravated assaults.[1]

When looking at the effects of Medicaid on recidivism, rather than arrests, the existing literature tells a similar story. Altogether, nationwide studies comparing individuals in states with expansion to individuals in other states find that expanding Medicaid access to able-bodies adults without dependents leads to an 11.5—13.5 percent reduction in total recidivism, with effects mostly driven by reductions in violent crime (Aslim, Mungan, Navarro, and Yu, 2022; Aslim, Mungan, and Yu, 2024). Yet, fewer studies analyze whether targeting Medicaid access at those most at-risk of committing future crimes can help to further reduce recidivism. One such type of policy, known as "Medicaid suspend" initiatives allow those incarcerated to have their Medicaid enrollment paused during their sentence instead of having coverage automatically terminated. Gollu and Zapryanova (2022) compare recidivism rates in states with Medicaid suspend policies versus states that do not adopt these policies over time. Estimates indicate that Medicaid suspend policies reduce both 1- and 3-year recidivism rates by 12.1—15.0 percent, although effects are only significant for property

[1]Notably, Simes and Jahn (2022) also estimates effects on arrests at the county level using a binomial model and finds larger effects on total crime rates, ranging from 20–30 percent over three years, with similarly large effects for violent, low-level, and drug-related arrests. However, when the authors replicate the model in a state-level framework, and/or when the authors relax the reliance on imputed arrest data, only drug arrests remain statistically significant.

crimes. Beyond studies on enrollment, Arenberg, Neller, and Stripling (2023) show that cohort-based Medicaid expansions in the 1990s that largely affected Black children reduce financially motivated offenses by age 28, suggesting a link between coverage and crime. Alternatively, new evidence shows that when men *lose* Medicaid coverage at age 19, the probability of re-offending within one year increases substantially (Jácome, 2023).

Given the potential benefits of Medicaid and the consequences of even a short interruption in coverage, many states have begun implementing Medicaid suspension laws for both those in jail and those in prison; one study has shown that such policies have been successful in reducing recidivism rates at the state level (Gollu and Zapryanova, 2022). Similarly, Badaracco, Burns, and Dague (2021) and Burns and Dague (2023) focus on a Medicaid suspend policy in Wisconsin that increased Medicaid enrollment for ex-offenders by up to 60 percent. Estimates indicate that Medicaid coverage upon release led to a 16 percent reduction in re-offending.[2]

We posit that our study's findings likely differ from the above research due to policy context. We study Medicaid policy in South Carolina for three main reasons. First, South Carolina is a non-expansion state under the Affordable Care Act with many restrictions for Medicaid access (and other safety net programs) for able-bodied childless adults. For example, although the state implemented a change to increase Medicaid enrollment for ex-offenders in 2016, individuals were still required to sit for an in-person interview to enroll, placing additional burdens on already overburdened caseworkers.[3] Therefore, our findings shed new light on how a targeted public health insurance policy can affect a vulnerable population facing hurdles to participating in social services. Second, South Carolina provides a compelling testing ground for studying both crime and Medicaid utilization. South Carolina is ranked first in recidivism rates in the U.S. and has undergone numerous criminal justice reforms, including a major reform in 2010, in an effort to reduce its incarcerated

[2]Mirroring these first-stage findings, Blackburn, Norwood, Rusyniak, Gilbert, Sullivan, and Menachemi (2020) show that a Medicaid suspend policy paired with a statewide expansion policy in Indiana increased Medicaid enrollment for ex-offenders within 120 days by 9 percentage points, with even larger 1-week enrollment effects after better interagency coordination.

[3]Moreover, South Carolina's Medicaid rolls decreased by 2 percent in the summer of 2016, suggesting broader difficulties in the health care landscape for uninsured low-income individuals.

population.[4] Consequently, our findings have important implications for policymakers looking for cost-effective ways to reduce offending. Third, South Carolina did little to inform inmates of the change or counsel eligible individuals on Medicaid services (Soura, Alexander, Baker, Fate, Hutto, James E. Smith, Stirling, and Harry H. Stokes, 2017). This setting allows us to better measure the direct effects of access to Medicaid in the presence of transactions costs and information barriers, which many other individuals in poverty also face.

We note that despite an initial plan to expand the number of caseworkers, the state did little to hire enough staff to process the increase in Medicaid caseloads. This slowed re-enrollment times up to six months, compared to Medicaid-eligible individuals in Wisconsin that experienced a much higher probability of re-enrollment within *one* month of release (Burns and Dague, 2023). For this reason, we focus on effects within six months of release. However, when comparing the results of South Carolina's initiative to those from other states, we caveat that immediate access to services may be a key difference in effectiveness.[5] Altogether, our findings provide important policy implications for the practical implementation of targeted Medicaid programs.[6]

II. South Carolina's 2016 TeamWork Initiative

Medicaid is a jointly funded federal-state program providing comprehensive coverage of health care and long-term services to more than 90 million low-income people in the U.S. Decisions regarding eligibility and spending, however, remain at the state level. In South Carolina, to be eligible for Medicaid, one must be either a U.S. citizen or a legally residing non-citizen. Additionally, parents/caretakers with dependent children are eligible if their household incomes do not exceed

[4]For more on this reform, see https://www.scstatehouse.gov/Archives/CitizensInterestPage/SentencingReformCommission/SentencingReform.php.

[5]This may be especially true given the evidence that ex-offenders are most likely to need health care services within 24 hours of release, stressing the need for continuity of care (Frank, Andrews, Green, Samuels, Trinh, and Friedmann, 2013; Howard, Solan, Neptune, Mellgren, Dubenitz, and Avery, 2016).

[6]We also note that as part of this policy change, the state included two other health services initiatives. The first was to expand prescription drug allocations such that released individuals could take home a 30-day versus a 5-day supply. Therefore, any drop in prescription take-up could be due to drug services from private insurance. Similarly, the state rolled out a program known as "Access Health," which provides services for uninsured individuals. We note that both of these programs should bias us in the direction of finding even larger effects on recidivism than the Medicaid enrollment program alone.

100% of the Federal Poverty Line (FPL). Pregnant women with household incomes up to 199% of the FPL are also eligible. Able-bodied adults without dependents are generally not eligible.

Medicaid participation in South Carolina is approximately 20 percent, slightly lower than the U.S. average of 21.1 percent (Kaiser Family Foundation, 2023). These rates are even lower among the previously incarcerated population; while 53 percent of such individuals are eligible for Medicaid prior to incarceration, only 22 percent of ex-offenders enroll in Medicaid after release (Soura, Alexander, Baker, Fate, Hutto, James E. Smith, Stirling, and Harry H. Stokes, 2017). There are many reasons why those with interactions in the criminal justice system may be less likely to take-up Medicaid. For one, South Carolina Medicaid offices maintain strict application requirements, including requiring an address and attending an in-person interview, which may impose additional hardships for those recently released from prison. Moreover, incarcerated parents, in particular, may surrender or be stripped of their parental responsibilities at some point during their time served, rendering them ineligible. For those staying in households with friends or family upon release, the household income levels may be too high to allow for eligibility.

On July 1, 2016, to increase Medicaid utilization among recently released inmates, the state of South Carolina adopted a new practice of allowing eligible individuals to continue coverage without reapplying after release for any inmate serving time for less than two years, with an extended effort to enroll eligible ex-offenders after release. The policy change in 2016 followed a push from an interagency South Carolina initiative known as TeamWork. The TeamWork committee included 8 members, including a state senator and two state representatives.[7] The stated goals of TeamWork include promoting health, equity, and sustainability by seeking to reduce health disparities between inmates and the general population. TeamWork also sought to connect ex-offenders to a stable source of health care after release and had expectations that the program would reduce recidivism (Chertoff, Green, and Odom, 2018).[8]

[7]The TeamWork members were Christian L. Soura, Thomas C. Alexander, Joshua Baker, Lefford Fate, Elizabeth Hutto, James E. Smith, Jr., Bryan P. Stirling, and Harry H. Stokes, Jr.

[8]Although this pilot initiative was not highly publicized, Elizabeth Hutto provided confirmation of the timing of the policy via email, consistent with information reported in Gollu and Zapryanova (2022) and Soura, Alexander, Baker, Fate, Hutto, James E. Smith, Stirling, and Harry H. Stokes (2017).

Critically, the 2016 policy changed the landscape of Medicaid enrollment for inmates. For example, prior to the policy change, the Department of Corrections employed one Medicaid eligibility worker to handle cases for inmates upon release, due to time and budgetary constraints. TeamWork created a new team of workers to handle Medicaid re-enrollment for individuals recently released (Soura, Alexander, Baker, Fate, Hutto, James E. Smith, Stirling, and Harry H. Stokes, 2017). Implementation in July was intended to expand existing processes for enrolling beneficiaries who would otherwise retain eligibility if not incarcerated, while expanding simplified application processes for all other eligible individuals. In this way, we think of the change in policy similar to a Medicaid suspension policy in spirit; however, we show that the initiative was more broadly targeted towards ex-offenders and find that effects on enrollment and take-up are large even for those with no prior Medicaid enrollment.

We note, however, that the TeamWork team also reported having difficulties converting eligibility of inmates into enrollment, which may also have led to a lower take-up of Medicaid services than originally expected (Soura, Alexander, Baker, Fate, Hutto, James E. Smith, Stirling, and Harry H. Stokes, 2017). Due to a backlog of cases and limited staff, the South Carolina Department of Corrections in 2016 could review only about 90 cases per month, although 500 inmates are released per month (Soura, Alexander, Baker, Fate, Hutto, James E. Smith, Stirling, and Harry H. Stokes, 2017). The interview requirement is still in place for South Carolina residents that are eligible for Medicaid, even those targeted by the policy initiative.[9] Moreover, someone with prior eligibility as a parent or caretaker relative would lose eligibility because they do not reside with a qualifying dependent child and would have to wait to reapply. Because of these nuances in the South Carolina Medicaid eligibility process, re-enrollment of ex-offenders with prior Medicaid coverage is not automatic and remains less than 100 percent for eligible individuals after release. Despite these challenges in re-enrolling ex-offenders, below we show that although the program language was targeted at individuals enrolled in Medicaid prior to incarceration, Medicaid enrollment in the six

[9]For example, as summarized by the TeamWork follow-up report, “A series of visits to several correctional institutions also improved the project team’s appreciation for the varied settings in which an inmate may find himself or herself while serving out a sentence."

months after release was distinctly higher for those released after July 2016, both for those with and without prior eligibility status.

III. Data

We use two administrative linked datasets to study crime and health outcomes. Our main sample includes all individuals convicted of a criminal offense in the state of South Carolina between 2007–2020. We link this sample to data on these individuals' public health insurance claims. The main advantage of these datasets is that both span several years and contain detailed individual-level information. Below we provide a detailed description of the data used in our analysis.

III.1. South Carolina Criminal Justice Data

South Carolina conviction-level data from the Department of Corrections contain information on the type of offense, sentence length, and indicators for offender characteristics, such as age, sex, and race. For our Medicaid enrollment and health care utilization analysis, we consider only an individual's first offense observed in the data, although we include additional offenses when estimating effects on recidivism.[10] Because those with sentence lengths longer than two years were not the target population for simplified Medicaid re-enrollment, we omit individuals with longer sentences from the sample for our main analyses, keeping these observations for further robustness checks.

Table 1 contains summary statistics for these crime data. Our sample is largely male (81 percent), and nearly evenly split between White and non-White individuals. Within two quarters after release, about 16 percent of the sample is enrolled in Medicaid, while only 5 percent use Medicaid for prescriptions. The most common offense is property crime, and about 18 percent of

[10]With panel data, one possibility is that conditioning on an individual's first sentence could change the sample to systematically reduce the number of repeat offenders over time. That being said, we compare individuals convicted of their first crime, and compare them after release. We would still expect individuals released just before or just after the policy change threshold to be similar on characteristics, including risk of re-offending. Nevertheless, we explore how our findings change for those closest to the cutoff to assuage any concerns of our sample's risk changing over time.

our sample recidivates within 3 years.[11,12]

III.2. South Carolina Medicaid Claims Data

We link individuals involved in the South Carolina criminal justice system from 2007–2020 to Medicaid enrollment data and claims data from the South Carolina Department of Health. These data contain information on Medicaid spells, as recorded by the state, as well as detailed data on Medicaid-covered hospitalizations, diagnoses, prescription drugs, and outpatient visits.

Importantly, one limitation of the data is that we do not have information on Medicaid *eligibility* and do not have information on health care utilization from non-Medicaid sources. Therefore, we are not able to compare individuals that could have enrolled and chose not to. We instead focus on whether the Medicaid reapplication policy did, in fact, allow for a higher Medicaid enrollment rate among the target population in the six months following prison release.

IV. Empirical approach

We exploit the sharp change in the South Carolina Medicaid enrollment policy on July 1, 2016, which allowed ex-inmates to more easily re-enroll in Medicaid upon release, to identify the effects of access to health insurance on health and crime. In other words, our main approach is a regression discontinuity (RD) model that exploits the quasi-random timing of prisoner release dates. This strategy is motivated by the idea that characteristics of ex-offenders released after the policy's implementation should not experience any discontinuous change in the absence of the new law; that is, any jump in Medicaid enrollment, prescription drug use, or hospitalization, can be reasonably attributed to the change in Medicaid application procedure. For each individual i, we estimate the

[11] We also note that, on average, individuals released prior to 2016 are 7 percentage points more likely to recidivate. This could be due to the fact that these individuals are released earlier; however, 1-year recidivism rates follow a similar pattern. This is reflective of two stylized facts. First, crime has fallen over time as part of a general, national trend. Second, South Carolina since 2010 has cut sentence lengths and attempted to reduce the total number of individuals incarcerated as part of a criminal justice reform. For more on this reform, see https://www.pewtrusts.org/-/media/assets/2010/06/10/pspp_south_carolina_brief.pdf.

[12] We also present outcome summary statistics separately for those released prior to and after July 2016 in Table A1. Utilization and recidivism outcomes are similar across groups.

following models using OLS:

$$y_i = \beta_0 + \beta_1 Medicaid + f(releasedate_i) + \eta_i, \tag{1}$$

where y_i is the outcome of interest, including Medicaid enrollment, any health care utilization, prescriptions, inpatient and outpatient care, and 1- and 3-year recidivism. f represents some smooth function of our running variable, prisoner release date. $Medicaid_i$ is a dummy equal to one if i is subject to the Medicaid enrollment policy, which went into effect July 2016. Specifically, this variable is equal to one if an individual is released after the Medicaid initiative was in effect and zero otherwise. In our main specification we do not include covariates as we provide evidence that these vary smoothly through the cutoff; however, for completeness we also estimate our main model with controls for gender, race, and age, as well as conviction characteristics.

To construct our preferred estimates, we adopt a linear specification for the function of our running variable and allow the slope term to vary on each side of the Medicaid implementation threshold, although we additionally fit models where the running variable enters the equation quadratically and cubically. We highlight estimates from a specification that uses a one-sided bandwidth of 10 quarters, although we additionally present results from a wide range of bandwidths. We display estimates from a model with robust standard errors.[13] While we use uniform kernel weighting, we also provide a discussion of estimates using triangular kernel weighting.[14]

To study the more immediate effects of a change in health insurance access, we focus on Medicaid enrollment and health care utilization within the first two quarters (i.e. first six months) after release. This period of time has been shown to be a critical time for finding employment, registering for social services, and reintegrating into society (Petersilia, 2005; Carson, Sandler, Bhaskar, Fernandez, and Porter, 2021). We note that due to challenges experienced by staff

[13] Although we avoid presenting estimates from models that cluster standard errors on the running variable (i.e. date released) due to the discrete nature of this variable, our main estimates are statistically similar at the 99 percent level when we do so.

[14] Notably, although we don't use a difference-in-differences approach as our main specification due to the fact that there is no apt comparison group, and we do not have data on non-offenders, in later analyses we present estimates for individuals with longer sentences who were not eligible due to the policy change to compare to our main sample.

in re-enrolling individuals in Medicaid at the point of release, as recorded by the TeamWork team, estimates will represent intent-to-treat effects. We allow for a post-incarceration enrollment window of six months, given that release date and Medicaid enrollment start date may experience lags. However, we also present estimates using a rolling window of 1–8 quarters after release.

Identification of the above models rests on the assumption that the crime and health outcomes of individuals subject to the Medicaid enrollment initiative would have been similar to those individuals released prior to the initiative, had they not been eligible for re-enrollment. One potential violation of this assumption is that sentencing guidelines or Medicaid enrollment procedures for prisoners changed because of the policy change. Because convictions and sentence lengths for our sample population were determined prior to the policy change, this provides some reassurance that the identification assumption is likely to hold in this context. However, we additionally provide empirical evidence that any observable characteristics of ex-offenders and the types and frequencies of crimes committed are unrelated to the passage of the law.

Moreover, to test the sensitivity of the main results, we perform two additional checks. First, we test whether the estimated effects for those previously enrolled in Medicaid are larger, as these individuals may be most familiar with the program and face fewer barriers for take-up. Second, we use data from 2007–2014 to produce RD estimates for offenders released prior to the policy change, using false policy cutoffs. We show there are no detectable discontinuities in Medicaid enrollment for those released on either side of the policy implementation threshold and provide additional support for the notion that the Medicaid enrollment initiative had a different effect on health and crime outcomes than what would have been expected had the initiative not occurred.

V. Results

V.1. Effects of Increased Medicaid Access on Enrollment

First, we analyze to what extent the Medicaid initiative in South Carolina affected Medicaid enrollment for those released after July 2016. We first present the results visually in Figure 1, and

we present the formal RD estimates from Equation (1) in Table 2 Column 1. Figure 1 plots average enrollment based on day of release. Scatters represent binned means of Medicaid enrollment by quarter released. Points to the left of the vertical line indicate enrollment rates for individuals released prior to the 2016 policy change, while those to the right of the vertical line represent enrollment rates for those eligible for the Medicaid policy initiative. Estimates indicate that being eligible for the Medicaid initiative increased enrollment in the six months after release by 10.9 percentage points, or 47.6 percent, as compared to individuals with prior enrollment that were not eligible for South Carolina's expanded re-enrollment. Interesting, the slope to the right of the policy threshold is increasing, suggesting that as the state was able to hire more caseworkers over time, the process of enrollment became smoother, and more individuals were able to enroll after release.

V.2. Effects of Increased Medicaid Access on Health Care Take-Up

Next, in Figure 2 we present RD estimates from Equation (1) for variables that serve as a proxy for Medicaid utilization. In particular, we measure effects of the change in Medicaid policy on take-up of prescriptions, inpatient services, outpatient services, and outpatient services. We additionally construct a variable for "any utilization," which is an indicator variable equal to one if an individual is linked to a claim for outpatient, inpatient, or prescription services within six months of release. Visually, inpatient services seem to be unaffected by the policy change. The point estimate for prescription utilization is positive but statistically insignificant. Instead, outpatient services utilization appears to primarily drive the increase in overall utilization.

We present these estimates in Table 2 to further investigate this pattern. Column 2 shows effects for the "any utilization" variable, while Columns 3 and 4 present effects for prescriptions, both on the extensive and intensive margins. Columns 5 and 6 present estimates for inpatient and outpatient services, respectively. Estimates indicate that South Carolina's Medicaid enrollment policy increases Medicaid utilization by 2 percentage points.[15] Across nearly all outcomes that make up this variable, however, we find positive effects of increased Medicaid access on just one

[15]Scaling by Medicaid enrollment take-up, two-stage least squares estimates indicate an increase of 19.4 percentage points.

particular health care utilization component–outpatient services. Our findings imply a 31 percent increase in use of outpatient services. This increase is not driven by any one particular diagnosis type.[16] While this provides some evidence that health care utilization increases when individuals gain access to Medicaid (a seemingly mechanical relationship), this increase is significant at the ten percent level and, as we show below, is not significant across all specifications. However, we also note that take-up of health services is relatively low for this population, compared to the general population, implying that providing access may not be enough to increase utilization. Importantly, this finding could imply that ex-offenders with Medicaid access use emergency room departments as a primary health care provider after release.[17]

Moreover, when considering the magnitudes of our estimated effects, we can rule out more than a 41 percent increase in prescription drug take-up, and effect sizes of 111 percent for inpatient services, off of a small baseline take-up rate. Given that related work on Medicaid access finds more modest increases in outpatient care (50 percent) and hospitalizations (30 percent), and larger effects on prescription drug usage (Baicker, Taubman, Allen, Bernstein, Gruber, Newhouse, Schneider, Wright, Zaslavsky, and Finkelstein, 2013; Taubman, Allen, Wright, Baicker, and Finkelstein, 2014), we note that while our findings can speak to overall utilization, they are less informative for determining whether the South Carolina program was less effective at increasing prescription or hospitalization utilization than other more wide-reaching programs. Notably, when analyzing if any particular types of drugs are driving our main results, as presented in Figure A1, we find no systematic drivers for take-up, even when focusing separately on opioids and other mental health drugs, including antidepressants, or antipsychotic medications.[18,19].

[16] See Table A2 and Table A3 for RD estimates on hospitalizations by diagnosis categories. Point estimates indicate a decrease in mental health services take-up, although this is relatively imprecise, and we are unable to rule out less than an 80 percent increase in utilization.

[17] We note that we also find little evidence that the change in outpatient services is driven by substance abuse. Estimates for drug-related diagnoses indicate a statistically insignificant decrease of 1.1 percentage points, although we cannot rule out large increases in drug-related outpatient visits (i.e., more than 5 percentage points off a baseline mean of 0.02).

[18] Similarly, when estimating effects for those with prior take-up of mental health prescriptions, we estimate no statistically significant effects, although estimates are relatively imprecise, and we cannot rule out large effects.

[19] Estimates are also statistically insignificant and close to zero for total Medicaid-related health care expenditures. See Figure A2

V.3. Effects of Increased Medicaid Access on Recidivism

Lastly, we test whether this increased access to Medicaid affected an individual's likelihood to reenter the criminal justice system in the future. We note that in our sample, approximately 30 percent of inmates recidivate before the end of our panel, with over 18 percent committing more than 1 additional crime after release. For those ex-offenders that do recidivate, they do so within 5 quarters, on average.

In Figure 3 and Table 3 we show the relationship between being released after the Medicaid application policy and recidivism. Estimates indicate that increasing Medicaid access by over 58 percent for ex-offenders does not decrease the probability of a subsequent crime conviction within 1-year or 3-years. These findings hold even when analyzing effects by crime type, including future convictions of a violent crime, drug crime, weapons crime, or property crime. Therefore, in our setting where ex-offenders with improved access to Medicaid increase utilization of services, we find that these individuals are just as likely to re-offend within 3 years as their ineligible peers. Estimates are precise enough to rule out decreases in 1-year recidivism larger than 2.5 percentage points and 3-year recidivism larger than 0.9 percentage points (4 percent). We note that our findings stand in contrast to other evidence that Medicaid suspend laws are effective in other states at reducing the probability of returning to prison within 1 and 3 years of release by 2.91 and 4.58 percentage points (12 percent), respectively (Gollu and Zapryanova, 2022).[20]

Many studies find effects of Medicaid expansion policies only on property and/or violent crimes (e.g., Aslim, Mungan, Navarro, and Yu (2022), Vogler (2020), Wen, Hockenberry, and Cummings (2017)), while other work shows that rearrest rates, in particular, are highest for those with a violent crime (Burns and Dague, 2023). We note that we estimate no reduction in either 1- or 3-year recidivism for violent crimes or property crimes. For property crime, we can rule out effects of less than 2 percentage points, or 21.8 percent, within 3 years. For violent crime, we can rule out effects of less than 0.1 percentage points, or 35.4 percent. Similar to other experiments that increased

[20]We also note that there is a clear decline in crime rates in 2020 and 2021, due to the pandemic. Nonetheless, omitting these years and looking at a smaller bandwidth yields similar null results for recidivism.

Medicaid access and take-up, we note that one explanation of our results is that Medicaid access was not effective in improving the physical or mental *health* of ex-offenders (Baicker, Taubman, Allen, Bernstein, Gruber, Newhouse, Schneider, Wright, Zaslavsky, and Finkelstein, 2013). However, we discuss other possibilities below.

V.4. Heterogeneity

Above we present the average effects of South Carolina's Medicaid enrollment initiative on Medicaid enrollment, health care utilization, and recidivism. However, we note that these estimates may mask important heterogeneity across subgroups. This is especially important, given that our sample is younger, and more likely to be male and non-White, than the general population. In this section, we investigate whether the South Carolina Medicaid initiative differentially affected male, older individuals, White individuals, or individuals that were convicted of more serious crimes.

In Table A4 and Table A5, we present estimates that explore how these effects vary across offender characteristics and across crime types. As shown in Table A4, estimates indicate that Medicaid enrollment increased across all groups, with largest point estimates for the above-45 age group, corresponding to a 73 percent increase.[21] Males drive the increase in any utilization and outpatient services, which may be unsurprising due to the fact that our sample is largely male-dominated. Interestingly, we find that non-White ex-offenders increase Medicaid utilization by 3 percentage points, or 44 percent, slightly over the baseline average, although not statistically different. Similar to our main results, we find no declines in recidivism due to Medicaid enrollment.

These patterns hold even when separately analyzing effects by the type of first offense (Table A5), although sample sizes for some crime types (e.g., violent and weapons crimes) are much smaller, and therefore the estimates are less precise. Overall, our results suggest that no one group is particularly affected by decreasing barriers to Medicaid enrollment, which may have implications for policymaking.

[21] We note that the point estimates on enrollment for White individuals are similarly large (0.134) and are not statistically different from non-White individuals. Our data does not have detailed information on race and ethnicity, and we are only able to test the difference between White and non-White groups.

VI. Sensitivity Checks

Above, we present evidence that the change in South Carolina's Medicaid enrollment procedures increase Medicaid enrollment and use of inpatient services, with increases in prescriptions for White offenders. In this section, we test the extent to which our main results are sensitive to functional form, bandwidth, or sample selection. We first provide sensitivity checks for the model specification. For example, a standard concern in RD models is that the results are a product of over- or underfitting the data or a product of bandwidth selection. To combat these concerns, we explore various alternative specifications in this section and show that our average estimates are robust to these other specifications.

First, we allow the order of the function of the release date from the date of the policy change (i.e. the running variable) to vary. We present these results in Table 4. Column 1 in Table 4 replicates the main (baseline) results. Column 2 contains the results when we control for the days to the cutoff quadratically, and results in the 3rd column allow for it to vary cubically. Again, we allow the polynomials to vary on either side of the cutoff. The quadratic and cubic models generally produce results close to the baseline models.

Additionally, in Column 4 we present estimates from a Poisson model to account for count nature of hospital visit and prescription data. Because some individuals are enrolled in Medicaid but never fill a prescription or commit a second crime, a number of observations are dropped in this model for those categories. Again, the estimates are similar in sign and magnitude to the main results, and indicate that Medicaid enrollment increases by 38 percent, while estimates in Column 1 suggest a 47.6 percent increase. Estimates on utilization are insignificant.

Second, we explore how sensitive the estimates are to kernel selection. We estimate the model with a triangular kernel, instead of a uniform kernel, and present these results in Columns 5 and 6. Column 5 presents estimates for the full sample (10 quarters on either side of the policy threshold, or 912 days), while Column 6 presents estimates for the optimal bandwidth, calculated as suggested by Calonico, Cattaneo, Farrell, and Titiunik (2016). Point estimates for Medicaid enrollment are

similar in sign and magnitude to the baseline results in Column 1. Estimates for utilization outcomes are also similar in magnitude, albeit less precise.[22]

To further test bandwidth sensitivity, we replicate the models under a range of bandwidths. We test whether estimates are similar when allowing for bandwidths from 182 days, or 2 quarters, on either side to a bandwidth of 912 days, or 12 quarters. Figure A3 reports the coefficients and standard errors from models using each of these alternative bandwidths, increasing by a one-sided bandwidth of 1 quarter for ease of visualization, separately. Each figure additionally reports the optimal bandwidth, in days, using the methodology proposed in Calonico, Cattaneo, Farrell, and Titiunik (2016). For all outcomes, the estimated coefficient is stable across the different bandwidths. We find a positive effect of the Medicaid enrollment policy on Medicaid enrollment, ranging from 5.5–13.8 percentage points. Estimates for any utilization and outpatient services utilization are positive, although not always statistically significant at the 5% level, matching estimates in the main table. We estimate no consistent reduction in recidivism. If anything, effects on 3-year recidivism are positive at smaller bandwidths.

Next, we consider how these effects evolve within different time windows after incarceration release, to test whether average effects fade or remain stable when including observations in the longer run. In Table 5, we present estimates for Medicaid enrollment, health utilization, and recidivism within a time window of 1–8 quarters after release, separately. Effects are similar across observation periods; estimates indicate an increase in Medicaid enrollment, ranging from 7.4–10.9 percentage points and an increase in utilization ranging from 1.5–2.1 percentage points. We also show that outpatient services utilization is not significant in the first quarter following release. Estimates are largest when looking at the first year after release and persist to 5 quarters after. These findings imply that individuals may need time to adapt or learn how to access medical services. These findings also imply that our 6-month sample window is not driving our main results.

Furthermore, we show that both the number of prisoners released at the July 2016 threshold and

[22] Because the triangular kernel places higher weights on estimates closest to the cutoff, estimates for 3-year recidivism are positive in Columns 5 and 6, although we note this effect is not consistent across specifications.

that the composition of prisoners and crimes remains smooth through the cutoff. See Figure A4 for a density test, following Frandsen (2017) and Figure A6 for estimates of prisoner characteristics, like gender, race, and age, as well as conviction characteristics, including the percent of those released that committed a violent crime. Importantly, each of these estimates, outside of age, is statistically insignificant, providing additional evidence to support the identification assumption. We have additionally added these variables to our model as covariates to provide further evidence that our RD estimates are not sensitive to their inclusion (Table A6).[23,24]

Lastly, we note that our estimates are not sensitive to our main sample restrictions. For example, if we include inmates with sentence lengths of longer than two years, as shown in Table A7, our estimates are smaller but statistically similar to our main results.[25] However, this effect is largely driven by those with shorter sentences, who are our primary focus in this analysis.[26,27] Moreover, in our main analyses, we include individuals even if they did not use Medicaid prior to incarceration, given that the program was successful at enrolling even those without prior Medicaid enrollment experience. In Table A8 we present findings from an analysis that separately estimates effects on individuals that were and were not enrolled in Medicaid prior to release. Estimates indicate that the increase in utilization post-incarceration is driven by those that had prior experience receiving services from Medicaid. Estimates also indicate that those with prior utilization increase

[23]Notably, estimates for age are statistically significant, implying that ex-offenders released just after the policy change threshold are slightly younger on average (1 year). However, given that we estimate no other significant differences between our treatment and comparison groups, and given that including age as a covariate does little to change our main estimates on Medicaid enrollment or utilization, we conclude that this relationship is likely spurious.

[24]Given that we condition on sentence length, we do not include it as a covariate in the table mentioned above. Instead, we separately present the RD estimate on sentence length in Figure A5. We note that the coefficient is negative and significant at the 5 percent level, suggesting a 20-day difference in sentence length, or a 0.09 of a standard deviation. We note that this estimate does not remain statistically significant across specifications (i.e. quadratic or triangular kernel). Nonetheless, below we discuss how our estimates change with varying sentence lengths.

[25]Approximately half of individuals observed in the full data have sentences longer than two years. This inclusion of individuals with longer sentences increases the sample from approximately 7.2 thousand observations to 25 thousand observations.

[26]When excluding those with sentences of shorter than two years, our estimates on Medicaid enrollment are positive and statistically insignificant.

[27]Although we focus on this main RD approach to more cleanly compare otherwise-similar individuals released from prison with differing resources for Medicaid enrollment, we have also considered an additional empirical approach, comparing those with sentences of 3–4 years as a comparison group for individuals with shorter sentences over time. Difference-in-differences estimates for Medicaid enrollment from this approach are similarly positive, indicating a relatively 55.6 percent (12 percentage point) increase. However we estimate no relative increases in any type of health care utilization or any statistically significant changes in recidivism.

enrollment off a much higher baseline, as expected, but the group of individuals with no prior utilization experience much larger percent increases in enrollment. This implies that even though the program was initially targeted towards those with prior Medicaid enrollment, the program expanded eligibility for a number of inmates. Therefore, any analysis that does not include these individuals will omit a critical part of the treated population. That being said, despite this large increase in enrollment, estimates do not indicate an increase in health care utilization for this group without prior experience. This provides additional support for the notion that significant information barriers may exist that inhibit recently released individuals from receiving health care services. We note that reducing knowledge barriers in eligibility and utilization may be an effective way to improve utilization and health status among these individuals.

VII. Discussion and Conclusion

In this paper we use linked Medicaid claims data and criminal justice data from South Carolina to estimate the effects of a 2016 policy change to simplify Medicaid re-enrollment for inmates upon release. Using linked administrative crime and health care claims, we find that reducing barriers to re-enrollment increased Medicaid enrollment and an overall take-up of health care services. Estimates indicate an increase in inpatient services for White ex-offenders, likely due to case workers prioritizing inmates with immediate health care needs. We find no evidence that South Carolina's implementation of a Medicaid enrollment policy increased take-up of mental health care drugs or outpatient services. Moreover, we show that take-up of health care services was largely driven by individuals with prior experience with the Medicaid program, potentially pointing to information barriers as a major existing hurdle to those recently released from prison. While our main findings support the notion that the South Carolina 2016 Medicaid policy did improve health care access and utilization for inmates upon release, we do not find any evidence that enrolling in Medicaid reduced recidivism.

We note that, although the program was initially intended to dramatically increase participation due to a more automatic re-enrollment procedure, the state Medicaid office faced many challenges

in implementing the law. In particular, while over 500 inmates leave the South Carolina prison system per month, when the policy went into effect, the state designated only one officer in charge of such cases. This case worker was only able to process 90 per month, leaving gaps in coverage for some individuals that were eligible for continued coverage (Soura, Alexander, Baker, Fate, Hutto, James E. Smith, Stirling, and Harry H. Stokes, 2017). Moreover, to enroll in Medicaid, inmates are required to sit for an in-person interview to automatically regain coverage, providing an additional barrier. And, as mentioned by the team responsible for writing the Medicaid policy initiative, several individuals that were previously eligible lost eligibility while in prison, due to relinquishing or losing dependent caregiver status (Soura, Alexander, Baker, Fate, Hutto, James E. Smith, Stirling, and Harry H. Stokes, 2017).

Finally, we do not find that individuals with increased access to Medicaid are less likely to commit future violent or property crimes. While this effect runs counter to evidence from other states, we note that this null result may be driven by the fact that South Carolina, unlike other states that implemented similar policies, did not strongly advertise the new policy, nor were inmates counseled about Medicaid services or re-enrollment. Therefore, individuals most at risk for re-offending may still have experienced lapses in coverage or been uninformed about the possibility of re-obtaining insurance. Although we do not find evidence of a statistically significant drop in recidivism rates, we note that continued care for the most vulnerable populations may still be welfare-improving.

One limitation to our data is that we are unable to speak to effects of health coverage while in prison. However, incarceration itself has been linked to increased longevity by decreasing the mortality risk of murder and drug overdose as well as death by natural cases (Norris, Pecenco, and Weaver, 2022). Along these lines, the notion that health care can change risky behavior is also supported by recent work showing that providing health services in Swedish prisons improves mortality rates for offenders and reduce recidivism, especially those suffering from mental illness (Hjalmarsson and Lindquist, 2020), suggesting that one additional channel to further reduce recidivism and improve social welfare would be to also improve continuity of care during incarceration.

We note that collecting more evidence about the effectiveness of Medicaid policies for incarcerated populations is an important avenue for future research.

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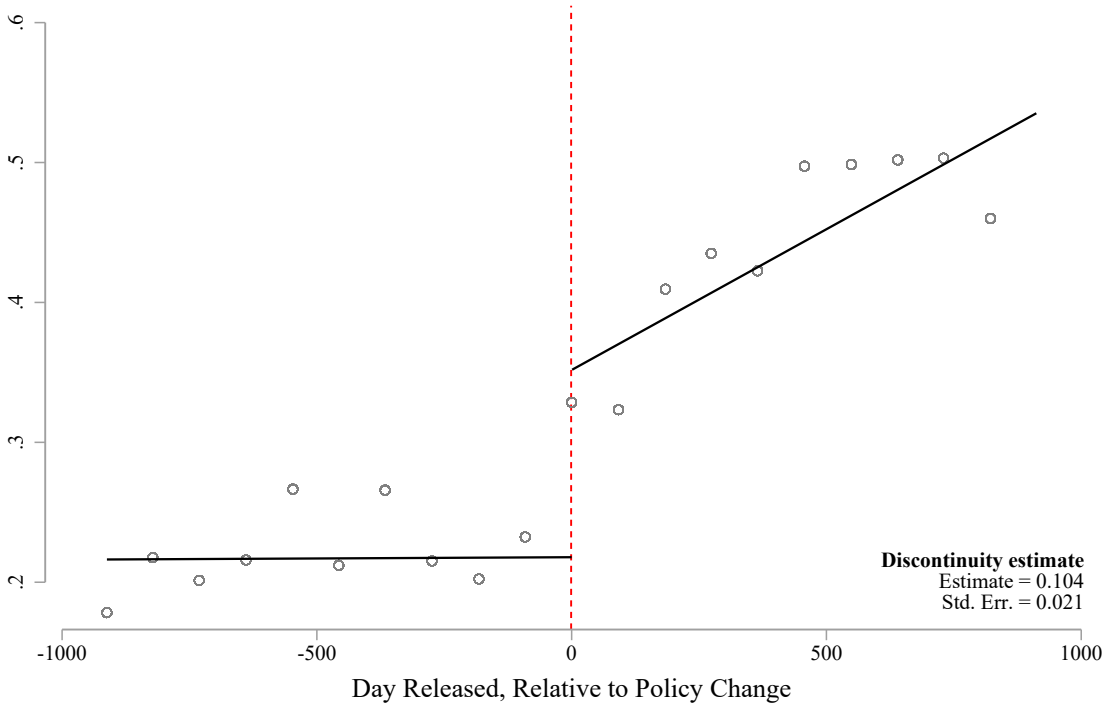
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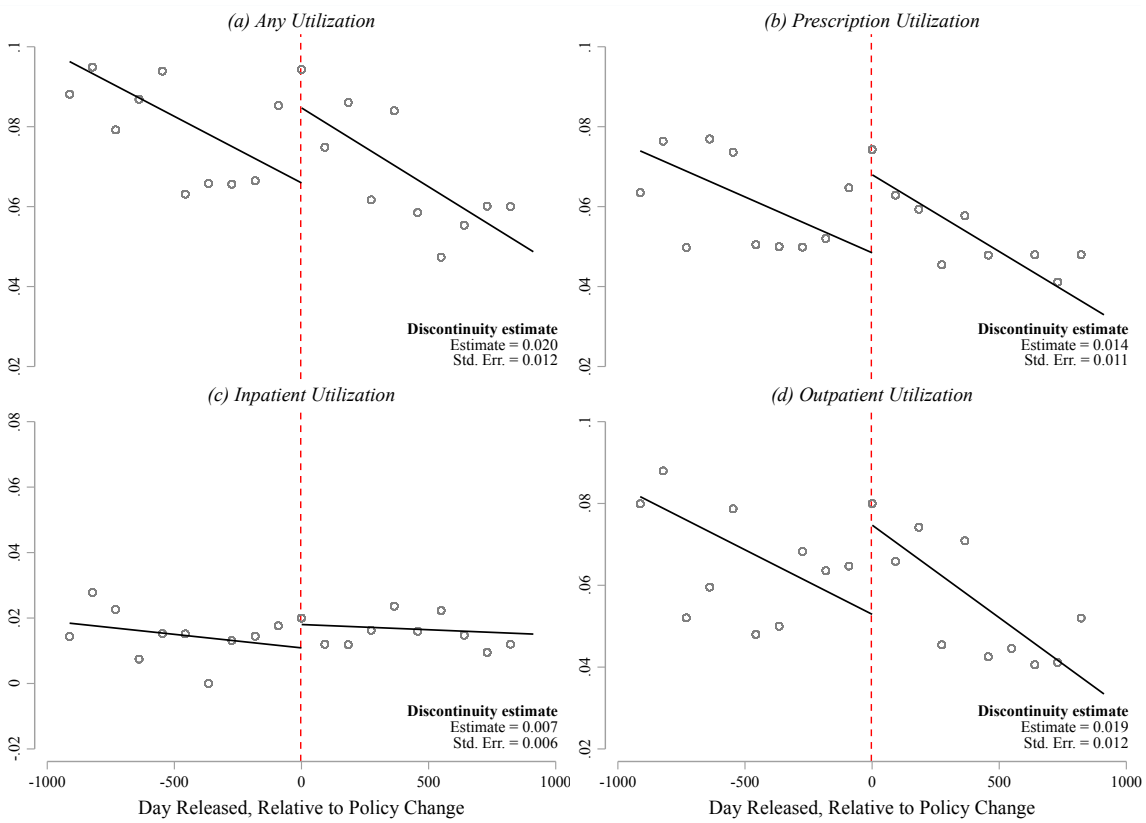
A. Figures and Tables

FIGURE 1 — Effect of South Carolina's Medicaid Enrollment Policy on Medicaid Enrollment within Six Months of Release



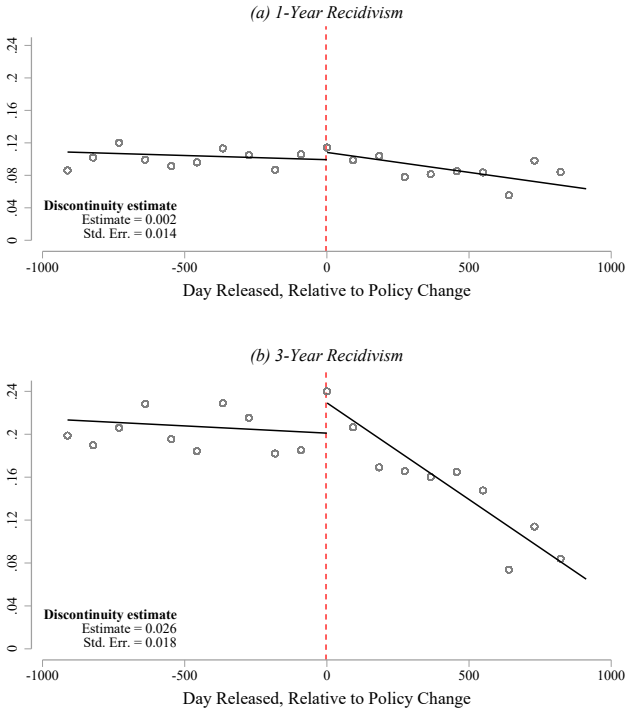
Notes: Incarceration data is from the South Carolina Department of Corrections. Data on Medicaid eligibility for ex-offenders is from the South Carolina Department of Health. The sample includes incarcerated individuals with sentence lengths of less than two years that were released within ten quarters of the July 2016 Medicaid application policy change. Each figure plots means, binned at the quarterly level, and linear fits of the listed outcome. Scatters to the left of the vertical line represent outcomes for individuals released prior to the Medicaid application policy, implemented on July 1, 2016. We include data for 10 quarters on either side of the cutoff.

FIGURE 2 — Probability of Using Medicaid within Six Months of Release



Notes: Incarceration data is from the South Carolina Department of Corrections. Data on Medicaid eligibility for ex-offenders is from the South Carolina Department of Health. The sample includes incarcerated individuals with sentence lengths of less than two years that were released within ten quarters of the July 2016 Medicaid application policy change. Each figure plots means, binned at the quarterly level, and linear fits of the listed outcome. Scatters to the left of the vertical line represent outcomes for individuals released prior to the Medicaid application policy, implemented on July 1, 2016. We include data for 10 quarters on either side of the cutoff. The outcome variable in Panel (a) is an indicator variable equal to one if an individual used Medicaid for inpatient, outpatient, or prescription services, and zero otherwise. The outcomes variables in Panels (b)-(d) are dummy variables equal to one if an individual used Medicaid for the listed service.

FIGURE 3 — Effect of South Carolina's Medicaid Enrollment Policy on 1-Year and 3-Year Recidivism Rates



Notes: Crime data is from the South Carolina Department of Justice from 2007–2020. Panel i displays scatters for a variable measuring whether an ex-offender commits a subsequent crime in the year following release. Panel ii displays re-offending within a 3-year period. The sample includes incarcerated individuals with sentence lengths of less than two years that were released within ten quarters of the July 2016 Medicaid application policy change.

TABLE 1 — Summary Statistics

	Mean	St.Dev.
Offender Characteristics		
Male	0.81	0.39
White	0.48	0.50
Over Age 45	0.20	0.40
Violent Crime	0.04	0.20
Property Crime	0.30	0.46
Drug Crime	0.14	0.35
Weapon Crime	0.04	0.20
Traffic Crime	0.15	0.36
Outcomes		
Medicaid Enrolled	0.30	0.46
Any Medicaid Utilization	0.06	0.23
Used Medicaid Outpatient Services	0.04	0.20
Used Medicaid Inpatient Services	0.01	0.09
Medicaid-Funded Prescription	0.04	0.20
Number of Medicaid-Funded Prescriptions	0.27	1.78
1-Year Recidivism	0.10	0.29
3-Year Recidivism	0.18	0.39

Notes: Crime data is from the South Carolina Department of Corrections. Medicaid claims data is from the South Carolina Department of Health. Column 1 shows the means for individuals in our data, i.e., individuals with interactions with the criminal justice system between 2007–2020 with sentence lengths shorter than 2 years. Column 2 displays standard deviations. Offender characteristics are dummy variables for if an individual is male, white, over the age of 45, and whether the first offense is coded as a violent, property, drug, or weapons crime. Outcome variables include outcomes in the period just after release. “Medicaid Enrolled" is a variable equal to one if an individual is enrolled in Medicaid within six months of release. “Any Utilization" is an indicator variable equal to one if an individual experiences any Medicaid-covered prescription, inpatient, or outpatient services within six months of release. “Medicaid-Funded Prescription" is an indicator variable equal to one if an individual fills a Medicaid-covered prescription within six months of release, and “Number of Prescriptions" represents the total number of prescriptions in a given quarter. Indicator variables “Inpatient Services" and “Outpatient Services" represent take-up of inpatient and outpatient services within six months of release, respectively. “Recidivism" is a dummy variable measuring whether we observe an individual committing a second offense.

TABLE 2 — Effects of a Medicaid Enrollment Policy on Medicaid Enrollment and Utilization

	Medicaid Enrollment	Any Utilization	Rx (Any)	Rx (Count)	Inpatient	Outpatient
Medicaid Policy	0.1043***	0.0203*	0.0140	0.0365	0.0074	0.0193*
	(0.0205)	(0.0122)	(0.0111)	(0.1025)	(0.0056)	(0.0117)
Pre-Period Mean	0.219	0.079	0.061	0.407	0.015	0.066
N	7284	7284	7284	7284	7284	7284

Notes: RD Estimates are based on Medicaid claims data from the South Carolina Department of Health and crime data from the South Carolina Department of Corrections. Robust standard errors are shown in parenthesis. Medicaid Enrollment is a variable equal to one if an individual is enrolled in Medicaid within six months of release. "Any Utilization" is an indicator variable equal to one if an individual experiences any Medicaid-covered prescription, inpatient, or outpatient services within six months of release. "Any Rx" is an indicator variable equal to one if an individual fills a Medicaid-covered prescription within six months of release, and "Rx Count" represents the total number of prescriptions in a given quarter. Indicator variables "Inpatient" and "Outpatient" represent take-up of inpatient and outpatient services within six months of release, respectively. The sample includes incarcerated individuals with sentence lengths of less than two years that were released within ten quarters of the July 2016 Medicaid application policy change.

*, **, and *** indicate statistical significance at the ten, five, and one percent levels, respectively.

TABLE 3 — Effects of a Medicaid Enrollment Policy on Recidivism

	Any	Violent	Property	Weapon	Drug	Traffic
1-Year Recidivism						
Medicaid Policy	0.00231	0.00131	-0.00799	0.00395	0.00503	0.00392
	(0.01416)	(0.00401)	(0.01086)	(0.00294)	(0.00452)	(0.00424)
Pre-Period Mean	0.101	0.007	0.061	0.002	0.008	0.010
N	7284	7284	7284	7284	7284	7284
3-Year Recidivism						
Medicaid Policy	0.02660	0.00610	0.00413	0.00490	0.00591	0.00438
	(0.01820)	(0.00516)	(0.01424)	(0.00381)	(0.00657)	(0.00621)
Pre-Period Mean	0.202	0.011	0.108	0.005	0.019	0.019
N	7284	7284	7284	7284	7284	7284

Notes: RD Estimates are based on Medicaid claims data from the South Carolina Department of Health and crime data from the South Carolina Department of Corrections. Robust standard errors are shown in parenthesis. Medicaid Enrollment is a variable equal to one if an individual is enrolled in Medicaid within six months of release. "1-Year Recidivism" is an indicator variable equal to one if an individual commits another offense within a year of release. "3-Year Recidivism" is an indicator variable equal to one if an individual commits another offense within 3 years of release. Each column presents estimates for the listed crime type, with "Any" representing any type of subsequent crime. The sample includes incarcerated individuals with sentence lengths of less than two years that were released within ten quarters of the July 2016 Medicaid application policy change. *, **, and *** indicate statistical significance at the ten, five, and one percent levels, respectively.

TABLE 4 — Robustness Checks

					Triangular Kernel	
	Baseline	Quad Fit	Cubic Fit	Poisson	MSERD BW	Full BW
Medicaid Enrollment						
Medicaid Policy	0.1043***	0.0976***	0.0860***	0.3290***	0.0881**	0.0903***
	(0.0205)	(0.0207)	(0.0264)	(0.0653)	(0.0407)	(0.0239)
Any Utilization						
Medicaid Policy	0.0203*	0.0210*	0.0256	0.2729	0.0083	0.0223
	(0.0122)	(0.0122)	(0.0163)	(0.1659)	(0.0238)	(0.0145)
Prescriptions						
Medicaid Policy	0.0140	0.0148	0.0236	0.2480	0.0114	0.0187
	(0.0111)	(0.0112)	(0.0151)	(0.1997)	(0.0208)	(0.0128)
Inpatient						
Medicaid Policy	0.0074	0.0072	0.0022	0.4775	0.0036	0.0041
	(0.0056)	(0.0056)	(0.0078)	(0.3644)	(0.0114)	(0.0065)
Outpatient						
Medicaid Policy	0.0193*	0.0202*	0.0163	0.3162	0.0191	0.0187
	(0.0117)	(0.0117)	(0.0156)	(0.1943)	(0.0216)	(0.0134)
1-Year Recidivism						
Medicaid Policy	0.0018	0.0034	0.0216	0.0176	0.0146	0.0120
	(0.0142)	(0.0141)	(0.0192)	(0.1496)	(0.0260)	(0.0161)
3-Year Recidivism						
Medicaid Policy	0.0261	0.0338*	0.0474*	0.1408	0.0672*	0.0406*
	(0.0182)	(0.0179)	(0.0242)	(0.1028)	(0.0357)	(0.0214)

Notes: Each coefficient is generated by a separate regression of Equation (1) using the listed outcome as the dependent variable. Column 1 replicates the baseline results for comparison. Columns 2 and 3 allow for the release days from the cutoff to vary quadratically and cubically (in addition to on either side of the threshold) respectively. Column 4 reports coefficient from a Poisson model. Columns 5 and 6 fit the model using a triangular kernel instead of uniform kernel. Column 5 reports estimates from the full sample, using a triangular kernel instead of uniform kernel. Crime data are from the South Carolina Department of Corrections. Data on Medicaid enrollment and utilization is from the South Carolina Department of Health and Human Services. “Medicaid Enrollment" is a variable equal to one if an individual is enrolled in Medicaid within six months of release. “Any Utilization" is an indicator variable equal to one if an individual experiences any Medicaid-covered prescription, inpatient, or outpatient services within six months of release. “Prescriptions" indicates if an individual fills a Medicaid-covered prescription within six months of release. Indicator variables “Inpatient" and “Outpatient" represent take-up of inpatient and outpatient services within six months of release, respectively. “1-Year Recidivism" is an indicator variable equal to one if an individual commits another offense within a year of release. “3-Year Recidivism" is an indicator variable equal to one if an individual commits another offense within 3 years of release. The sample includes incarcerated individuals with sentence lengths of less than two years that were released within ten quarters of the July 2016 Medicaid application policy change.

*, **, and *** indicate statistical significance at the ten, five, and one percent levels, respectively.

TABLE 5 — Effects of a Medicaid Enrollment Policy on Medicaid Enrollment and Utilization, Using a Rolling Post-Period Window

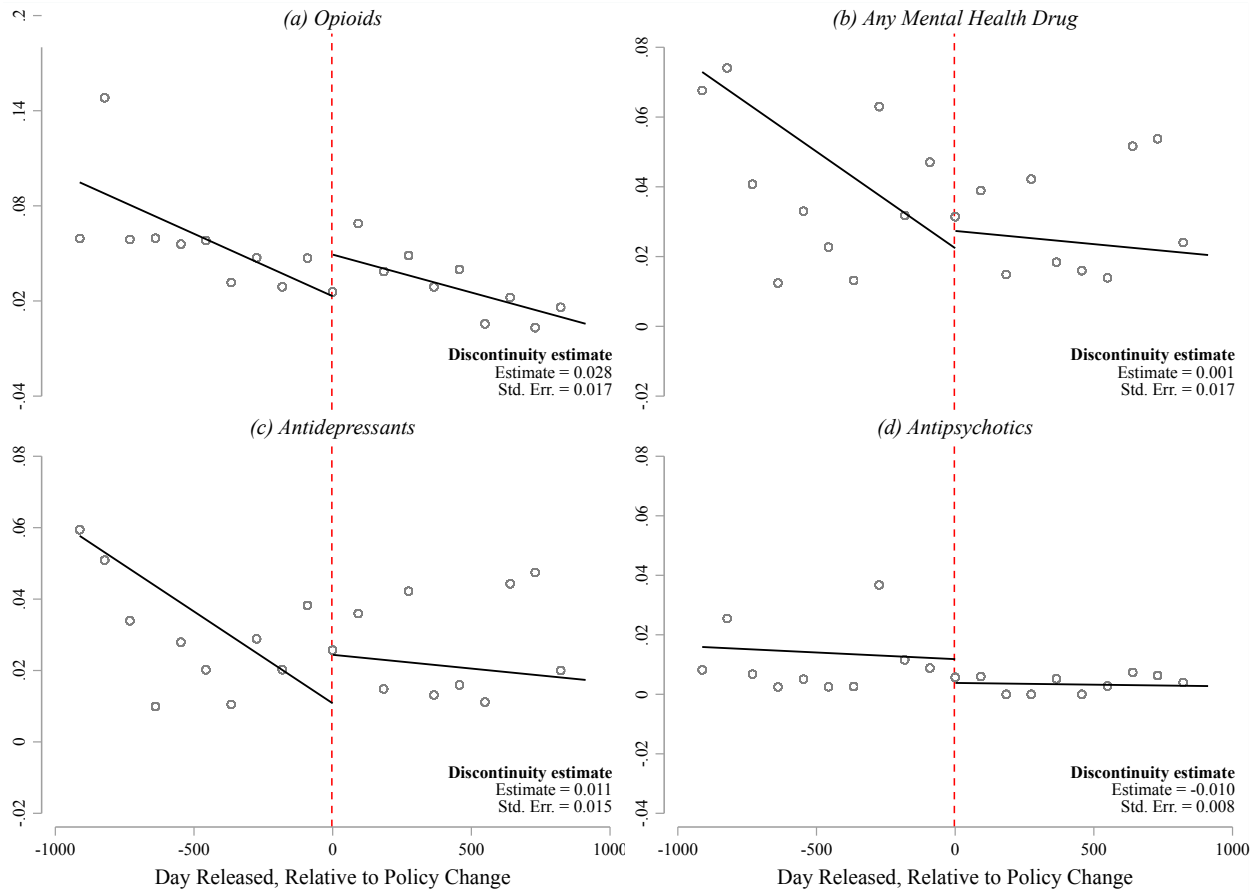
	Post-Period Length, in Quarters							
	1	2	3	4	5	6	7	8
Medicaid Enrollment								
Medicaid Policy	0.1028***	0.1090***	0.1070***	0.1023***	0.0923***	0.0866***	0.0808***	0.0737***
	(0.0201)	(0.0197)	(0.0193)	(0.0190)	(0.0186)	(0.0182)	(0.0180)	(0.0178)
Pre-Period Mean	0.191	0.191	0.191	0.191	0.191	0.191	0.191	0.191
N	7284	14568	21852	29136	36170	42888	49335	55423
Any Utilization								
Medicaid Policy	0.0154	0.0189*	0.0207**	0.0199**	0.0167*	0.0157*	0.0158*	0.0153*
	(0.0106)	(0.0098)	(0.0093)	(0.0091)	(0.0091)	(0.0090)	(0.0089)	(0.0089)
Pre-Period Mean	0.070	0.070	0.070	0.070	0.070	0.070	0.070	0.070
N	7284	14568	21852	29136	36170	42888	49335	55423
Prescriptions								
Medicaid Policy	0.0111	0.0100	0.0117	0.0129	0.0123	0.0122	0.0118	0.0114
	(0.0097)	(0.0091)	(0.0086)	(0.0084)	(0.0084)	(0.0083)	(0.0082)	(0.0081)
Pre-Period Mean	0.058	0.058	0.058	0.058	0.058	0.058	0.058	0.058
N	7284	14568	21852	29136	36170	42888	49335	55423
Inpatient								
Medicaid Policy	0.0048	0.0040	0.0046	0.0050*	0.0039	0.0040	0.0038	0.0037
	(0.0041)	(0.0033)	(0.0030)	(0.0029)	(0.0029)	(0.0026)	(0.0025)	(0.0025)
Pre-Period Mean	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
N	7284	14568	21852	29136	36170	42888	49335	55423
Outpatient								
Medicaid Policy	0.0130	0.0158*	0.0191**	0.0195**	0.0142*	0.0112	0.0113	0.0115
	(0.0097)	(0.0086)	(0.0081)	(0.0077)	(0.0076)	(0.0074)	(0.0074)	(0.0074)
Pre-Period Mean	0.051	0.051	0.051	0.051	0.051	0.051	0.051	0.051
N	7284	14568	21852	29136	36170	42888	49335	55423

Notes: See Table 2. Each estimate presents separate effects of the South Carolina Medicaid enrollment initiative for the 1–8 quarters (i.e., 3–24 months) following incarceration release. "Medicaid Enrollment" is a variable equal to one if an individual is enrolled in Medicaid within six months of release. "Any Utilization" is an indicator variable equal to one if an individual experiences any Medicaid-covered prescription, inpatient, or outpatient services within six months of release. "Prescriptions" indicates if an individual fills a Medicaid-covered prescription within six months of release. Indicator variables "Inpatient" and "Outpatient" represent take-up of inpatient and outpatient services within six months of release, respectively. "1-Year Recidivism" is an indicator variable equal to one if an individual commits another offense within a year of release. "3-Year Recidivism" is an indicator variable equal to one if an individual commits another offense within 3 years of release. Estimates are from a subset of the full sample that includes incarcerated individuals with sentence lengths of less than two years that were released within ten quarters of the July 2016 Medicaid application policy change.

*, **, and *** indicate statistical significance at the ten, five, and one percent levels, respectively.

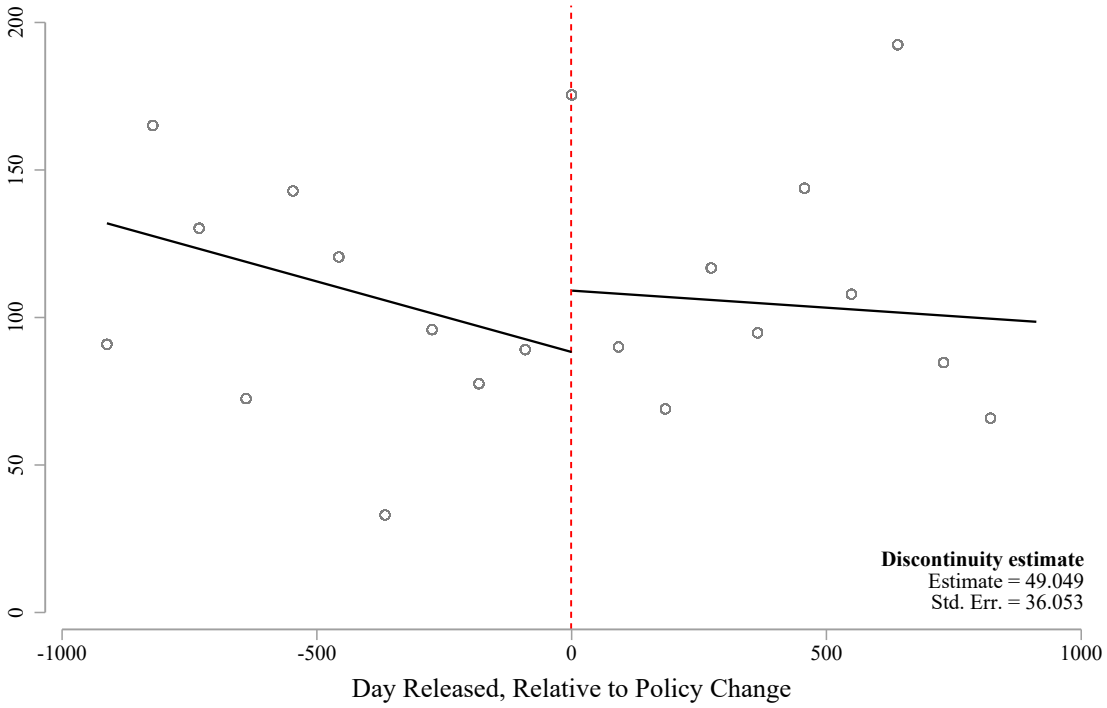
Appendix

Figure A1 — Effects of Medicaid Policy on Prescription Take-Up of Opioids and Mental Health Drugs



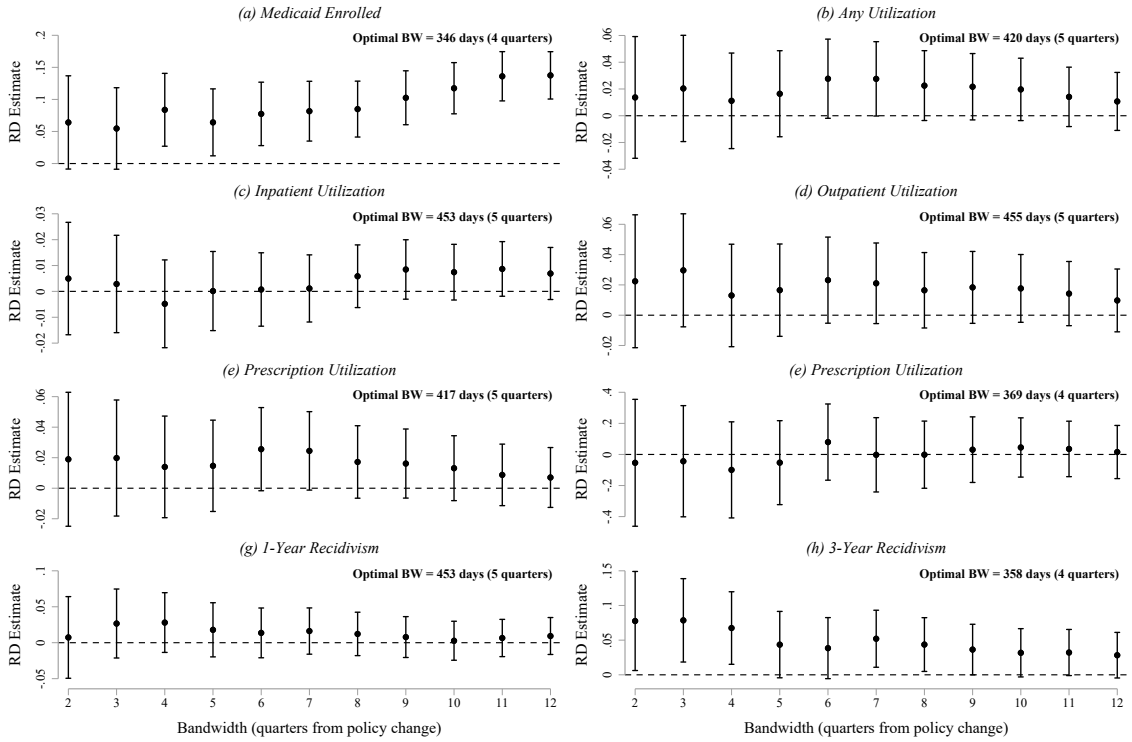
Notes: Incarceration data is from the South Carolina Department of Corrections. Data on Medicaid eligibility for ex-offenders is from the South Carolina Department of Health. The sample includes incarcerated individuals with sentence lengths of less than two years that were released within ten quarters of the July 2016 Medicaid application policy change. Each figure plots means, binned at the quarterly level, and linear fits of the listed outcome. Scatters to the left of the vertical line represent outcomes for individuals released prior to the Medicaid application policy, implemented on July 1, 2016. We include data for 10 quarters on either side of the cutoff. The top left panel presents estimates on opioid take-up within six months of release, while the top right panel presents scatters and RD estimates for any mental health prescription take-up within six months of release. The bottom left and right panels presents estimates for antipsychotic prescriptions take-up and antidepressants take-up within six months of release, respectively.

FIGURE A2 — Effects of Medicaid Policy on Health Care Expenditures



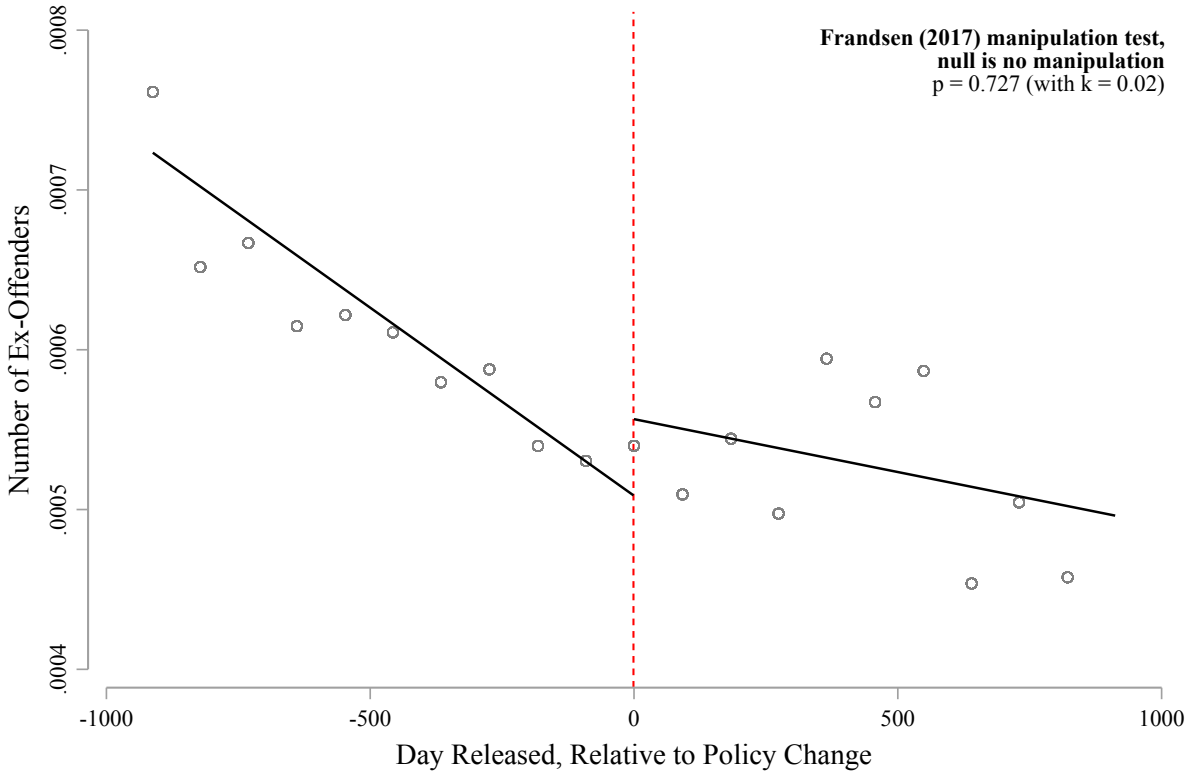
Notes: Incarceration data is from the South Carolina Department of Corrections. Data on Medicaid eligibility for ex-offenders is from the South Carolina Department of Health. The sample includes incarcerated individuals with sentence lengths of less than two years that were released within ten quarters of the July 2016 Medicaid application policy change. Each figure plots means, binned at the quarterly level, and linear fits of the listed outcome (payments for Medicaid-related health care expenditures). Scatters to the left of the vertical line represent outcomes for individuals released prior to the Medicaid application policy, implemented on July 1, 2016. We include data for 10 quarters on either side of the cutoff.

FIGURE A3 — Testing Estimate Sensitivity Across Bandwidths



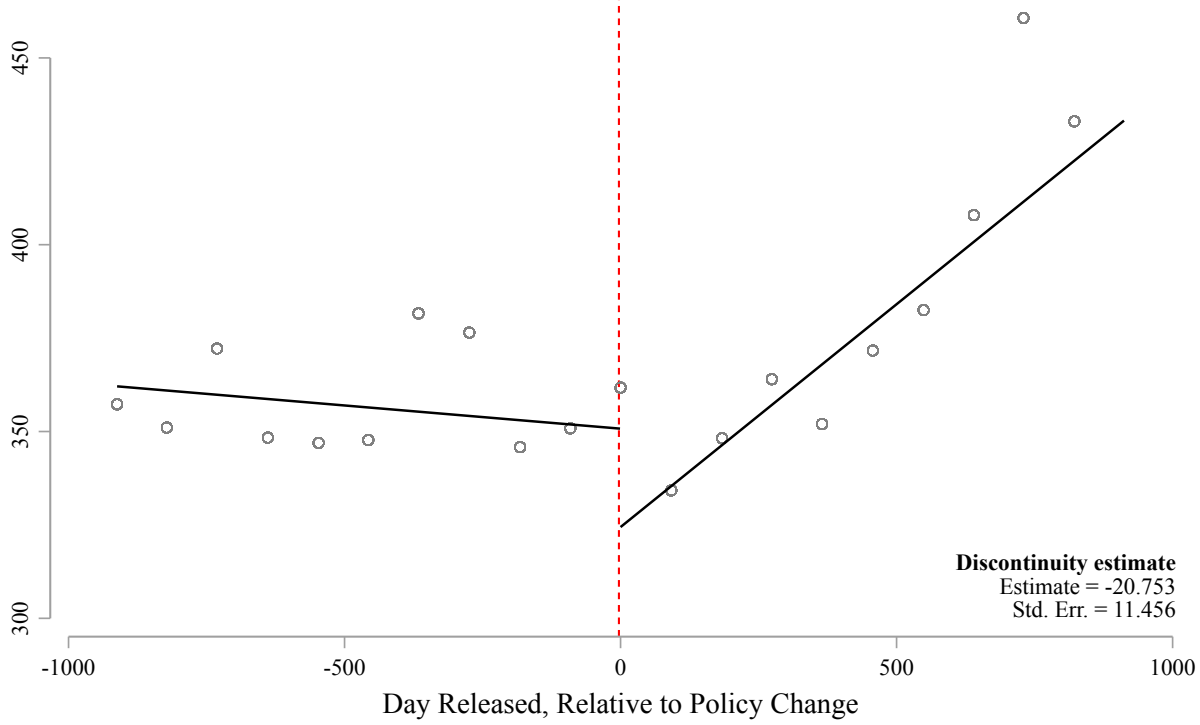
Notes: RD Estimates are based on Medicaid claims data from the South Carolina Department of Health and crime data from the South Carolina Department of Corrections from 2007–2020. Robust standard errors are shown in parenthesis. The MSE-calculated bandwidths following Calonico, Cattaneo, Farrell, and Titiunik (2016) is shown in each graph and ranges from 346–455 days for each of our main outcome variables. Optimal bandwidth estimates and standard errors for each outcome are also provided in Table 4.

FIGURE A4 — Distribution of the Number of Prisoners Released



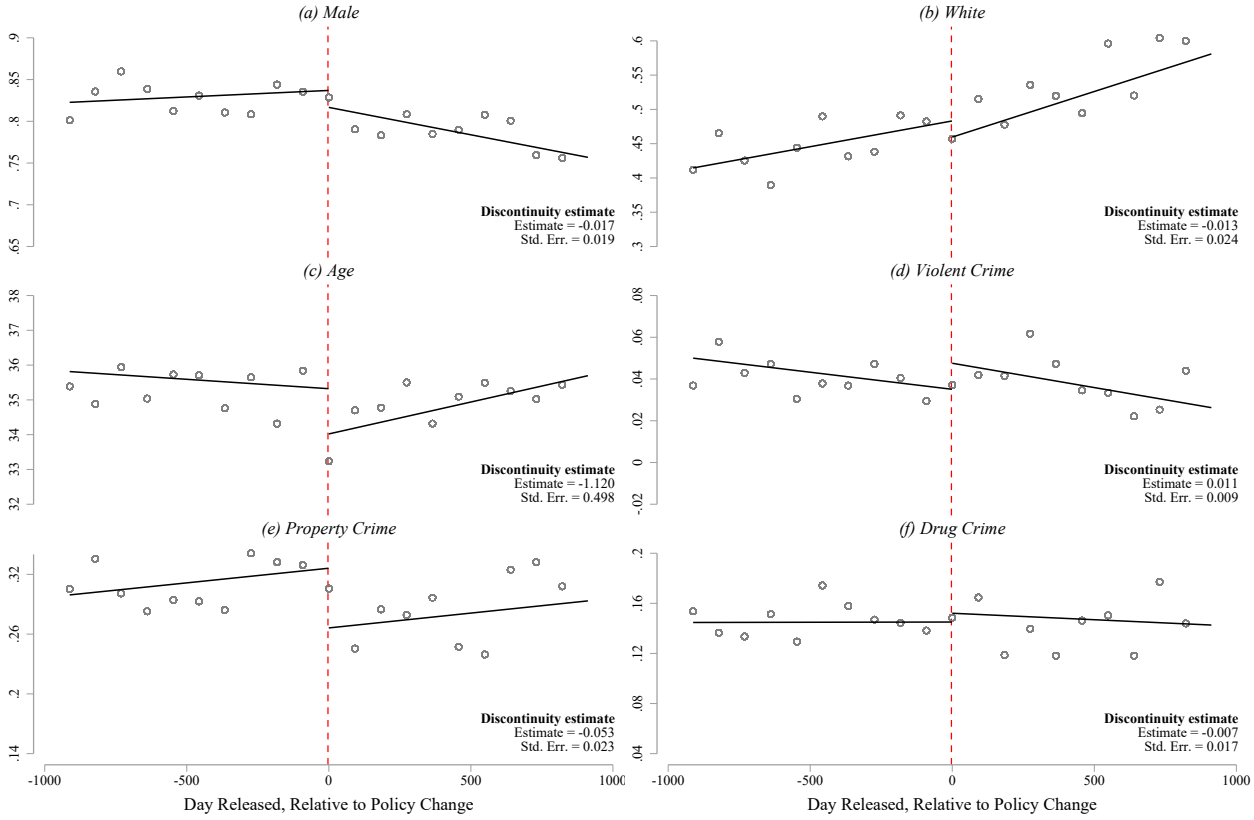
Notes: Incarceration data is from the South Carolina Department of Corrections. Data on Medicaid eligibility for ex-offenders is from the South Carolina Department of Health. The sample includes incarcerated individuals with sentence lengths of less than two years that were released within ten quarters of the July 2016 Medicaid application policy change. The vertical line represents the date released at which prisoners are eligible for simplified Medicaid re-enrollment. We include data for 10 quarters on either side of the July 2016 policy cutoff. Scatters represent the density for each quarterly release date bin. We present the estimate and corresponding p-value the Frandsen (2017) density test for running variables with discrete realizations to test for manipulation at the cutoff.

FIGURE A5 — Average Sentence Length, by Release Date



Notes: Incarceration data is from the South Carolina Department of Corrections. Data on Medicaid eligibility for ex-offenders is from the South Carolina Department of Health. The sample includes incarcerated individuals with sentence lengths of less than two years that were released within ten quarters of the July 2016 Medicaid application policy change. The vertical line represents the date released at which prisoners are eligible for simplified Medicaid re-enrollment. We include data for 10 quarters on either side of the July 2016 policy cutoff. Scatters represent the average sentence length in days.

FIGURE A6 — Testing Discontinuity of Individual Characteristics and Conviction Type



Notes: Incarceration data is from the South Carolina Department of Corrections from 2007–2020. Data on Medicaid eligibility for ex-offenders is from the South Carolina Department of Health. The sample includes incarcerated individuals with sentence lengths of less than two years that were released within ten quarters of the July 2016 Medicaid application policy change. Each figure plots means, binned at the quarterly level, and linear fits of the listed outcome. Scatters to the left of the vertical line represent outcomes for individuals released prior to the Medicaid Enrollment policy, implemented on July 1, 2016. In the top two panels we consider indicator variables equal to one for inmates who are male or White. In panel (c) we present an estimate for offender age. In panels (d)–(f) we consider whether the type of crime changes at the policy cutoff, including the probability of being released for committing a drug, property, or violent crime, respectively. In each panel we present discontinuity estimates and standard errors, based on our main RD approach described by Equation (1).

TABLE A1 — Summary Statistics, by Treatment Status

	Individuals Released Post-Medicaid Policy *N = 3,282*	**Individuals Released Pre-Medicaid Policy** *N = 4,002*
Medicaid Enrolled	0.41	0.20
Used Medicaid Outpatient Services	0.04	0.05
Used Medicaid Inpatient Services	0.01	0.01
Medicaid-Funded Prescription	0.04	0.05
Number of Medicaid-Funded Prescriptions	0.23	0.29
1-Year Recidivism	0.09	0.10
3-Year Recidivism	0.16	0.20

Notes: Crime data is from the South Carolina Department of Corrections. Medicaid claims data is from the South Carolina Department of Health. Our sample includes individuals with a first conviction between 2007–2020 with sentence lengths shorter than 2 years. Column 1 shows the means for treated individuals in our data, i.e., individuals released after July 2016. Column 2 displays the means for comparison individuals, i.e., individuals released before July 2016. Offender characteristics are dummy variables for if an individual is male, white, over the age of 45, and whether the first offense is coded as a violent, property, drug, or weapons crime. Outcome variables include outcomes in the period just after release. “Medicaid Enrolled" is a variable equal to one if an individual is enrolled in Medicaid within six months of release. “Any Utilization" is an indicator variable equal to one if an individual experiences any Medicaid-covered prescription, inpatient, or outpatient services within six months of release. “Medicaid-Funded Prescription" is an indicator variable equal to one if an individual fills a Medicaid-covered prescription within six months of release, and “Number of Prescriptions" represents the total number of prescriptions in a given quarter. Indicator variables “Inpatient Services" and “Outpatient Services" represent take-up of inpatient and outpatient services within six months of release, respectively. “Recidivism" is a dummy variable measuring whether we observe an individual committing a second offense.

TABLE A2 — Effects of a Medicaid Enrollment Policy on Hospitalizations, by ICD Category

Total	Infections	Circulatory	Respiratory	Injury	Mental
Medicaid Policy	-0.0011	0.0060	0.0024	0.0092	-0.0062
	(0.0038)	(0.0081)	(0.0054)	(0.0102)	(0.0119)
Pre-Period Mean	0.004	0.009	0.008	0.027	0.021
N	7284	7284	7284	7284	7284
Inpatient	Infections	Circulatory	Respiratory	Injury	Mental
Medicaid Policy	0.0016	-0.0009	0.0006	0.0012	0.0011
	(0.0020)	(0.0020)	(0.0022)	(0.0017)	(0.0041)
Pre-Period Mean	0.000	0.003	0.000	0.001	0.004
N	7284	7284	7284	7284	7284
Outpatient	Infections	Circulatory	Respiratory	Injury	Mental
Medicaid Policy	-0.0028	0.0068	0.0018	0.0083	-0.0074
	(0.0032)	(0.0075)	(0.0050)	(0.0095)	(0.0095)
Pre-Period Mean	0.004	0.006	0.008	0.026	0.017
N	7284	7284	7284	7284	7284

Notes: RD Estimates are based on Medicaid claims data from the South Carolina Department of Health and crime data from the South Carolina Department of Corrections. Robust standard errors are shown in parenthesis. Medicaid Enrollment is a variable equal to one if an individual is enrolled in Medicaid within six months of release. Categories for ICD9 and ICD10 codes can be found at https://www.cms.gov/medicare/coordination-benefits-recovery/overview/icd-code-lists.

*, **, and *** indicate statistical significance at the ten, five, and one percent levels, respectively.

TABLE A3 — Effects of a Medicaid Enrollment Policy on Hospitalizations, by CCS Category

Total	Drug-Related	Mental	Injury	Screening	STI
Medicaid Policy	-0.0088	0.0012	0.0065	-0.0023	0.0007
	(0.0097)	(0.0068)	(0.0105)	(0.0021)	(0.0043)
Pre-Period Mean	0.008	0.013	0.033	0.001	0.004
N	7284	7284	7284	7284	7284
Inpatient	Drug-Related	Mental	Injury	Screening	STI
Medicaid Policy	-0.0012	0.0030	0.0003	N/A	N/A
	(0.0030)	(0.0029)	(0.0003)		
Pre-Period Mean	0.002	0.002	0.000		
N	7284	7284	7284		
Outpatient	Drug-Related	Mental	Injury	Screening	STI
Medicaid Policy	-0.0076	-0.0015	0.0065	-0.0023	0.0007
	(0.0080)	(0.0051)	(0.0105)	(0.0021)	(0.0043)
Pre-Period Mean	0.007	0.011	0.033	0.001	0.004
N	7284	7284	7284	7284	7284

Notes: RD Estimates are based on Medicaid claims data from the South Carolina Department of Health and crime data from the South Carolina Department of Corrections. Robust standard errors are shown in parenthesis. Medicaid Enrollment is a variable equal to one if an individual is enrolled in Medicaid within six months of release. Categories for CCS codes can be found at https://hcup-us.ahrq.gov/toolssoftware/ccsr/dxccsr.jsp. We observe no inpatient visits for screening or STI categories.

*, **, and *** indicate statistical significance at the ten, five, and one percent levels, respectively.

TABLE A4 — Heterogeneous Effects of a Medicaid Enrollment Policy on Medicaid Enrollment, Utilization, and Recidivism, by Sex, Age, and Race

	Medicaid Enrollment	Any Utilization	Rx (Any)	Rx (Count)	Inpatient	Outpatient	1-Year Recidivism	3-Year Recidivism
Total								
Medicaid Policy	0.1043***	0.0203*	0.0140	0.0365	0.0074	0.0193*	0.0023	0.0266
	(0.0205)	(0.0122)	(0.0111)	(0.1025)	(0.0056)	(0.0117)	(0.0142)	(0.0182)
Pre-Period Mean	0.219	0.079	0.061	0.407	0.015	0.066	0.101	0.202
N	7284	7284	7284	7284	7284	7284	7284	7284
Male								
Medicaid Policy	0.1337***	0.0200*	0.0125	0.0585	0.0046	0.0183*	0.0047	0.0315
	(0.0221)	(0.0112)	(0.0094)	(0.0814)	(0.0047)	(0.0106)	(0.0166)	(0.0212)
Pre-Period Mean	0.180	0.051	0.034	0.251	0.009	0.043	0.111	0.217
N	5910	5910	5910	5910	5910	5910	5910	5910
Above 45								
Medicaid Policy	0.1655***	0.0227	0.0043	-0.2030	-0.0080	0.0406	-0.0020	0.0439
	(0.0458)	(0.0313)	(0.0275)	(0.3391)	(0.0184)	(0.0306)	(0.0287)	(0.0360)
Pre-Period Mean	0.228	0.102	0.073	0.683	0.028	0.087	0.098	0.160
N	1586	1586	1586	1586	1586	1586	1586	1586
Non-White								
Medicaid Policy	0.1235***	0.0336**	0.0156	0.0222	0.0048	0.0310*	0.0213	0.0162
	(0.0300)	(0.0163)	(0.0145)	(0.1192)	(0.0074)	(0.0159)	(0.0199)	(0.0259)
Pre-Period Mean	0.221	0.077	0.057	0.325	0.012	0.063	0.085	0.182
N	3765	3765	3765	3765	3765	3765	3765	3765

Notes: See Table 2. Each panel presents estimates for the listed subgroup of individuals, based on observable sex, age, and race characteristics.

*, **, and *** indicate statistical significance at the ten, five, and one percent levels, respectively.

TABLE A5 — Heterogeneous Effects of a Medicaid Enrollment Policy on Medicaid Enrollment, Utilization, and Recidivism, by Crime Type of First Offense

	Medicaid Enrollment	Any Utilization	Rx (Any)	Rx (Count)	Inpatient	Outpatient	1-Year Recidivism	3-Year Recidivism
Any								
Medicaid Policy	0.1043***	0.0203*	0.0140	0.0365	0.0074	0.0193*	0.0023	0.0266
	(0.0205)	(0.0122)	(0.0111)	(0.1025)	(0.0056)	(0.0117)	(0.0142)	(0.0182)
Pre-Period Mean	0.219	0.079	0.061	0.407	0.015	0.066	0.101	0.202
N	7284	7284	7284	7284	7284	7284	7284	7284
Violent								
Medicaid Policy	0.0778	-0.0499	-0.0612	-0.2338	-0.0037	-0.0542	-0.0104	0.0826
	(0.1006)	(0.0432)	(0.0404)	(0.2516)	(0.0034)	(0.0406)	(0.0953)	(0.1141)
Pre-Period Mean	0.219	0.079	0.061	0.407	0.015	0.066	0.101	0.202
N	292	292	292	292	292	292	292	292
Property								
Medicaid Policy	0.0517	0.0062	0.0094	0.1459	0.0095	0.0085	0.0037	0.0413
	(0.0391)	(0.0254)	(0.0233)	(0.2201)	(0.0131)	(0.0249)	(0.0265)	(0.0342)
Pre-Period Mean	0.219	0.079	0.061	0.407	0.015	0.066	0.101	0.202
N	2171	2171	2171	2171	2171	2171	2171	2171
Weapon								
Medicaid Policy	-0.0430	0.0048	0.0205	-0.0411	0.0128	-0.0104	0.0498	0.0396
	(0.1046)	(0.0508)	(0.0297)	(0.1330)	(0.0128)	(0.0455)	(0.0689)	(0.0904)
Pre-Period Mean	0.219	0.079	0.061	0.407	0.015	0.066	0.101	0.202
N	310	310	310	310	310	310	310	310
Drug								
Medicaid Policy	0.1020*	0.0360	0.0374	0.0251	0.0199	0.0097	-0.0104	0.0008
	(0.0547)	(0.0332)	(0.0279)	(0.2547)	(0.0161)	(0.0283)	(0.0350)	(0.0486)
Pre-Period Mean	0.219	0.079	0.061	0.407	0.015	0.066	0.101	0.202
N	1055	1055	1055	1055	1055	1055	1055	1055
Traffic								
Medicaid Policy	0.1900***	0.0316	0.0233	0.1084	0.0054	0.0574*	0.0157	-0.0140
	(0.0570)	(0.0314)	(0.0281)	(0.1972)	(0.0157)	(0.0308)	(0.0308)	(0.0455)
Pre-Period Mean	0.219	0.079	0.061	0.407	0.015	0.066	0.101	0.202
N	1094	1094	1094	1094	1094	1094	1094	1094

Notes: See Table 2. Each panel presents estimates for the listed subgroup of individuals, based on the category of crime that appears as a first offense. The sample includes incarcerated individuals with sentence lengths of less than two years that were released within ten quarters of the July 2016 Medicaid application policy change.

*, **, and *** indicate statistical significance at the ten, five, and one percent levels, respectively.

TABLE A6 — Effects of a Medicaid Enrollment Policy on Medicaid Enrollment and Utilization, Including Covariates

	Medicaid Enrollment	Any Utilization	Rx (Any)	Rx (Count)	Inpatient	Outpatient	1-Year Recidivism	3-Year Recidivism
Medicaid Policy	0.1008***	0.0199*	0.0132	0.0447	0.0077	0.0189*	0.0027	0.0027
	(0.0202)	(0.0118)	(0.0108)	(0.1005)	(0.0056)	(0.0113)	(0.0142)	(0.0142)
Pre-Period Mean	0.219	0.079	0.061	0.407	0.015	0.066	0.101	0.101
N	7284	7284	7284	7284	7284	7284	7284	7284

Notes: RD Estimates are based on Medicaid claims data from the South Carolina Department of Health and crime data from the South Carolina Department of Corrections. Robust standard errors are shown in parenthesis. Medicaid Enrollment is a variable equal to one if an individual is enrolled in Medicaid within six months of release. "Any Utilization" is an indicator variable equal to one if an individual experiences any Medicaid-covered prescription, inpatient, or outpatient services within six months of release. "Any Rx" is an indicator variable equal to one if an individual fills a Medicaid-covered prescription within six months of release, and "Rx Count" represents the total number of prescriptions in a given quarter. Indicator variables "Inpatient" and "Outpatient" represent take-up of inpatient and outpatient services within six months of release, respectively. Covariates include dummy variables for male, white, age at release, and whether the first observed conviction was for a violent, property, or drug crime. The sample includes incarcerated individuals with sentence lengths of less than two years that were released within ten quarters of the July 2016 Medicaid application policy change.

*, **, and *** indicate statistical significance at the ten, five, and one percent levels, respectively.

TABLE A7 — Effects of a Medicaid Enrollment Policy on Medicaid Enrollment and Utilization, Including Sentences Longer than Two Years

	Medicaid Enrollment	Any Utilization	Rx (Any)	Rx (Count)	Inpatient	Outpatient	1-Year Recidivism	3-Year Recidivism
Medicaid Policy	0.0327***	0.0057	0.0037	-0.0466	0.0053*	0.0036	0.0033	0.0134
	(0.0107)	(0.0062)	(0.0055)	(0.0568)	(0.0028)	(0.0057)	(0.0069)	(0.0094)
Pre-Period Mean	0.202	0.067	0.053	0.410	0.013	0.054	0.091	0.178
N	25401	25401	25401	25401	25401	25401	25401	25401

Notes: RD Estimates are based on Medicaid claims data from the South Carolina Department of Health and crime data from the South Carolina Department of Corrections. Robust standard errors are shown in parenthesis. Medicaid Enrollment is a variable equal to one if an individual is enrolled in Medicaid within six months of release. "Any Utilization" is an indicator variable equal to one if an individual experiences any Medicaid-covered prescription, inpatient, or outpatient services within six months of release. "Any Rx" is an indicator variable equal to one if an individual fills a Medicaid-covered prescription within six months of release, and "Rx Count" represents the total number of prescriptions in a given quarter. Indicator variables "Inpatient" and "Outpatient" represent take-up of inpatient and outpatient services within six months of release, respectively. The sample includes incarcerated individuals with sentence lengths of any length that were released within ten quarters of the July 2016 Medicaid application policy change.

*, **, and *** indicate statistical significance at the ten, five, and one percent levels, respectively.

TABLE A8 — Heterogeneous Effects of a Medicaid Enrollment Policy on Medicaid Enrollment and Utilization, by Prior Medicaid Utilization

	Medicaid Enrollment	Any Utilization	Rx (Any)	Rx (Count)	Inpatient	Outpatient	1-Year Recidivism	3-Year Recidivism
Any Prior Utilization								
Medicaid Policy	0.0339	0.0626*	0.0418	0.1222	0.0137	0.0633**	0.0150	0.0134
	(0.0404)	(0.0334)	(0.0309)	(0.2686)	(0.0159)	(0.0319)	(0.0250)	(0.0326)
Pre-Period Mean	0.588	0.230	0.184	1.180	0.042	0.189	0.095	0.210
N	2177	2177	2177	2177	2177	2177	2177	2177
No Utilization								
Medicaid Policy	0.1430***	0.0050	0.0045	0.0149	0.0051	0.0029	-0.0036	0.0327
	(0.0203)	(0.0086)	(0.0070)	(0.0877)	(0.0042)	(0.0080)	(0.0169)	(0.0220)
Pre-Period Mean	0.080	0.022	0.014	0.113	0.005	0.019	0.103	0.199
N	5107	5107	5107	5107	5107	5107	5107	5107

Notes: See Table 2. The top panel presents estimates for individuals with utilization of Medicaid services prior to incarceration; the bottom panel presents those with no prior utilization. The full sample includes incarcerated individuals with sentence lengths of less than two years that were released within ten quarters of the July 2016 Medicaid application policy change. Approximately 14 percent of the full sample used Medicaid services at least once at some point prior to incarceration.

*, **, and *** indicate statistical significance at the ten, five, and one percent levels, respectively.