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Replication Assignment

# Abstract

In this paper, I replicate the analysis of Green and Winik in their 2010 study, “Using random judge assignment to estimate the effects of incarceration and probation on recidivism among drug offenders”. Green and Winik analyze a natural experiment in which 1003 defendants charged with drug-related offenses are assigned to nine judicial calendars, each correlated with a single judge of the DC Superior Court, between June 1, 2002 and May 9, 2003. They argue that judges’ sentencing behaviors varied sufficiently such that random assignment to their court calendars serves as an instrumental variable to measure the causal impact of one month of incarceration on recidivism rates.

I additionally consider Roodman’s replication analysis in his paper, “The impacts of incarceration on crime,” in which he explores, among other areas, measures of weak instruments and the effect of the definition of the follow-up interval on the estimated impact of incarceration.

Finally, I examine the distributions…

# Data and Measures

*Data.* Green and Winik compile data from public lockup lists and case file records from the DC Superior court, supplemented by the Court’s public electronic case management database. They restrict observations to defendants charged with at least one felony drug offense or at least one non-drug-related misdemeanor (e.g. panhandling or public intoxication) between June 1, 2002 and May 9, 2003. In order to avoid exposure to multiple treatments (i.e. multiple judges), they additionally exclude a small number of instances when a defendant was sentenced or disposed for multiple cases simultaneously. Green and Winik employ robust cluster standard errors to account for dependency in the observations, as 172 codefendants were assigned the same judge. Finally, the majority of defendants are assigned to the Felony II docket, and Green and Winik exclude the cases when defendants were assigned to the Accelerated Felony Calendar (AFTC) pre-randomization.

*Sentencing (endogenous variables)*. Green and Winik measure sentences using continuous and binary variables. Possible sentences within the data include incarceration (*incarc* in months), probation (*probat* in months), or both. While probation may be sentenced independently of incarceration, frequently, a pre-defined portion of the defendant’s incarceration is indefinitely suspended (*suspend* in months) to be imposed if the defendant fails to comply with the conditions of their probation. Green and Winik estimate a defendant’s time imprisoned (*toserve* in months) as the difference between *incarc* and *probat*.

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| --- | --- | --- |
| Variable | Name | Description |
| Incarceration | incarc  incarcerate | Months of incarceration initially sentenced (potentially including some portion of suspended time)  Binary indicating the defendant was sentenced to incarceration at their disposition |
| Probation | probat  probatnonzero | Months of probation, which may be revoked and replaced with incarceration if the defendant violates the terms of their parole.  Binary indicating the defendant was sentenced probation |
|  |  |  |

*Covariates (exogenous variables)*. Green and Winik verify the random assignment of judges by examining age, and binary and dummy demographic data (e.g. *female*, *nonblack*). They find no systematic relationships that would undermine their causal inference. They use these covariates in their regressions to improve the precision of the estimates.

*Recidivism (outcome variables)*. Green and Winik track recidivism as a binary indicator of rearrest (*laterarr*) within four years from the defendant’s initial disposition in the data. For robustness, they additionally code binaries that describe types of arrests and convictions. Green and Winik note that starting the follow-up period on the date of disposition confounds the effects on recidivism of deterrence and incapacitation. However, they argue that this effect should be small given that 97.8% of the defendants had at least one year to recidivate upon release within the timeframe of the study. Roodman examines the sensitivity of the results to the definition of the follow-up period as four years by repeating the analysis while varying the follow-up interval from 2 days to 4 years from the initial date of disposition, which will be discussed below.

*Judge Assignments (instrumental variable)*. A mechanical wheel randomly assigns defendants to calendars, associated with a set of judges for a given year. Therefore, random assignment of the calendars exposes defendants to discrete sets of judges. Notably, the judges assigned to each calendar may rotate annually. Random assignment therefore is of the calendar, and not the set of judges. In order to verify the stationarity of the random assignment and instrumental variable throughout the calendar year, I chart the average sentence (regarding months of total incarceration, probation, imprisonment) for a given month in a given judicial calendar. The total incarceration time sentenced in calendar 2 visibly changes at the beginning of 2003 and again in 2004.

Online research has failed to clarify the assignment mechanism, as consistent online documentation of local rule changes do not precede 2015.[[1]](#footnote-1) I was able to find documentation regarding the random assignment of the DC District Court (see appendix 1 for further documentation on judicial assignment).

# Appendix 1. Rules of the United States District Court for the District of Columbia (2015, updated 2019)

The local rule changes updated as of July 2019 clarify how the Calendar and Case Management Committee handles random assignment of cases currently, and suggests that the set of judges associated with a particular calendar or “deck” are repeatedly sampled randomly without replacement;[[2]](#footnote-2) however, the document does not clearly specify assignment mechanism to the “appropriate” deck or set of judges.

The Clerk shall create a separate assignment deck in the automated system for each subclassification of civil and criminal cases established by the Court pursuant to LCvR 40.2 of these Rules and a separate deck [or calendar] for miscellaneous cases. The decks will be created by the Liaison to the Calendar and Case Management Committee or the Liaison's backup and access to this function shall be restricted to these individuals to protect the integrity and confidentiality of the random assignment of cases. The Calendar and Case Management Committee will, from time to time determine and indicate by order the frequency with which each judge's name shall appear in each designated deck, to effectuate an even distribution of cases among the active judges.

At the time…information is returned in a criminal case, the case shall be assigned to the judge whose name appears on the screen when the appropriate deck is selected.[[3]](#footnote-3)

1. “Prior Rule Changes | District of Columbia | United States District Court,” accessed December 25, 2022, https://www.dcd.uscourts.gov/prior-rule-changes. [↑](#footnote-ref-1)
2. E Barrett Prettyman, “EFFECTIVE AS OF SEPTEMBER 2015,” n.d. [↑](#footnote-ref-2)
3. Prettyman. [↑](#footnote-ref-3)