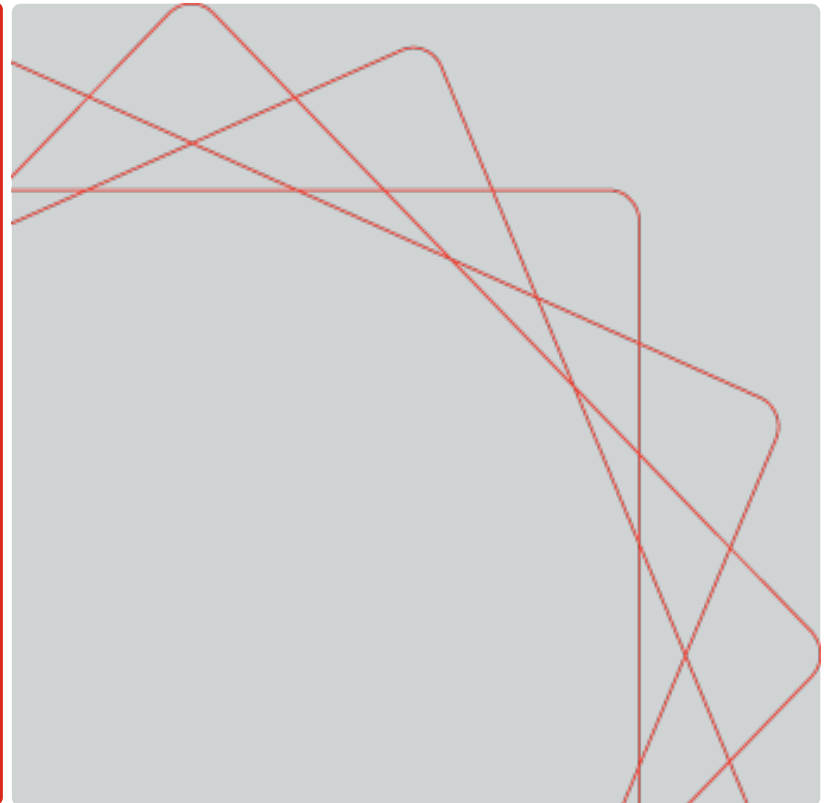# The Effect of Technical Violation Revocations on Serious Criminal Recidivism

7th Annual ICRN / NCRP Data Providers Meeting

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Acknowledgment

Overview

- Present the policy question

- Outline a methodological solution

- Show the analysis results

- Discuss the limitations

Parole Outcomes

- Offenders can enter community supervision, complete their terms successfully, and exit supervision.

- Offenders can enter community supervision, commit a *minor crime* or a violation of the terms governing community supervision, and parole is revoked, returning the offender to prison with no new conviction.

- Offenders can enter community supervision, commit a *serious crime*, and return to prison with a new conviction.

- We emphasize the difference between **serious crimes**, which are a major policy concern, and **minor crimes** or **technical violations** which are much less egregious.

Policy Issue

- Revocations for minor crimes and technical violations incapacitate offenders thereby preventing new crimes for more serious offenses.

- **How much does the use of revocations prevent serious crimes from occurring?**

- As important as this question is, we are not aware of any previous research to address this question.

Prison Return Ambiguities

- Sometimes supervision terminations are ambiguous.

- The parole outcomes I discussed before may not be known at the time of re-admission to prison.

- We have looked at this problem across many states and found evidence that not all states have sufficient information at the time of admission to distinguish revocation returns and new court commitment returns.

- In research on this problem, some scholars have acquired additional data to sort out these dispositions (e.g. Grattet, Petersilia, and Lin, 2008)

- This will vary by state, so we tried to resolve this issue by choosing an alternative definition.

One resolution to this ambiguity

- Alternative Definitions:

- A minor crime is one that results in a prison readmission of less than one year.

- A serious crime is one that results in a prison readmission of one year or more.

- Justification:

- We compared the data using the minor/major crime distinction to the parole release codes and the prison admission codes, finding they are consistent with each other.

- Alternative interpretation: our analysis is an evaluation of the incapacitative effect of a minor offense return on the occurrence of a return for a serious offense.

Data come from NCRP – a state with a large parole population

- The analysis file comprises parole terms that end with:

- Censoring (we cannot observe the outcome beyond some point in time) because of the end of data collection.

- Censoring because supervision ends successfully.

- Event A occurs: The offender returns to prison for a minor crime/technical violation.

- Event B occurs: The offender returns to prison for a serious crime.

- We were able to use 12 years of release/return data.

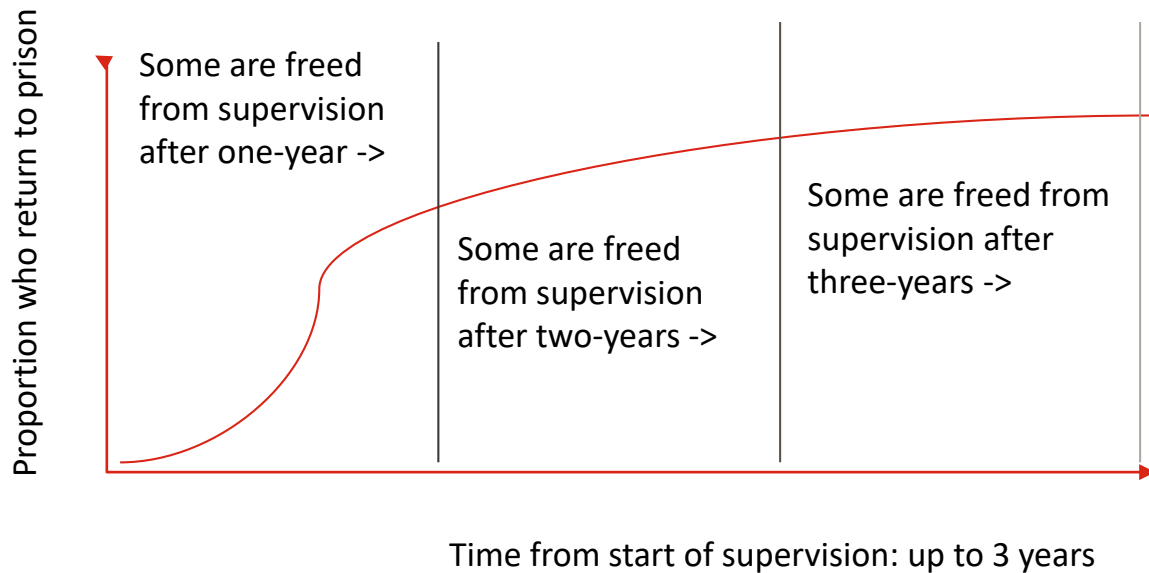# Analysis method: Competing events survival model

- We start with a relatively familiar topic: survival analysis.

- Extend this to a less familiar topic: dependent competing events survival analysis.

- Finally, we show how to use a competing events survival analysis to answer the policy question posed earlier.

Simple survival model: inferential problem

In the simple survival model, we estimate the distribution of time until an offender returns to prison. Nothing interrupts the "process" of recidivism except the length of the supervision period.
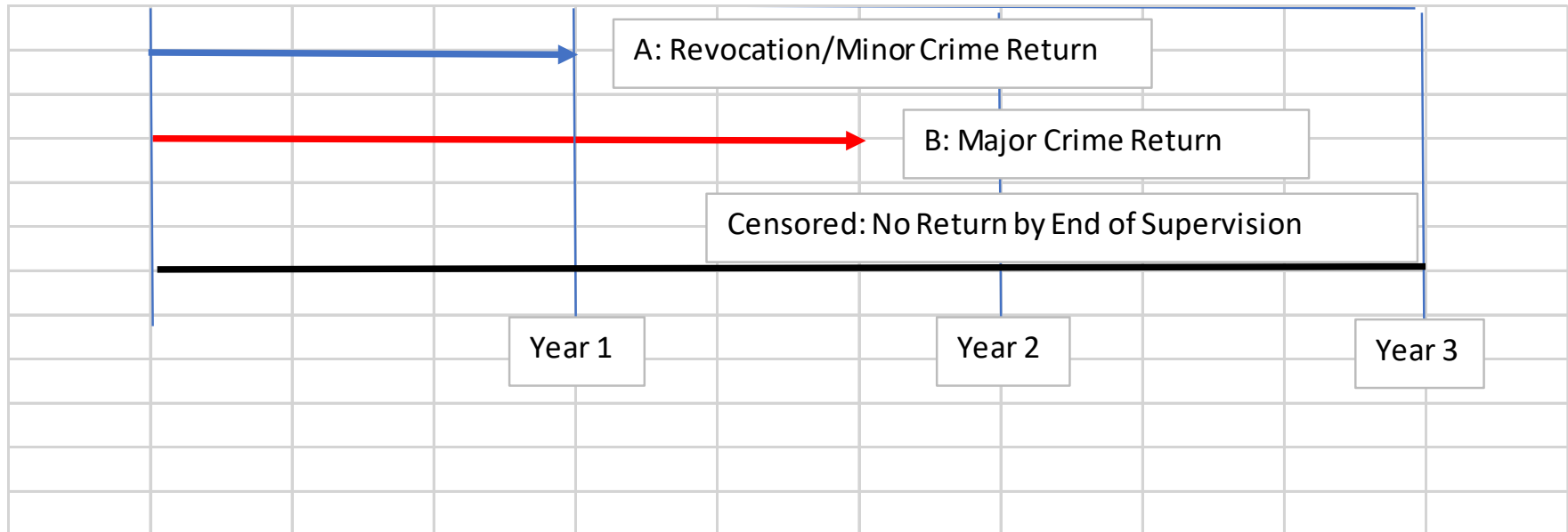
Proportion who return to prison

Some are freed from supervision after one-year ->

Some are freed from supervision after two-years ->

Some are freed from supervision after three-years ->

The problem is to infer the red line given that we can only observe some proportion of all eventual failures.

Time from start of supervision: up to 3 years

Competing events survival analysis

- In a competing events model, two (or more) events "compete" to occur first. If A (a minor crime) occurs first, we do not observe B. If B (a serious crime) occurs first, we do not observe A.

A: Revocation/Minor Crime Return

B: Major Crime Return

Censored: No Return by End of Supervision
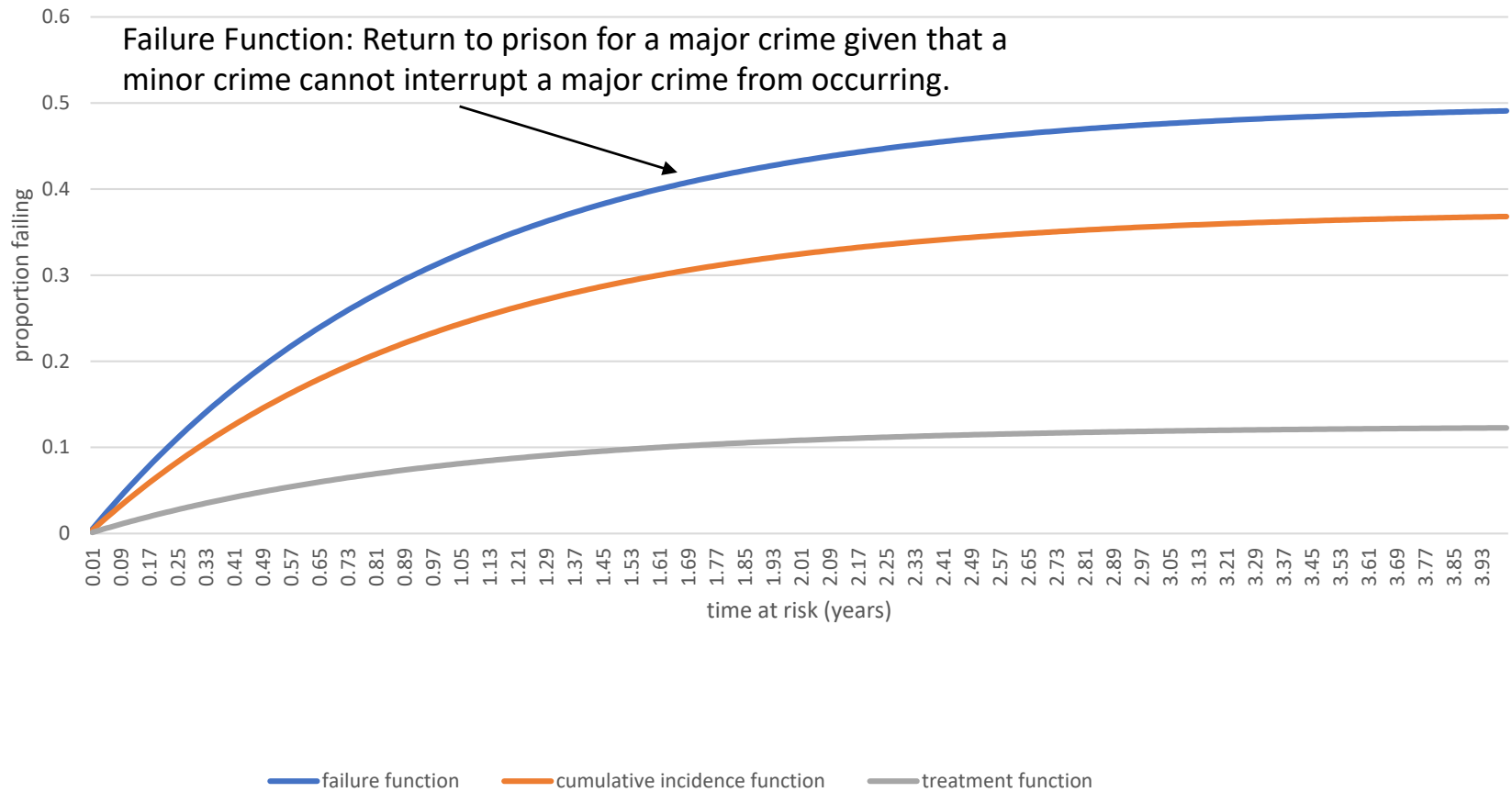
Year 1 Year 2 Year 3
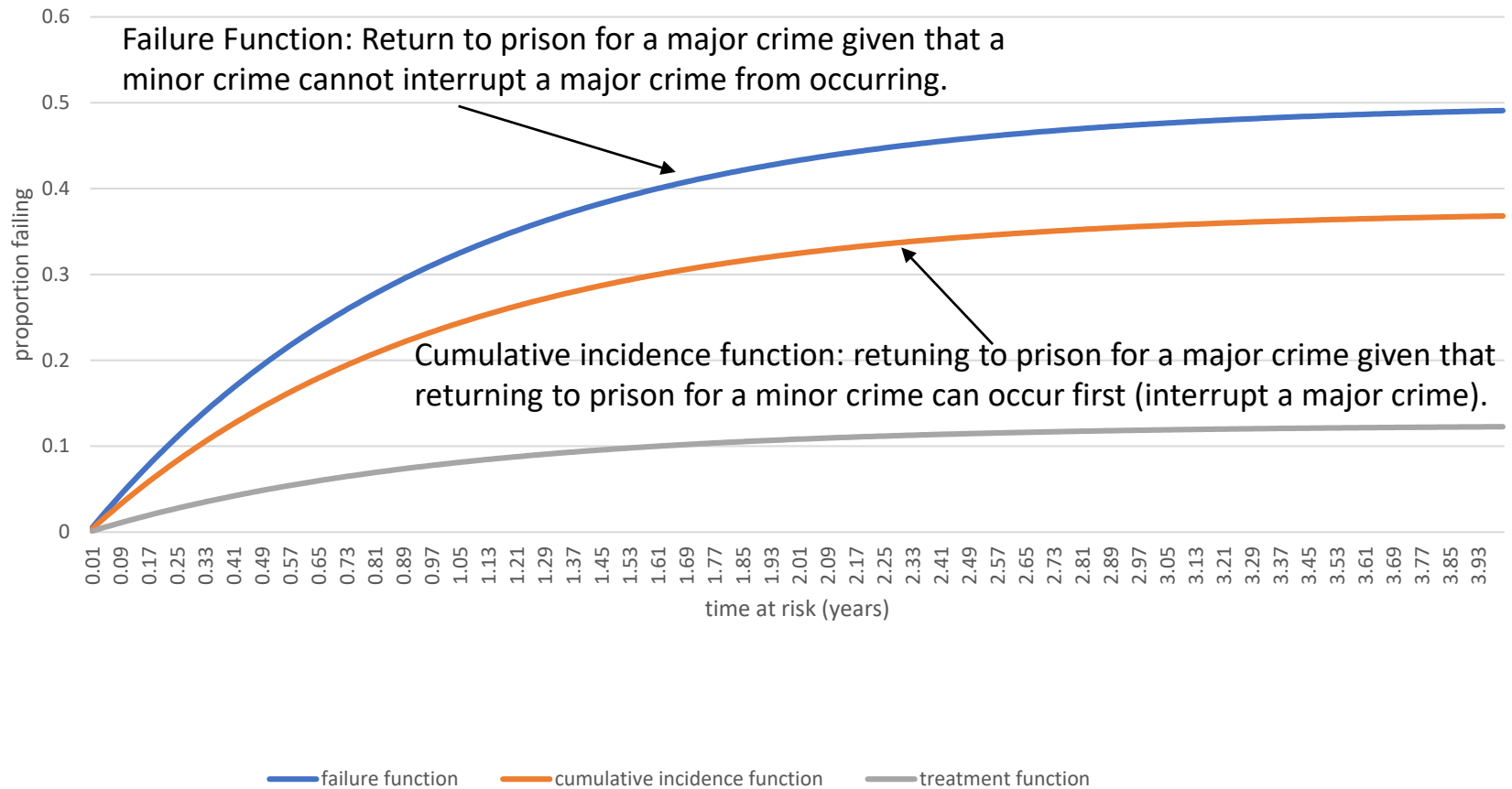
Competing events outcomes

- The competing events model allows us to estimate:

- The rate offenders would return to prison for serious crimes given that the parole process operates the way it operates, that is, given that A does interrupt B?

- The rate offenders return to prison if the parole process did not revoke offenders for minor matters?

- The difference is the treatment effect – the reduction in serious crimes by imprisoning for minor crimes/violations.
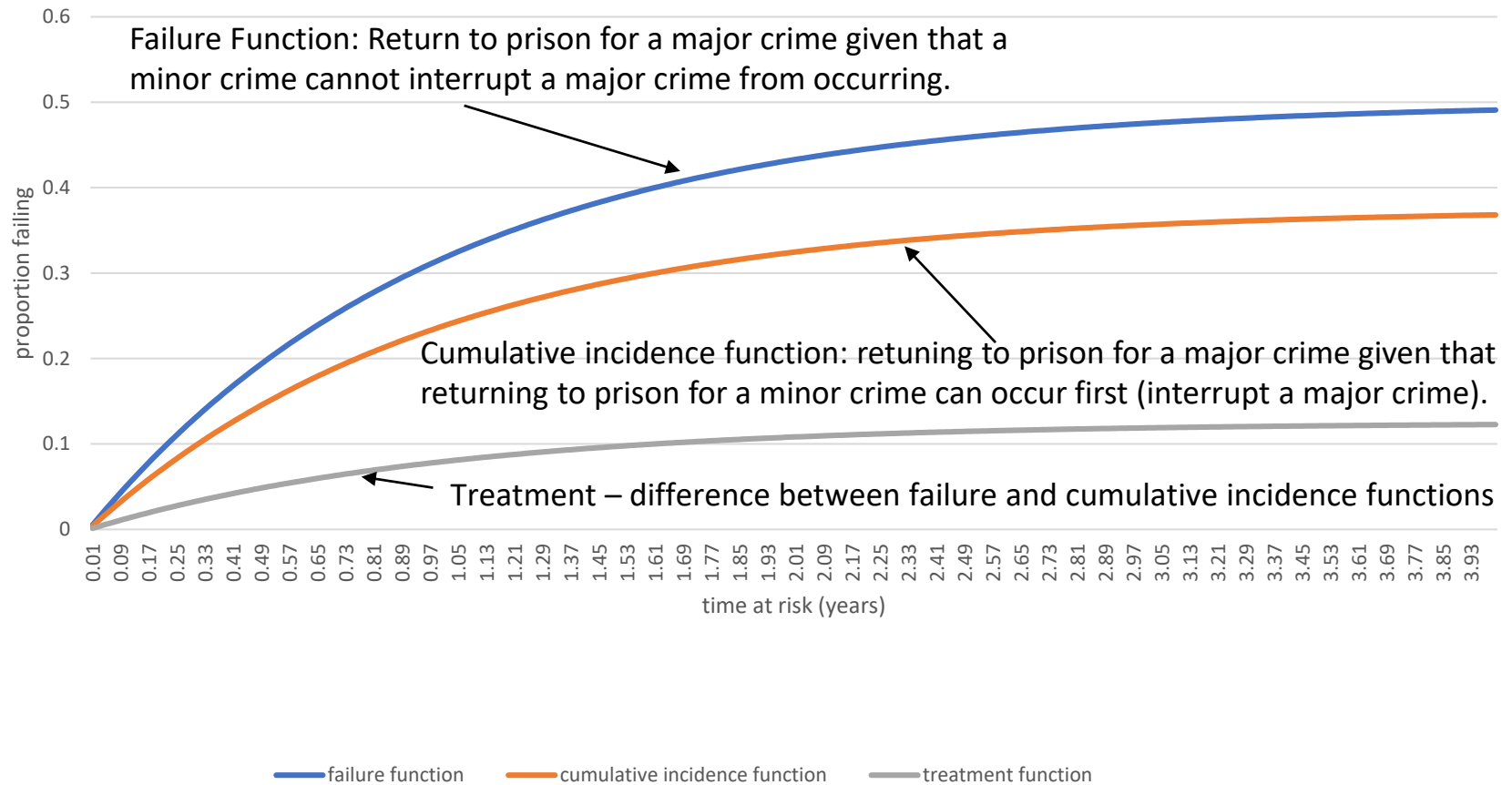
Failure function for a major crime

Failure Function: Return to prison for a major crime given that a minor crime cannot interrupt a major crime from occurring.

Treatment: The reduction in the occurrence of a major crime by incapacitation for a minor crime

Failure Function: Return to prison for a major crime given that a minor crime cannot interrupt a major crime from occurring.

Cumulative incidence function: retuning to prison for a major crime given that returning to prison for a minor crime can occur first (interrupt a major crime).

Treatment – difference between failure and cumulative incidence functions

proportion failing

time at risk (years)

— failure function   — cumulative incidence function   — treatment function

Some technical stuff

- Our competing events models are Weibull/normal mixtures.

- The competing events are dependent; the mixture is the bivariate standard normal distribution with correlation rho.

- Rho is the correlation in the distribution of the error terms for the two events.

- If rho is 0, this implies no relationship between the unmeasured variables that predict minor and major crimes.

- If rho is 1, this implies a perfect relationship.

- Rho is certainly not 0: unmeasured factors that predict a minor crime will predict a major crime.

- Rho is unlikely to be 1: there are probably subtle factors that determine whether a minor or serious crime will occur.

Some technical stuff

- **Rho IS NOT IDENTIFIED**. We do not know the value of rho because we never observe minor and major crimes simultaneously.

- To overcome this problem, we use a bounding solution that allows rho to take on different values, {0,0.5,1}.

- We use a Bayesian logic to estimate standard errors. Bill and I developed this estimator for an article that is forthcoming in a special issue of *Evaluation Review*

Estimation results for a single community supervision outcome
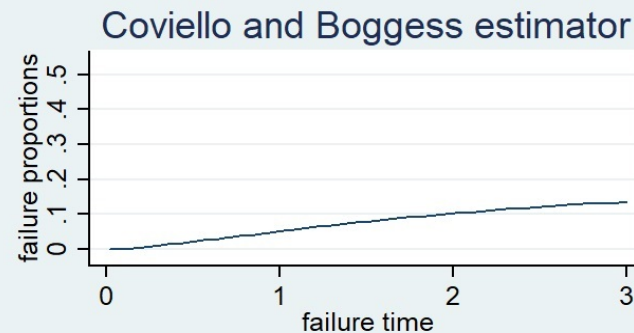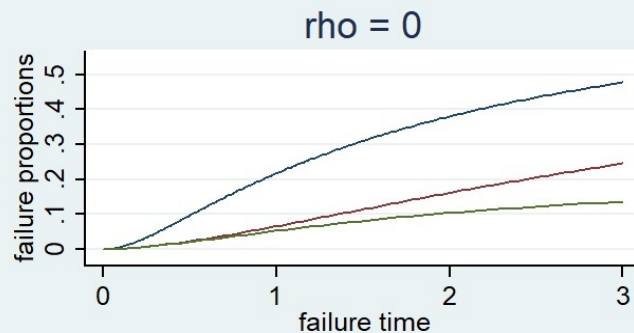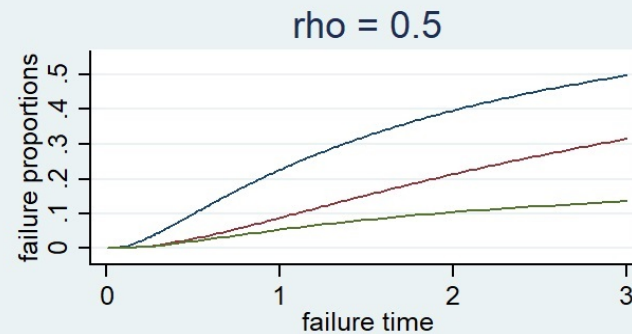
Panels 1 - 3 show the estimated failure function for revocations (top line), the estimated failure rate for recidivism (middle line), and the estimated cumulative incidence function for recidivism (bottom line) at alternative values of rho: 1.0, 0.5, and 0.0. Panel 4 shows the cumulative incidence function from a Coviello and Boggess estimator.

Conclusions from estimation of the competing events

- The prior graph shows that for a single post-release outcome, returning an offender for a technical violation or minor offense reduces the level of serious criminal returns.

- Further analysis showed that this had a much larger impact on high risk rather than low risk offenders.

- Rather than stop there, we developed a simulation to evaluate how returns for minor offenses affect returns for serious offenses 5, 10, and 15 years from the first release to parole.

Simulating event outcomes

- Every observation has an estimated time-to-event for both a minor and major return.

- We simulate the returns when a minor crime return interrupts the serious criminal return from occurring.

- We simulate the returns when a minor crime return cannot interrupt a major crime return.

- The simulation cycles through events into the future – 5, 10, and 15 years – using an algorithm that has the following features:

- An individual's is returned unless the person desists.

- If returned, the length of time in prison is estimated for minor and major returns.

- The person serves a simulated time in prison based on time served for a minor/major event.

- Then a subsequent release and return is simulated unless the person desists.

- We update the person's age and criminal history each cycle of the event and this effects the estimation of a return for either a minor or major offense.

- We run this simulation under different values of rho providing bounded results.

Simulation results

Number of Avoided Serious Returns Over 5, 10, and 15 Years

Legend: 5 Years, 10 Years, 15 Years
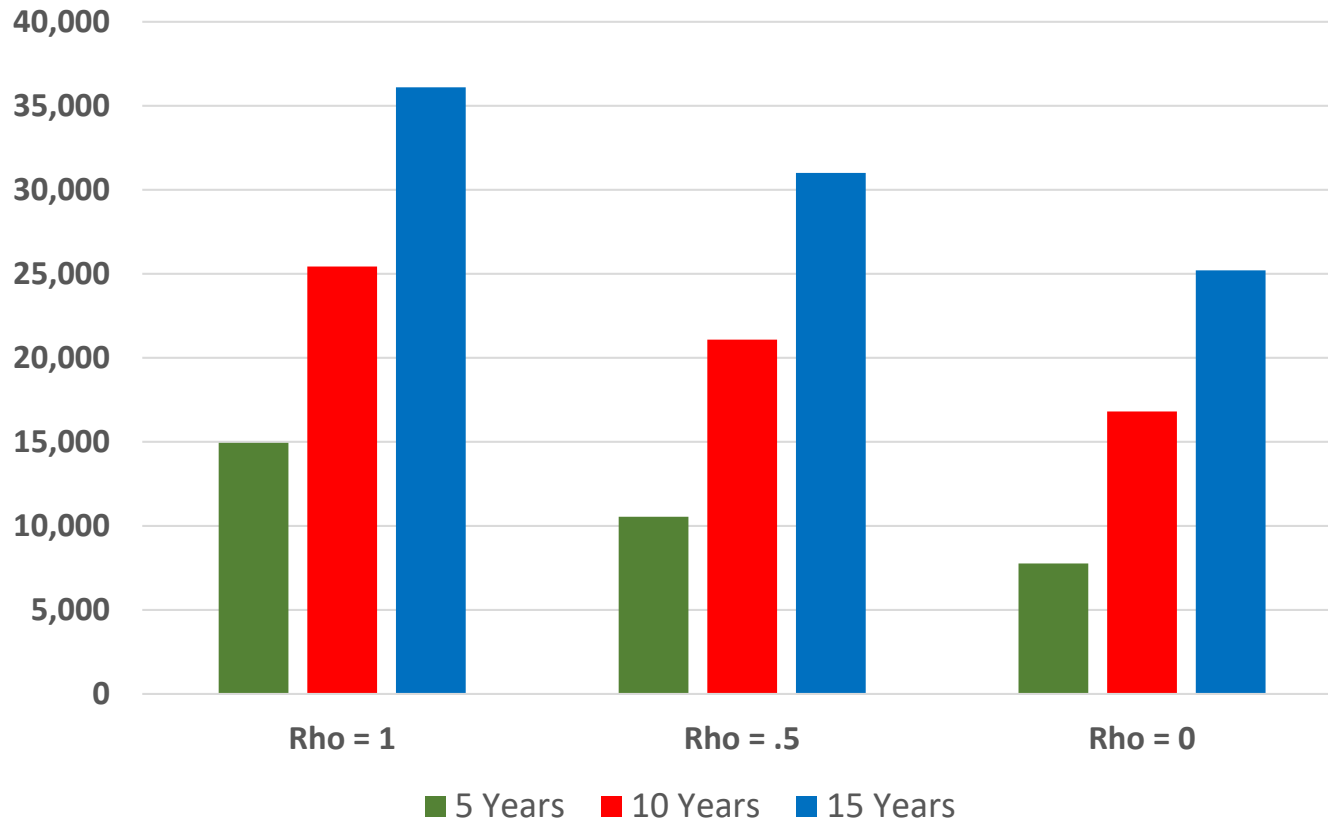
Conclusions

- Regardless of the value of rho, returns for a minor crime/technical violation prevented a large number of more serious crimes from occurring.

- Rho is unlikely to be 0 which is the assumption of most analysts who use competing risks survival models in criminal justice.

- If we had used this typical assumption, the impact of returns for less serious crimes/violations would have been lower by as much as 30%.

- We presume the impact of technical violation/minor crime returns will be different for different states, so the results we presented here may only apply to this state.

Limitations

- We assume that the end of supervision is an independent censoring event, but maybe it is not.

- The lack of covariates ... – having the state's risk release score would be an important addition.

- Other mixture distributions?

- Next step: compare the one-year rule to prison admission and parole release codes for at least one state where we are confident in the prison admission and parole release codes.

- Our best evidence to date is that these definitions yield the same results.

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