The marginal effect of bail decisions on failure to appear, imprisonment and crime

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NSW Bureau of Crime
Statistics and Research
Introduction
How does bail work in NSW?

Police

- Arrest
  - Refuse bail
  - Dispense with or grant bail
Introduction

How does bail work in NSW?

Police

- Arrest
  - Refuse bail
  - Dispense with or grant bail

Court

- Refuse bail
- Grant bail
- Dispense with bail
Introduction
Why do bail decisions matter?

Risks of granting bail:
- Defendant not appearing in court
- Defendant committing crime
- Interfering with witnesses/evidence

Costs of refusing bail:
- Costs of housing the offender in prison
- Personal costs for the defendant
- Potential signal of their criminality
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The research question

We want to know:

• What is the *incapacitation* effect of bail decisions on:
  • Failure to appear
  • Offending on bail

• What is the *signaling* effect of bail decisions on prison sentences?
Introduction

Why is bail hard to study?
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Bail status → Prison sentence

Prison sentence → Bail status
Introduction

Why is bail hard to study?
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Why is bail hard to study?

Bail status → Failure to appear/Crime

Failure to appear/Crime → Bail status
Introduction

Recent research

Gupta, Hansman, and Frenchman (2016) - Journal of Legal Studies

- Increased likelihood of conviction
- No effect on recidivism
- No effect on failure to appear


- Reduced likelihood of pleading guilty
- Reduced likelihood of a prison penalty
- Increased likelihood of failure to appear
- Increased likelihood of re-offending up to disposition but reduces that after disposition
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Didwania (2018) - Working paper

THE IMMEDIATE CONSEQUENCES OF PRETRIAL DETENTION:
EVIDENCE FROM FEDERAL CRIMINAL CASES

Stephanie Holmes Didwania
February 17, 2018
Didwania (2018) - Working paper

Release on bail:

- 67 per cent reduction in sentence length (1.1 months)
- Increases probability of a below-guidelines sentence by 67.6 percentage points
Section 2

Method
Data

Dataset construction

JusticeLink database

- First bail hearings
  - Magistrate
  - Date
  - Outcomes
  - Charges
Data

Dataset construction

JusticeLink database
- First bail hearings
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Re-offending Database (ROD)
- Demographic characteristics
- Criminal history
- Prison sentence
- Sentencing magistrate
- Convictions for failure to appear
- Further convictions
Data
Dataset construction

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+ Re-offending Database (ROD)
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= Final dataset
- 42,362 bail hearings
- Period of analysis: 20 January 2015 - 30 June 2018
- Adult defendants
- District/Local Court
- Different bail and sentencing magistrates
- \( \geq 20 \) decisions in a year
Data
Outcome variables

Failure to appear
Convicted of a failure to appear offence at finalisation

Offending on bail
Committed an offence between bail hearing date and finalisation

Imprisonment
Sentenced to imprisonment at finalisation
Data

Treatment variable

A dummy variable for whether a person was granted bail (with or without conditions) at their first court bail hearing
Data

Control variables

Demographics
Age, Indigenous status, gender, SEIFA, remoteness
Data
Control variables

Demographics
Age, Indigenous status, gender, SEIFA, remoteness

Index charge
Violent, property, drug, traffic, other
Data
Control variables

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Age, Indigenous status, gender, SEIFA, remoteness

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Priors
Penalties (Custodial, community orders, other)
Offences (violent, property, drug, breach, traffic, other)
Data

Control variables

Demographics
Age, Indigenous status, gender, SEIFA, remoteness

Index charge
Violent, property, drug, traffic, other

Priors
Penalties (Custodial, community orders, other)
Offences (violent, property, drug, breach, traffic, other)

Fixed effects
Principal offence, time, location (court location, jurisdiction and police area)
Method
Instrumental variables estimation

Variation in bail status
Method

Instrumental variables estimation

Variation in bail status

Refused bail

Granted bail
Method

Instrumental variables estimation

Variation in bail status

Variation caused by a random factor otherwise unrelated to the outcome

Refused bail  Granted bail

Refused bail  Granted bail
Variation in bail status

Instrumental variable estimation

- Variation caused by a random factor otherwise unrelated to the outcome
- Refused bail
- Granted bail
- Refused bail
- Granted bail
Ordinary Least Squares (OLS) estimation

Estimate the effect of being granted bail on the outcome

\[ Y_i = \beta_0 + \beta_1 T_i + \beta X_i + \gamma + \epsilon \]

- \( T_i \) = whether someone is granted bail
- \( X_i \) = individual-level controls
- \( \gamma \) = fixed effects
- \( \epsilon \) = error
Two-stage-least-squares (2SLS) estimation

1. Obtain the predicted probability of being granted bail based on judge leniency and other observed factors:

\[ \hat{T}_i = B_0 + B_1 Z_i + B X_i + \gamma (1) \]

2. Estimate the outcome equation using the predicted likelihood of being granted bail:

\[ Y_i = \beta_0 + \beta_1 \hat{T}_i + \beta X_i + \gamma + \epsilon (2) \]

\[ Z_i = \text{judge leniency} \]
\[ \hat{T}_i = \text{predicted probability of being granted bail} \]
\[ X_i = \text{individual-level controls} \]
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(1)

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Two-stage-least-squares (2SLS) estimation

1. Obtain the **predicted probability of being granted bail** based on judge leniency and other observed factors:

\[
\hat{T}_i = B_0 + B_1 Z_i + B X_i + \gamma \tag{1}
\]

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Y_i = \beta_0 + \beta_1 \hat{T}_i + \beta X_i + \gamma + \epsilon \tag{2}
\]

- \(Z_i\) = judge leniency
- \(\hat{T}_i\) = predicted probability of being granted bail
- \(X_i\) = individual-level controls
- \(\gamma\) = fixed effects
- \(\epsilon\) = error
Residualised leave-one-out IV

A measure of the judge’s leniency relating to all other cases than the index individual, adjusted for offence, location and time fixed effects

\[ IV^*_i = \frac{R^*_j - R^*_{ij}}{D_j - D_{ij}} \]

where \( j \) is a judge, \( i \) is a person, \( R \) are the sum of residuals of the decision to grant bail, \( D \) is the sum of bail decisions.
Method

Tests of IV

Relevance of IV

The IV should be significantly related to the likelihood of release.
Relevance of IV

The IV should be significantly related to the likelihood of release
Method
Other tests of IV

Relevance of IV

The IV should be significantly related to the likelihood of release

- Positive relationship observed
- Partial F of first stage: 291.84
Randomness
The IV is unrelated to individual characteristics ($F=1.18$, $p$-value=.179)
Method
Tests of IV

Randomness
The IV is unrelated to individual characteristics ($F=1.18$, $p$-value=.179)

Monotonicity
The direction of the effect of the IV on being granted bail is consistent across subgroups
Randomness
The IV is unrelated to individual characteristics \((F=1.18, \ p\text{-value}=0.179)\)

Monotonicity
The direction of the effect of the IV on being granted bail is consistent across subgroups

Exclusion restriction
The IV should not affect the outcome other than through the bail decision
- Defendants do not choose their bail judges
- We exclude all defendants with the same bail and sentencing judge
Section 3

Results
Estimation results

Failure to appear

Coefficients

<table>
<thead>
<tr>
<th></th>
<th>OLS</th>
<th>2SLS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Controls and fixed</td>
<td>(Controls, fixed</td>
</tr>
<tr>
<td></td>
<td>effects)</td>
<td>effects and selection bias)</td>
</tr>
</tbody>
</table>
## Estimation results

### Failure to appear

<table>
<thead>
<tr>
<th>Coefficients</th>
<th>2SLS</th>
<th>0.09</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OLS</td>
<td>0.06</td>
</tr>
</tbody>
</table>

- 2SLS estimates a 9 percentage point increase in likelihood of failure to appear from granting bail.
Estimation results

Failure to appear

Effect of additional releases

<table>
<thead>
<tr>
<th></th>
<th>2.1%</th>
<th>7.9%</th>
<th>10.9%</th>
<th>9.1%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refused bail</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OLS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2SLS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Granted bail</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Estimation results
Failure to appear

This translates to a rate of failing to appear of 10.9% for additional releases compared to an average of 2.1% among those refused.
Estimation results

Failure to appear

- This translates to a rate of failing to appear of 10.9% for additional releases compared to an average of 2.1% among those refused.
- There is an incapacitation effect of bail refusal on failure to appear.
Estimation results

Offending on bail

- OLS and 2SLS estimates are virtually identical
Estimation results

Offending on bail

- There is a significant effect of bail refusal on reducing crime
Estimation results

Imprisonment

- 2SLS attenuates effect of granting bail on imprisonment from 20 percentage points to 10

Coefficients

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<thead>
<tr>
<th></th>
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<th>2SLS (Controls, fixed effects and selection bias)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>-0.10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-0.20</td>
</tr>
</tbody>
</table>
Estimation results

Imprisonment

- 2SLS attenuates effect of granting bail on imprisonment from 20 percentage points to 10
- Once correcting for selection bias, the signalling effect of bail refusal on prison is 10 percentage points
Estimation results
Imprisonment

- This translates to an average rate of imprisonment of 49 per cent on additional released defendants.
Estimation results
Robustness checks

Misspecification of outcome variable
Replicated analyses using probit and bivariate probit (Chiburis, Das, & Lokshin, 2012)

Heterogeneity in TEs
Followed procedure to check complier-weighted OLS (Dahl, Kostol, & Mogstad, 2014)

Sensitivity in IV construction
Not sensitive to changing number of minimum judge decisions to 30

Subgroup analyses
District and Local Court
Previous policy regime
Consistent when estimating on Pre-Bail Act 2013 data
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• Bail refusal reduces failure to appear and offending on bail

• It comes at a cost of higher imprisonment rates

• Further work on cost implications needed to quantify value of trade-offs

• Better prediction of offending on bail is worthwhile

• Findings are consistent with previous studies

• Limitations
  • Important to keep in mind that this relates to a small subset of offenders in NSW
  • Did not study post-finalisation offending
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