



**NEW ZEALAND  
WORK RESEARCH INSTITUTE**

# The hidden costs of crime

crime victimization, mental health and the role of  
offender prosecution

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# DISCLAIMER

These results are not official statistics. They have been created for research purposes from the Integrated Data Infrastructure (IDI) which is carefully managed by Stats NZ. For more information about the IDI please visit <https://www.stats.govt.nz/integrated-data/>.

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# Presentation structure

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- Motivation & Existing Literature
- Research Questions
- Data
- RQ1: Method & Results
- RQ2: Method
- Questions & Comments



# Motivation & Existing work

## Motivation

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- A sizeable share of the NZ population is exposed to crime every year.
  - 521 serious assaults, 126 sexual offenses and 80 robberies per 100,000 population in NZ in 2017 (UN-CTS, 2018)
  - 35% of women in NZ have experienced physical and/or sexual violence from an intimate partner at some time in their lives (OECD, 2020)



# Motivation & Existing work

## Motivation

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- Crime imposes direct and indirect costs on society which are well documented in the literature.
  - Expenses of law enforcement, criminal justice, victim losses, expenditures on private deterrence, implicit cost of fear and agony, opportunity cost of time lost due to crime
  - The US spends an estimated 10% of their annual GDP on crime - 1.7 trillion USD (Anderson, 2011)
  - There is a knowledge gap on the consequences of crime for victims.



# Motivation & Existing work

## Motivation

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- Literature on the economic and social consequences of crime largely neglects the experiences of victims.
- The potential heterogeneous effects of offender prosecution and conviction have also yet to be assessed.
- Bindler & Ketel (2021) are the first to analyse potential victim-related social costs using a large administrative database – we follow their work.



# Motivation & Existing work

Bindler & Ketel (2021)

- Unique admin data from Dutch police records
- Criminal victimisation is associated with:
  - Significant long-run decrease in earnings
  - Increase in benefit dependency for male and female victims
- Heterogeneous effects with respect to the type of crime
  - especially violent crimes being strongly associated with adverse economic consequences.
- Important negative short-term effects on physical and mental health of victims.





# Research Questions

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- **RQ1 Consequences of Victimization:**

What are the effects of criminal victimization on victim mental health?  
Are these effects temporary or do they persist over time?

- **RQ2 Heterogeneity Analysis:**

How does the availability of a known offender, prosecution, charge and sentencing, moderate the mental health effects of victimization?



# Data

## Data Source

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- **Data source:** StatsNZ Integrated Data Infrastructure (IDI)
- **Data Tables:** Recorded crime victims data (Police), Recorded crime offender data (Police), Court charges data (MOJ), IR tax data, PRIMHD (MOH), personal details, International travel and migration data (CUS), birth records (DIA), relationship tables, ERP
- **Spin:** Reported crimes recorded by the police on an incident basis from July 2014 to December 2019



# Data

## Sample Restrictions

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- No victim-less crimes - observed UID and UID refers to a person (not organization)
- Only investigated offenses
- No historical crimes, drop crimes with earliest occurrence date before January 2014
- Only violent crimes (ANZSOC Code 1 - 6), thefts and robberies dropped
- Individuals with valid personal details
- Individuals aged 15 to 65 at time of victimization
- Drop lethal crimes (murder, manslaughter, driving causing death), also if victim is recorded as dead
- Restrict to individuals observed in the ERP in the July after month  $t$  (to avoid emigration/death since last ERP cutoff date)
- Drop victims who leave NZ after the victimization (any time) to avoid censored outcome information



# Data

## Estimation Sample

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- **Aggregate raw Police data on monthly level:**
  - Only most highly proceeded against offender per offence (secondary: victim-offender relationship (VOR)), aggregated information for all other offenders
  - Only most severe offense per occurrence (secondary: proceeding, VOR)
  - Only the most severe occurrence



# Data

## Estimation Sample

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- **Other time-variant confounding factors:**
  - Partnership and number of children (from relationship tables)
  - Pre-victimization socio-economic status (income, employment status and benefit receipt from IR data)
  - Meshblock FE
  - Criminal history of the victim (recorded offences in the past years)



# Data

## Outcome Variables

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- **Mental Health:** Programme for the Integration of Mental Health Data (PRIMHD)
  - Includes secondary inpatient, residential, outpatient and community services provided by DHBs and NGOs, but no primary mental health care (e.g. GPs)
  - Details on activity level with information on activity setting, activity type, activity date, referral source and destination
- **Variables:** Indicators for the number of activities, contacts, and bednights



# Method

## Consequences of Victimization – Empirical Challenges and Approach

- **Selection:** Individuals who become a victims differ in unobservable characteristics
  - Victim-only sample
- **Omitted Variable Bias:** Unobserved time-invariant individual characteristics affect both victimization (type/timing) and MH
  - Event-study design with individual and time fixed effects
- **Simultaneity and time-variant confounders:** Individual MH affects victimization timing or time-variant characteristics (e.g. partnership and family quality, residential neighbourhood) which affect both MH and timing of victimization
  - Controls for observable confounders (age, criminal history, previous victimization, partnership, children, meshblock, income and employment)
  - Utilize the event timing in the event study - consider pre-trends and use monthly level to “zoom in” and identify any sharp changes



# Method

## Consequences of Victimization – Empirical Approach

- Event Study Approach with two-way fixed effects

$$C_{it} = \sum_{j=\underline{j}}^{\bar{j}} \beta_j v_{it}^j + X_{it} + \alpha_i + \alpha_t + \varepsilon_{it}$$

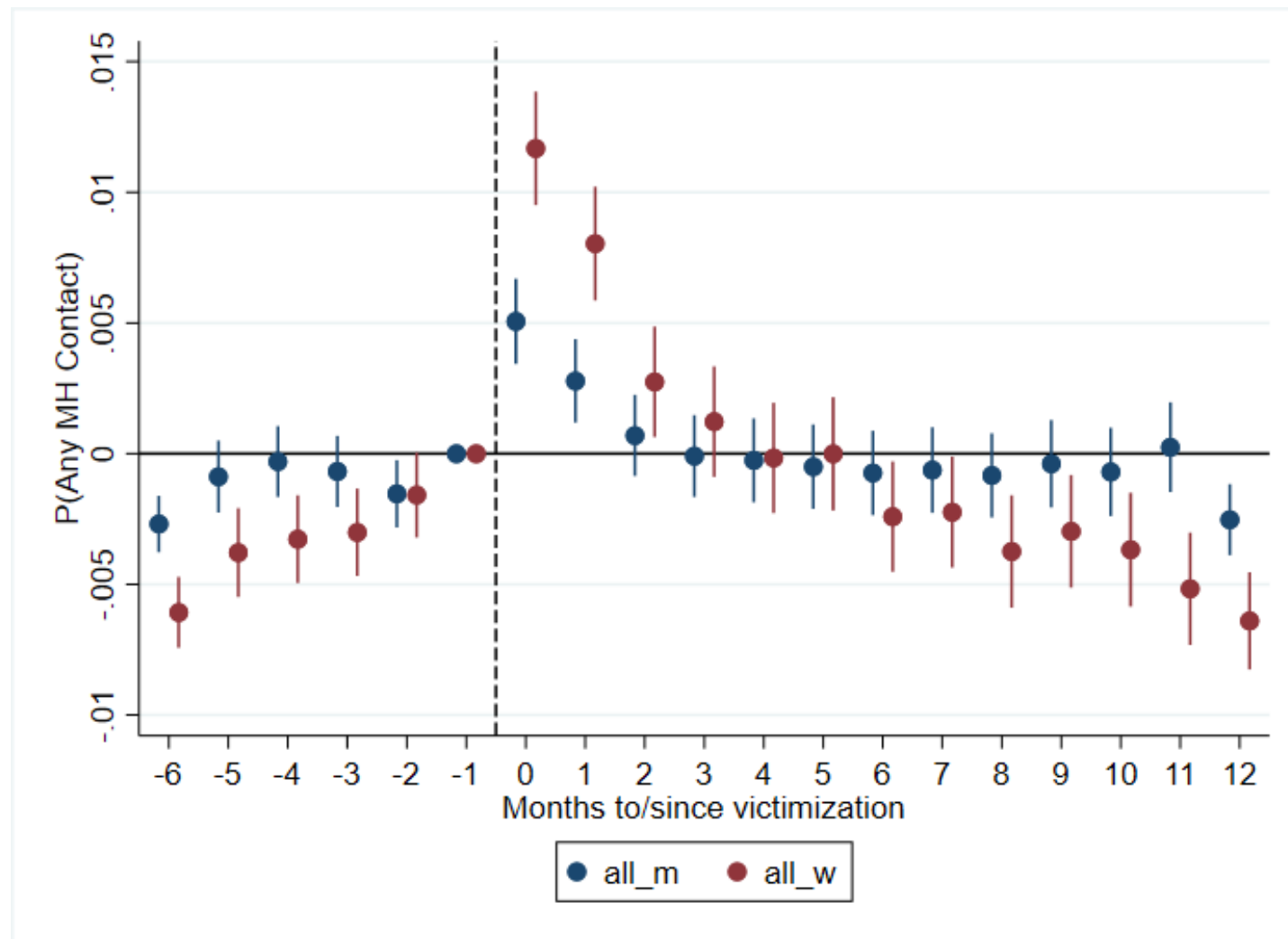
- $C_{it}$  - Outcome  $y$  of individual  $i$  at time  $t$
- $v_{it}^j$  - Indicator for victimization in period  $t + j$ ; binned at the end points ( $j \in [\underline{j} = -6, \bar{j} = 12]$ )
- Fixed Effects on individual ( $i$ ), time ( $t$ ) level
- Time-variant controls ( $X_{it}$ ): cumulative victimization, age group, (partnership and children), (criminal records), (income and employment status)
- Standard errors clustered on the individual level



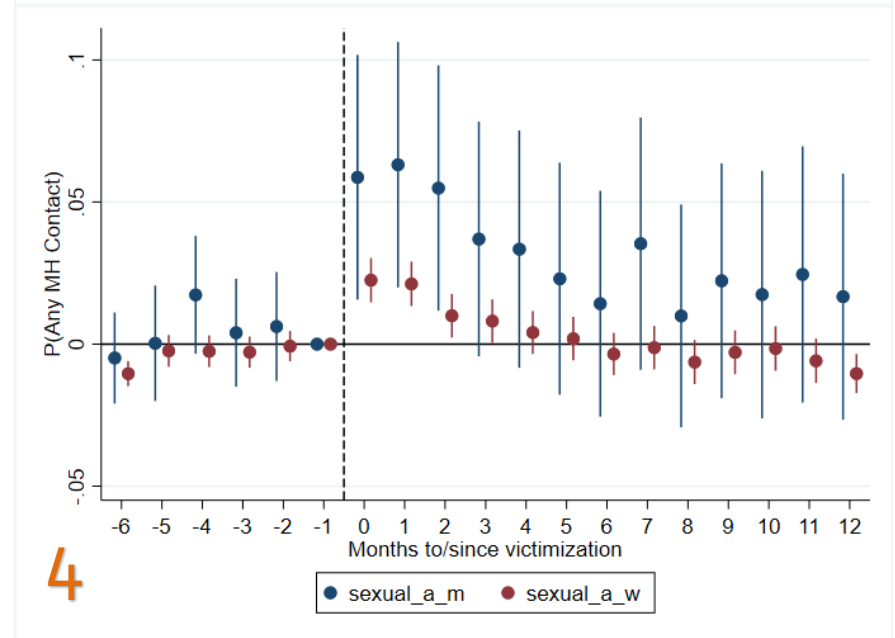
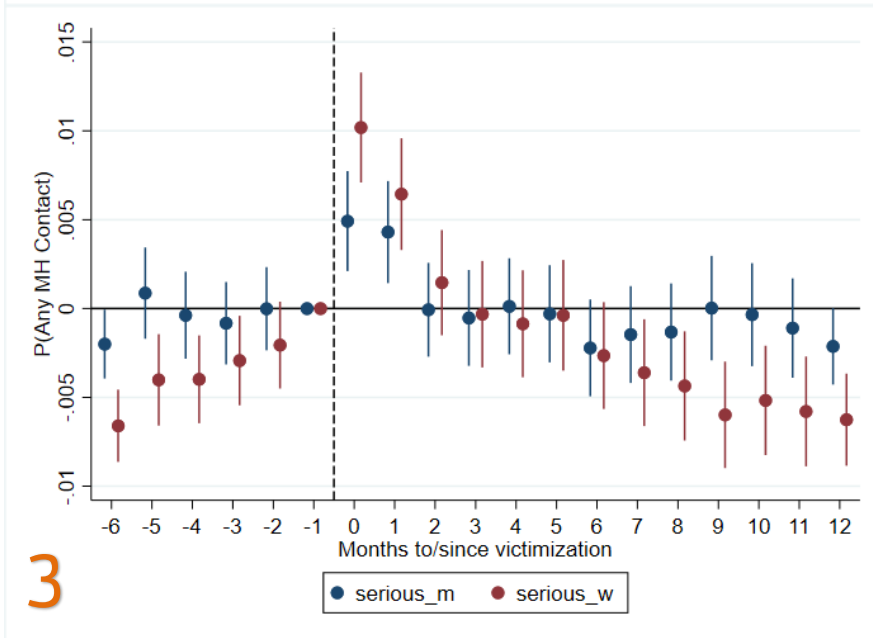
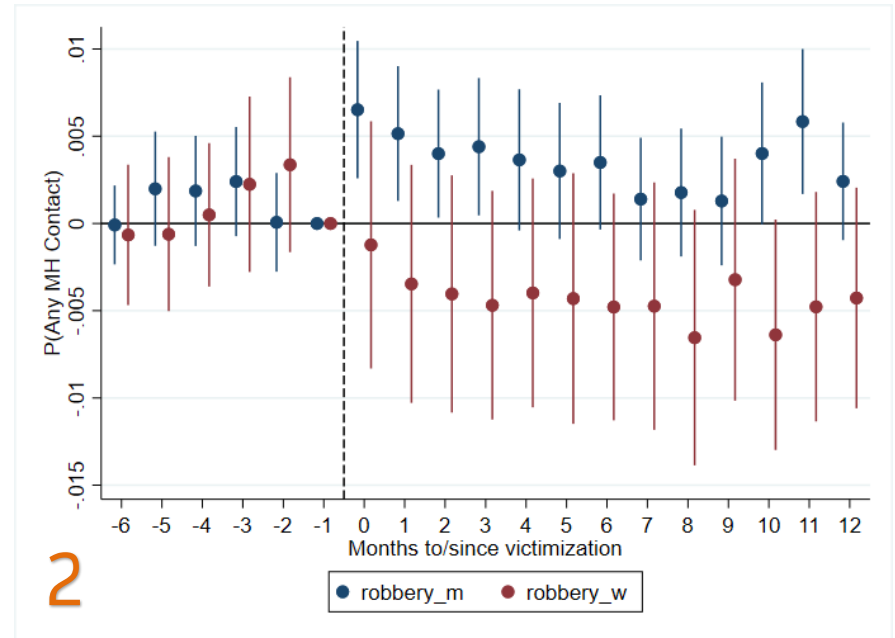
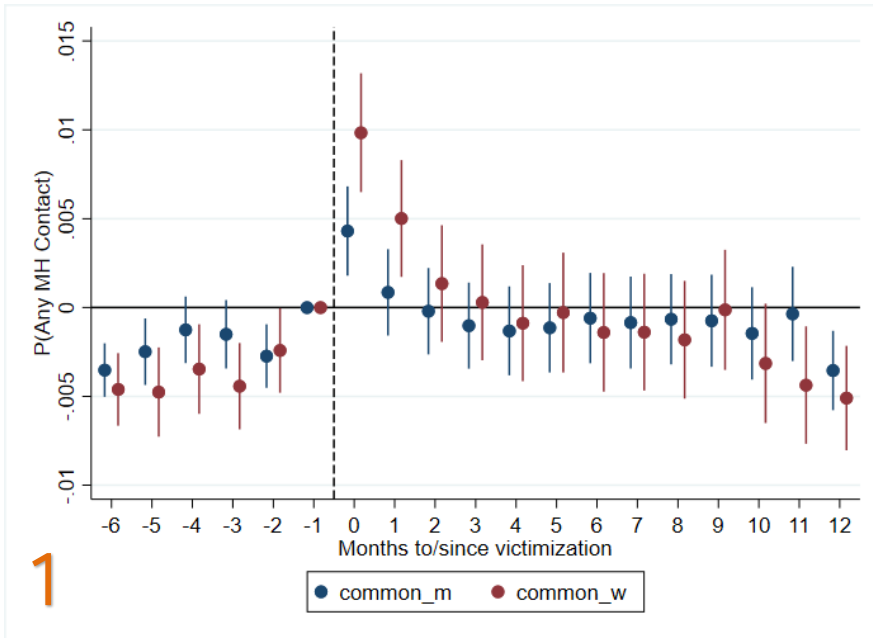


# Results

## Consequences of Victimization – All Crimes



# Results

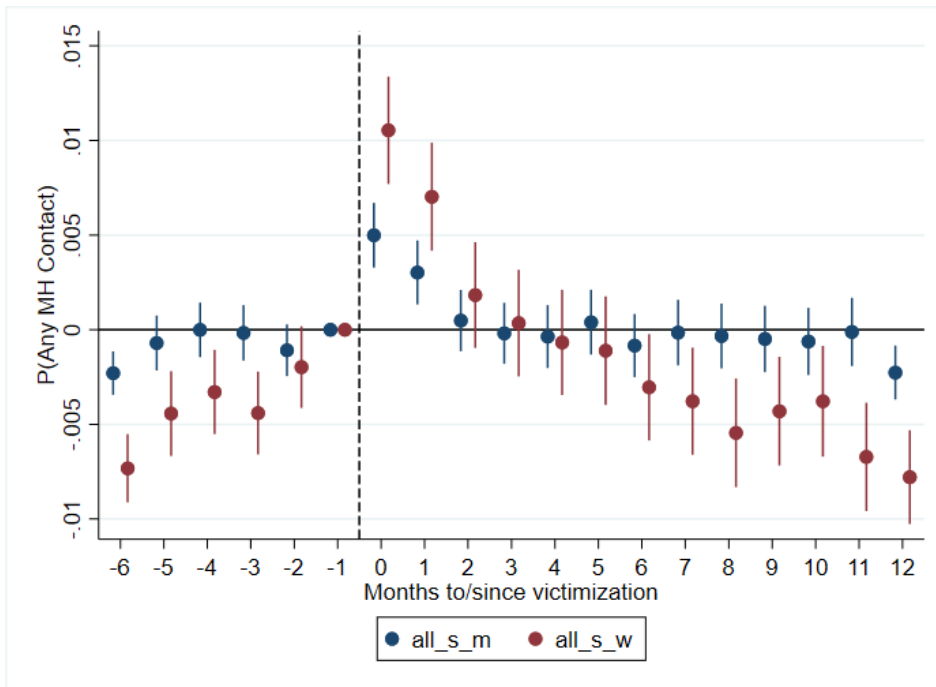




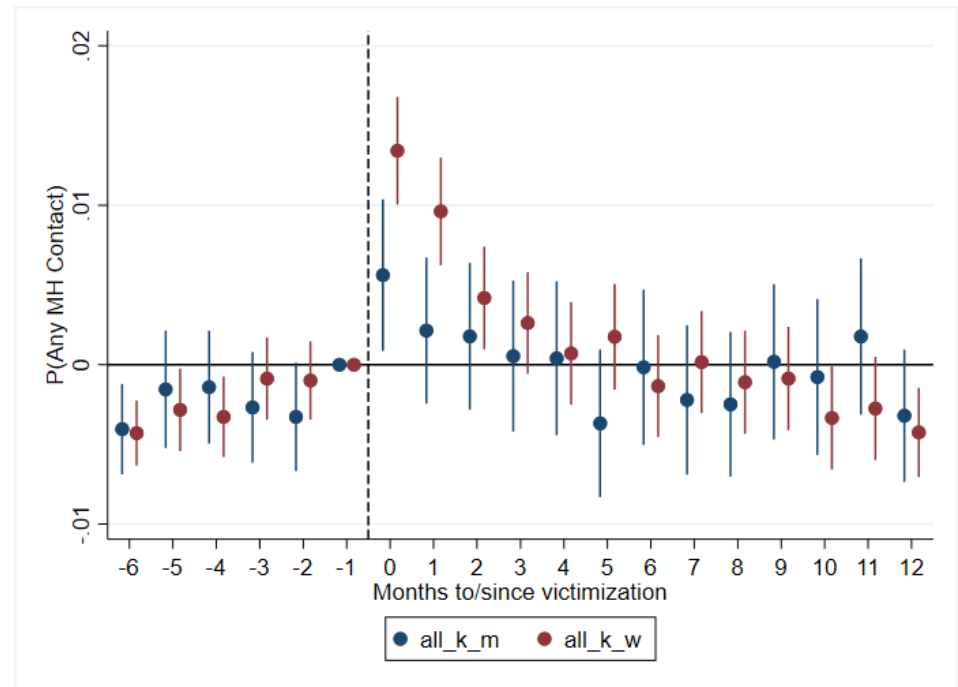
# Results

## Consequences of Victimization – All Crimes VOR

### Stranger



### Known

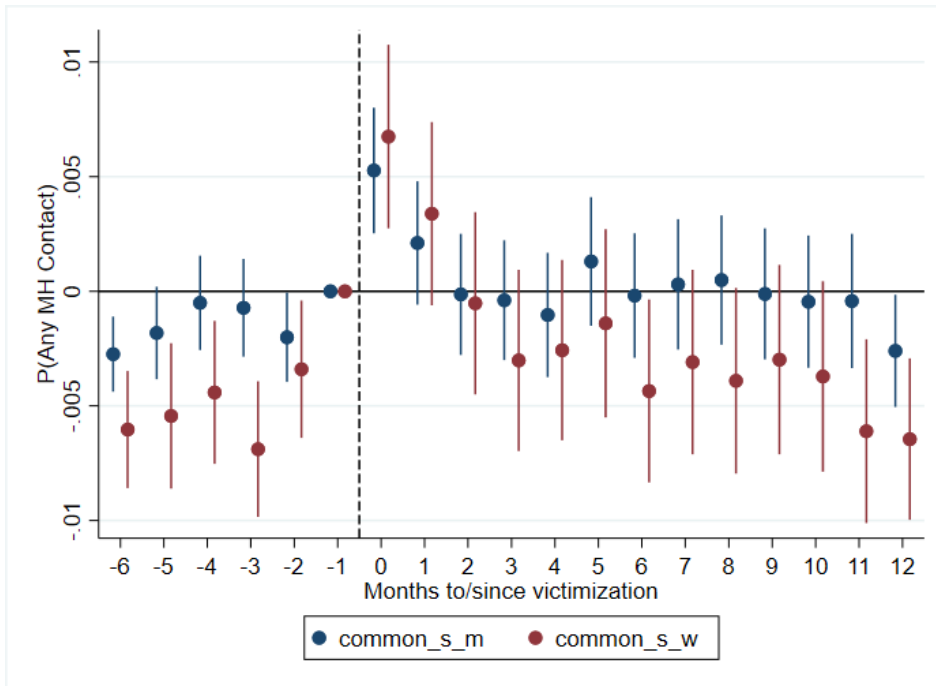




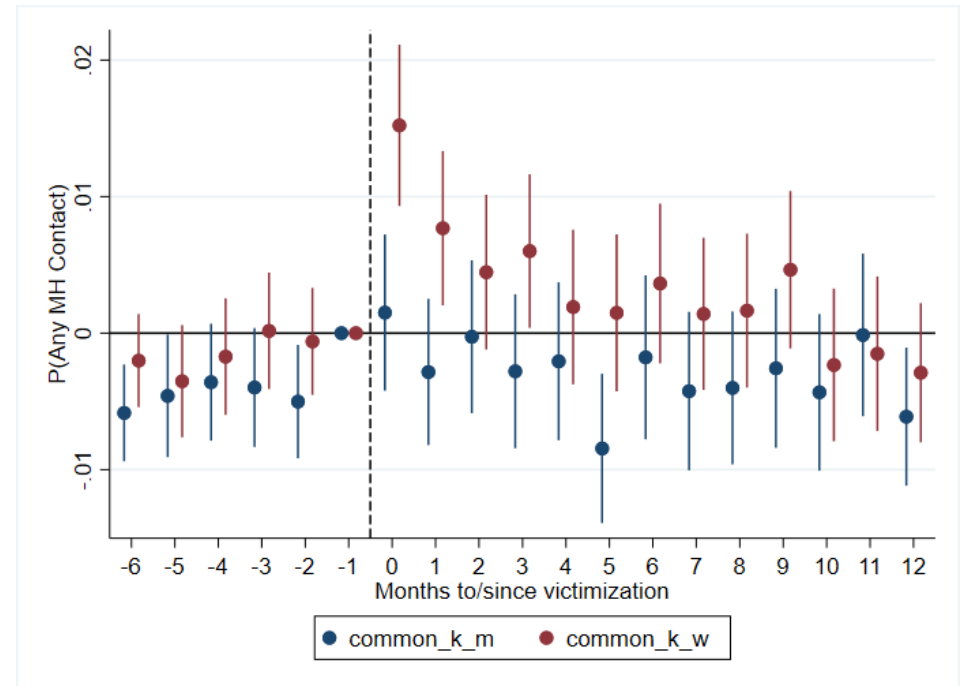
# Results

## Consequences of Victimization – Common Assault VOR

### Stranger



### Known

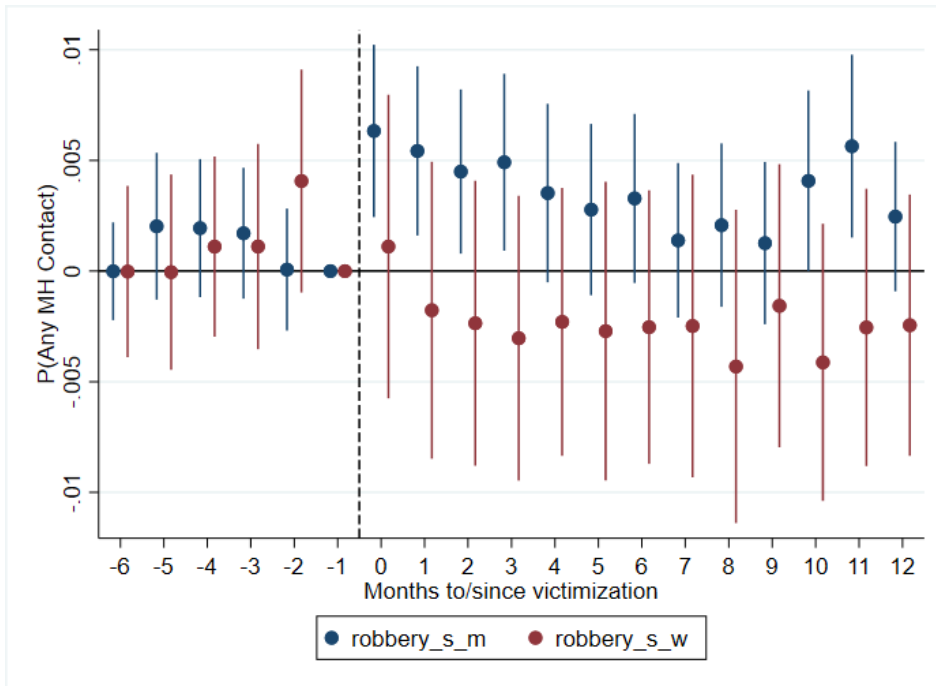




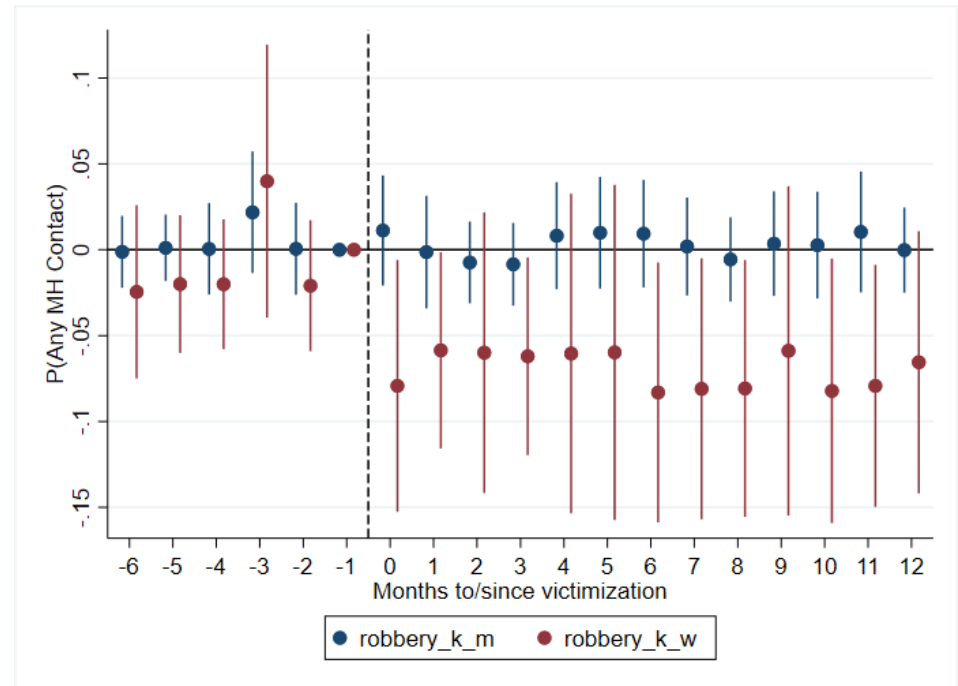
# Results

## Consequences of Victimization – Robbery VOR

### Stranger



### Known

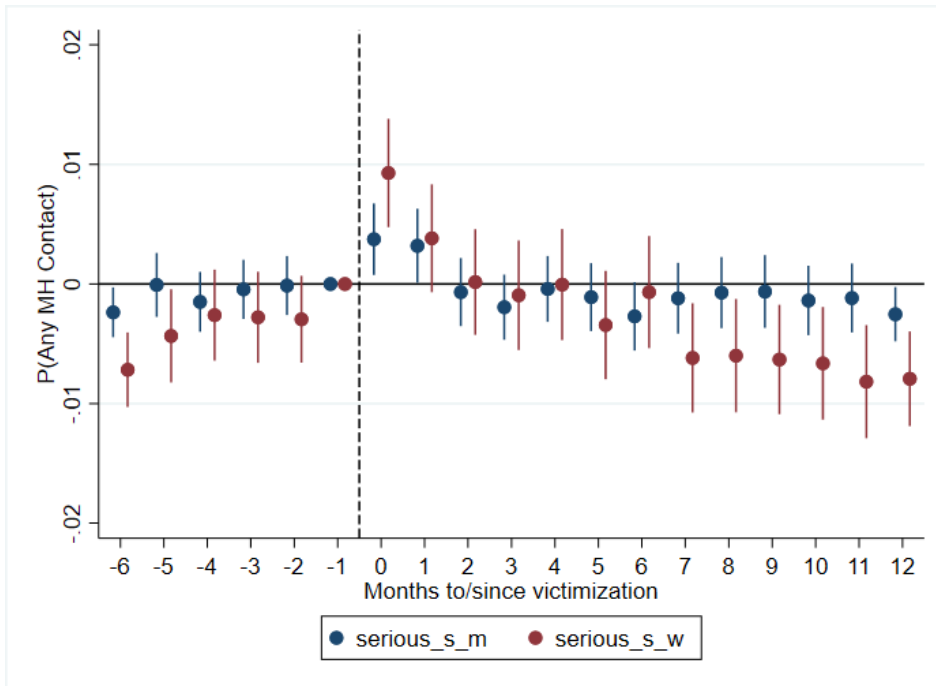




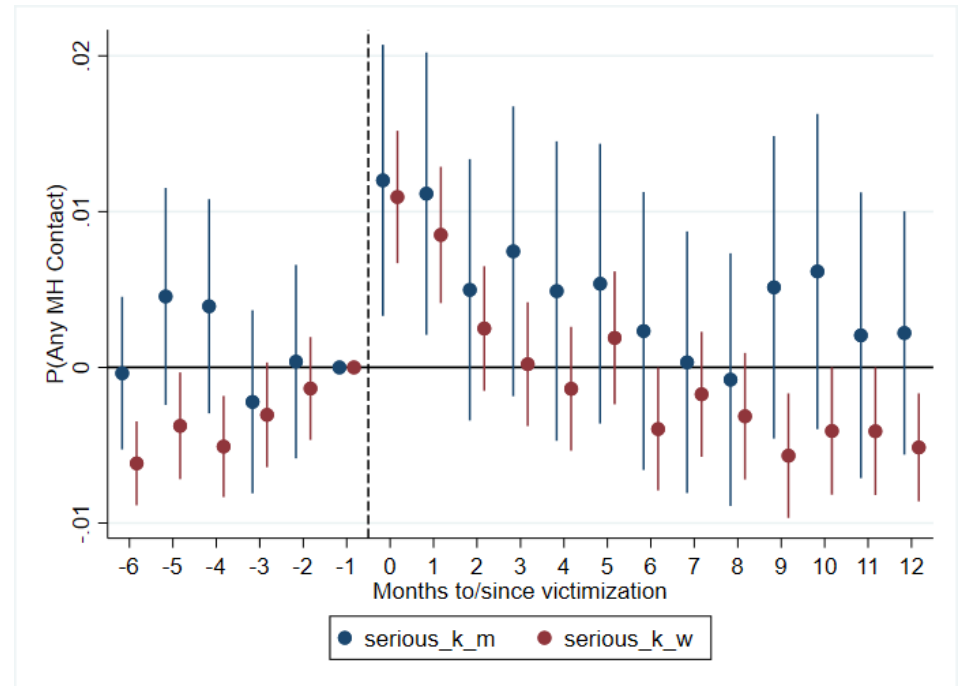
# Results

## Consequences of Victimization – Serious Assault VOR

### Stranger



### Known

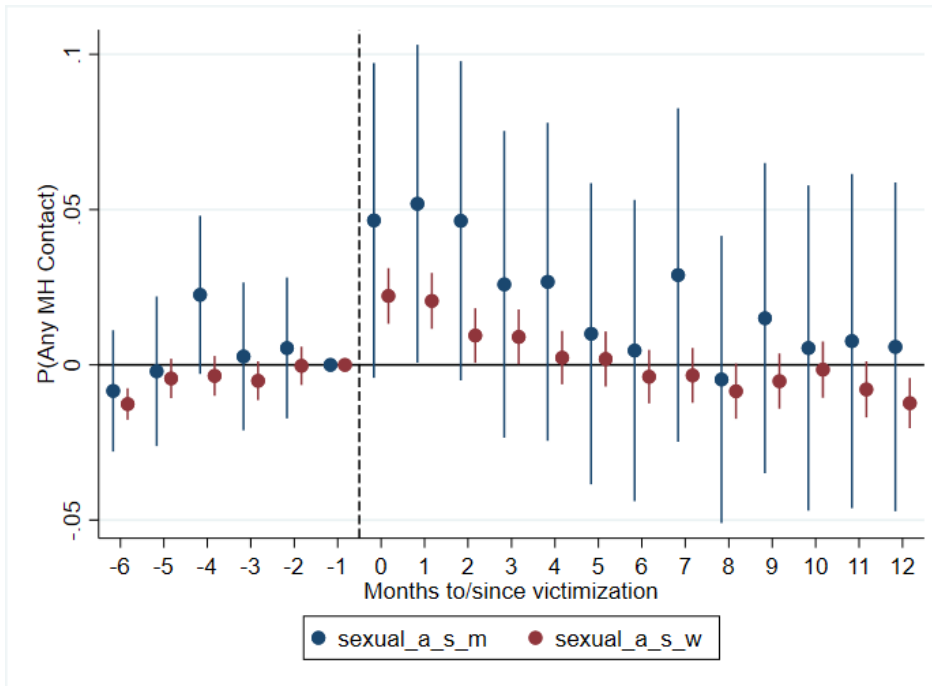




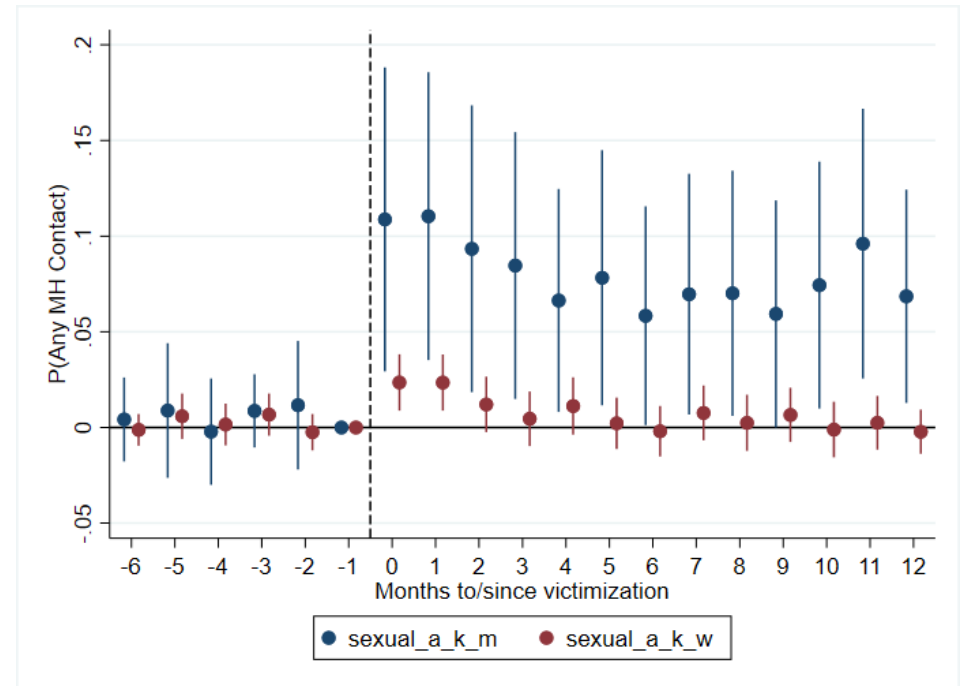
# Results

## Consequences of Victimization – Sexual Assault VOR

### Stranger



### Known





# Method

## Heterogeneity Analysis – Empirical Challenges and Approach

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- **Empirical Challenges:** Endogeneity of offender availability and offender proceeding
  - Observed: offense severity, location and time of the offense, VOR
  - Unobserved: Variation in severity beyond the available severity codes
- **Approach:**
  - Control for observed determinants of availability and proceeding (control for severity, restrict to crimes committed by strangers)
  - Identify source of exogenous variation in offender prosecution (independent from victims outcomes)
    - Instrumental variable approach with offenders criminal history as instrument
    - Discontinuity approach using youth justice cutoff and offenders age



# QUESTIONS & COMMENTS

Thank you for your attention!

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