Peer Effects in Police Use of Force

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Introduction

Police use of force is high-profile issue in the US

- Large direct and indirect costs for local communities
- Large costs to taxpayers from misconduct settlements

Limited evidence on factors that contribute to use of force decisions

- In this paper, look at the role ***peer effects*** play

WYPR News

Baltimore City is still paying for the Gun Trace Task Force's misconduct, $6M settlement to slain driver's family

WYPR - 88.1 FM Baltimore | By Emily Hofstaedter
Published March 1, 2023 at 5:28 PM EST

Muscle Cars, Balaclavas and Fists: How the Scorpions Rolled Through Memphis

Residents say the street crime unit was an intimidating and sometimes violent presence in the city. Five Scorpion officers are charged with murdering Tyre Nichols during an arrest.

Overview

Key challenge in estimating peer effects – ***selection*** into peer group

- Detailed administrative data from Chicago Police Department (CPD)
- New officers randomly assigned to academy cohorts

Use DiD + event study design to estimate effect of former peer injury

- 7 percent increase in use of force over next week
- Increased probability of suspect injury and officer complaints

Policy Context

Use of force (UoF) – discrete scale of possible officer interventions

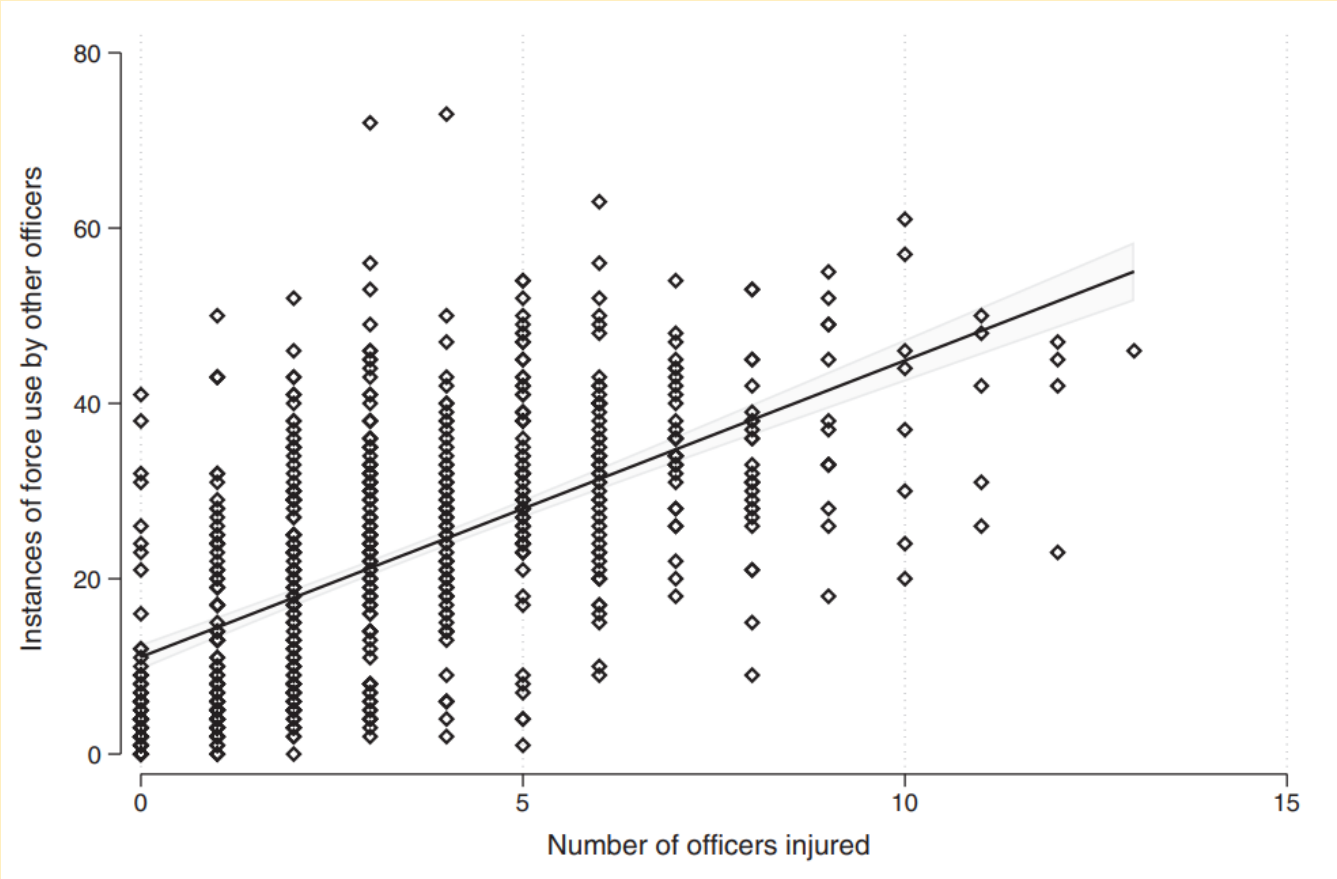
- Ranges from “control” tactics like cuffing, to physical violence w/o & w/ weapons

Department standard – minimum UoF necessary given circumstances

- Appropriate UoF requires officer risk assessment
- Inputs to officer decision include compliance, risks to themselves and others, etc.

Given a stable mix of interactions, we should expect a stable UoF distribution

Cross-Sectional Relationship – Injuries and Use of Force



Identification Strategy

DiD + event study design given officer-level UoF related outcome Y_{idgt}

$$Y_{idgt} = \lambda_i + \lambda_{dt} + \beta \times I\{t = E_{g,-d} + 1\} + u_{idgt}$$

Compare officer i to others in district d

- ***Treatment:*** injury in $t-1$ to former peer in group g in *other* districts $(-d)$
- ***Comparison group:*** other officers in d who didn't attend Academy with g

Internal Validity

Two steps for identification here:

1. Randomization of officers into Academy classes (groups g)
2. Separation of classes across districts

Why use Academy peer groups?

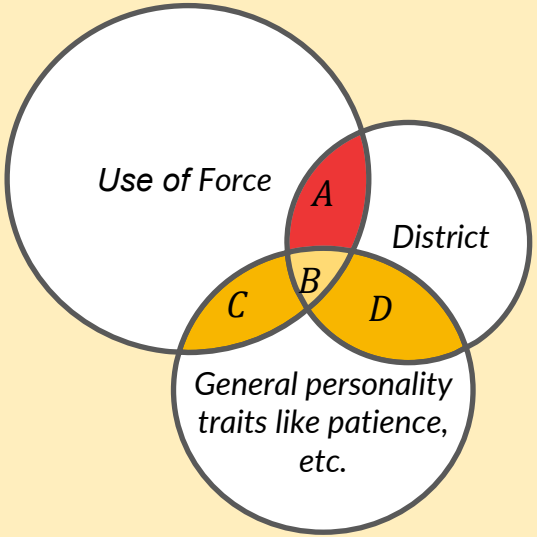
- Officers may select into districts and units *(high-profile examples in prior slide)*
- More aggressive officers more likely to use force, be injured, ***and*** retaliate

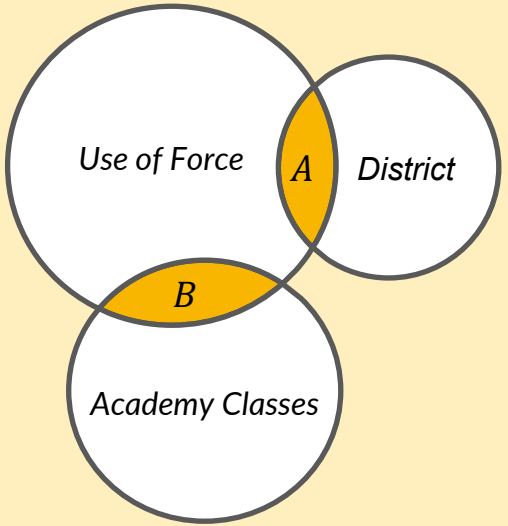
Separation gives us a well-defined comparison group

Visualizing Selection

Remember that selection of people between treatment and control can cause OVB

- Someone's personal reasons for being treated = likely correlated with other things
- In general, implies untreated group is a bad comparison group for treated group





Descriptive Stats

Follow 3,461 officers over 2004 to 2016 time period

Officers have a low probability of injury in a given week (<1 pct.)

- ~1/3 of officers experience an injury over full sample period
- In 90 percent of weeks, at least one officer injured

Peer effects – nearly all officers experience injury to former peer at some point

- 10 percent chance of injury to former peer in a given week

Use of Force

Officers use force in about 2 percent of weeks

Most commonly, includes:

- Handcuffing and holds
- Physical force (kicking, punching, etc.)

Arrests		
Any crime	675	0.527
Municipal code	675	0.034
Traffic	675	0.053
Warrant	675	0.113
Drug crime	675	0.173
Property crime	675	0.096
Violent crime	675	0.135
Other	675	0.177
Force Use		
Any force use	675	0.018
Control	675	0.011
Without weapon	675	0.015
Nonlethal	675	0.001
Mitigation	675	0.019
Baton	675	0.001
Taser	675	0.001
Firearm	675	0.000
Other	675	0.001
Injured suspect	675	0.006

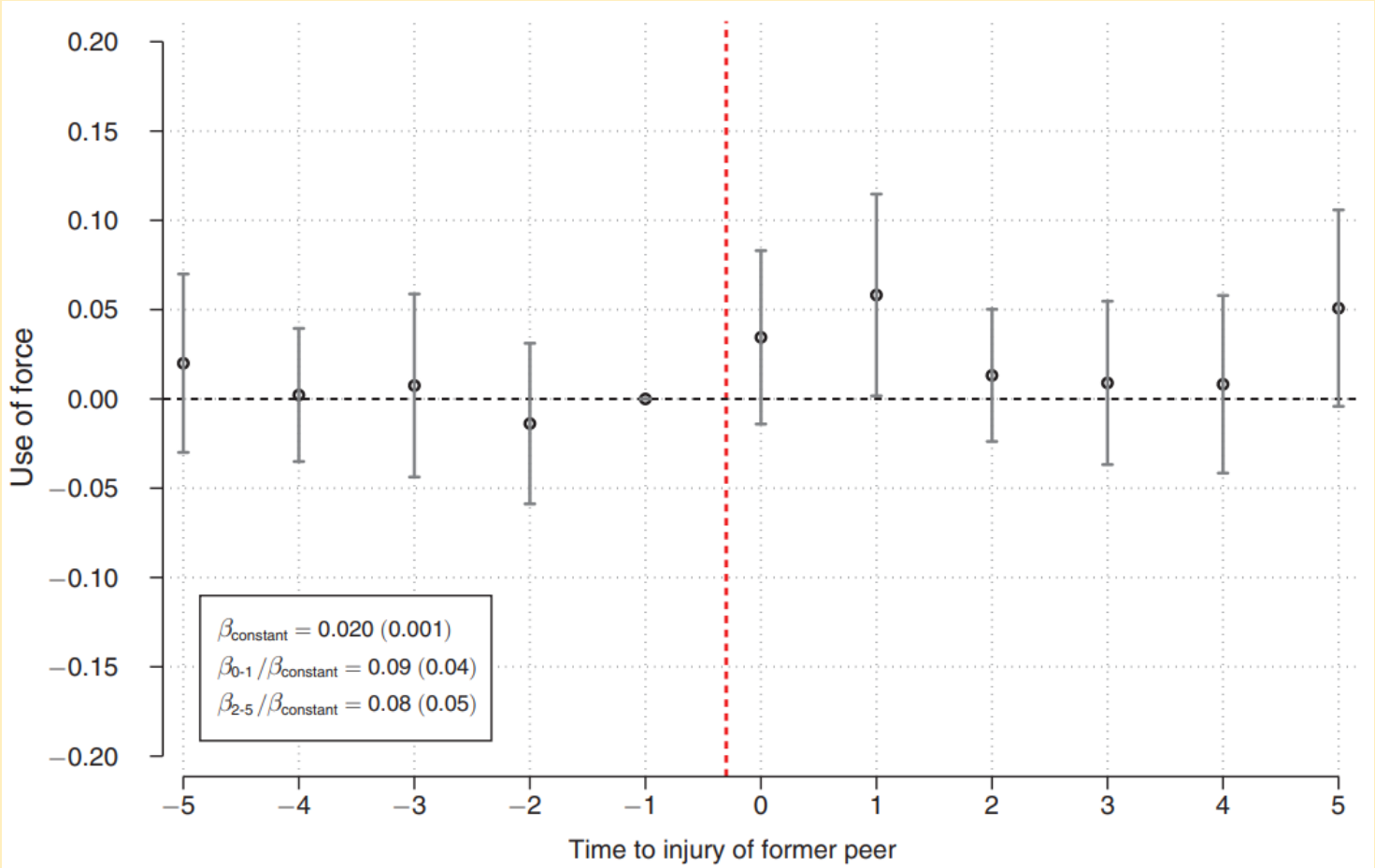


FIGURE 3. THE EFFECT OF FORMER PEER INJURIES ON POLICE USE OF FORCE

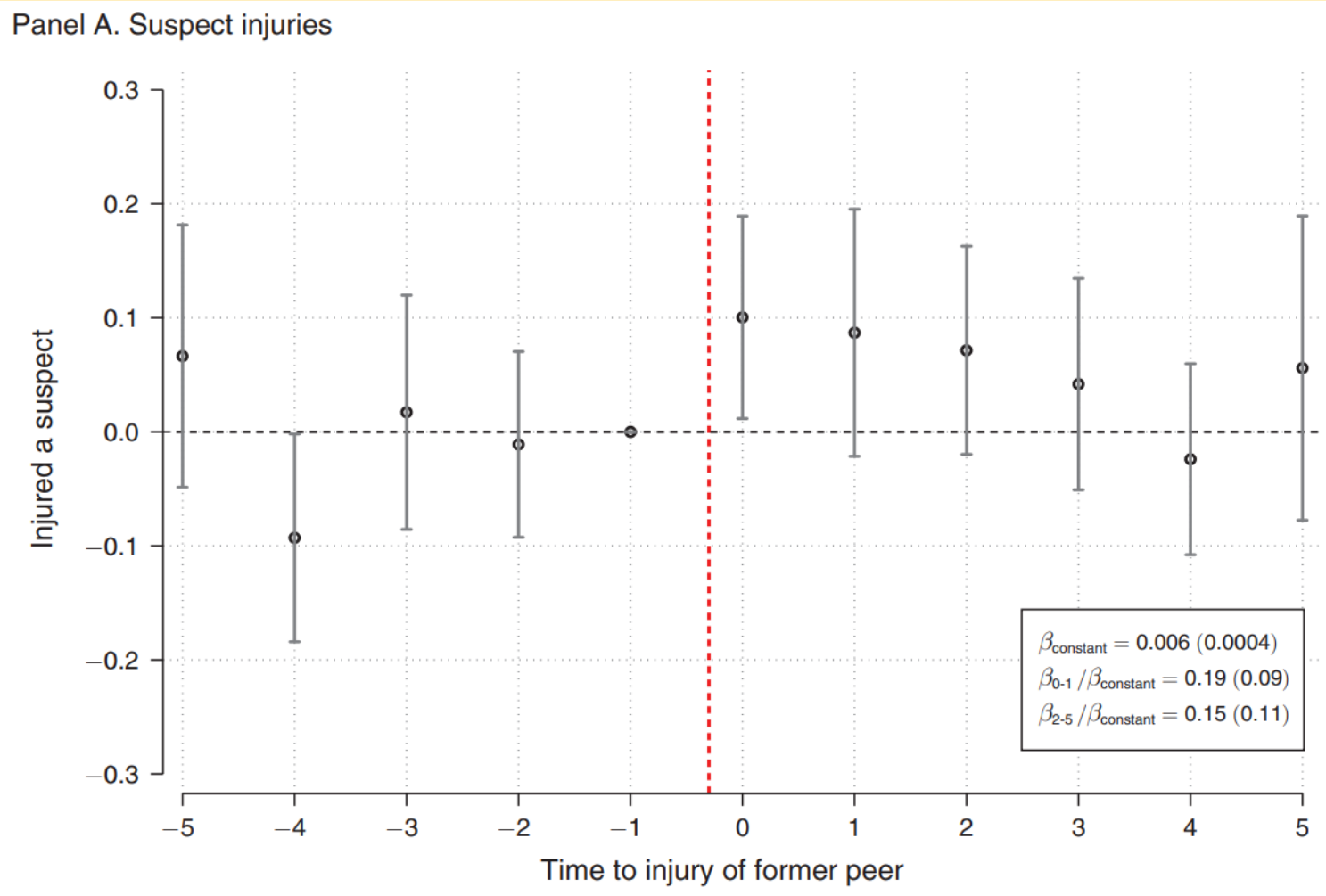

Panel A. Suspect injuries
Injured a suspect
0.3
0.2
0.1
0.0
−0.1
−0.2
−0.3
−5
−4
−3
−2
−1
0
1
2
3
4
5
Time to injury of former peer
$\beta_{constant} = 0.006$ (0.0004)
$\beta_{0\text{-}1} / \beta_{constant} = 0.19$ (0.09)
$\beta_{2\text{-}5} / \beta_{constant} = 0.15$ (0.11)

TABLE 5—HETEROGENEOUS EFFECTS BY TYPE OF FORCE

	Control	No weapon	Nonlethal	Baton	Taser	Firearm	Other
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Former peer injury in previous week	0.00072	0.00095	−0.00002	−0.00004	0.00009	0.00012	0.00007
	(0.00035)	(0.00048)	(0.00008)	(0.00007)	(0.00013)	(0.00006)	(0.00015)
Constant	0.01030	0.01438	0.00086	0.00050	0.00167	0.00027	0.00108
	(0.00004)	(0.00005)	(0.00001)	(0.00001)	(0.00001)	(0.00001)	(0.00002)
Model	OLS	OLS	OLS	OLS	OLS	OLS	OLS
Percent increase	8.108	7.627	−1.914	−8.818	6.907	46.104	0.007
Unit-week fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pre-trend test	0.684	0.742	0.010	0.407	0.495	0.923	0.545
R^2	0.034	0.039	0.029	0.022	0.024	0.022	0.023
Observations	986,088	986,088	986,088	986,088	986,088	986,088	986,088

Unpacking Results

Evidence of sharp increase in use of force over 1-2 weeks that then dissipates

Questions we might want to ask:

- Evidence for social learning vs. emotional response?
- Strength of peer networks?

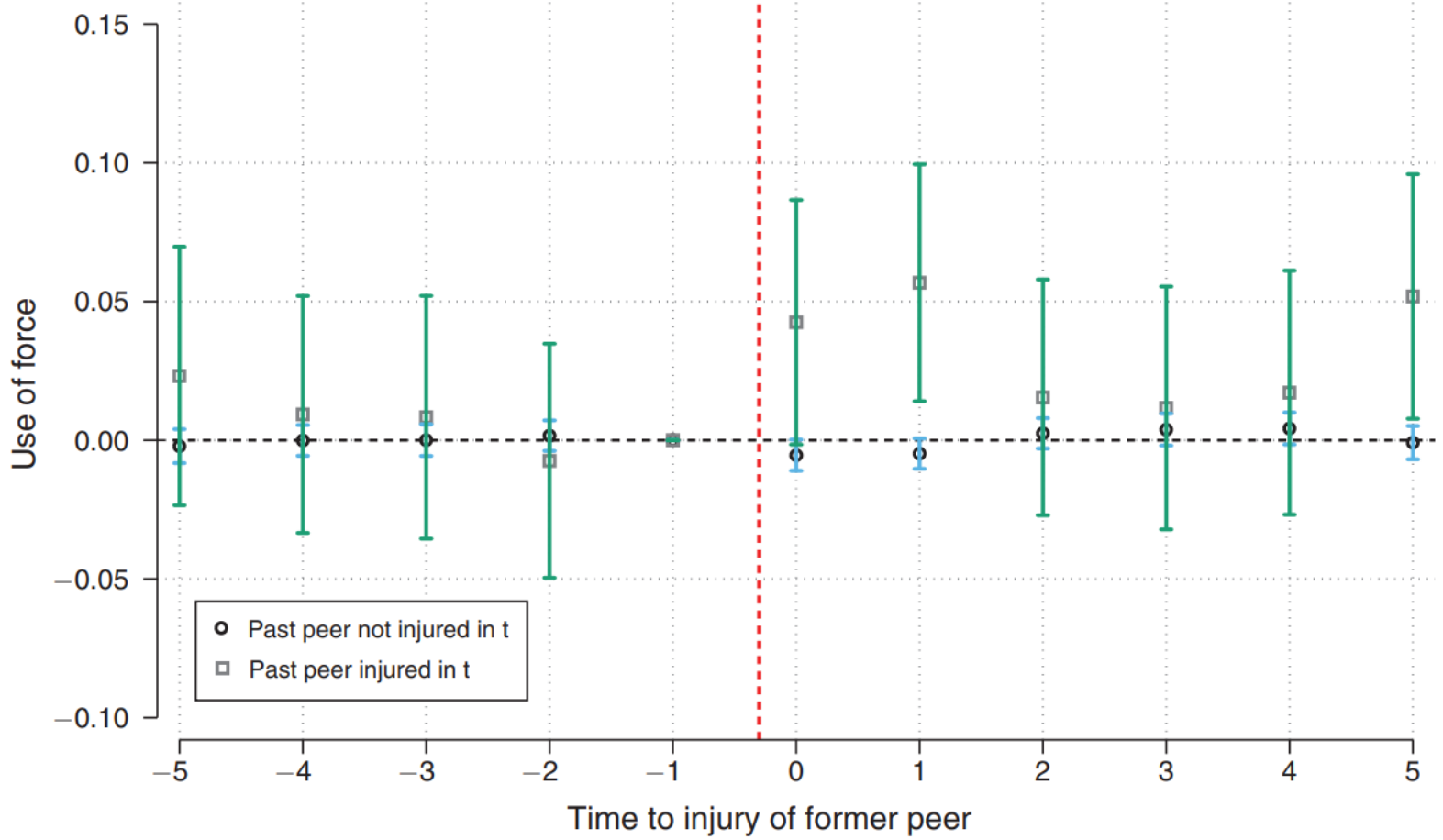
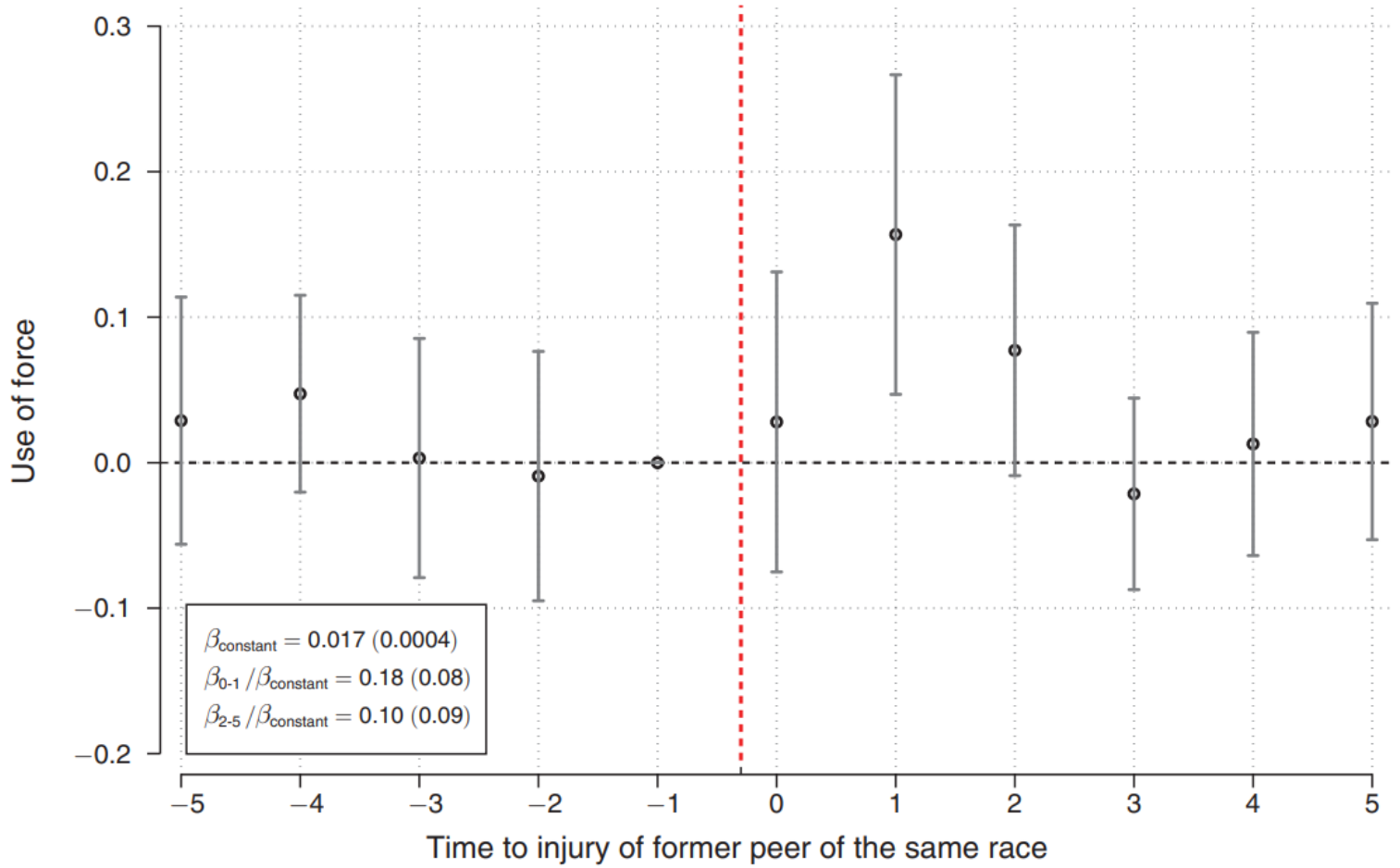


FIGURE 7. THE EFFECT OF FORMER PEER INJURIES ON USE OF FORCE

Panel A. The effect of same-race former peer injuries on force use



Conclusion

In general, there's not much empirical evidence of determinants of police use of force

This study uses variation in randomly assigned Academy classes

- Clear increase in use of force and suspect injury following peer injuries
- Local treatment effects – likely ***lower*** bound on peer effects

Tradeoffs in attempting to reduce use of force

- Positive spillovers from policies designed to reduce officer injuries
- Mediating factors – officer experience, institutional support, etc.