

The Impact of Mass Shootings on Gun Policy

Christopher Poliquin, Michael Luca, Deepak Malhotra

All Firearm Deaths, 1989–2014

Type	Count	%
Suicides	474,693	55.4
Ordinary Homicides	341,112	39.8
Accidents	23,407	2.7
Legal / War	8,691	1.0
Undetermined	8,054	0.9
Public Mass Shootings	940	0.1
Total	856,897	

What determines policy?

- Optimal crime policy (Becker 1968)
 - Magnitude of harm
 - Costs of detection, apprehension, conviction
 - Social costs of punishment

Political Economy, Salience, and Public Policy

- Political economy and determinants of policy
 - Speeding tickets are not only determined by law enforcement goals
Makowsky and Stratmann AER 2009
- Media coverage, salience, and policy
 - Disaster relief depends on news coverage of disasters, not just need
Eisensee and Strömberg JPE 2007
 - Israel plans military operations to coincide with other newsworthy events
Durante and Zhuravskaya JPE 2016

How do salient
events affect
gun policy?

Washington
7:53 AM ET

White House
7:53 AM ET

TRUMP WHITE HOUSE

TRUMP ON GUN CONTROL: "NOT TALKING ABOUT THAT TODAY"

CNN

7:53 AM ET

TODAY

ATLANTA

83°

CHARLOTTE

84°

WASHINGTON

83°

NEW DAY

CNN

Summary of Results

1. Large response to mass shootings in states

- 15% increase in bill introductions

2. Outsized influence compared to other gun homicides

- 125 times greater impact per death

3. Effect on laws depends on political party

- Republican-controlled states *loosen* gun laws
- Statistically insignificant effects in Democrat-controlled states

Gun Policy in the United States

Federal Policy

- License and inspect dealers
- Background check on retail sales
- Regulate interstate sales
- Prevent some people from possession
 - Felons,
 - Mentally ill,
 - Undocumented foreigners, ...
- Ban certain weapons
 - Fully automatic weapons
 - Armor-piercing ammo

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State Policy

- Owner and concealed carry licensing
- Private sale background checks
- Waiting periods (delay purchase)
- Expand prohibited possessors
 - Violent misdemeanants,
 - Other mentally ill, ...
- Assault weapon & magazine bans
- Stand-your-ground (self-defense) laws
- Open carry, guns in public places

Data

Gun Legislation, 1990–2014

State Legislation

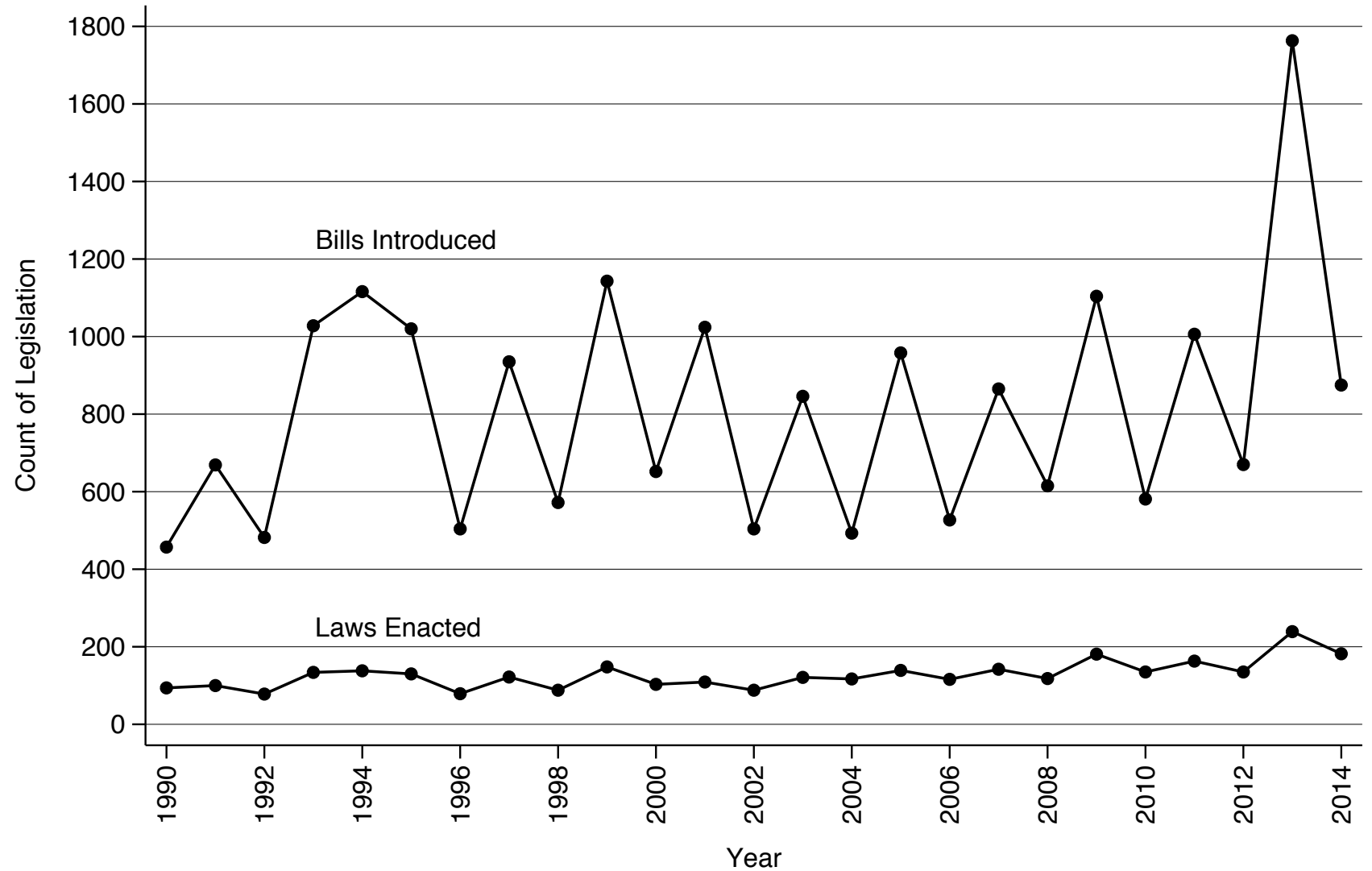
- Source: Lexis Nexis
- Keyword search of all bills
- 20,409 bills introduced
- 3,199 of them became law
- Excludes resolutions, executive orders, referenda, etc.

Gun Legislation, 1990–2014

50
States

20,409
Bills

3,199
Laws



What is a mass shooting?

A **mass shooting** is an event in which...

- 4 or more people, other than the perpetrator(s)...
- are unlawfully killed with a firearm...
- in a single, continuous incident.

(FBI 2008, Huff-Corzine et al. 2014)

A **public mass shooting** is a mass shooting...

- unrelated to gangs, drugs, other criminal activity,
- not connected to a domestic or romantic conflict,
- usually in a location frequented by the public.

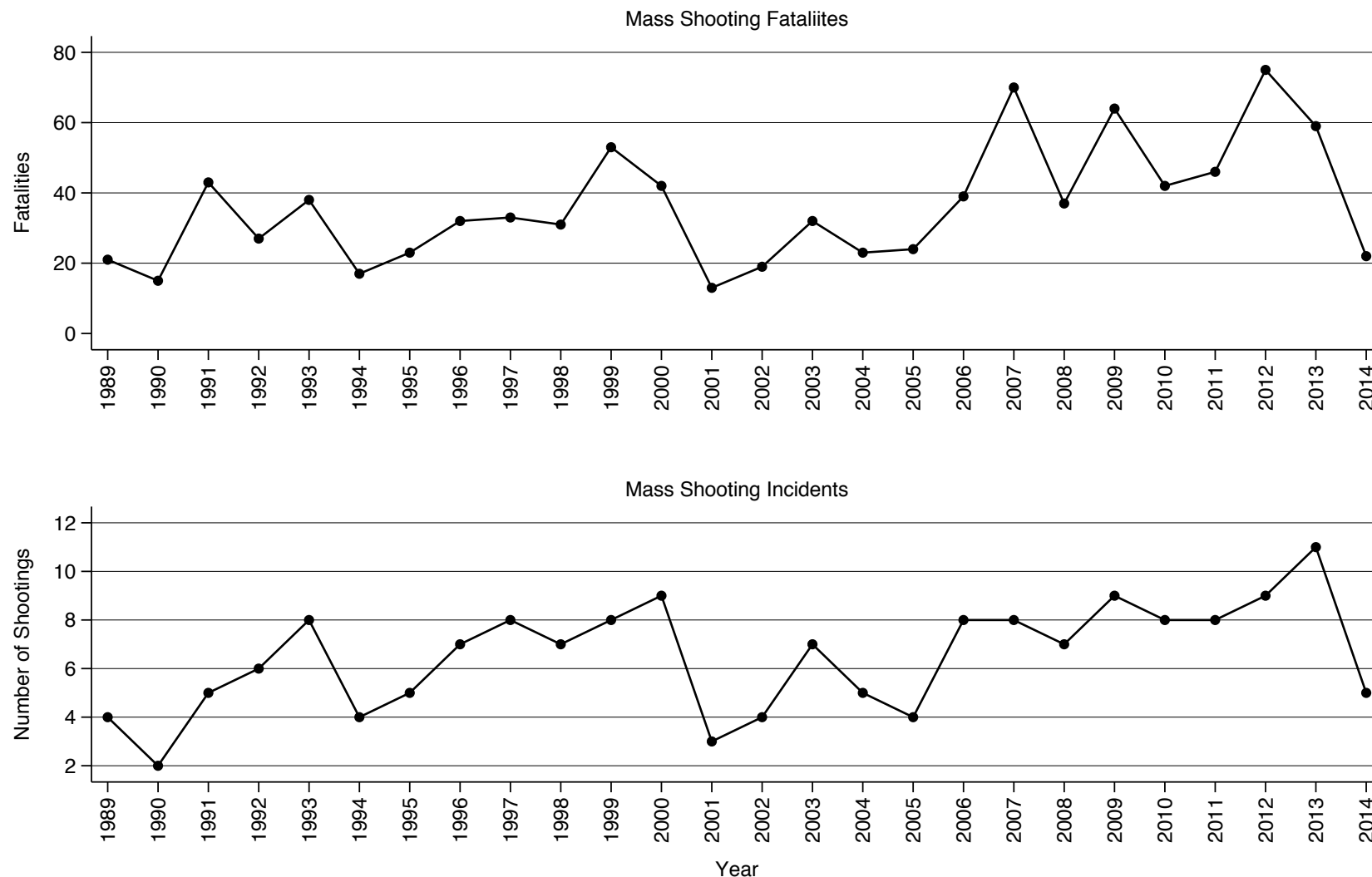
(Duwe 2007, Congressional Research Service 2015)

Mass Shootings, 1989–2014

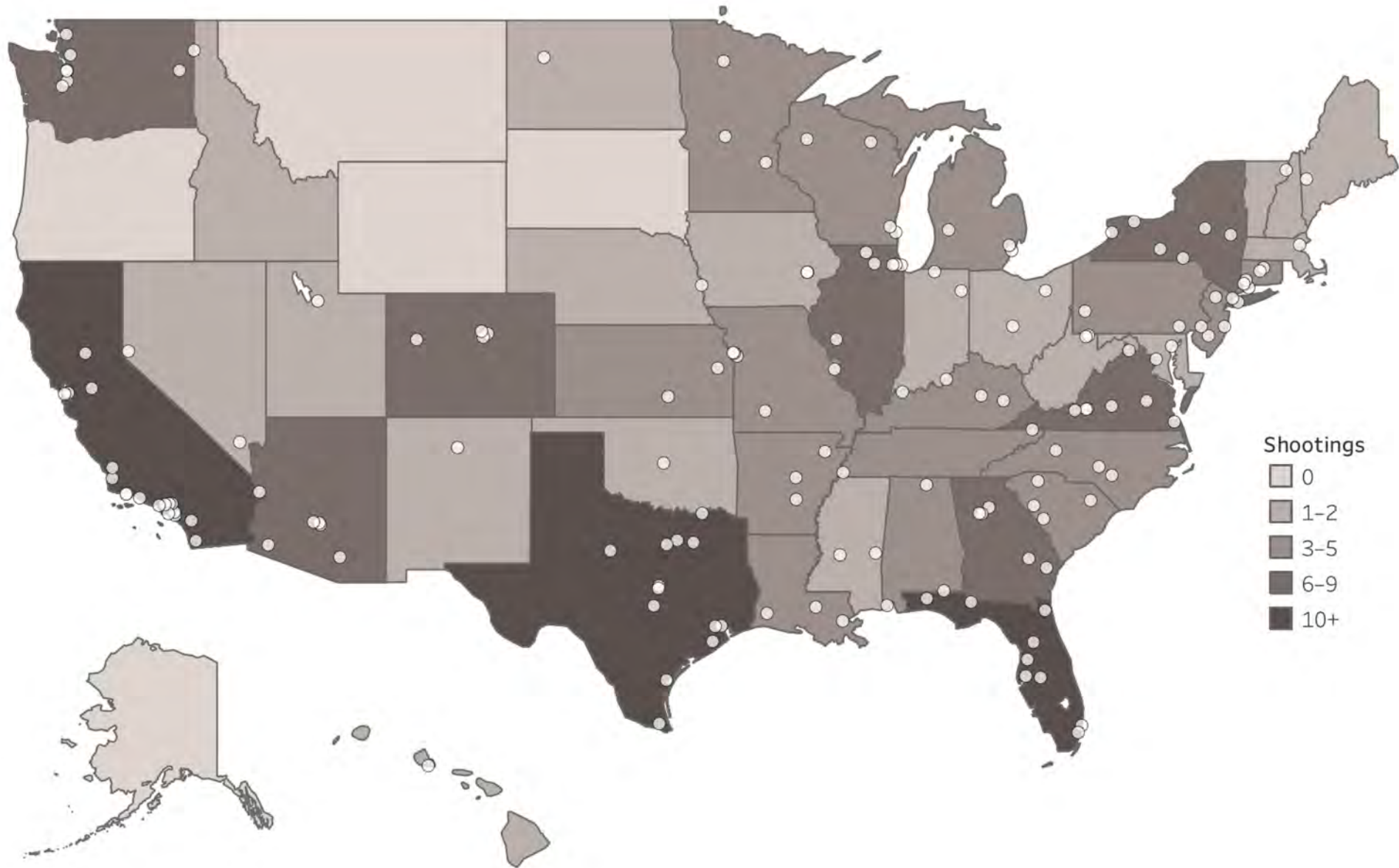
169
Shootings

940
Fatalities

1,447
Victims



Mass Shootings, 1989–2014



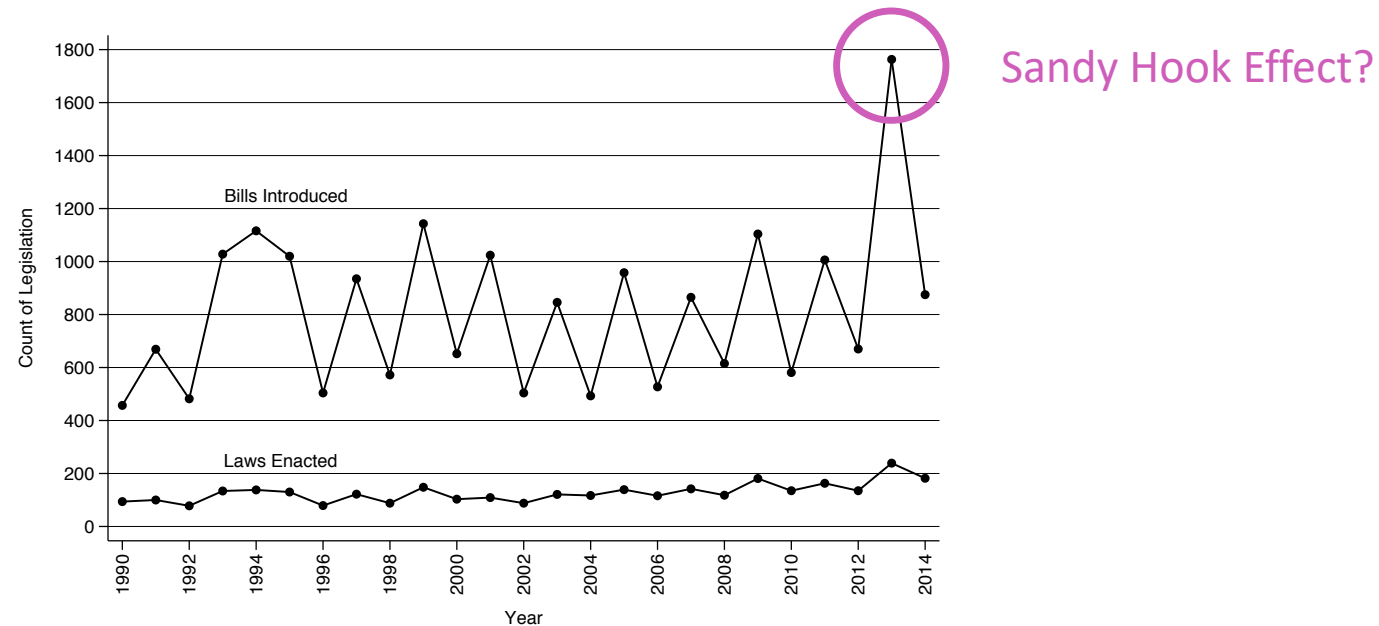
Methods

Methodology

- Difference-in-differences
 - State gun legislation in the year following a mass shooting
 - Comparing states that did and did not have shootings
- Assumption of parallel trends in states with and without shootings
- Assumption that other shocks don't drive shootings and policy

Methodology

- Potentially understates impact of mass shootings
 - Measuring impact in year after mass shooting
 - States might respond to shootings in other states (e.g. Sandy Hook)



Methodology

- Poisson model for pieces of legislation (bills introduced, laws enacted)

$$E \left[Policy_{s,t} \middle| \begin{pmatrix} \alpha_s \\ Shoot_{s,t-1} \\ X_{s,t} \end{pmatrix}, \lambda_t \right] = \exp(\alpha_s + \lambda_t + Shoot_{s,t-1}\beta + X'_{s,t}\delta)$$

Results

Shootings and Bill Introductions

	(1)	(2)	(3)	(4)
Mass Shooting	0.145** (0.071)		0.153** (0.070)	
Fatalities		0.023*** (0.008)		0.024*** (0.007)
Dem. Legislature			-0.130 (0.087)	-0.126 (0.090)
Rep. Legislature			0.078 (0.075)	0.082 (0.075)
Rep. Governor			-0.025 (0.066)	-0.019 (0.065)
Demographic Controls			■	■
Institutional Controls	■	■	■	■
State Fixed Effects	■	■	■	■
Year Fixed Effects	■	■	■	■
N	1,250	1,250	1,250	1,250

Is 15% a large increase?

- 2–3 additional bills for the average state-year
- How does this compare with other changes in gun violence?
- Compare with changes in all gun homicides over time
- Rough calibration with lots of caveats

Effect of a mass shooting fatality is roughly **125 times greater** than effect of an ordinary gun homicide.

Comparison to Ordinary Gun Homicides

	(3)	(4)
Mass Shooting Fatalities [†]	1.339 *** (0.212)	1.427 *** (0.221)
Ordinary Gun Homicides [†]	0.014 (0.031)	0.011 (0.048)
Political Party Controls		■
Demographic Controls		■
Institutional Controls	■	■
State Fixed Effects	■	■
Year Fixed Effects	■	■
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† Rate of fatalities per 100,000 state residents

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How do laws change?

- Most bills do not become law
- Republicans and Democrats have different positions on guns
- Examples of both parties citing mass shootings

POLITICS

After Orlando, California lawmakers push for action on gun control

LA
Times

By PATRICK MCGREEVY

JUN 13, 2016 | 5:58 PM

SACRAMENTO



Friends of Shane Tomlinson, who was killed in the Pulse nightclub shooting, gather in prayer and remembrances in downtown Orlando on Monday. (Carolyn Cole / Los Angeles Times)



NATION

LA TIMES

Kentucky lawmakers push to allow armed staff in schools following campus shooting



By MATT PEARCE

JAN 26, 2018 | 3:55 PM



People gather in Benton, Ky., on Thursday night for a vigil honoring the victims of a fatal shooting at Marshall County High School. (Robert Ray / Associated Press)



Coding Gun Legislation

- Want to know whether laws tighten or loosen gun control
- Each bill coded twice by paralegals on UpWork
- Incentivize accurate coding with bonus payment
 - Based on set of pre-coded bills
 - “Correct” answer determined by reading the entire bill text
 - When coders both say **tighten**, correct **93%** of the time
 - When coders both say **loosen**, correct **90%** of the time

Republicans versus Democrats

	<i>Tightening Laws</i>		<i>Loosening Laws</i>	
	(1)	(2)	(3)	(4)
Mass Shooting	-0.050 (0.103)		0.258 (0.171)	
Dem. Leg. × Shooting		0.007 (0.141)		-0.245 (0.389)
Rep. Leg. × Shooting		0.002 (0.236)		0.800*** (0.259)
Split Leg. × Shooting		-0.247 (0.261)		0.137 (0.339)
Dem. Legislature	0.102 (0.148)	0.063 (0.170)	-0.293 (0.202)	-0.233 (0.226)
Rep. Legislature	0.157 (0.136)	0.120 (0.145)	0.497*** (0.187)	0.391* (0.213)
Rep. Governor	-0.050 (0.084)	-0.050 (0.083)	-0.098 (0.171)	-0.079 (0.167)

All models include state and year fixed effects, plus demographic and institutional controls.

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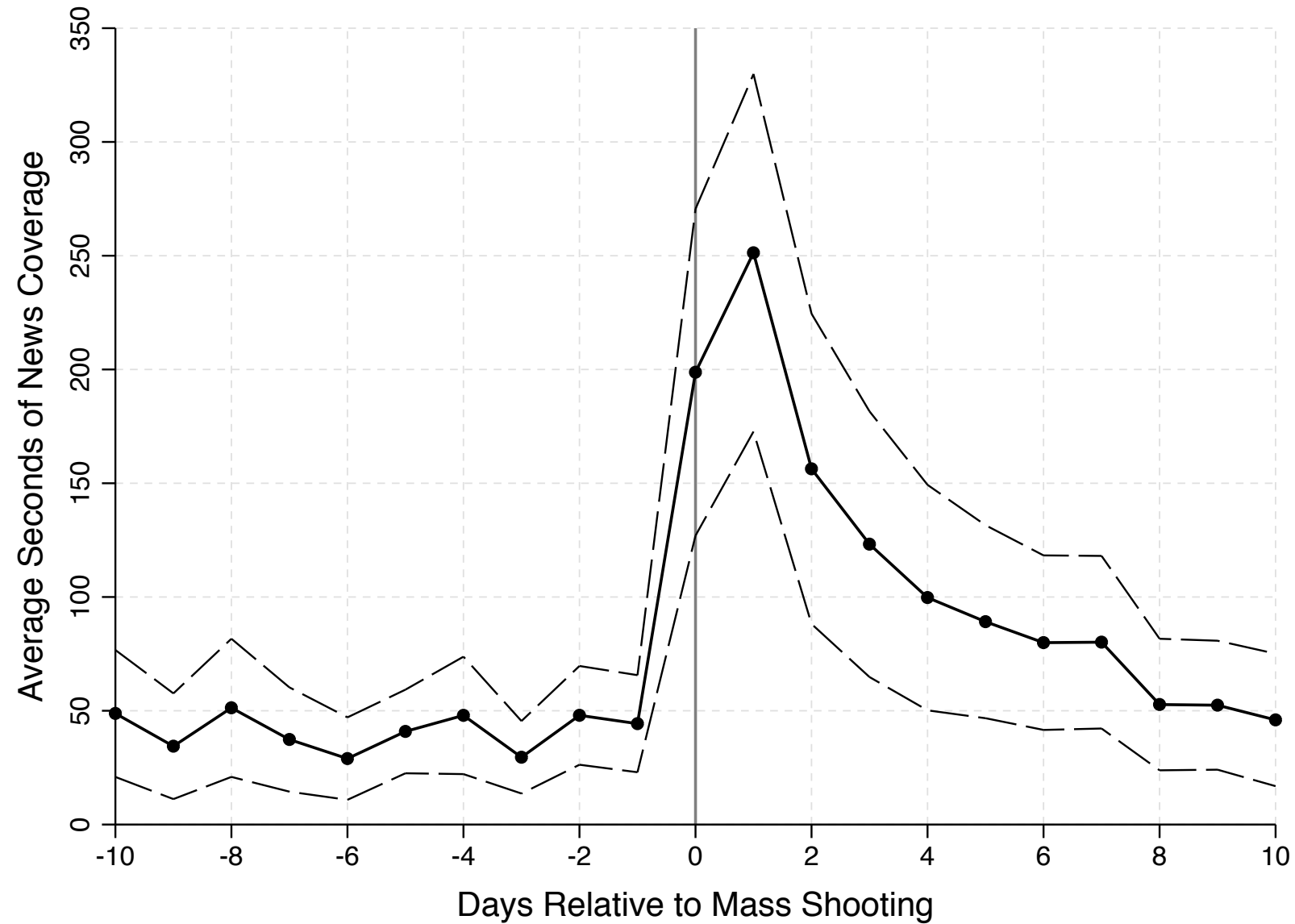
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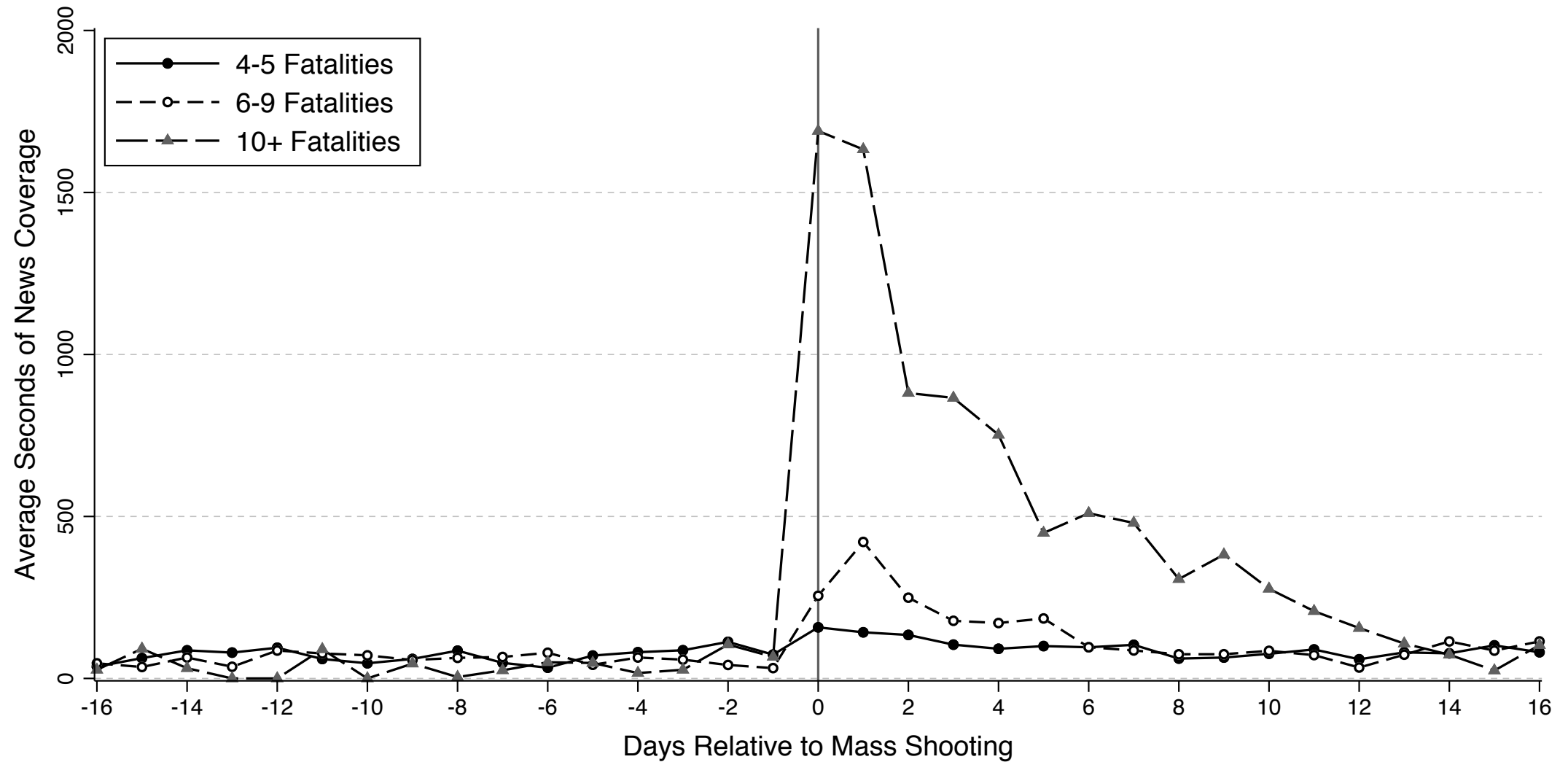
Robustness Checks

- Results unchanged with state specific time trends
- Placebo analysis shows test statistics have expected distribution
- Not driven by a single state
- Cannot predict mass shootings with gun policies, demographics

Nightly News Coverage of Firearms and Mass Shootings



Nightly News Coverage of Firearms and Mass Shootings



News Coverage and Bill Introductions

	(1)	(2)
Mass Shooting × News Coverage	0.125*** (0.041)	0.127** (0.054)
Mass Shooting	0.070 (0.078)	0.067 (0.076)
Dem. Legislature		-0.055 (0.064)
Rep. Legislature		0.030 (0.043)
Rep. Governor		-0.042 (0.056)
Demographic Controls		■
Institutional Controls	■	■
State Fixed Effects	■	■
Year Fixed Effects	■	■
N	1,250	1,250

- News coverage of shooting is *correlated* with magnitude of policy response
- Several caveats

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Thank You