Guns, Privacy, and Crime

Alessandro Acquisti and Catherine Tucker

CMU and MIT

WEIS 2010

December 12, 2008: Commercial Appeal (largest Memphis, TN area newspaper) uploads database of TN handgun permit holders

Residents of Tennessee can apply for a handgun carry permit with the Department of Public Safety.

Search Again

Last Name ▲	First Name	City	ZIP	
ABBOTT	JAMES	MEMPHIS	38104	Details
ABERNATHY	RICHARD	MEMPHIS	38104	Details
ACUFF	KATHLEEN	MEMPHIS	38104	Details
ADAMS	PAUL	MEMPHIS	38104	Details
ADELMAN	REBECCA	MEMPHIS	38104	Details
AIKENS	MICHAEL	MEMPHIS	38104	Details
AIZAH	FAYEZ	MEMPHIS	38104	Details
AL ABOUDY	AHMED	MEMPHIS	38104	Details
ALBERSON	MICHAEL	MEMPHIS	38104	Details
ALDRIDGE	EDITH	MEMPHIS	38104	Details
ALFONSO	REINALDO	MEMPHIS	38104	Details
ALLEN	JOE	MEMPHIS	38104	Details
ALLEN	ROBERT	MEMPHIS	38104	Details
ALLEN	BRADLY	MEMPHIS	38104	Details
ALLEN	CATHY	MEMPHIS	38104	Details
ANDERSON	TEJEROLE	MEMPHIS	38104	Details
ANDERSON	LEWIS	MEMPHIS	38104	Details
ANDERSON	GREGORY	MEMPHIS	38104	Details
ARMSTRONG	MARY	MEMPHIS	38104	Details
AUSTIN	JAMES	MEMPHIS	38104	Details
BACKEY	JASON	MEMPHIS	38104	Details
BADRAN	SALIM	MEMPHIS	38104	Details
BAILEY	MASTIN	MEMPHIS	38104	Details
BAILEY	MERRITT	MEMPHIS	38104	Details
BAILEY	JUSTIN	MEMPHIS	38104	Details

1 2 3 4 5 6 7 8 9 10 ► ►►

Records 1-25 of 631

Source: Tennessee Department of Safety; public records include permits issued before Jan. 1, 2010, and valid as of today.

February 6, 2009: Deadly shooting outside Memphis shopping center

February 8, 2009: In online discussion of the shooting, commenter links DB

THE COMMERCIAL APPEAL
Memphis, Tennessee

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Man, 59, charged in Cordova parking-lot killing

By Jody Callahan
Posted February 8, 2009 at 5:35 p.m.
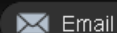
✉ Email   💬 Discuss   👥 Share »   🖨 Print   A A **A**

An argument and a gun, a flash and a crack, and just like that, three children were made orphans.

That's what happened in the parking lot of the Trinity Commons shopping center in Cordova around 9 p.m. Friday, police said.
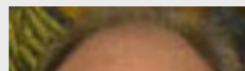
Police charged Harry Coleman, 59, with second-degree murder Sunday in the shooting of Robert "Dutch" Schwerin, 52, after the pair argued over how close their vehicles were parked.
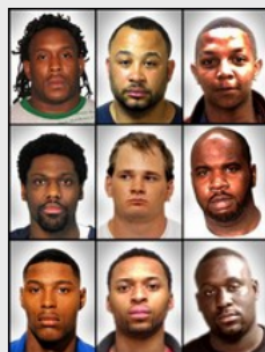
Schwerin died in the parking lot, leaving behind two sons, Dallas, 21, and Colt, 19, and a daughter, Savannah, 15. Emilie Schwerin, his wife and their mother, died in 2004 from medical problems.

Schwerin was a mechanic at FedEx for 21 years and a co-owner of Dacosa Speedway in Byhalia, a go-kart track modeled after Talladega Superspeedway.

"He was all they had, after their mother passed away," said the victim's brother, John "Butch" Schwerin.

February 8, 2009
7:42 p.m.

Suggest removal

Reply to this post

38118 writes:

Say what you want but people love it when a white man gets charged. Again can someone tell me what Palin and Bush have to do with this?

February 8, 2009
7:43 p.m.

Suggest removal

Reply to this post

ZackMcMillin_CA writes:

The Commercial Appeal has set up a database that shows those registered to carry.

Here is the link:

http://www.commercialappeal.com/gunpe...

February 9 and onwards, 2009: NRA begins campaign Commercial Appeal responds with editorial; Story goes national

Database goes from 5 pageviews per day in December to 589,697 pageviews in February

NRA-ILA NATIONAL RIFLE ASSOCIATION INSTITUTE FOR LEGISLATIVE ACTION

A well regulated militia, being necessary to the security of a free state, the right of the people to keep and bear arms, shall not be infringed.

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NRA Chief Lobbyist and Tennessee native sent this letter to the editors of the Memphis Commercial Appeal on Tuesday, February 10.

Friday, February 13, 2009

Action Center
- Email Signup
- Write Your Representatives
- Get Involved Locally
- Register To Vote
- Contribute
- Write The Media
- Syndicate NRA-ILA

MORE>>

For The Media

...l You Know
...ce are under no legal obligation to ...ide protection for any individual. Courts ...e ruled the police have an obligation ...to society as a whole. (Warren v. ...rict of Columbia, 444 A.2d 1, 1981)

MORE>>

"People need to protect themselves and their families," said Chris Cox, a lobbyist for the National Rifle Association.

Cox had harsh words for The Commercial Appeal, which touched off intense criticism and the current legislative battle when it published a searchable database on its Web site that includes the names of the state's permit holders.

"What they've done is give criminals a lighted pathway to (burglarize) the homes of gun owners," said Cox, who grew up in Jackson, Tenn., and graduated from Rhodes College.

Authorities had warning signals long before July 2005 when Sims kicked in his ex-girlfriend's door, handcuffed her and drove her at gunpoint to his place.

Shelby County residents with violent histories who have received permits to carry handguns in Tennessee include (top row, from left) Dewayne Turner, Antonio Jackson, Reginald Miller; (middle row) Bernard Avery Joseph Fellie, Kiandre Sims; (bottom row) Antonio Bedford, Jimmy Earl Harris and Taurus Carter. **Read their individual stories below.**

Research question

- How does the public exposure of names and addresses of handgun carry permits' holders affect criminals' propensity to commit crimes, as a function of the (revealed) number of permits across locations?
  - Does it increase crimes? *(NRA's argument)*
  - Does it deter crimes? *(Commercial Appeal's response)*

Controversies, trade-offs, and related work

1. **Privacy vs. Security**
   - In the United States, some of the strongest regulatory protections of privacy are those afforded to gun owners and dealers (e.g., *BATF v. City of Chicago)*
   - NRA's argument: releasing information about handgun holders creates larger illegal secondary market for gun resale, and in turn a more dangerous society
   - Four bills filed in TN after the controversy to make it a crime publishing names of gun owners

2. **(Private) benefits of confidentiality vs. (Public) benefits of disclosure (Duncan et al 1993)**
   - Databases of sex offenders, personal finances of congressional members, salaries of public officers, …
   - Public databases becoming "too" public due to IT progress (Varian 1996)

3. **Economics of privacy**
   - E.g. Posner (1981) - with a twist

4. **Guns and crime**
   - More guns, less crime (Lott and Mustard 1997), or more guns, more crime (Duggan 2001)?

Hypotheses

- Becker (1968): potential offenders rationally choose whether to commit crimes by trading-off expected benefits of doing so and the expected probability, and cost, of apprehension and punishment
  - Criminals make strategic use of information about likelihood of successfully completing the criminal offence (Ayres and Levitt 1998, Vollaard et al. 2010)
- Publication and subsequent publicization of DB represents an exogenous shock that gives potential offenders information with immediate significance:
  - The relative likelihood that potential victims in a certain zip code may protect themselves with guns

- **Hypothesis**: Impact of DB publicization to be particularly significant for crimes likely to be premeditated and/or associated with households (such as burglaries)
  - Burglaries should decrease more markedly, post-publicization, in zip codes with higher numbers of displayed permits

Approach

- Comparing occurrences of crimes, by zip code, before and after the database publicization, as function of the number of gun permits displayed for that zip code
  - Difference-in-difference model
  - 54 zip codes (including densely populated and rural areas)
  - 30 weeks (balanced panel: 15 weeks before February 10, 15 weeks after)

Data

- ## Gun permits data
  - From Commercial Appeal, as visible to visitors in February 2009
  - Supplemented with data from Tennessee Department of Safety, which includes new gun permits *not* displayed in the Commercial Appeal DB
  - Geo data was made public only at the zip code level
- ## Crime data
  - From http://spotcrime.com/
  - Mostly mined from MPD blotter
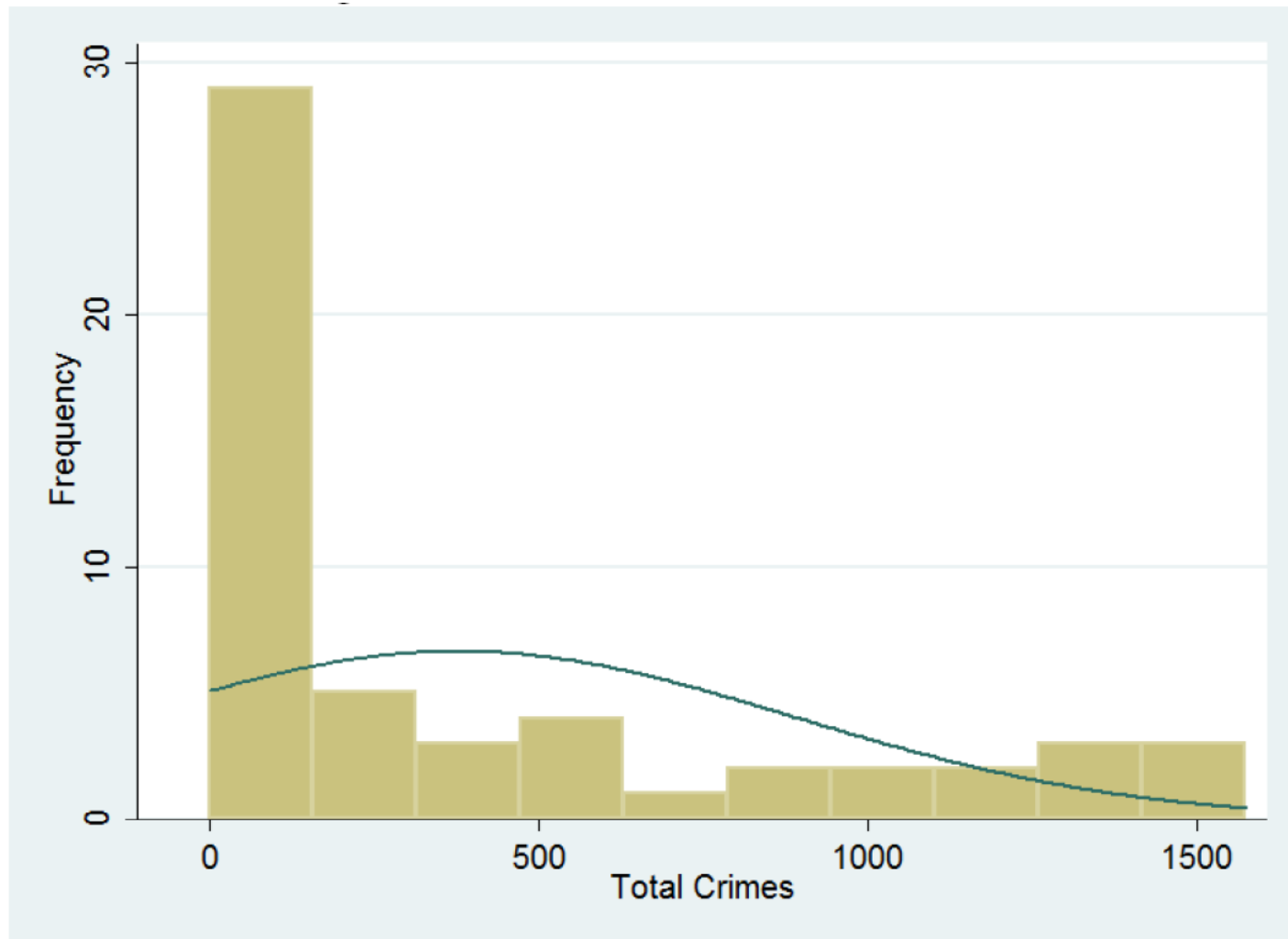 - Assaults, Burglaries, Robberies, Shootings, Thefts
  - Geo data is at street level
- ## We supplemented the above data with:
  - Demographic data (from Census)
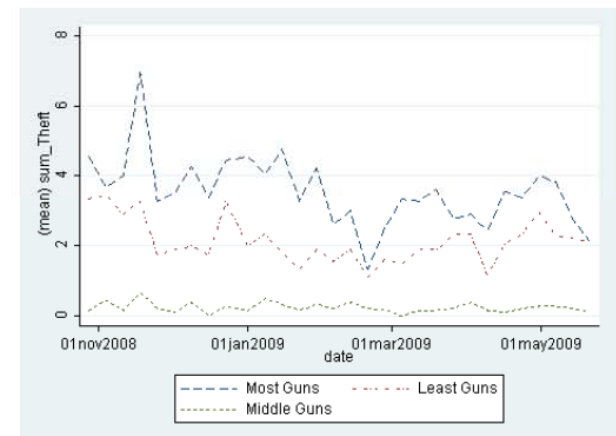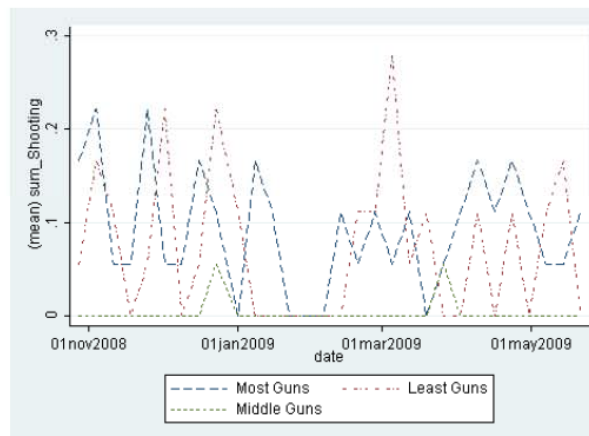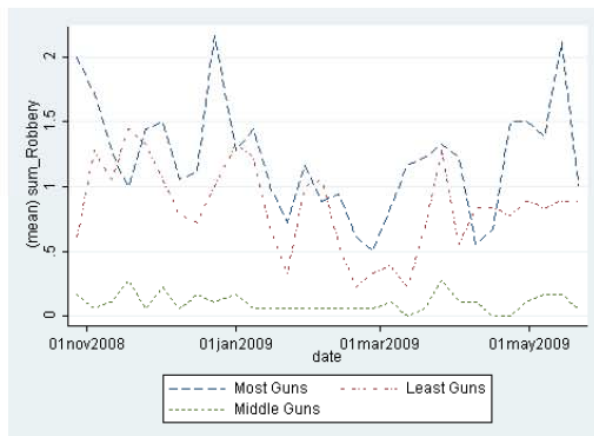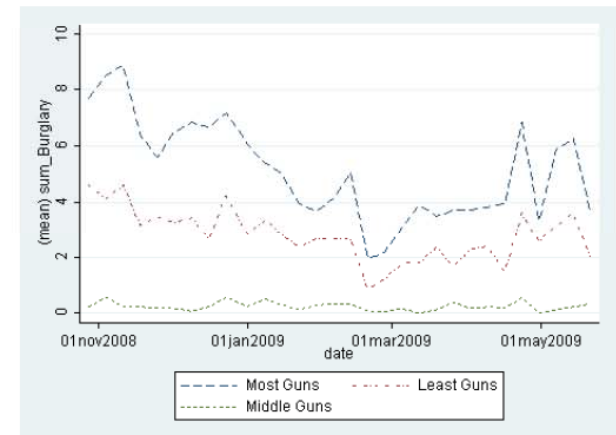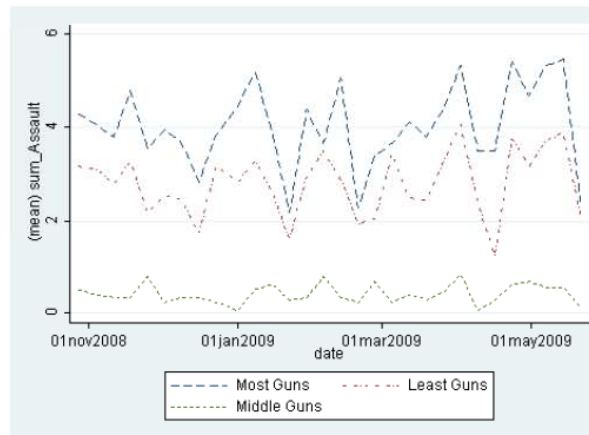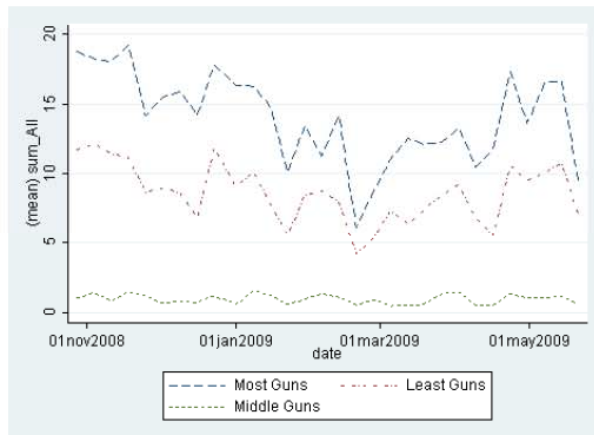 - Zip codes for crimes mined using Google Maps API
  - Web traffic data

Distribution of gun permits (by Zip Code)
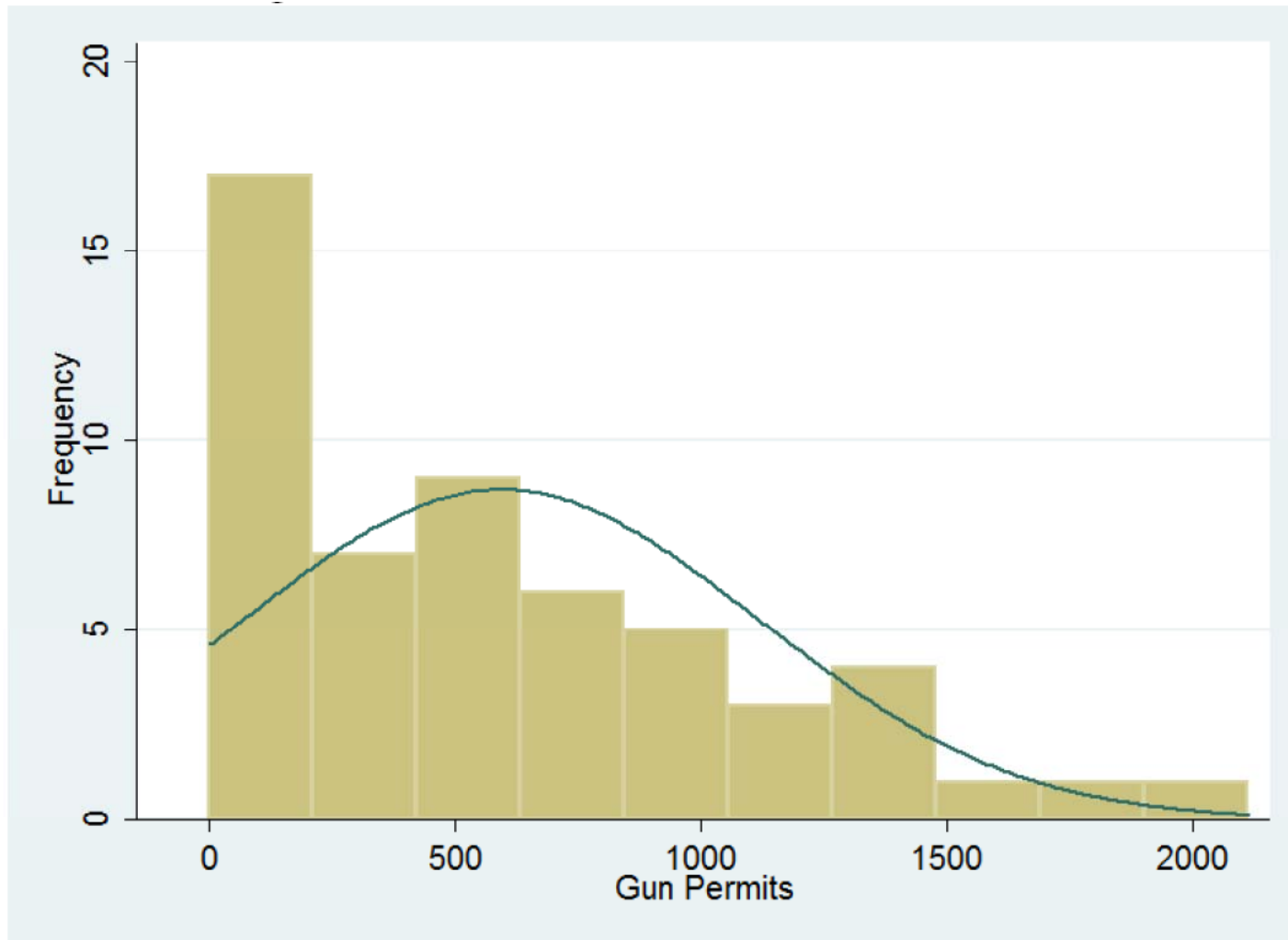
Distribution of crimes (by Zip Code)

Mean crimes, by zip code, over time

Mean crimes, by zip code, over time
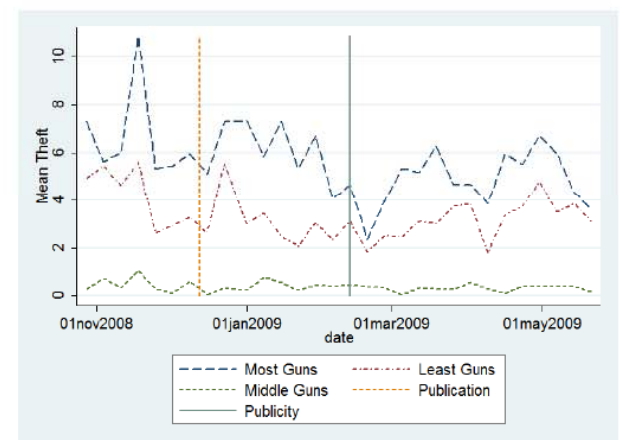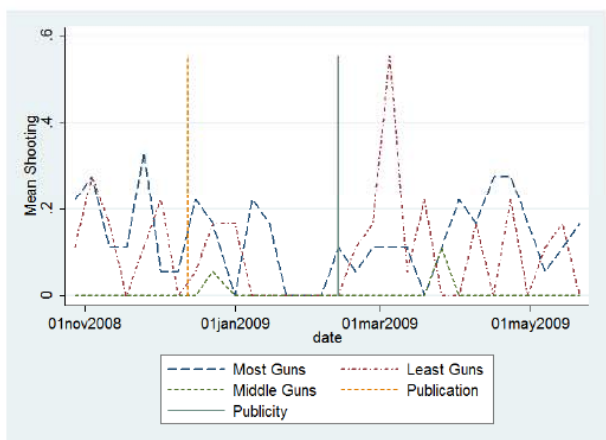
Results: Continuous specification

$$Crime_t^z = \alpha_1 Guns_t^z + \beta_1 Postpublicity_t \times Guns_t^z + \gamma^z + \delta_t + \epsilon_z$$

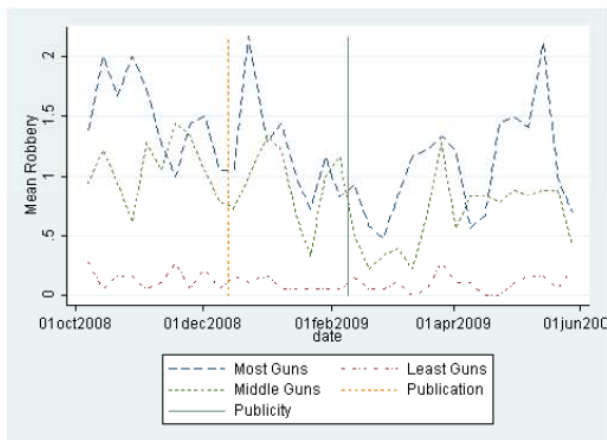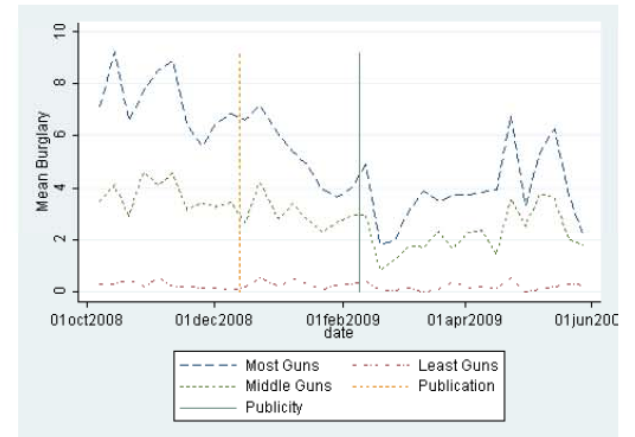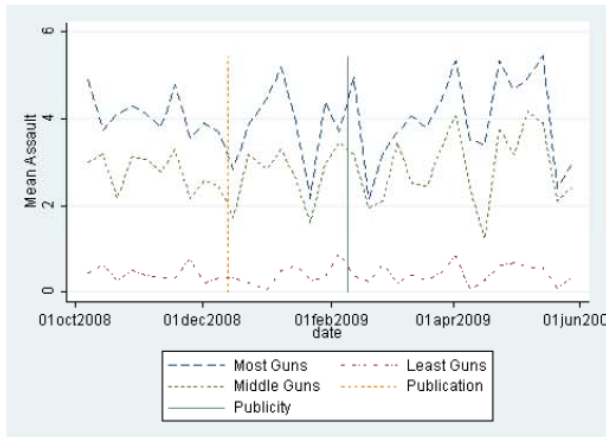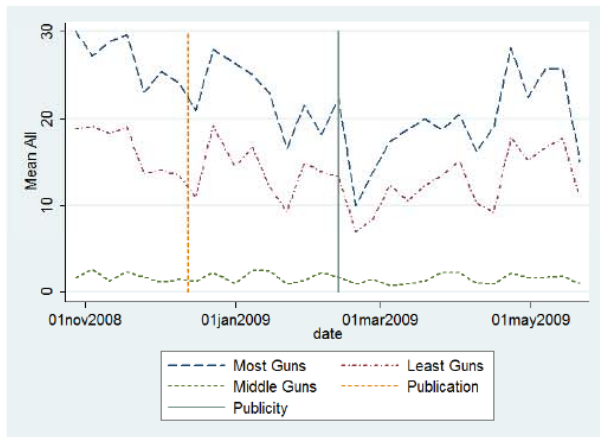|	(1) No. All	(2) No. Burglary	(3) No. Assault	(4) No. Robbery	(5) No. Shooting	(6) No. Theft
Post-Publicity*Guns	-0.00272*	-0.00174**	0.000206	-0.000239	-0.0000119	-0.000930
	(0.00136)	(0.000853)	(0.000372)	(0.000253)	(0.0000387)	(0.000591)
Guns	0.00615	0.00431*	-0.00191	0.00121	-0.0000985	0.00264
	(0.00446)	(0.00231)	(0.00233)	(0.00132)	(0.000225)	(0.00270)
Zipcode Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Week Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1620	1620	1620	1620	1620	1620
Log-Likelihood	-5262.2	-4290.8	-4032.4	-3036.0	-713.2	-3936.4

Standard errors clustered at zip code level.* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
Dependent variable is weekly observations of different crimes in the Memphis area.

Results: Non-parametric specification

$$Crime_t^z = \alpha_1 HighGuns_t^z + \alpha_2 MidGuns_t^z + \beta_1 Postpublicity_t \times HighGuns_t^z +$$

$$\beta_2 Postpublicity_t \times MidGuns_t^z + \gamma^z + \delta_t + \epsilon_z$$

	(1) No. All	(2) No. Burglary	(3) No. Assault	(4) No. Robbery	(5) No. Shooting	(6) No. Theft
Post-Publicity*Top Third Guns	-5.268***	-3.294***	0.116	-0.472**	-0.0134	-1.606***
	(1.409)	(0.883)	(0.341)	(0.183)	(0.0325)	(0.505)
Post-Publicity*Middle Third Guns	-2.324**	-1.640***	0.219	-0.461*	0.0169	-0.460
	(0.953)	(0.535)	(0.374)	(0.262)	(0.0382)	(0.297)
o.Top Third Guns	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
o.Middle Third Guns	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
Zipcode Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Week Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1620	1620	1620	1620	1620	1620
Log-Likelihood	-5245.3	-4268.8	-4032.4	-3032.5	-713.3	-3927.9

Standard errors clustered at zip code level.* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
Dependent variable is weekly observations of different crimes in the Memphis area.

Results: Non-parametric specification, without fixed effects

	(1) Total All	(2) Total Burglary	(3) Total Assault	(4) Total Robbery	(5) Total Shooting	(6) Total Theft
Post-Publicity*Top Third Guns	-37.78**	-34.28***	13.33*	-3.389	0.0556	-13.50**
	(14.94)	(10.32)	(7.269)	(2.119)	(0.476)	(6.474)
Post-Publicity*Middle Third Guns	-10.00	-16.28**	11.22	-4.556	0.444	-0.833
	(9.844)	(6.124)	(6.942)	(3.441)	(0.617)	(4.654)
Post-Publicity	0.111	-0.889	2.333	-0.556	0.0556	-0.833
	(0.703)	(1.740)	(2.239)	(0.581)	(0.0558)	(1.047)
Middle Third Guns	190.3***	69.72***	54.00***	19.72***	1.222***	45.67***
	(58.21)	(20.60)	(19.91)	(7.027)	(0.375)	(13.37)
Top Third Guns	325.6***	128.9***	80.33***	29.11***	1.889**	85.33***
	(79.65)	(32.23)	(23.72)	(8.283)	(0.735)	(18.02)
Constant	24.06	6.278	9.111	2.611	0.0556	6.000
	(15.59)	(4.279)	(6.024)	(1.765)	(0.0558)	(3.963)
Observations	108	108	108	108	108	108
Log-Likelihood	-736.9	-626.7	-626.8	-492.4	-236.6	-578.1

Standard errors clustered by zip code. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
Dependent variable is observations of crimes in the Memphis area, pre- and post-publicization of database.

Results: Longer time window

	(1) No. All	(2) No. Burglary	(3) No. Assault	(4) No. Robbery	(5) No. Shooting	(6) No. Theft
Post-Publicity*Guns	-0.000907***	-0.000302**	0.000159**	-0.0000539*	-0.00000564*	-0.000387***
	(0.000324)	(0.000117)	(0.0000719)	(0.0000286)	(0.00000331)	(0.000140)
More than 15 weeks after policy change * Guns	0.000139	0.0000455	0.0000446	-0.0000111	0.00000568	0.0000544
	(0.000185)	(0.0000593)	(0.0000511)	(0.0000175)	(0.00000412)	(0.0000880)
Guns	0.0123***	0.00217	0.00259**	0.00110***	0.0000186	0.00645***
	(0.00336)	(0.000869)	(0.00102)	(0.000352)	(0.0000539)	(0.00174)
Zipcode Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Week Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	14100	14100	14100	14100	14100	14100
Log-Likelihood	-40824.7	-27696.0	-24936.8	-13989.2	6093.8	-31638.4

Standard errors clustered at zip code level.* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
Dependent variable is weekly observations of different crimes in the Memphis area.

Results: Crimes involving guns (and other items)

	(1) Gun stolen	(2) Television stolen	(3) Jewelry stolen	(4) Computer stolen	(5) Currency stolen	(6) Outside stolen	(7) Lowvalue stolen
Post-Publicity*Guns	-0.0000158	-0.000474*	-0.000212**	-0.000410**	-0.000191**	-0.0000467	-0.0000809
	(0.0000218)	(0.000246)	(0.0000964)	(0.000197)	(0.0000944)	(0.0000417)	(0.0000612)
Guns	-0.0000135	0.00135	0.000959**	0.00129	0.000805*	0.000110	0.000312
	(0.000117)	(0.00121)	(0.000469)	(0.000877)	(0.000405)	(0.000215)	(0.000282)
Zipcode Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1836	1836	1836	1836	1836	1836	1836
Log-Likelihood	897.5	-1924.0	-467.3	-1561.8	-663.1	574.9	101.3

Standard errors clustered at zip code level.* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
Dependent variable is weekly observations of different crimes in the Memphis area.

Results, so far

- Evidence of post-publicization decrease in certain crimes in zip codes with more gun permits

    - Burglaries, and (less precisely) thefts

    - But not shootings or assaults

- Decrease in crime appears short-lived

- No significant evidence of displacement

- No evidence of gun owners being targeted

- Furthermore: little effect on gun permits demand (but positive trend)

Robustness checks

- Exogenous shock: one single event. Robustness checks are needed

- First: note that effect is significant only for crimes more likely to be premeditated and localized

- Functional form
  - Per-dwelling ✓
  - Logged DV ✓
  - Negative binomial ✓
  - Also, no single zip code or week drives the results ✓

- Geographical comparisons
  - No comparable effect in border counties (e.g. West Memphis) – geographically close but not in TN (and therefore not covered by the published DB)
  - No comparable effects in two southern similar cities (Jackson, St Louis)

- Also:
  - Publicization effect stronger than publication

Implications

- Publicization of gun permit holder database led to geographically and temporally localized decreases in certain crimes in zip codes with larger numbers of permits
  - Some potential offenders appears to have used published information strategically
- Results are robust to numerous specifications of the model
- Despite protests by gun owners against publication, we found no evidence that publishing the identities of gun permit holders led to an increase in crimes aimed at stealing their weapons
  - If anything, gun permit holders (or, those living among large clusters of permit owners) seemed to benefit from the publication of the DB