Police Response Time and Injury Outcomes

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Does Police Response Time Matter?

- Four basic functions of rapid response: providing social services (assistance for injuries, illness, etc.), reducing crime, reducing car accidents, and **maintaining the peace**

  (National Institute of Justice, 1980)

- "Rapid response to emergency calls for service has not been shown to decrease crime or even lead to increased chances of arrest" (National Academy of Sciences, 2004)

- "There is no direct evidence that rapid response can make any difference in detection or crime rates and some indirect evidence that it cannot" (Sherman, 2013)

- "Research shows would-be offenders are not deterred by harsh punishment or by rapid response and clearing cases. Preventative alternatives work better."

  (Nagin and Lum, 2016)

Police Response Time and Crime Escalation

- **Can police response time impact crime escalation?**
- We track 911 calls to Dallas PD in 2009 reporting a "Major Disturbance - Violence"
- **The identification concern**: Is response time random?
- **Instrumental variable analysis**

  The instrument exploits the impact of police availability on response time
- **Our Finding**

  A 10 percent increase in police response time results in a 1.7 percentage point increase in the probability of an injury

Road Map

- The Relationship Between Police Response Time & Crime

- The Model

- Data Description & Analysis

- Robustness and Falsification Tests

- Heterogeneity

- Do Injuries Displace to Later Periods?

- Conclusion

Previous Research on Police Response Time & Crime

- **Police Response Time and Crime**
  - No causal effect (Spelman and Brown (1981), Bayley (1996), Weisburd and Eck (2004) , Sherman (2013), Nagin et al. (2015))

  - Possible effect on deterrence (Weisburd (forthcoming))

- **Police Response Time and Clearance Rates**
  - Longer response times decrease clearance rates

    (Blanes i Vidal and Kirchmaier (2017), Mastrobuoni (2019))

- **Factors Determining Crime Escalation**
  - Integration of women in US policing (Miller and Segal (2019)), Violent Movies (Dahl and DellaVigna (2009)), Football losses (Card and Dahl (2012))

General Statistics on Dallas, Texas in 2009

- 9th largest city in the US

- 1.2 million residents

- Demographics: 42% Hispanic or Latino, 30% White, 25% Black, 3% Asian

- 3,266 sworn police officers

- 385 square miles

- Police cars were equipped with Automated Vehicle Locators in 2000

The 7 Divisions of Dallas
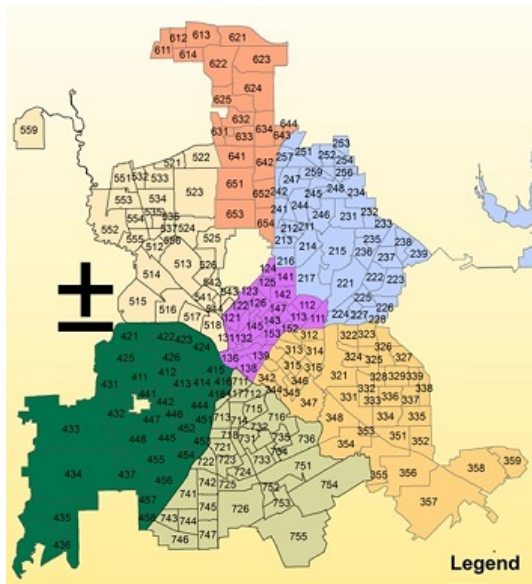
Handling 911 Calls
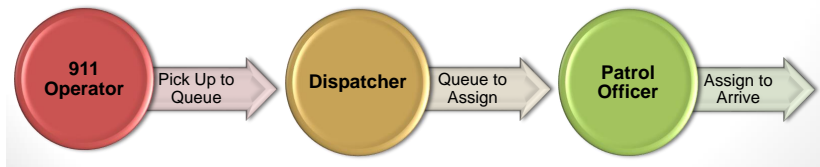
- Call taker determines location and defines a priority based on information provided at time of call

- Call is added to CAD system and electronically transferred to the relevant dispatcher

- Dispatcher locates and assigns an available officer

- Assigned officer arrives at incident

Assigning Priority

Call Priority System

Priority 5

Telephone Service Calls*
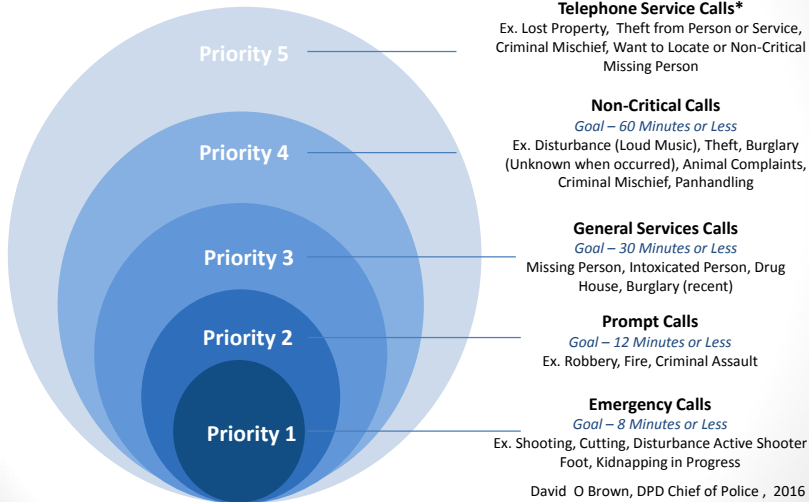Ex. Lost Property, Theft from Person or Service, Criminal Mischief, Want to Locate or Non-Critical Missing Person

Priority 4

Non-Critical Calls
Goal – 60 Minutes or Less
Ex. Disturbance (Loud Music), Theft, Burglary (Unknown when occurred), Animal Complaints, Criminal Mischief, Panhandling

Priority 3

General Services Calls
Goal – 30 Minutes or Less
Missing Person, Intoxicated Person, Drug House, Burglary (recent)

Priority 2

Prompt Calls
Goal – 12 Minutes or Less
Ex. Robbery, Fire, Criminal Assault

Priority 1

Emergency Calls
Goal – 8 Minutes or Less
Ex. Shooting, Cutting, Disturbance Active Shooter Foot, Kidnapping in Progress

David O Brown, DPD Chief of Police, 2016

Classifying 911 Calls

- In 2009 Dallas PD recorded 684,584 911 calls

- We focus on 137,376 calls categorized as major disturbance (violence)

- After removing duplicates and calls with missing locations we are left with 123,850 calls

- These calls are classified as priority 2 (Prompt Calls)- requiring a response in 12 minutes or less

- Does this call result in a physical injury?

Matching Calls to Crime Records

- We use a service number id to match 25,411 of these 911 calls to crime records (roughly 20 percent)

  Response Time Figure

  Do Response Times Predict Reporting?

- We then define a 911 call as resulting in an injury based on:
  - Injury field in crime data
  - Officer description: injur hit pain push punch choke struck wound gsw blood bleed bruis cut gash twist kick

Creating Our Sample

All 911 calls reported to DPD in 2009 to 911 — N=684,584

Select only calls reporting major disturbance — N =137,376

Data cleaning: removing duplicates and calls with missing location data — N=123,850

Only calls we could match to crime — N = 25,411

Only calls with coded arrival time — N= 21,068

What Does AVL Data Look Like?

Vehicle_ID	Date_Time	Latitude	Longitude	Agency_ID	Master_In
126	1/1/09 2:56 PM	32802991	96793244	1	3247221
126	1/1/09 2:56 PM	32802713	96793219	1	3247221
126	1/1/09 2:56 PM	32802674	96793216	1	3247221
126	1/1/09 2:57 PM	32802685	96793217	1	3247221
126	1/1/09 2:57 PM	32802701	96793218	1	3247221
126	1/1/09 2:57 PM	32802688	96793217	1	3247221
126	1/1/09 2:57 PM	32802685	96793217	1	3247221
126	1/1/09 3:43 PM	32802676	96793216	1	3247221
126	1/1/09 3:43 PM	32802666	96793215	1	3247221
126	1/1/09 3:43 PM	32802685	96793217	1	3247221
126	1/1/09 3:43 PM	32802686	96793217	1	3247221
126	1/1/09 3:44 PM	32802685	96793217	1	3247221
126	1/1/09 3:44 PM	32802675	96793216	1	3247221

The Final Dataset

- Each observation is a 911 call reporting a "major disturbance violence" that has been linked to a crime
  - includes information on gender, age, latitude & longitude of incident, date, time, response time, injury, call-taker-id

- Merge with AVL data so each observation includes:
  - a count of the number of officers in a 2.5 mile radius at time of call

  - id of responding officer

  - time elapsed since patrol start of responding officer

A Histogram of Police Response Time
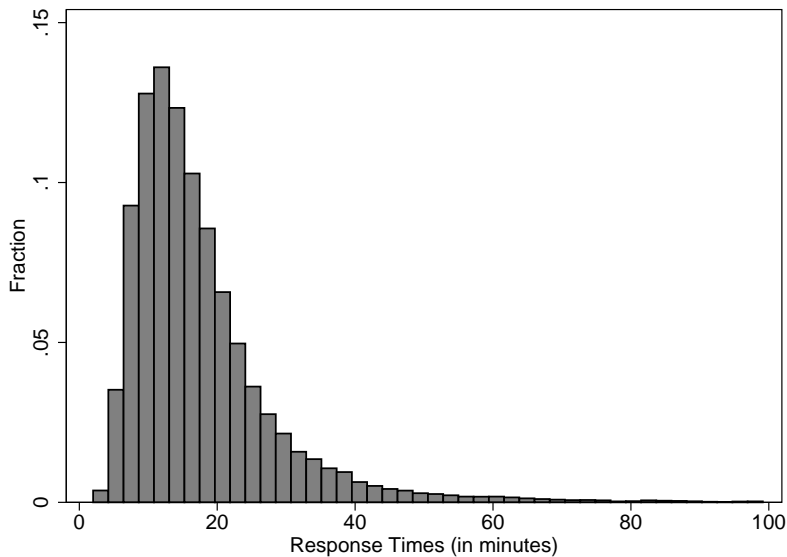
A Histogram of Log(Police Response Time)
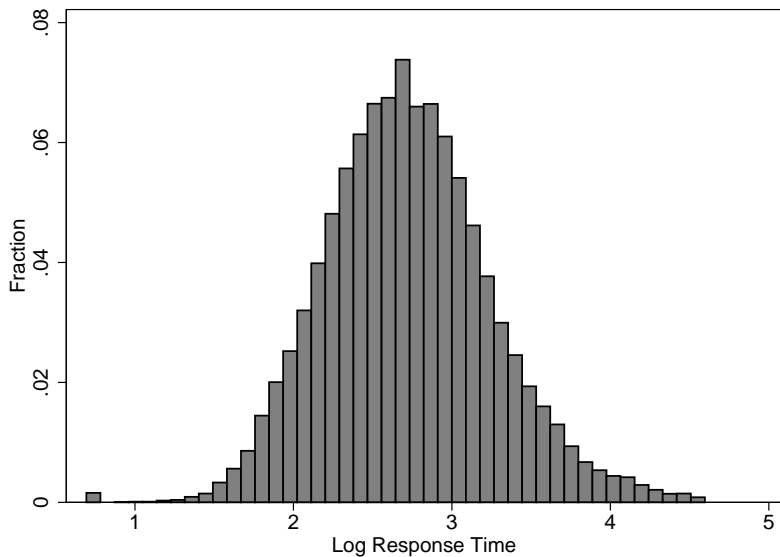
Police Response Time and Crime Escalation
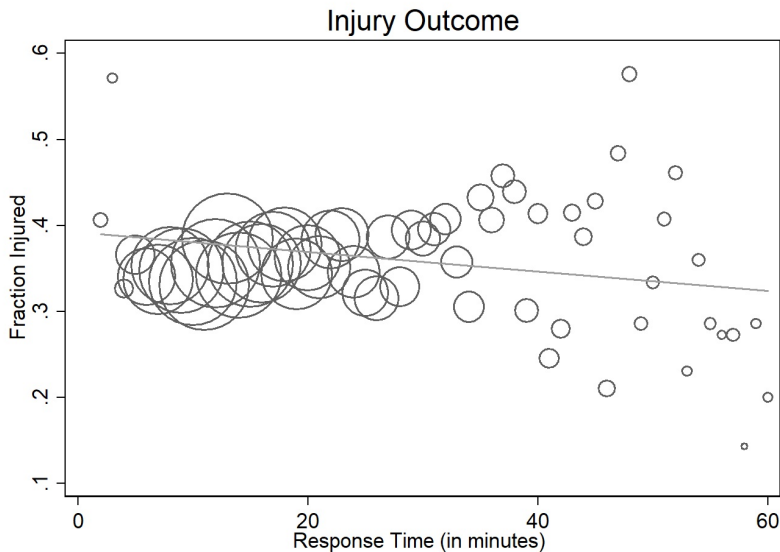
Injury Outcome

The Relationship Between Police Response Times and Injury

- ▶ Can call takers predict injury outcomes?
    - Higher crime areas have more severe crime outcomes
      Figure

      While we control for beat fixed effects there may be other unobserved factors impacting priority

- ▶ What impacts response times and crime outcomes?
    - Do beats with higher police allocation have faster response times? Figure

    - Do beats with higher police allocation have less injuries? Figure

    - Do higher income beats have faster response times? Figure

    - Do higher income beats have less injuries? Figure

The Instrument

- ▶ Instrumental Variable Analysis - focusing on the number of police cars located within a 2.5 mile radius (5 minute drive)
  - ■ We expect a faster response time when police "happen" to be nearby

  - ■ The Concern: What causes police to "happen" to be nearby?

- ▶ Addressing this concern:
  - ■ Include beat / hour / day of week fixed effects

    remaining assumption: within beat it is difficult to predict differential injury risks

  - ■ Our results suggest that faster response times result in a lower probability of injury - if police remain closer during periods with higher injury risks, we may be estimating a lower bound for this effect

Instrumenting for Police Response Time with Officer Availability

Instrumenting for Response Time with Officer Availability
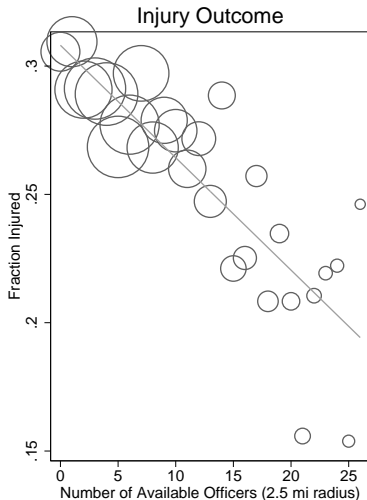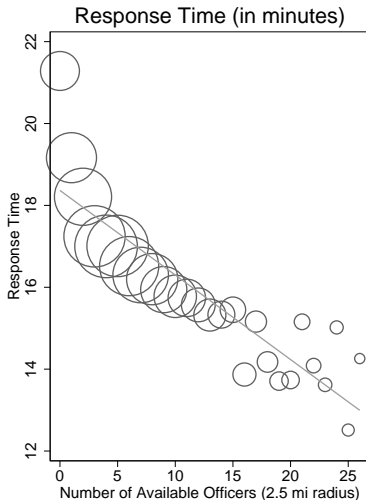
Does Response Time Impact the Probability of an Injury?

$$Injury_{ibh} = x_{ibh}\beta_0 + \beta_1 ln(Response_{ibh}) + \gamma_h + \eta_b + \varepsilon_{ibh}$$

- $Injury_{ibh}$- Dummy variable=1 if incident i in beat b at hour h resulted in an injury

- $Response_{ibh}$- Time to respond to incident i in beat b and hour h

- x_{ibh}- time varying environmental characteristics at beat b and hour h

- (γ_h),(δ_b),(ϵ_{ibh})- unobserved characteristics

- However...
  - Response times might be shorter in certain areas that are known for having more criminal activity
  - Response times might be shorter based on content transmitted to officers by radio

Instrumenting for Response Time with Officer Availability

$$ln(Response_{ibh}) = x_{ibh}\alpha_0 + \alpha_1 Availability_{ibh} + \gamma_h + \eta_b + \varepsilon_{ibh}$$

- ▶ $Response_{ibh}$- Time to respond to incident i in beat b at hour h

- ▶ $Availability_{ibh}$- Count of number of officers in a 2.5 mile radius of incident i

- ▶ x_{bh}- time varying environmental characteristics at beat b and hour h

- ▶ $(\gamma_h),(\delta_b),(\epsilon_{ibh})$- unobserved characteristics

- ▶ When more officers are available response times decrease
    - significant at the one percent level when including location & time fixed effects
    - each additional officer in a 2.5 mile radius decreases response time by 1.4 percent

The Effect of Police Availability on Response Time and Injuries

Dep var:	Response Time (logs)				Injury	
	(1)	(2)	(3)	(4)	(5)	(6)
Availability of Officers	-0.014***	-0.014***	-0.014***	-0.004***	-0.003***	-0.002***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Rush Hour		0.145***	0.144***		-0.063***	-0.061***
		(0.021)	(0.021)		(0.019)	(0.019)
Weekend		0.032***	0.033***		0.010	0.011
		(0.009)	(0.009)		(0.007)	(0.007)
Holiday		0.027	0.030		0.031*	0.029
		(0.022)	(0.022)		(0.018)	(0.018)
Darkness		-0.010	-0.010		-0.012*	-0.013*
		(0.009)	(0.009)		(0.007)	(0.007)
Precipitation (cm)		0.002	0.003		-0.006*	-0.005
		(0.004)	(0.004)		(0.004)	(0.004)
Percent Black		-0.088			0.043	
		(0.056)			(0.033)	
Percent Hispanic		-0.036			0.048	
		(0.063)			(0.040)	
Percent Teens		0.445			0.656*	
		(0.639)			(0.357)	
Percent Vacant Houses		0.181			0.273***	
		(0.141)			(0.096)	
Household Income ($10,000's)		-0.021***			-0.002	
		(0.006)			(0.004)	
Population (per 10,000)		0.010			0.029*	
		(0.025)			(0.016)	
Square Miles		0.011***			-0.003	
		(0.003)			(0.002)	
N	21,068	21,068	21,068	21,068	21,068	21,068
Mean of dependent variable	2.68	2.68	2.68			

OLS & 2SLS Estimates of the Effect of Police Response Time on Injury

	(1)	OLS (2)	(3)	(4)	2SLS (5)	(6)
Response Time (logs)	0.007	0.006	0.0001	0.275***	0.244***	0.168***
	(0.006)	(0.006)	(0.006)	(0.038)	(0.043)	(0.062)
Rush Hour		-0.064***	-0.062***		-0.098***	-0.086***
		(0.019)	(0.019)		(0.021)	(0.021)
Weekend		0.009	0.010		0.003	0.006
		(0.007)	(0.007)		(0.007)	(0.007)
Holiday		0.033*	0.031*		0.024	0.024
		(0.018)	(0.018)		(0.019)	(0.019)
Darkness		-0.013*	-0.013*		-0.010	-0.011
		(0.007)	(0.007)		(0.008)	(0.007)
Precipitation (cm)		-0.006*	-0.005		-0.007*	-0.006
		(0.004)	(0.004)		(0.004)	(0.004)
Percent Black		0.074**			0.064**	
		(0.035)			(0.028)	
Percent Hispanic		0.068			0.056*	
		(0.042)			(0.034)	
Percent Teens		0.803**			0.547**	
		(0.383)			(0.263)	
Percent Vacant Houses		0.229**			0.229**	
		(0.099)			(0.097)	
Household Income ($10,000's)		0.002			0.003	
		(0.004)			(0.003)	
Population		0.036**			0.027*	
		(0.016)			(0.016)	
Square Miles		-0.002			-0.006**	
		(0.003)			(0.003)	
N	21,068	21,068	21,068	21,068	21,068	21,068
Mean of dependent variable	0.27	0.27	0.27	0.27	0.27	0.27

Sensitivity Tests

- ▶ Looking more closely at monotonicity `Figure`

- ▶ Alternative definitions of response time `Table`

- ▶ Alternative definitions of police availability `Table`

- ▶ Including additional fixed effects `Table`

- ▶ Analyzing the effect of response time on burglary, robbery, and theft outcomes `Table`

Heterogeneity

- Female callers are more affected by response time than male callers Table

- Older callers (over age 30) are more affected by response time than younger callers Table

- The effect of response time on injuries is not driven by hot-spot locations Table

- The effect of response times on injuries is driven by officers that arrive during the first half of their shift Table

Compliers, Always Takers, & Never Takers

- ▶ Let a fast response (F) equal 1 if police respond to the call within the suggested response time of a priority 2 call (12 minutes). We can use this to define "always takers", "compliers", and "never takers".

- ▶ Using both a local linear and linear model we find that 20-30% of incidents in our data are "compliers" with roughly 5% more "never takers" than "always takers". Table

- ▶ We find that complier incidents are more likely to be located farther away from police departments and to occur outside of rush-hour traffic. Table

- ▶ We find no significant differences in compliance based on caller characteristics such as race, gender, age or the number of high priority 911 calls received from this residence. Table

The Effect of Police Response Time on Future Calls & Injuries

| | Pr(Repeat Offense) | | | Pr(Future Injury) | | |
| | OLS | RF | IV | OLS | RF | IV |
	(1)	(2)	(3)	(4)	(5)	(6)
Response Time of 1st Call	-0.008		0.359***	0.009		0.106*
	(0.009)		(0.108)	(0.006)		(0.057)
Availability of Officers at 1st Call		-0.005***			-0.002*	
		(0.001)			(0.001)	
Rush Hour	0.019	0.019	-0.045	-0.017	-0.015	-0.034*
	(0.027)	(0.027)	(0.031)	(0.018)	(0.018)	(0.020)
Weekend	-0.005	-0.004	-0.014	0.017***	0.018***	0.015**
	(0.010)	(0.010)	(0.012)	(0.007)	(0.007)	(0.007)
Holiday	-0.006	-0.011	-0.031	0.036*	0.036*	0.030
	(0.027)	(0.027)	(0.028)	(0.021)	(0.021)	(0.021)
Darkness	0.009	0.009	0.014	-0.007	-0.007	-0.006
	(0.011)	(0.011)	(0.012)	(0.007)	(0.007)	(0.007)
Precipitation (cm)	-0.025***	-0.025***	-0.026***	-0.021***	-0.021***	-0.021***
	(0.006)	(0.006)	(0.006)	(0.003)	(0.003)	(0.003)
N	13,384	13,384	13,384	13,384	13,384	13,384
Mean of dependent variable	0.50	0.50	0.50	0.12	0.12	0.12
Beat FE	Yes	Yes	Yes	Yes	Yes	Yes
Time of Day FE	Yes	Yes	Yes	Yes	Yes	Yes

Cluster robust standard errors by beat are shown in parenthesis. * p<0.10, ** p<0.05, *** p<0.01

Conclusion

- ▶ We find that a 10% increase in response time results in a 1.7 percentage point increase in the probability of an injury (a 6.3% increase in the injury rate). This effect is concentrated among female callers which suggests that response time may be especially important for domestic disputes.

- ▶ We do not find any evidence that these injuries displace to later periods. Conversely, we find that faster response times to the first call from a residence decrease the probability of a future "Major Disturbance Violence" incident and may lower the probability of a future injury.

- ▶ Our results suggest that lowering response times for "Major Disturbance Violence" calls can have important implications for public safety.

Thank You!

Response Time Figure
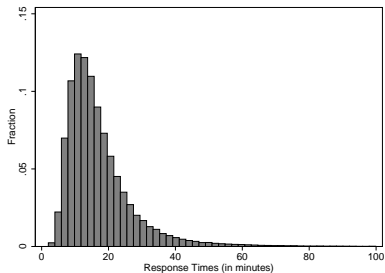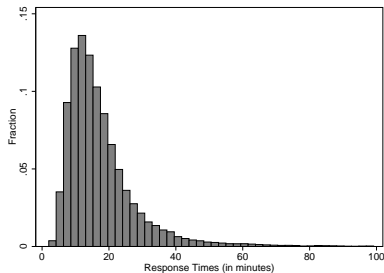
Distribution of Response Times for calls that ended with a crime report (left) and all calls (right)

Do Response Times Predict Reporting?

The Effect of Police Response Time on the Reporting of a Crime

Dep var:	Reduced Form (1)	First Stage (2)	2SLS (3)
Response Time (logs)			0.009
			(0.033)
Availability of Officers	-0.0001	-0.013***	
	(0.0004)	(0.001)	
Rush Hour	0.021***	0.126***	0.020**
	(0.008)	(0.010)	(0.009)
Weekend	-0.023***	0.014***	-0.024***
	(0.003)	(0.004)	(0.003)
Holiday	-0.016**	0.025**	-0.016**
	(0.007)	(0.010)	(0.007)
Darkness	0.002	-0.002	0.002
	(0.003)	(0.004)	(0.003)
Precipitation (cm)	0.001	-0.002	0.001
	(0.002)	(0.002)	(0.002)
N	99,002	99,002	99,002
Mean of dependent variable	0.21	2.67	0.21
Beat FE	Yes	Yes	Yes
Time of Day FE	Yes	Yes	Yes

Cluster robust standard errors by beat are shown in parenthesis. * p<0.10, ** p<0.05, *** p<0.01

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Do Higher Crime Areas Have More Injuries?

Injury Outcome
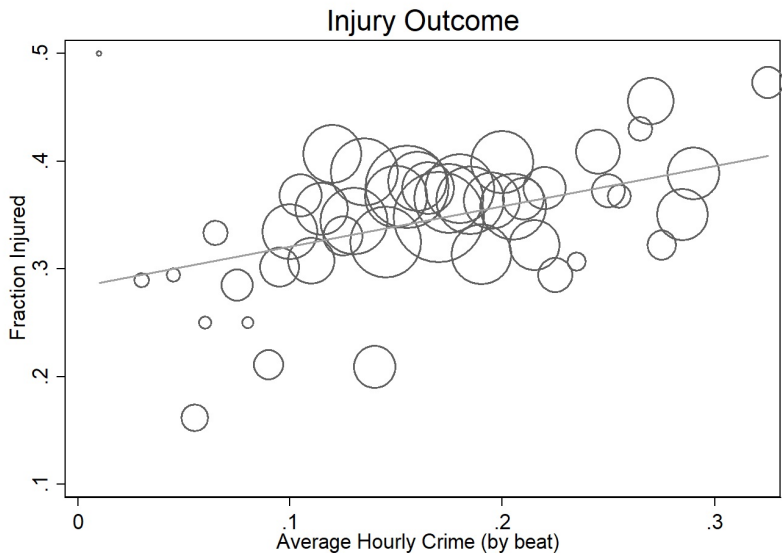
Police Allocation and Response Times

Response Time

(Scatter plot titled "Response Time" showing Response Time on the y-axis (14 to 24) versus Allocation of Officers (by beat) on the x-axis (.4 to 1.2), with bubbles of varying sizes and a nearly flat downward-sloping trend line.)
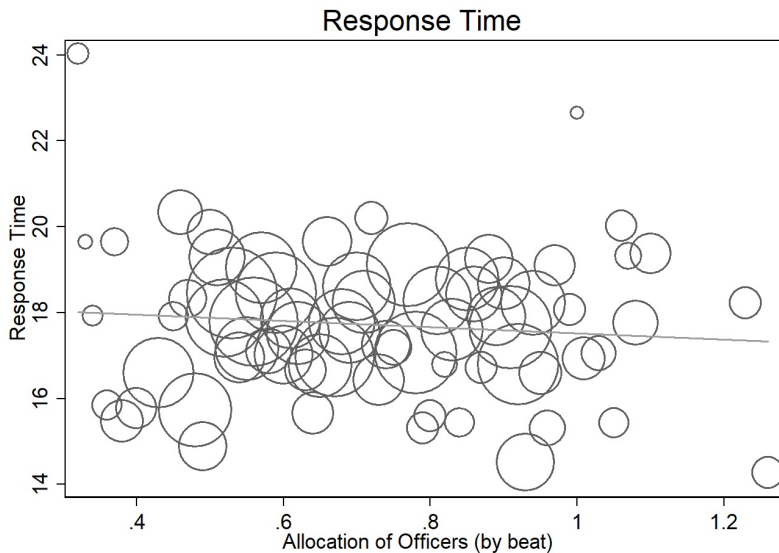
Do Beats with Higher Police Allocation have More Injuries?

Injury Outcome

Do Higher Income Beats have Faster Response Times?

Response Time by Quartile of Income
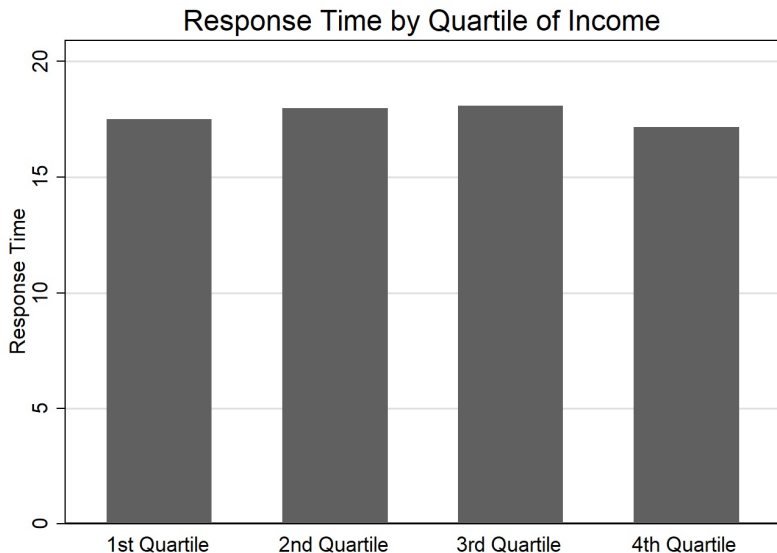
Do Higher Income Beats have More Injuries?

Severity by Quartile of Income

Effect of Police Availability on Response Time (logs)
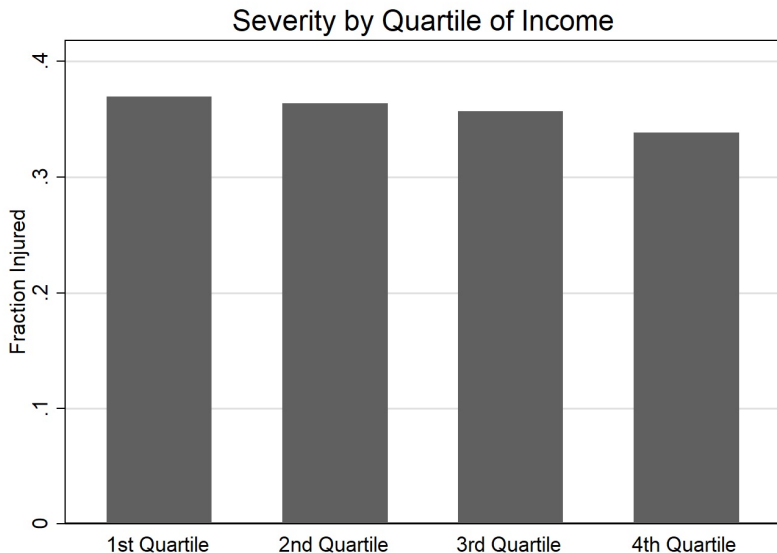
Number of Cars in 2.5 Mile Radius
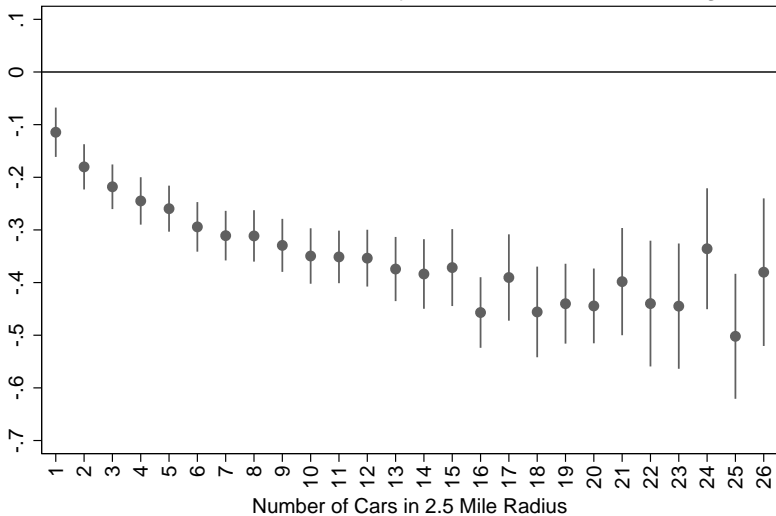
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IV Estimates of the Effect of Police Response Time on Injury

	3km Radius (1)	5km Radius (2)	Omit 0.5km Radius (3)
Response Time (logs)	0.108**	0.311***	0.303***
	(0.054)	(0.047)	(0.043)
Rush Hour	-0.077***	-0.108***	-0.106***
	(0.021)	(0.022)	(0.021)
Weekend	0.007	0.000	0.001
	(0.007)	(0.007)	(0.007)
Holiday	0.026	0.022	0.022
	(0.018)	(0.020)	(0.019)
Darkness	-0.012	-0.009	-0.009
	(0.007)	(0.008)	(0.008)
Precipitation (cm)	-0.006	-0.007*	-0.007*
	(0.004)	(0.004)	(0.004)
N	21,068	21,068	21,068
Mean of dependent variable	0.27	0.27	0.27
First Stage F-Statistic	150.61	145.26	140.08
Beat FE	Yes	Yes	Yes
Time of Day FE	Yes	Yes	Yes

Cluster robust standard errors by beat are shown in parenthesis. * p<0.10, ** p<0.05, *** p<0.01

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IV Estimates of the Effect of Police Response Time on Injury

	Resp Time - Levels (1)	Police-Research Resp Time (2)
Response Time (logs)		0.146***
		(0.052)
Response Time (levels)	0.006**	
	(0.003)	
Rush Hour	-0.078***	-0.075***
	(0.020)	(0.019)
Weekend	-0.002	0.012**
	(0.008)	(0.006)
Holiday	0.024	0.043**
	(0.019)	(0.018)
Darkness	-0.007	-0.004
	(0.008)	(0.007)
Precipitation (cm)	-0.004	-0.004
	(0.004)	(0.002)
N	21,075	25,121
Mean of dependent variable	0.27	0.28
First Stage F-Statistic	24.63	197.99
Beat FE	Yes	Yes
Time of Day FE	Yes	Yes

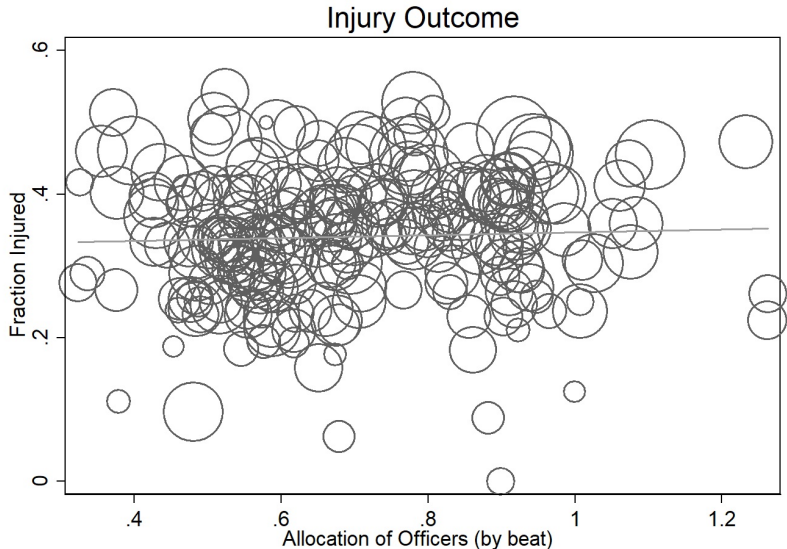Cluster robust standard errors by beat are shown in parenthesis. * p<0.10, ** p<0.05, *** p<0.01

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Burglary, Theft, & Robbery Calls: The Effect of Police Response Time on Injuries

	OLS (1)	In Progress First Stage (2)	IV (3)	OLS (4)	Not In Progress First Stage (5)	IV (6)
Response Time (logs)	-0.020		0.278**	-0.003		0.002
	(0.022)		(0.137)	(0.006)		(0.054)
Availability of Officers		-0.023***			-0.021***	
		(0.006)			(0.003)	
Rush Hour	-0.007	0.083	-0.035	-0.001	0.419***	-0.003
	(0.076)	(0.109)	(0.074)	(0.028)	(0.060)	(0.037)
Weekend	-0.021	0.014	-0.025	-0.005	0.051**	-0.005
	(0.025)	(0.041)	(0.023)	(0.008)	(0.022)	(0.009)
Holiday	0.006	-0.121	0.047	-0.008	-0.015	-0.007
	(0.056)	(0.111)	(0.058)	(0.019)	(0.051)	(0.018)
Darkness	0.004	0.028	0.000	-0.007	0.005	-0.007
	(0.032)	(0.045)	(0.031)	(0.010)	(0.023)	(0.010)
Precipitation (cm)	-0.002	0.030**	-0.011	0.001	0.011	0.001
	(0.009)	(0.015)	(0.007)	(0.004)	(0.009)	(0.004)
N	1,220	1,220	1,220	5,861	5,861	5,861
Mean of dependent variable	0.11	2.48	0.11	0.09	3.08	0.09
First Stage F-Statistic		64.34			64.34	
Beat FE	Yes	Yes	Yes	Yes	Yes	Yes
Time of Day FE	Yes	Yes	Yes	Yes	Yes	Yes

Cluster robust standard errors by beat are shown in parenthesis. * p<0.10, ** p<0.05, *** p<0.01

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2SLS Estimates of the Effect of Police Response Time on Injury

	(1)	(2)	(3)
Response Time (logs)	0.154**	0.202***	0.155**
	(0.064)	(0.063)	(0.074)
Rush Hour	-0.099***	-0.090***	-0.335***
	(0.022)	(0.022)	(0.009)
weekend	0.003	0.007	0.004
	(0.007)	(0.007)	(0.008)
holiday	0.023	0.026	0.021
	(0.019)	(0.019)	(0.021)
Darkness	-0.011	-0.010	-0.012
	(0.008)	(0.007)	(0.009)
Precipitation (cm)	-0.004	-0.005	-0.005
	(0.004)	(0.004)	(0.004)
N	21,068	21,068	21,068
Mean of dependent variable	0.27	0.27	0.27
First Stage F-Statistic	153.17	155.97	117.11
Beat FE	Yes	Yes	No
Call Taker FE	Yes	No	No
Officer FE	No	Yes	No
Beat X Hour FE	No	No	Yes
Time of Day FE	Yes	Yes	Yes

Cluster robust standard errors by beat are shown in parenthesis. * $p<0.10$, ** $p<0.05$, *** $p<0.01$

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IV Estimates of Response Time on Injuries by Gender

	Female Caller (1)	Male Caller (2)
Response Time (logs)	0.268**	0.005
	(0.104)	(0.112)
Rush Hour	-0.125***	-0.017
	(0.033)	(0.042)
Weekend	0.013	0.005
	(0.011)	(0.013)
Holiday	-0.015	0.049
	(0.029)	(0.036)
Darkness	-0.019	0.011
	(0.012)	(0.014)
Precipitation (cm)	-0.004	-0.007
	(0.006)	(0.007)
N	10,915	5,794
Mean of dependent variable	0.37	0.27
First Stage F-Statistic	103.84	51.05
Beat FE	Yes	Yes
Time of Day FE	Yes	Yes

Cluster robust standard errors by beat are shown in parenthesis. * $p<0.10$, ** $p<0.05$, *** $p<0.01$

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IV Estimates of Response Time on Injuries by Age

	Under Age 30 (1)	Age 30 and Older (2)
Response Time (logs)	0.085	0.210***
	(0.093)	(0.074)
Rush Hour	-0.080**	-0.091**
	(0.036)	(0.022)
Weekend	-0.005	0.014*
	(0.012)	(0.008)
Holiday	0.006	0.031
	(0.032)	(0.022)
Darkness	-0.006	-0.013
	(0.013)	(0.009)
Precipitation (cm)	-0.009	-0.004
	(0.006)	(0.005)
N	8,355	13,270
Mean of dependent variable	0.39	0.20
First Stage F-Statistic	95.03	105.44
Beat FE	Yes	Yes
Time of Day FE	Yes	Yes

Cluster robust standard errors by beat are shown in parenthesis. * $p<0.10$, ** $p<0.05$, *** $p<0.01$

IV Estimates of Response Time on Injuries by Number of Calls

	1-2 Calls (1)	3 or more Calls (2)
Response Time (logs)	0.205***	0.078
	(0.077)	(0.093)
Rush Hour	-0.090***	-0.073***
	(0.030)	(0.028)
Weekend	0.005	0.009
	(0.009)	(0.011)
Holiday	0.014	0.038
	(0.025)	(0.029)
Darkness	-0.015	-0.004
	(0.010)	(0.011)
Precipitation (cm)	-0.004	-0.010
	(0.004)	(0.006)
N	12,356	8,712
Mean of dependent variable	0.26	0.28
First Stage F-Statistic	114.70	58.77
Beat FE	Yes	Yes
Time of Day FE	Yes	Yes

Cluster robust standard errors by beat are shown in parenthesis. * $p<0.10$, ** $p<0.05$, *** $p<0.01$

IV Estimates of Response Time on Injuries by Shift

	Start of Shift (1)	End of Shift (2)
Response Time (logs)	0.309***	0.053
	(0.109)	(0.078)
Rush Hour	-0.101***	-0.072
	(0.024)	(0.065)
Weekend	0.007	0.007
	(0.010)	(0.010)
Holiday	0.028	0.040
	(0.026)	(0.029)
Darkness	0.012	-0.029***
	(0.012)	(0.011)
Precipitation (cm)	-0.003	-0.012**
	(0.005)	(0.006)
N	10,800	9,359
Mean of dependent variable	0.26	0.28
First Stage F-Statistic	65.61	92.32
Beat FE	Yes	Yes
Time of Day FE	Yes	Yes

Cluster robust standard errors by beat are shown in parenthesis. * p<0.10, ** p<0.05, *** p<0.01

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Sample Share by Compliance Type

	Local Linear Model			Linear Model		
	1%	1.5%	2%	1%	1.5%	2%
Compliers	0.352	0.310	0.332	0.224	0.197	0.189
Never Takers	0.310	0.380	0.355	0.410	0.433	0.441
Always Takers	0.337	0.311	0.314	0.366	0.370	0.371

Characteristics of Complier Beats

	P[X = x]	P[X = x|complier]	$\frac{P[X=x\|complier]}{P[X=x]}$
Near Department	0.483	0.416	0.862
	(0.025)	(0.031)	(0.064)
Far from Department	0.517	0.664	1.284
	(0.025)	(0.056)	(0.140)
Weekend	0.298	0.248	0.835
	(0.024)	(0.043)	(0.112)
Non-Weekend	0.702	0.759	1.081
	(0.027)	(0.034)	(0.052)
Rush Hour	0.285	0.204	0.714
	(0.024)	(0.045)	(0.123)
Non-Rush Hour	0.715	0.782	1.095
	(0.027)	(0.034)	(0.048)

Characteristics of Complier Beats

	P[X = x]	P[X = x|complier]	$\frac{P[X=x\|complier]}{P[X=x]}$
Male	0.275	0.233	0.846
	(0.025)	(0.049)	(0.129)
Female	0.518	0.551	1.065
	(0.025)	(0.042)	(0.096)
Black	0.401	0.448	1.118
	(0.025)	(0.048)	(0.116)
White	0.158	0.125	0.792
	(0.025)	(0.066)	(0.183)
Hispanic	0.221	0.201	0.911
	(0.025)	(0.059)	(0.159)
Under 30	0.370	0.424	1.146
	(0.024)	(0.046)	(0.113)
30 and Older	0.630	0.594	0.943
	(0.026)	(0.030)	(0.053)
1-2 Calls	0.587	0.601	1.025
	(0.026)	(0.035)	(0.068)
3+ Calls	0.413	0.415	1.003
	(0.025)	(0.046)	(0.113)

The Effect of Police Response Time on Injuries (First Call)

	OLS (1)	Reduced Form (2)	2SLS (3)
Response Time of First Call (logs)	-0.001		0.177**
	(0.007)		(0.075)
Availability of Officers at First Call		-0.003**	
		(0.001)	
Rush Hour	-0.065***	-0.065***	-0.096***
	(0.025)	(0.025)	(0.028)
Weekend	0.010	0.010	0.005
	(0.008)	(0.008)	(0.008)
Holiday	0.015	0.013	0.003
	(0.022)	(0.022)	(0.023)
Darkness	-0.011	-0.011	-0.009
	(0.010)	(0.010)	(0.010)
Precipitation (cm)	-0.005	-0.005	-0.005
	(0.004)	(0.004)	(0.004)
N	13,384	13,384	13,384
Mean of dependent variable	0.26	0.26	0.26
Beat FE	Yes	Yes	Yes
Time of Day FE	Yes	Yes	Yes

Cluster robust standard errors by beat are shown in parenthesis. * $p<0.10$, ** $p<0.05$, *** $p<0.01$