Gentrification and Crime:
Evidence from Rent Deregulation

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Introduction

- Urban renaissance in 1990s: rising house prices and falling crime

$\rightarrow$ Δ crime $\Rightarrow$ neighborhood change (Ellen, Horn, Reed 2017)

$\leftarrow$ But does neighborhood change affect crime?

- <u>Research Question</u>: Did end of rent control in Cambridge reduce local crime?

Why Would Ending Rent Control Affect Crime?

Ending rent control could <u>increase</u> crime

1. Targets more lucrative
2. Breakdown of community cohesion, social distance increases
3. Wider income gap between residents + inequality made salient $\rightarrow$ more crime
4. Crime to slow down gentrification (e.g., scare away the yuppies)

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Ending rent control could <u>reduce</u> crime

1. New residents wealthier, spend more on target-hardening
2. Fewer "broken windows" as properties are upgraded
3. More policing resources due to increased property tax base; greater political influence of wealthy on municipal priorities
4. Income effects? Resident turnover?

Outline

Rent Control in Cambridge

- Rent control adopted in Cambridge in 1971
    - Applied to all non-owner-occupied rental housing built before 1969
    - About one third of residential units were controlled circa 1994

- Quantity controls
    - Vacancy control: Extremely difficult to take controlled units out of circulation–either for sale or owner occupancy

Rent Control in Cambridge

How prices set

- Rents set in 1971 with goal of holding landlord real profits to 1967 levels

- Occasional across the board rent increases:
    - About 1/2 rate of inflation 1967 to 1981
    - About rate of inflation 1981 to 1994

- Difficult for landlord to obtain individual permission to raise rent

Net effect on rents

- Abt (1988) RC discount 40%+

- Atlantic Marketing Research (1998) Decontrolled rents jump 40% to 80% between 1994 and 1997 $\rightarrow$ RC very binding

The End of Rent Control

- Eliminated by state-wide referendum in 1994
  - Years of unsuccessful efforts by SPOA (Small Property Owners' Association) to eliminate in Cambridge, Boston, Brookline
- Brilliant idea: Bring RC to state-wide ballot
  - Highly controversial referendum; outcome quite uncertain
  - MA state residents voted 51 percent to 49 to end rent regulation
  - Residents from Boston, Brookline, Cambridge voted to keep it (60%+)
- Immediate price decontrols in January 1995 with very few exceptions

Radii in miles
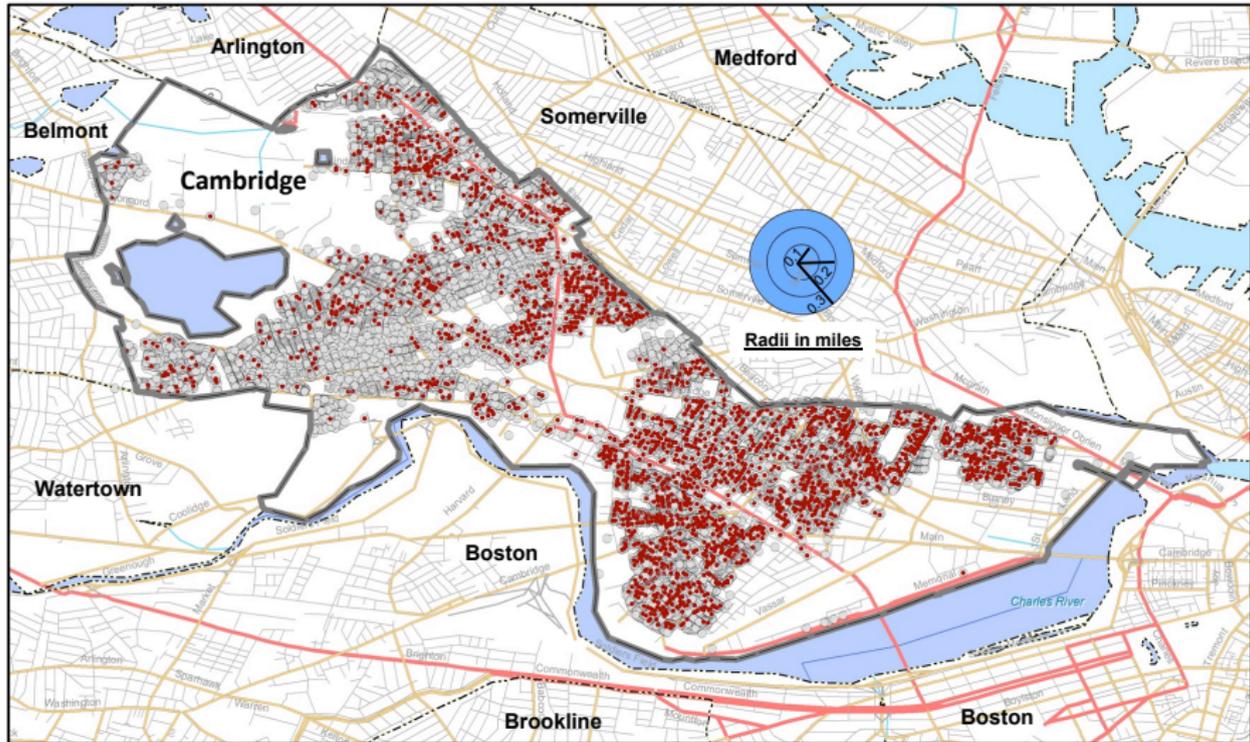
Neighborhood Change Induced by Deregulation

- Residential turnover increased by 20%
- Families with kids move out
- Students move in
- Aggregate residential property value increased by additional $2 bn by 2005
- Permitted renovations increased, explain 12% of property value effect
- Fraction black declined, but racial segregation declined (Sims, 2011)

Cambridge Crime Decrease Atypical
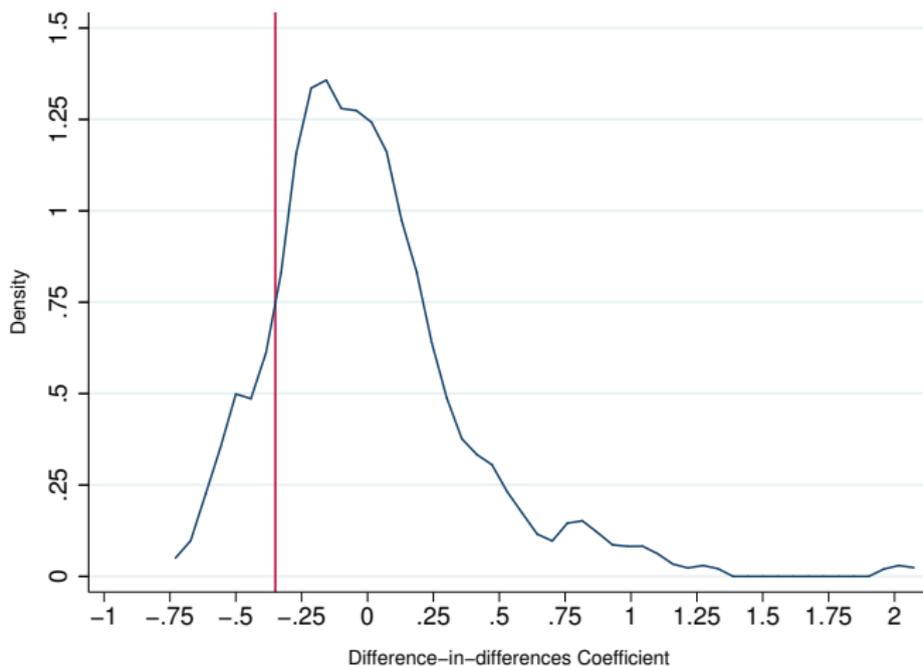
→ Cambridge %Δcrime is @ 12.5th percentile across 224 cities 75k-200k

Crime Microdata

- Source: Cambridge Police archives 1992-2005

- All "Calls for Service" including reported crimes and their date and location

- Hand entered 1992-1996 data, electronic data 1997-2005

- Geocode crimes to nearest street address

- Categorize crimes using CPD's classification system (similar to FBI)

Excerpt from CPD Data

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CAMBRIDGE POLICE DEPARTMENT
February 24, 1992

Hit & Run
92-1561
▮▮▮▮▮▮▮▮▮▮▮▮▮, reported that on 2-24-92 her Ma. Reg 716-VGY, 1982 Mazda was parked at Cardinal Medeiros Dr. at which time an unknown M/V struck her M/V causing damage to same without making self known.

Off. E. Burke

Armed Robbery
92-1562
▮▮▮▮▮▮▮▮▮▮ reported that on 2-24-92 at 9:45pm he was approached by 2 suspects described in report. one suspect placed a butcher's knife to victim's neck and forced him in the driveway of #20 Trowbridge. Victim was forced to lie on groun at which time they took $8.cash, one Franch watch and removed victim's glasees.

Off. Townes

Stolen M/V
92-1562
▮▮▮▮▮▮▮▮▮▮ reported that on 2-24-92 his M/V Ma. Reg 349-TZM, 1987 Toyota was stolen from the 99 Restaurant parking lot Concord Ave.   TT# 209

Off. Clarke

Mal. Dest. P.P.
92-1565
▮▮▮▮▮▮▮▮▮▮, reported that on 2-24-92 her M/V Ma. reg 615-TTG was parked at 472 Franklin Stat at which time unknown persons smashed the rear window. Nothing missing at this time.
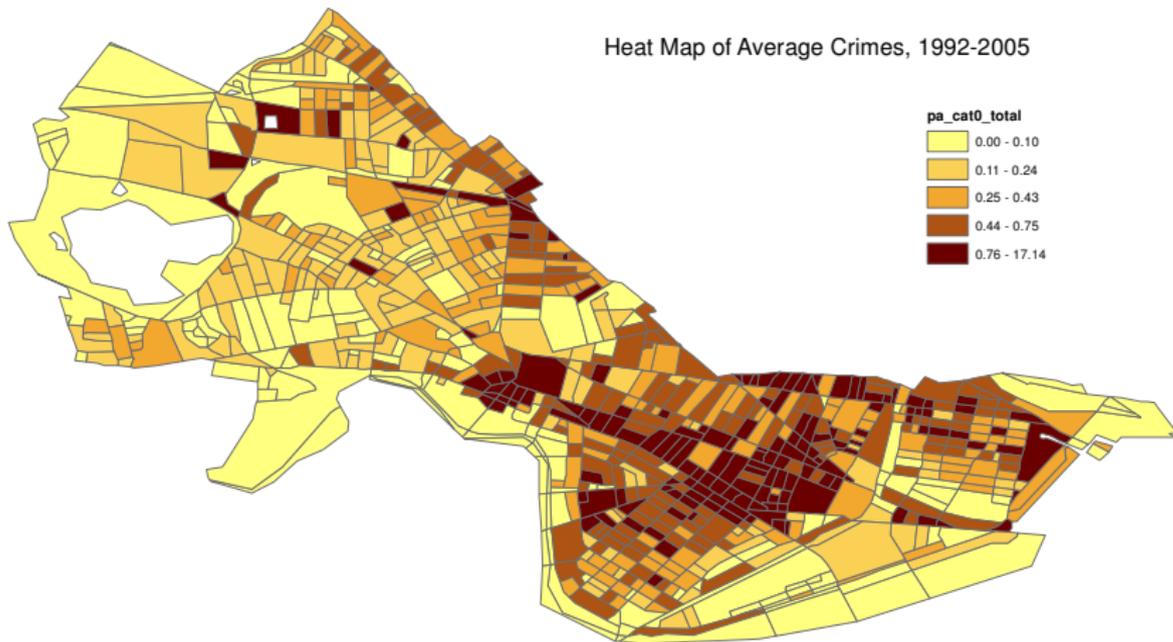
Off. Carter

Arrest Made
92-1564
At 11:pm one Wayne M. Copper, DOB 10-7-76, 99 Menotomy St., Arlington was arrested at Mass. Ave and Alewife and charged with Disturbing the Peace and False Fire Alarm.

Off. Savioli/Valk*"K-9"

Geographic Distribution of Cambridge Crime

Heat Map of Average Crimes, 1992-2005

pa_cat0_total
- 0.00 - 0.10
- 0.11 - 0.24
- 0.25 - 0.43
- 0.44 - 0.75
- 0.76 - 17.14

Measuring Neighborhood Rent Control Exposure

- RC data enumerate rent controlled units
  - Cambridge RC file (FOIA request + David Sims)
  - Enumeration of non-rent controlled units

- Measure of neighborhood rent control exposure

$$RCI_i^\lambda = \frac{\sum_j RC_j \times e^{-\lambda d_{ij}}}{\sum_j e^{-\lambda d_{ij}}}$$

- d_{ij}: miles between a residential unit at location i and nearest point of block j
- $d_{ij} = 0$ if unit i is in the block j.

Estimating Equation

- Dependent variable y_{gt}
    - Ideally: log crime to capture proportional moves in crime rates, but many zeros
    - Bowes and Ihlanfeldt (2001), Ihlanfeldt and Mayock (2010), NYPD (2014) advocate crimes per unit of area.
    - $\rightarrow$ Our approach: report crimes per 1,000 m^2; also counts using Poisson reg

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- Estimating equation:

$$y_{gt} = \alpha_g + \delta_t + \beta \cdot \text{RCI}_g^{\lambda} \cdot \text{Post}_t + \varepsilon_{gt}$$

- β measures differential change in crime in high versus low rent control intensity areas after rent control's elimination

Assumptions

Identification assumes:

- Change in RC status is exogenous (not fully anticipated)

- Exposure variable (RCI) conditional on block effects measures only effects of RC, and not other factors (not due to RC)

- Need only apply in differences (pre/post) not levels

**Meaning of Rent Control Intensity (RCI):**

- Measure of how much neighborhood affected by post-RC gentrification

- Potential concerns:
    - High-crime areas reducing crime more than low-crime areas
    - RCI correlated with initial crime $\rightarrow$ corr w/ downward trend in crime
    - Many strategies to address concern: trends, poisson, local linear regs, direct controls for initial crime

Event Study: Without Tract Trends
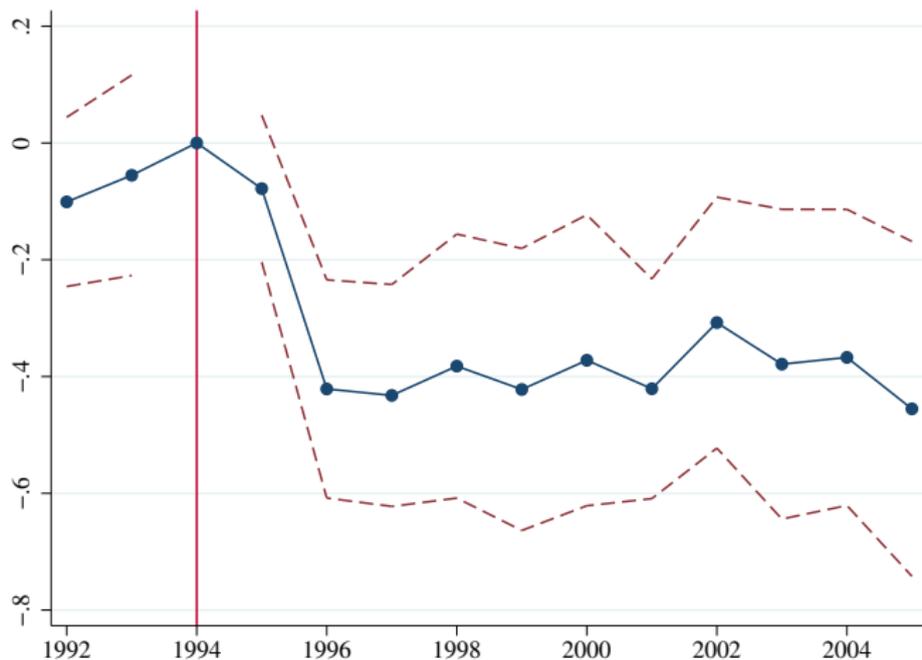
- 1 s.d. more rent control $\Rightarrow$ 11% lower crime after end of R.C.

Event Study: Linear Tract Trends
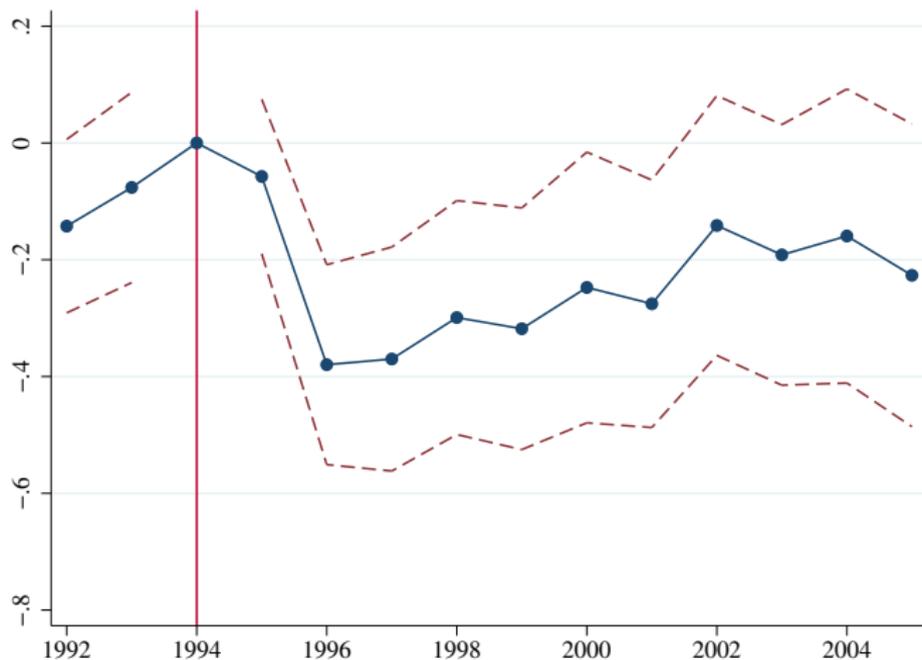
- 1 s.d. more rent control $\Rightarrow$ 7% lower crime after end of R.C.

Main Estimates: Crime Categories

Crime Category	Property Crime (1)	Public Disturbance (2)	Drug & Alcohol (3)	Violent Crime (4)
	A. Specifications Without Tract Trends			
RCI x Post	-.194 ***	-.118 ***	-.014 **	-.038 **
	(.070)	(.029)	(.006)	(.015)
Effect of 1 s.d. ΔRCI	-9.37%	-13.25%	-14.17%	-12.02%
	B. Specifications With Linear Tract Trends			
RCI x Post	-.107 **	-.090 ***	-.006	-.026 **
	(.050)	(.024)	(.008)	(.012)
Effect of 1 s.d. ΔRCI	-5.17%	-10.13%	-6.33%	-8.33%
Mean of Dependent Variable	.396	.170	.018	.060
SD of Dependent Variable	.886	.324	.079	.164

Notes: N = 11,424, λ = 12. All specifications include year fixed effects and fixed effects for 816 adjusted blocks. Standard errors in parentheses clustered at the block level. The mean of RCI term is 0.392, and the standard deviation of RCI term is 0.218.
*** p<0.01, ** p<0.05, * p<0.1

Proportional reduction in crime in high RCI areas?

- <u>Threat</u>: Possible that there is a larger proportional reduction in crime in high RCI areas, independent of RCI – a common issue in DiD specifications
    - Only three pre-years to check for parallel trends

- Multiple alternative robustness approaches:
    - ✓ Linear tract trends specs provide some comfort
    - ✓ Specifications of RCI by tercile
    - ✓ Poisson models, effectively a proportional estimator
    - ✓ Control directly for initial crime, initial RCI, and their interaction
    - ✓ Estimate nonparametrically to learn about higher-order complementarity
    - ✓ Falsification exercise with correlates of RCI x Post (red-line proximity, poverty rate, public housing)
    - ✓ Exclude Cambridgeside Galleria

Mechanisms / Displacement

- City-level evidence suggestive of aggregate crime decline

- Conversations with CPD highlight several plausible channels
  - Differential security investments in gentrifying areas
    (both private efforts and demand for public services)
  - Pricing out of juvenile delinquents (Census: % teenagers $\downarrow$ in gentrifying g)
  - Broken windows (Renovation boom in formerly RC units)

- Is this displacement?
  - If so, state less interested (though residents, developer, local gov't still will be)
  - Aliprantis & Hartley (2014) aggregate effects from public housing demolitions
  - Using city-level FBI data, we can bound displacement $< 50\%$

Little evidence of within-Boston MSA Displacement
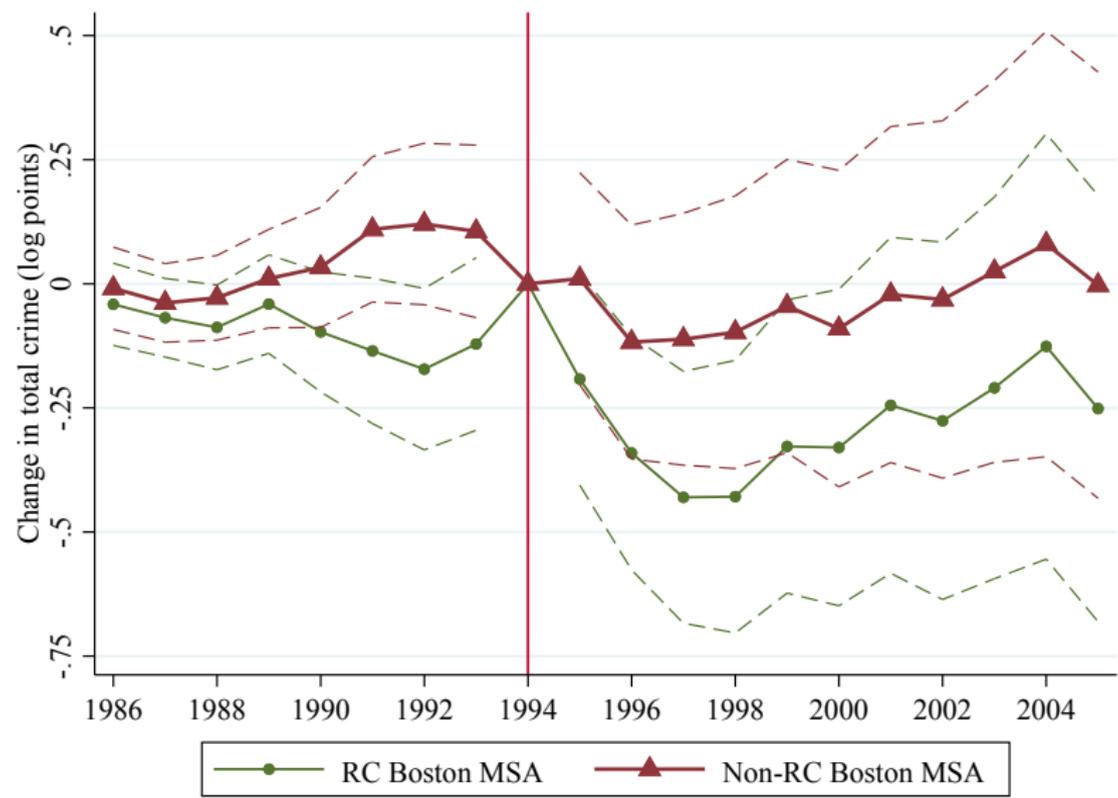
Estimating Counterfactuals

- Estimate the total number of crimes in the post period that would have happened but for end of rent control
- Use most conservative specification
- In counterfactual, RCI $\times$ Post effects would not have occurred
- Estimate βs separately for each crime category.

- Use victimization cost estimates from Cohen and Piquero (2009) (methodology used by DOJ)

Estimates of the Economic Cost of Crime

Crime Category	Victimization Cost (1)	Criminal Justice Cost (2)	Offender Productivity Cost (3)	Total Direct Cost (4)	WTP Cost (5)
Property Crime	$1,291	$1,962	$811	$4,064	$12,291
Public Disturbance	$2,006	$2,457	$549	$5,012	$8,926
Drugs & Alcohol	-	$520	-	$520	$1,040
Violent Crime	$47,218	$13,772	$6,804	$67,794	$150,003
Weighted Average	$5,400	$3,061	$1,250	$9,711	$23,170

Notes: Table reports the weighted costs per crime in 2008 dollars. Cost estimates for the most common offenses from Cohen and Piquero (2009) are weighted their relative within-category frequency in Cambridge.

Monetizing the Value of Averted Crimes

Crime Category	Averted Crimes (1)	Total Direct Cost ($1,000s) (2)	Total Direct Cost PDV ($1,000s) (3)	WTP Cost ($1,000s) (4)	WTP Cost PDV ($1,000s) (5)
Property Crime	501	2,036	40,727	6,159	123,183
Public Disturbance	494	2,474	49,471	4,405	88,110
Drugs & Alcohol	116	60	1,207	121	2,414
Violent Crime	77	5,215	104,291	11,538	230,758
Total	1,188	9,785	195,696	22,223	444,464
	(547)	(8,237)	(164,731)	(18,519)	(370,372)

Notes: Table reports estimates of the annual reduction in reported crimes attributable to rent decontrol from 1995-2005 in thousands of 2008 dollars using the specification with $\lambda = 12$. Estimates of the economic cost per crime come from Cohen and Piquero (2009) and are in 2008 dollars. The present discount value of averted crimes assumes a discount rate of 5%. Standard errors in parentheses underneath Total figures clustered at the block level.

Conclusion

- Decontrol led Cambridge residential property to appreciate by \$2B, renovation boom, neighborhood turnover, demographic change (Sims 2011, APP 2014)

- Rent decontrol lowered Cambridge crime by $\approx$1,200 crimes/year (16%)

- Economic cost: \$10m annual benefit to would-be victims (in \$2008)
    - PV of \$200M $\rightarrow$ 15% of appreciation due to decontrol
    - Similar magnitude as effect of residential investment (\$247 million)

- Takeaway: neighborhood change important component of RC effects