Illegal Drug Markets

13 November 2019

Epic Data

- STRIDE (Horowitz 2001,)
  - Reporting on drug purchases by police or informants
  - Data on purity, price, substance, geographic location, time, method of acquisition
- National Seizure System Data
  - Voluntary reported seizure of drugs, weapons, money, etc.
  - Address (street or home), date, detailed description of seizure, demographic information on who seized from
- ADAM Data
  - Randomly administered and voluntary survey to arrested individuals (90 percent response rate), verified by a urine sample
  - Information on purchasing, drug and alcohol abuse, dependence, etc.

Characterizing the Market

A model characterized by search problems and moral hazard (Galenianos et al 2012, Galenianos and Gavazza 2017)

- Drugs are experience goods
- Sellers can cheat without repercussions

A Burdett-Mortensen (1998) search model

- Buyers meet a new seller approximately every 24 days
- Relationships between buyers and sellers average 41 days
- Buyers make purchases an average 19 times per month

Distribution of Purity

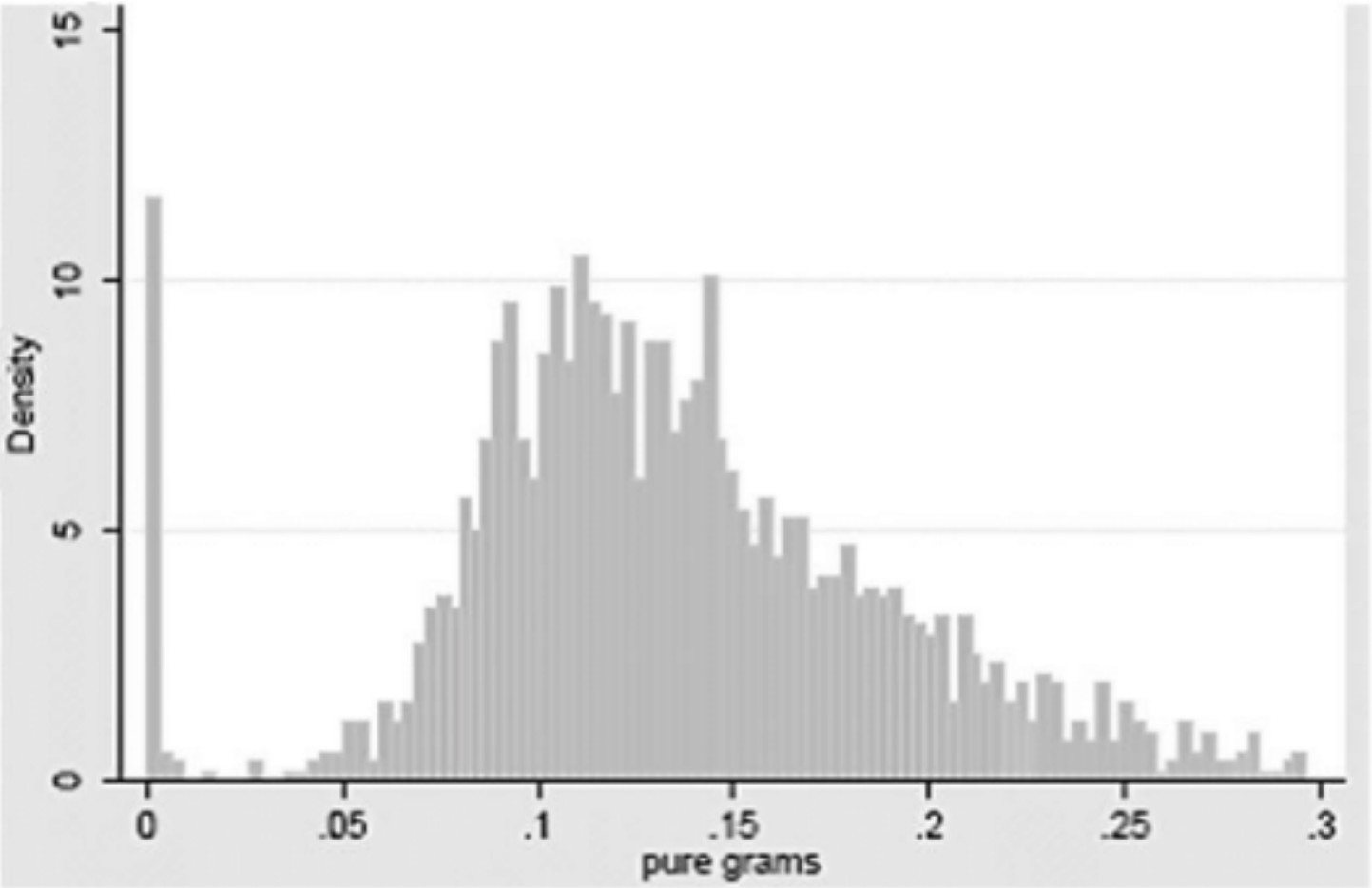


FIGURE 1

Pure quantity of crack traded for $20 in Washington DC, 1989–1991

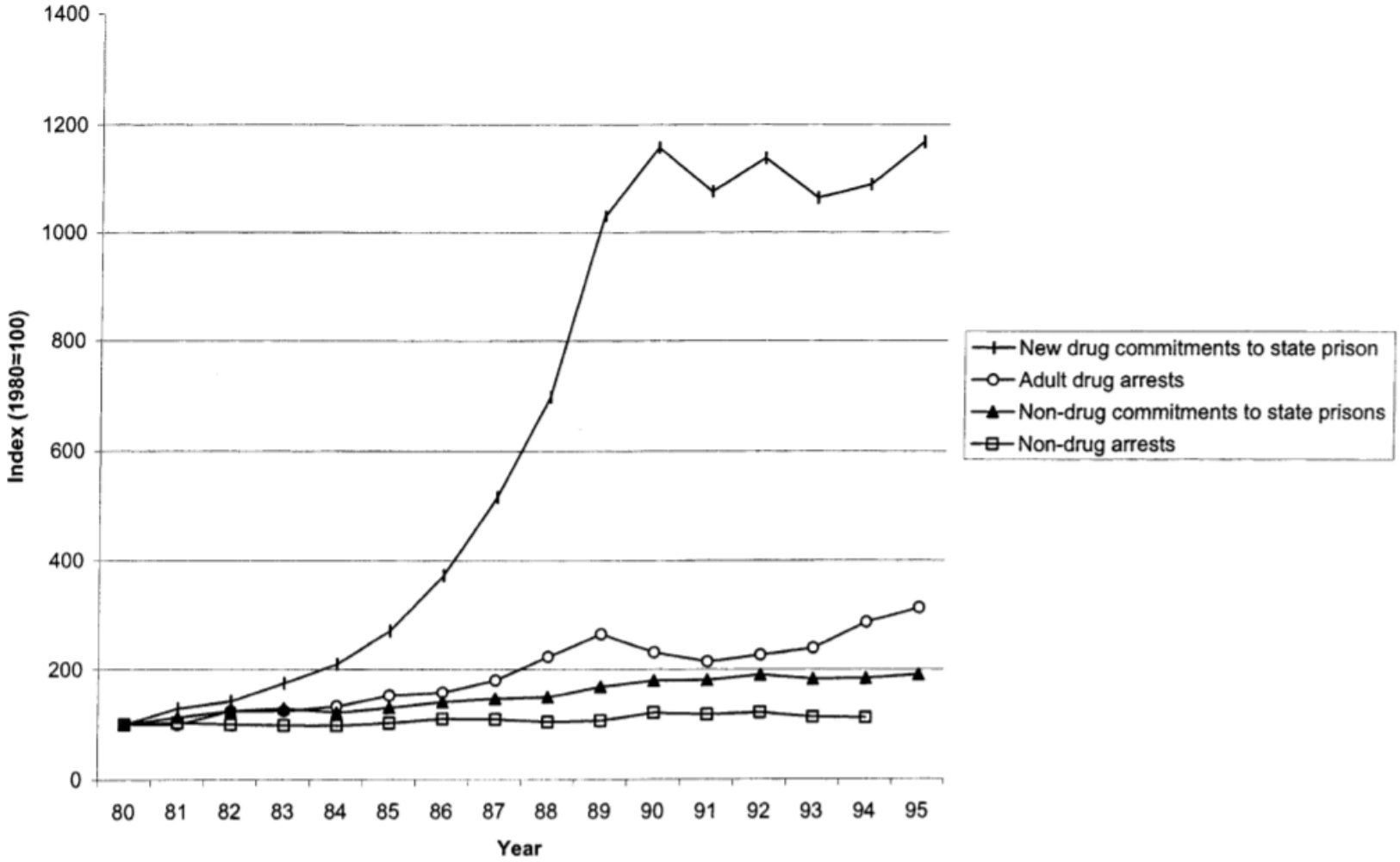
Effects of Enforcement

TABLE 5—THE EFFECT OF PENALTIES

	Baseline	Lower K_S	Lower K_B
Fraction of rip-offs (percent)	15.862 [13.646; 16.812]	1.678 [1.596; 1.811]	1.162 [1.080; 1.209]
Average pure grams per $100	0.616 [0.597; 0.636]	0.866 [0.852; 0.877]	0.972 [0.950; 0.983]
Standard deviation pure grams per $100	0.271 [0.256; 0.279]	1.195 [1.172; 1.235]	1.062 [1.029; 1.074]
Active buyers, in millions	3.431 [3.312; 3.530]	0.942 [0.929; 0.957]	1.036 [1.008; 1.042]
Active sellers, in millions	0.290 [0.271; 0.295]	1.304 [1.286; 1.324]	1.036 [1.008; 1.042]
Fraction of matched buyers (percent)	54.040 [52.420; 55.100]	0.973 [0.950; 1.032]	0.996 [0.955; 1.008]
Average number of purchases per month	12.726 [12.228; 13.389]	1.028 [1.000; 1.066]	0.991 [0.971; 1.015]
Average pure grams consumed per month	9.464 [9.057; 9.990]	1.004 [0.977; 1.044]	0.988 [0.969; 1.016]

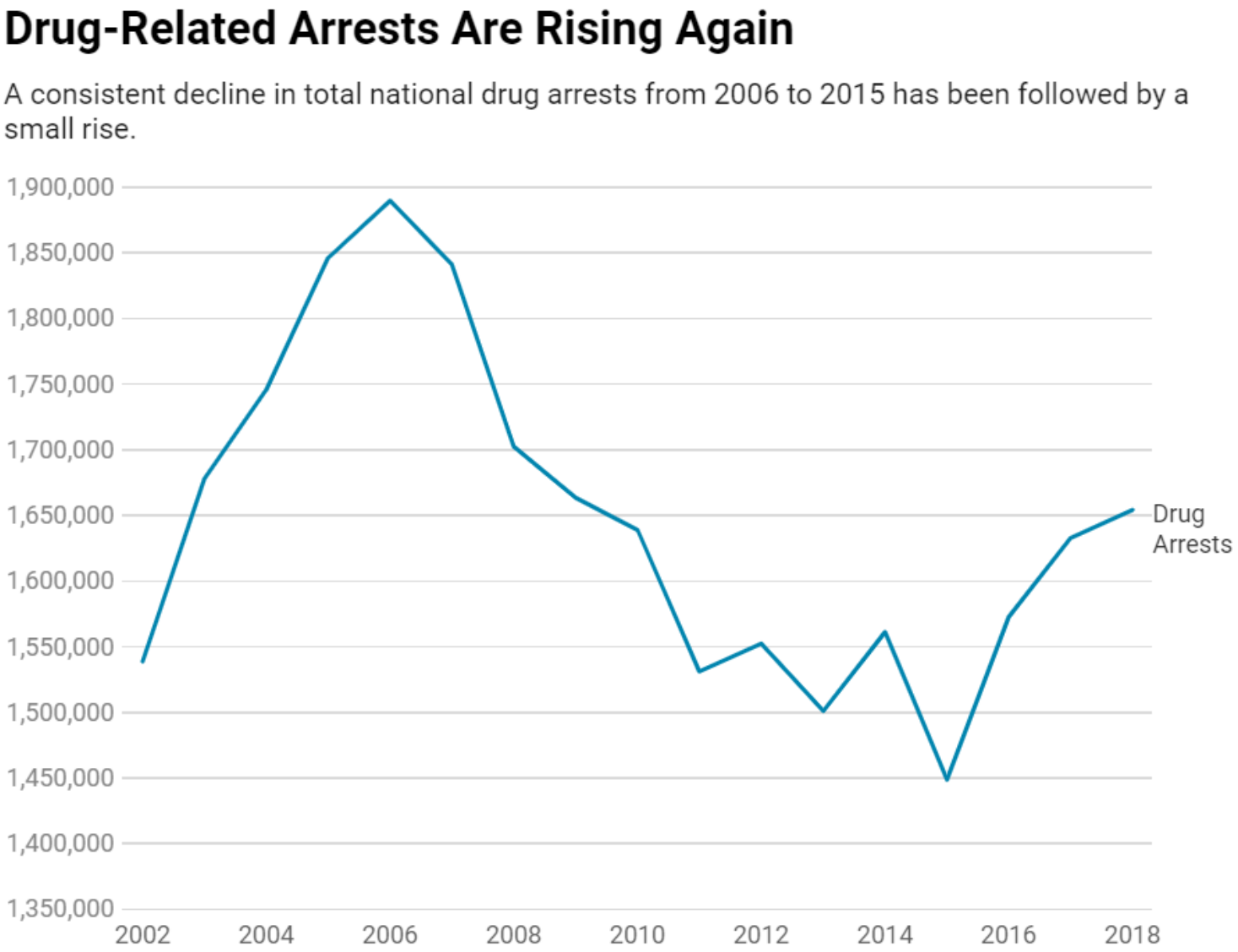
Notes: This table reports market outcomes in the counterfactual cases in which buyers' cost K_B and sellers' cost K_S are 15 percent lower than in the baseline case, respectively, expressed as ratios over the corresponding values in the baseline case. Ninety-five percent confidence intervals in brackets.

Incarceration

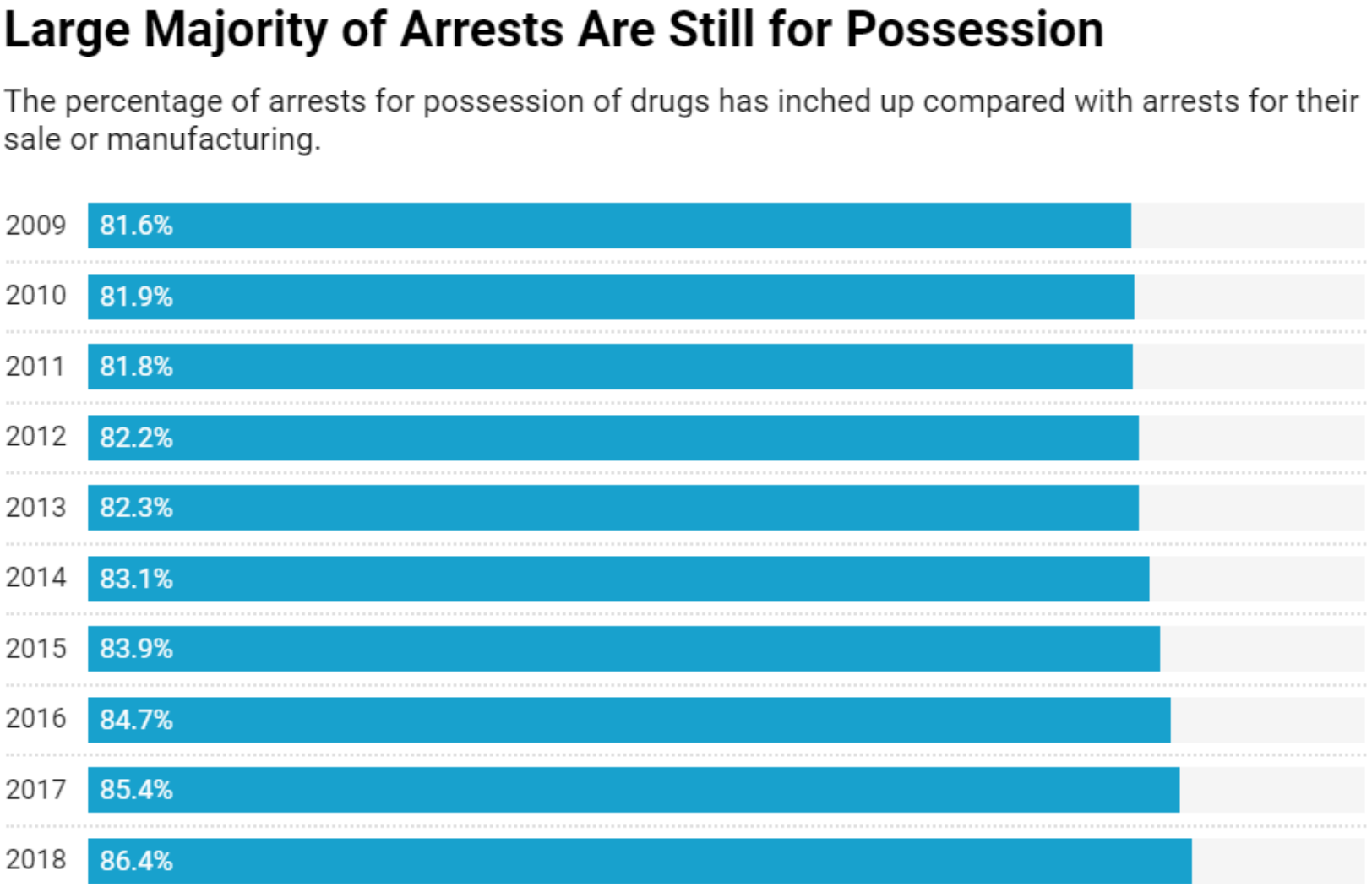


From 24,000 incarcerated in 1980 to 400,000 in 2000

Incarcerating Buyers (1)



Incarcerating Buyers (2)



85 percent of incarcerations are for distribution (Kuziemko Levitt 2004)

Is Incarcerating Buyers Effective?

TABLE 2—ACCESS VARIABLES DEFINITION AND STATISTICS

Questions on access	Value of access variable			Access probability	Percentage of use
	Access 1	Access 2	Access 3		
Offered marijuana	1	1	1	24%	57%
How difficult/easy to get cannabis if wanted some?					
Very easy to obtain	1	1	1	28%	31%
Fairly easy to obtain	1	1	0	23%	17%
Fairly difficult to obtain	1	0	0	7%	8%
Difficult to obtain	0	0	0	6%	2%
Impossible	0	0	0	12%	1%
No opportunity to use	0	0	0	8%	0%
Mean access	59%	53%	36%		
Probability of use given access	23%	26%	37%		

Methamphetamine Suppression

In May 1995 a bill authorized the DEA to shut down firms producing ephedrine pills without justification (Dobkin and Nicosia 2009)

- Average price jumped from 30 dollars to 100 per gram
- Purity fell from 90 percent to 20
- Methamphetamine related hospital admissions dropped 50 percents and arrested individuals reporting use dropped 55 percent

Battery of tests suggest possible effect of an increase in robberies but authors urge caution.

Supply Chain

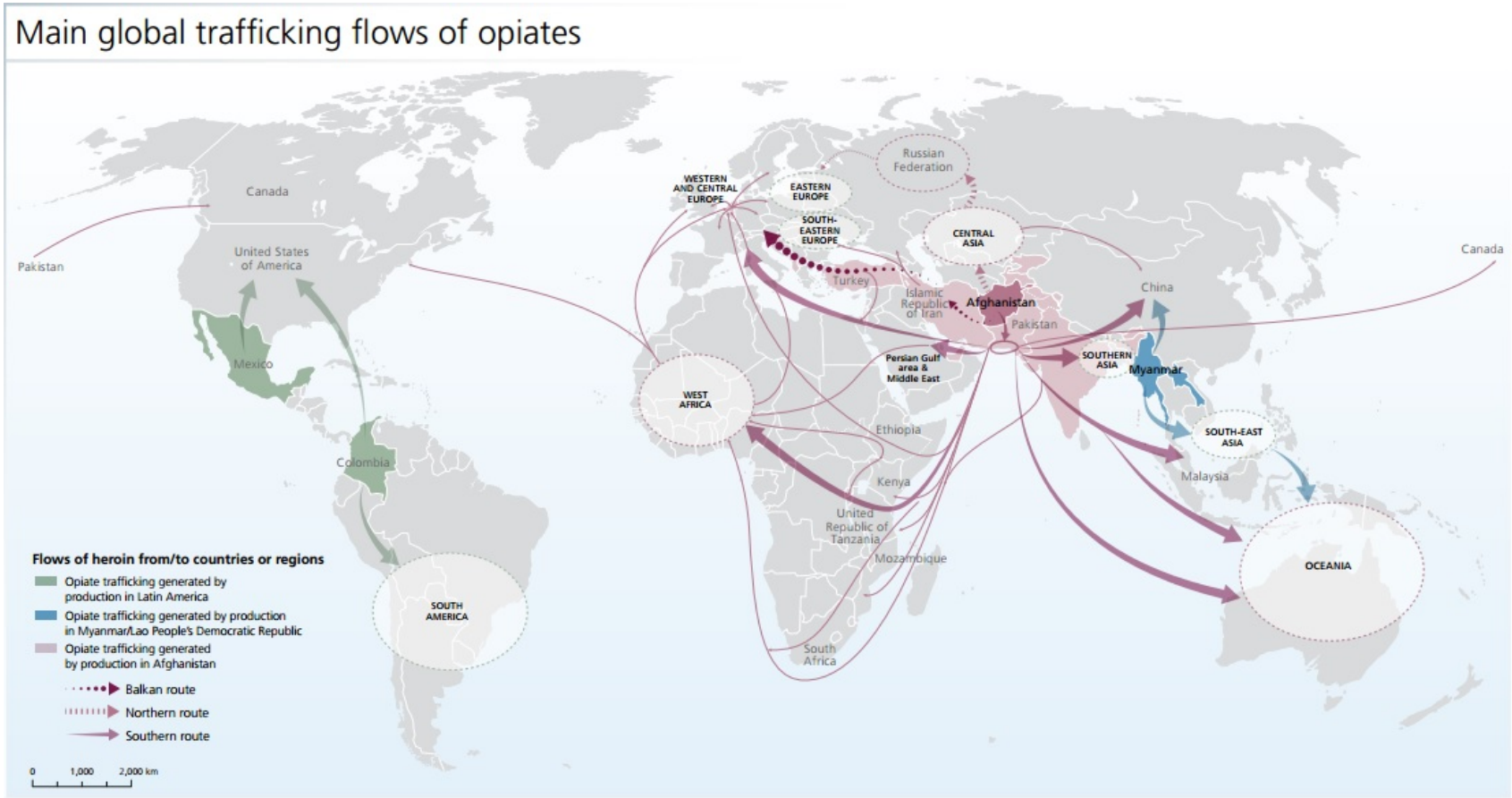
- Global size of markets, 2009 ("World Drug Report" 2011)
  - Opium: $68 billion
  - Cocaine: $85 billion
  - iPhone Sales: $165 billion (2018)

Figure: Source: Reuter (2013)

Cocaine

Source: UNODC, responses to annual report questionnaire and individual drug seizure database.

Heroin



Sources: UNODC, responses to annual report questionnaire and individual drug seizure database.

Cost-Price Margins (Reuter 2013)

Table 18.1 Price and Purity of Cocaine and Heroin from Production to Retail, ca. 2005

	Cocaine—1 kilogram				Heroin—1 kilogram			
Stage	**Raw Price**	**Purity**	**100% Pure**	**Location**	**Raw Price**	**Purity**	**100% Pure**	**Location**
Farm-gate	$800	100%	$800	Colombia	$900	100%	$900	Afghanistan
Export	$2,200	91%	$2,400	Colombia	$3,400	73%	$4,700	Afgn. neigh-bors
Import/ Whole-sale (Kg.)	$14,500	76%	$19,000	Los An-geles	$10,000	58%	$17,000	Turkey
Mid-lev-el / Whole-sale (Oz)	$19,500	73%	$27,000	Los An-geles	$33,000	50%	$66,000	England & Wales
Typical retail price-Country	$78,000	64%	$122,000	United States	$105,000	44%	$239,000	United Kingdom

Retailers - Street Gangs

"Mexican DTOs and criminal groups are the principal transporters of illicit drugs into and through the Chicago HIDTA region" - DEA

"Street gangs control most retail drug distribution in the [Chicago] and are increasingly exploiting relationships with other gangs or DTOs and use of technology to advance their criminal activities" - DEA

- Some involvement in production (e.g. converting powder to crack cocaine, repackaging)
- Non-economic operating expenses dominate...

Operating Expenses

TABLE IV
THE IMPACT OF GANG WARS ON GANG FINANCES
Monthly Averages in 1995 Dollars

Category	Preexpansion		Postexpansion	
	Gang war	No gang war	Gang war	No gang war
Total revenues	17,100	25,600	54,500	76,900
Drug sales	10,900	19,000	44,500	58,900
Dues	5,300	5,300	10,000	10,000
Extortionary taxes	900	1,300	0	8,000
Total nonwage costs	10,200	10,600	30,400	24,500
Cost of drugs sold	2,800	3,900	11,300	12,800
Tribute to gang hierarchy	1,400	5,000	5,800	5,900
Mercenary fighters	3,600	0	5,000	0
Funerals/payments to families of the deceased	1,000	300	2,300	800
Weapons	600	300	3,000	1,600
Miscellaneous expenses	800	1,100	3,000	3,400
Total gang wages	7,900	6,600	25,600	37,600
Officers	1,500	2,900	2,300	3,800
Foot soldiers	6,400	3,700	23,300	33,800
Net profit accruing to leader	−1,000	8,400	−1,500	14,800
Monthly wage per foot soldier	220	130	370	540
Price and quantity of drugs sold:				
Quantity (“bags”)	1,442	2,019	7,556	8,563
Price (per bag in 1995 dollars)	7.12	9.54	5.90	6.86

Data in the table reflect monthly averages for the time periods in which a gang war is or is not ongoing, both before and after the expansion in territory. The five months corresponding to the transition period associated with the growth in territory are excluded from the table due to ambiguity about the presence or absence of a gang war. Values are based on monthly data for the four-year period. Data are unavailable for 6 of the 48 months in the sample. All dollar values have been converted into 1995 dollars using the GDP deflator. All values are rounded to the nearest hundred dollars. Estimates include only revenue sources included in official gang records.

Figure: Source: Levitt and Venkatesh (2000), QJE

Territoriality

"If you want to expand your sales, you have to expand your street corners. You know, you have to physically take street corners, which is a violent act." - John Lippert, Bloomberg Markets

"Because crack distribution generates significant profits for street gangs, low-level rival gang members routinely engage in violence to acquire turf or steal drugs or drug proceeds" - DEA

Territoriality

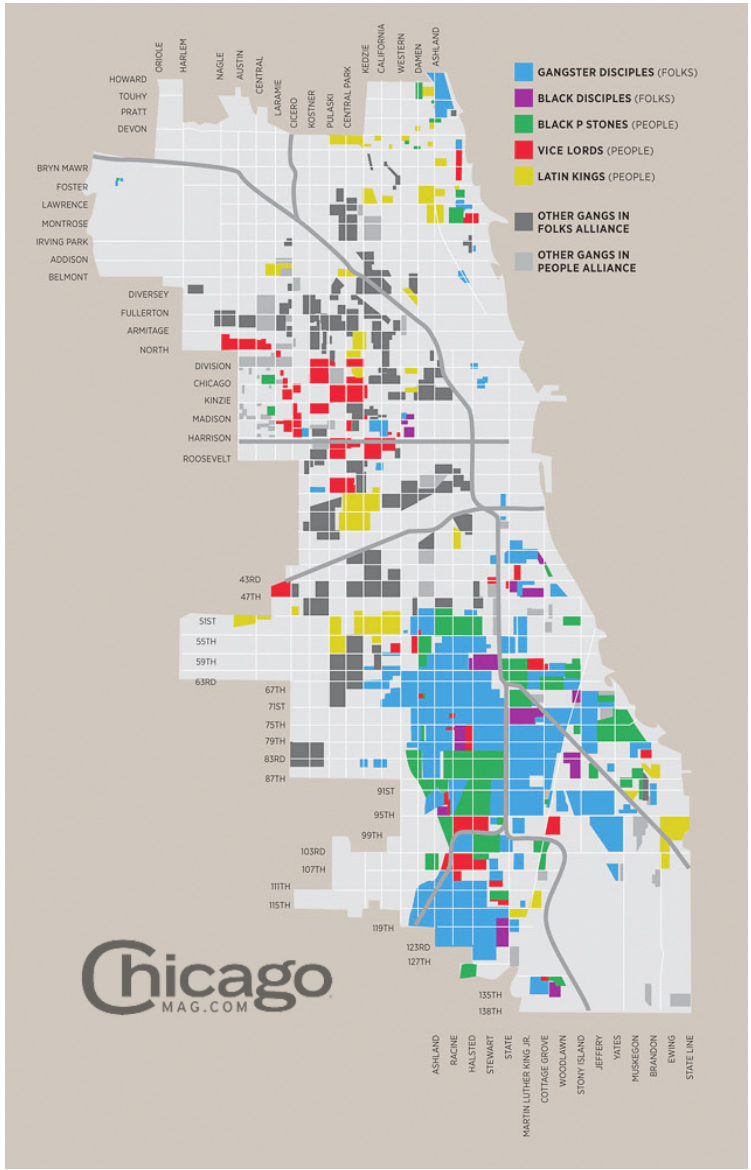


Figure: Sources: Chicago Crime Commission Gang Book 2012, *Chicago Magazine*

Price and Violent Competition

Gang Wars

- Levitt and Venkatesh (2000)
  - Gang wars occur about 25 percent of the time
  - Gang wars result in 20-30 percent drop in prices and quantities sold
  - Death rate (annual) for members: 7 percent
- Papachristos (2009)
  - 35 percent of homicides in 1994, 1998, 2002 documented as gang-related by homicide detectives
  - 88 percent inter-gang

"In 2006 nearly 50 percent of the homicides and a large percentage of other violent crimes and property crimes committed in Chicago were attributed to street gangs that are involved in drug trafficking" - DEA

Law Enforcement and Imprisonment

"3,500 of the 13,000 inmates currently housed in the Cook County Jail have some gang affiliation" - DEA

- At any given time, 1/3 of gang leadership is imprisoned (Levitt and Venkatesh 2000)

Homicides and Non-Fatal Shootings

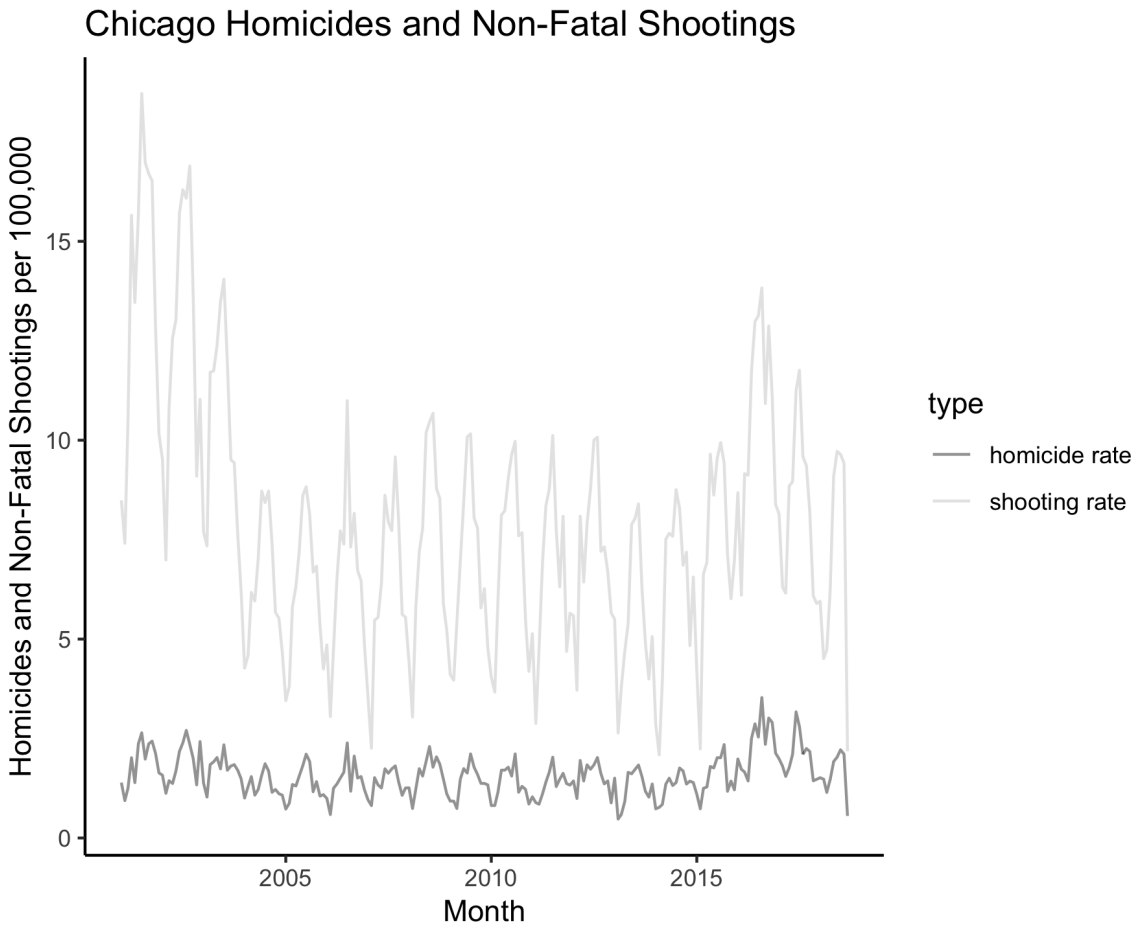
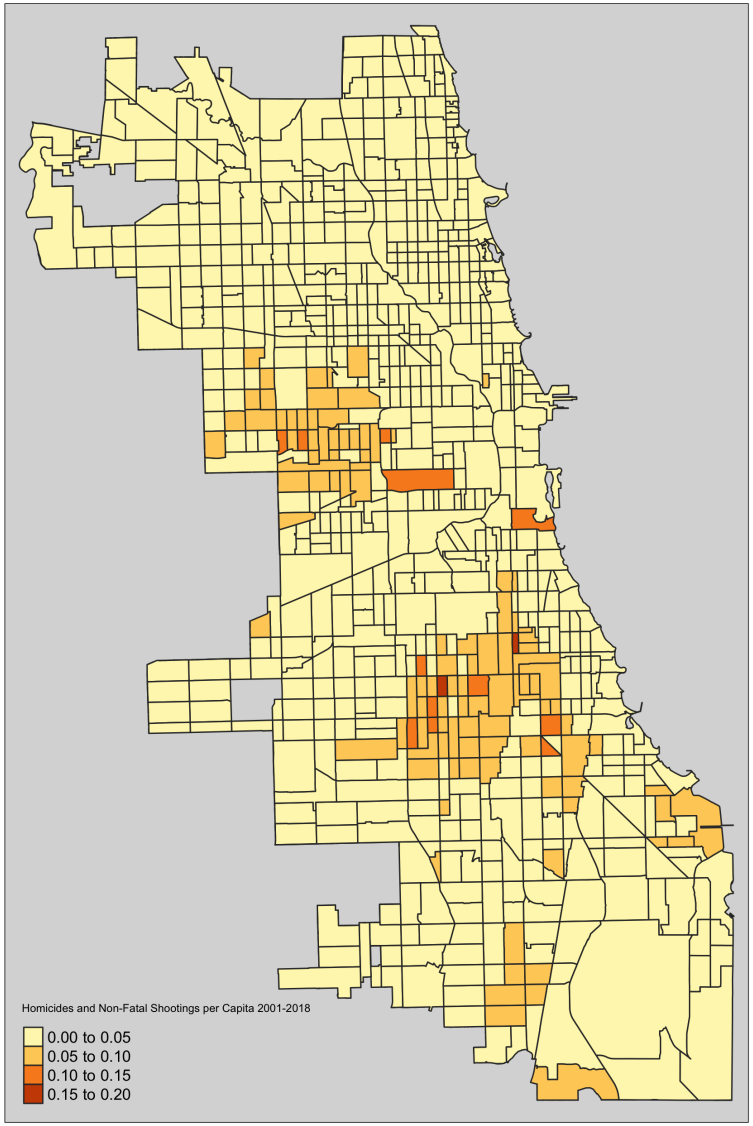


Figure: Source: Chicago PD

Homicides and Non-Fatal Shootings



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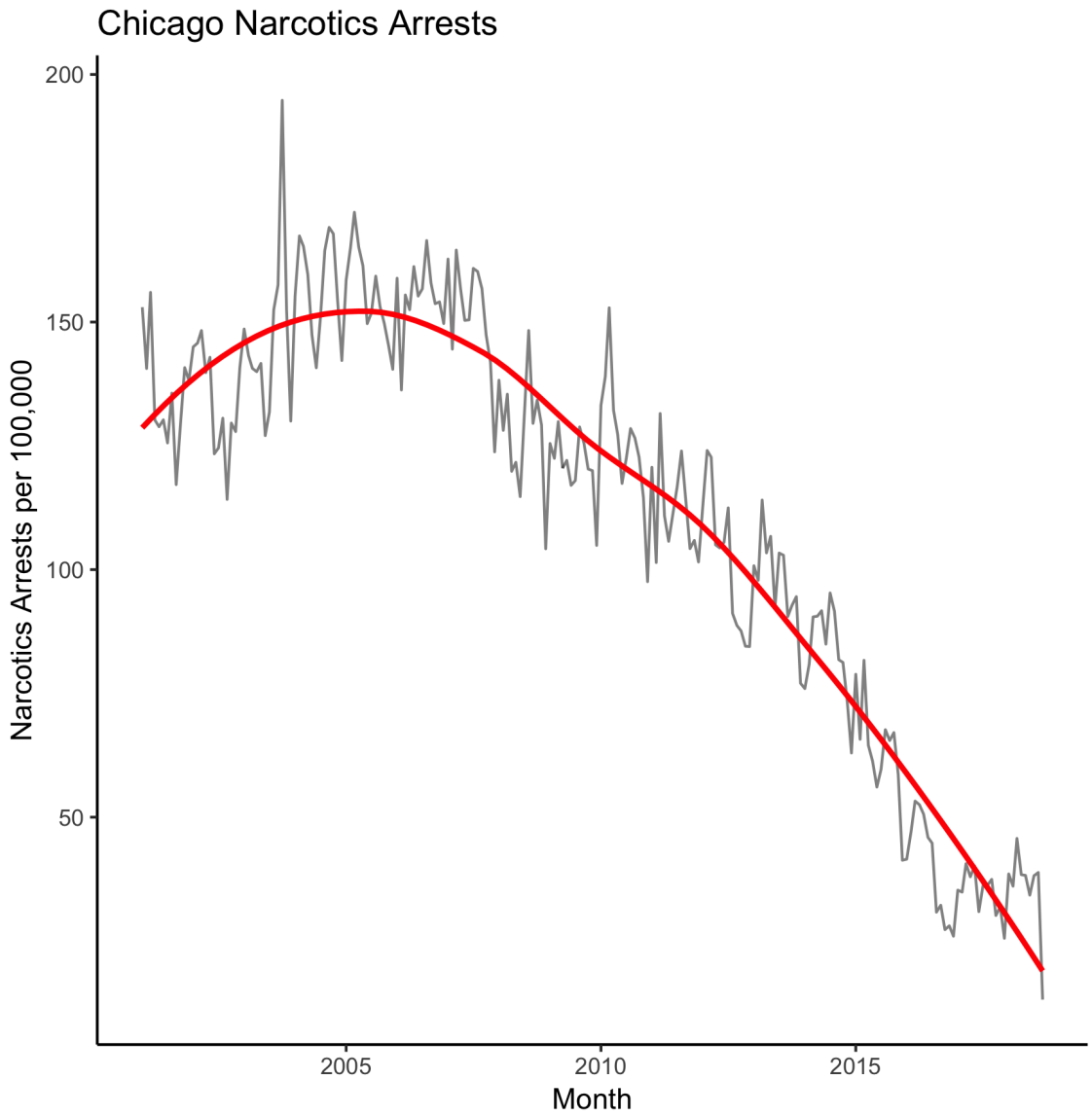
Narcotics Arrests



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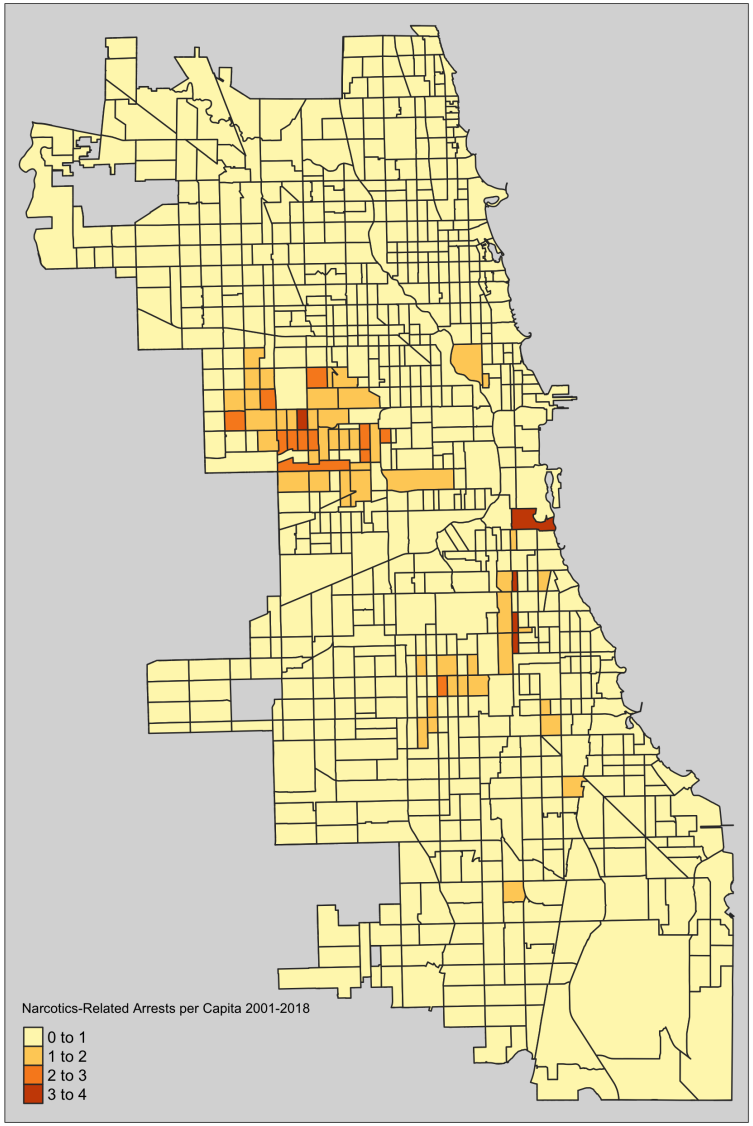

Figure: Source: Chicago PD

Policing

Elasticity of Crime

- Police hiring (Levitt 1997, McCrary 2002, Chalfin and McCrary 2017)
- Terrorist attacks (Di Tilla and Schargrodsky 2004)
  - Police reduce car thefts by 75 percent on blocks.
  - Police exert no influence one or two blocks away.
- Terrorist attacks (Draca et al 2005)
  - Elasticity of crime with respect to policing of [-0.3,-0.4]
  - No spillover effects

Down-market effects

- Elections (Dell 2015)
  - Homicides increase by a factor of 5.5 (27-33) per annum
  - No large reduction in drug trade or consumption

Best Practices (Chalfin and McCrary 2017)

Questions

Labor Market for Retailers

- If retail prices are so high, why are earnings for dealers so low?
- Why is compensation so low, given risk?

Territoriality and Competition

- Why is violence so uniquely associated with black markets?
- Violence versus prices as competitive means. . . complements or substitutes?
- Consumers presumably can travel quickly to different territories. . . what benefits does 'turf' bring if not market power?

Policy

- How would increased police enforcement (seizures or arrests) affect competition (price and violent) between groups?
- Radical counterfactual: drug legalization
  - Tradeoff(?): violence versus consumption

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