COVID-19 and Gun Violence in Philadelphia: *What's Drugs Got To Do With It?*

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Crime Rates During the Pandemic
Panel 2: Theory-Driven Explanations
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Temple University
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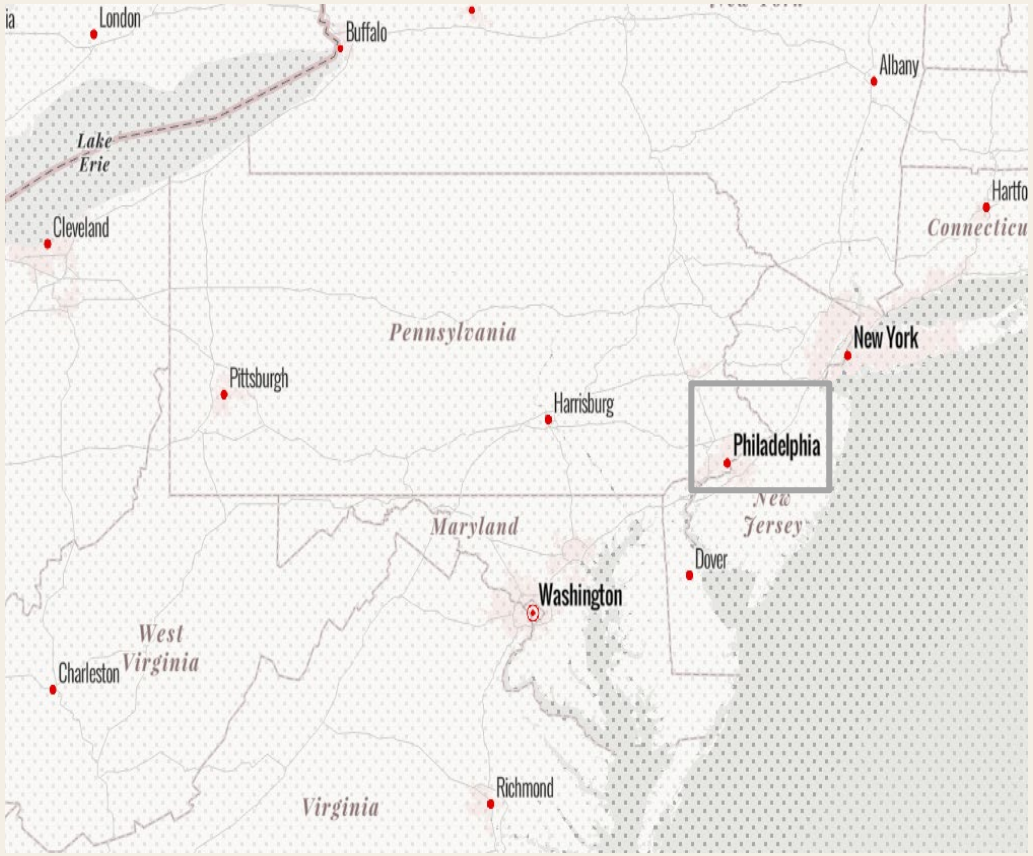
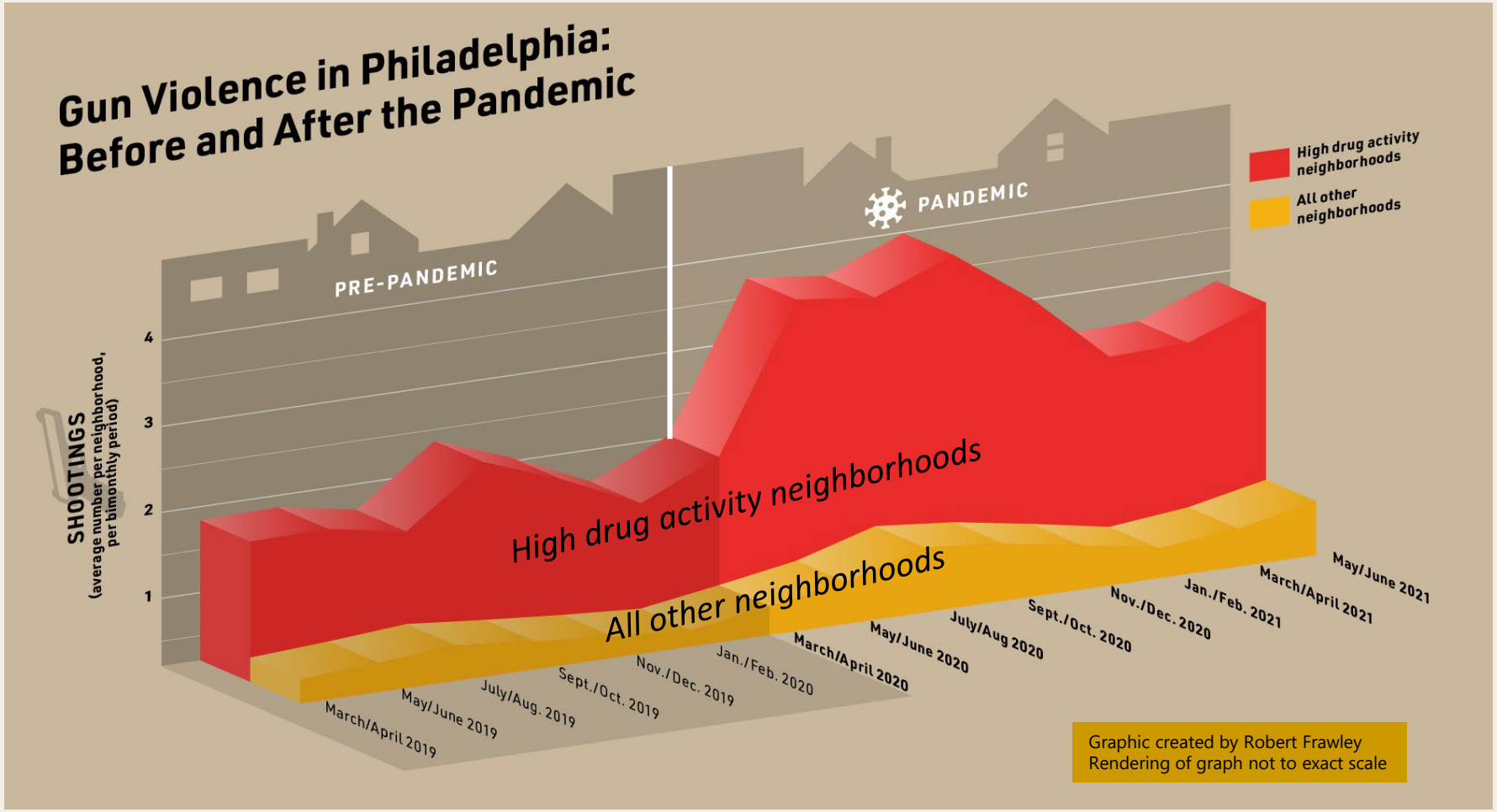
Overview

- Background – Philadelphia
  - Long-term trend of high levels of gun violence
  - Agglomeration drug economy
  - Skyrocketing overdose fatalities
- Theoretical framework
- COVID study examining shooting victims
  - Johnson NJ & Roman CG (2022). PLoS ONE 17(2): e0263777.
- Current day limitations on neighborhood data/measures



Johnson & Roman (2022) PLOS One, 17(2)



Kensington Neighborhood

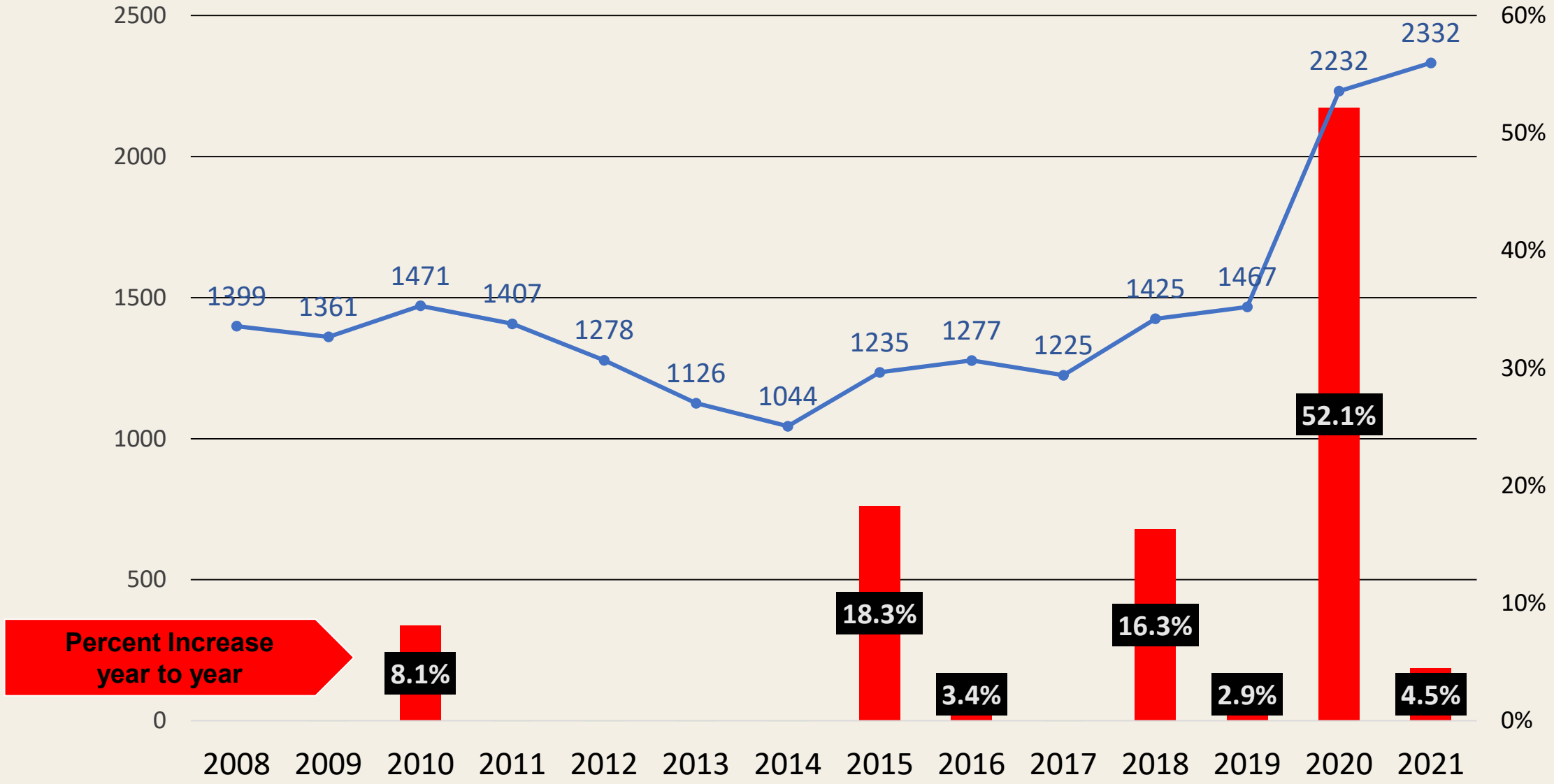
- 1.4 square miles
- ~38,000 people
- Majority LatinX
- 54% live in poverty

- 66 (!) drug markets

- ~22% of Phila's overdose death locations (2019)

- Since 2015, within 5 minute walk from key intersection (K&A) – 300 people shot

Philadelphia Shooting Victims, 2008 - 2021

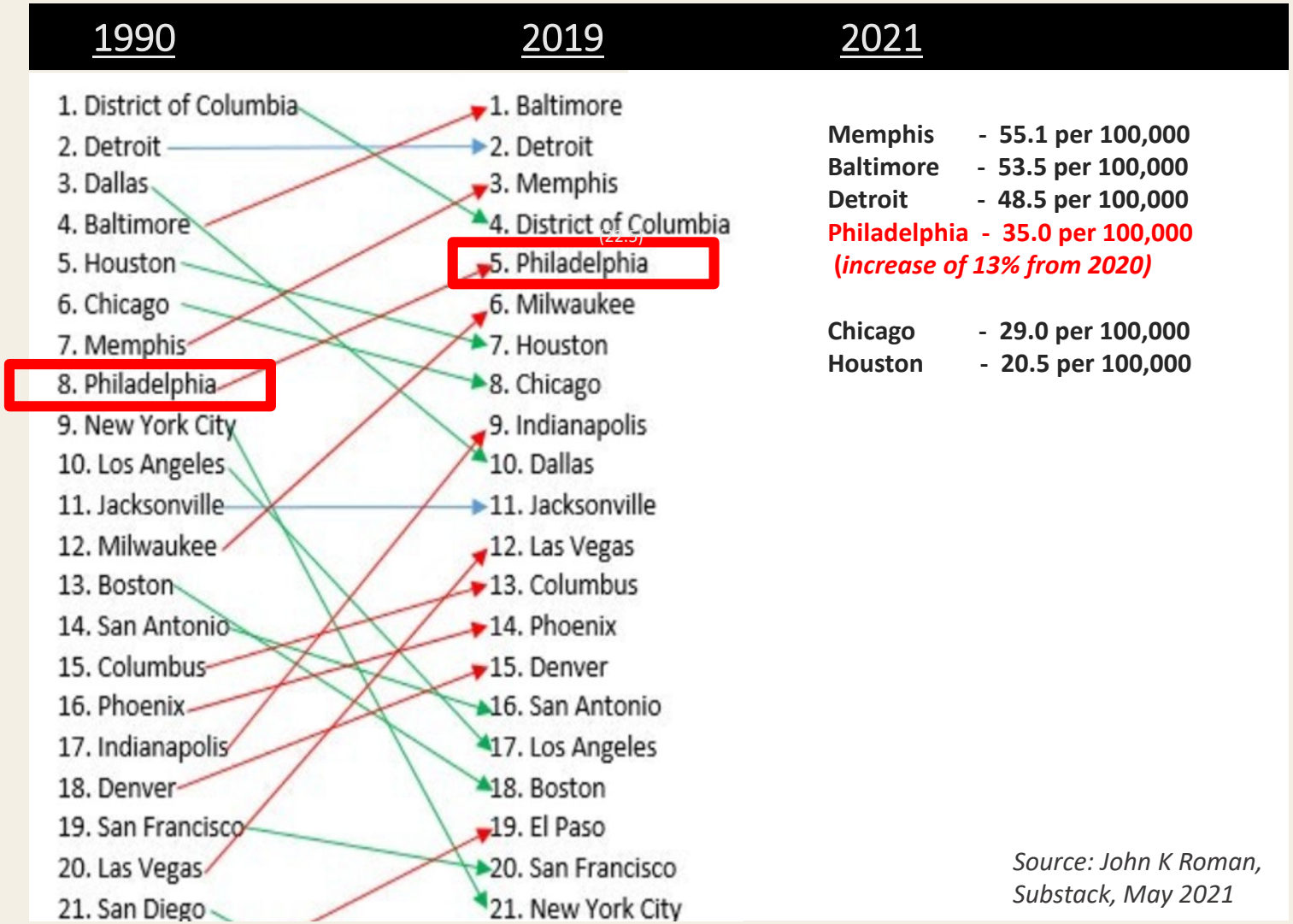


Data Source: PPD; Analysis: Temple CJ Dept.

Homicide – Large City Comparisons, 1990 – 2019

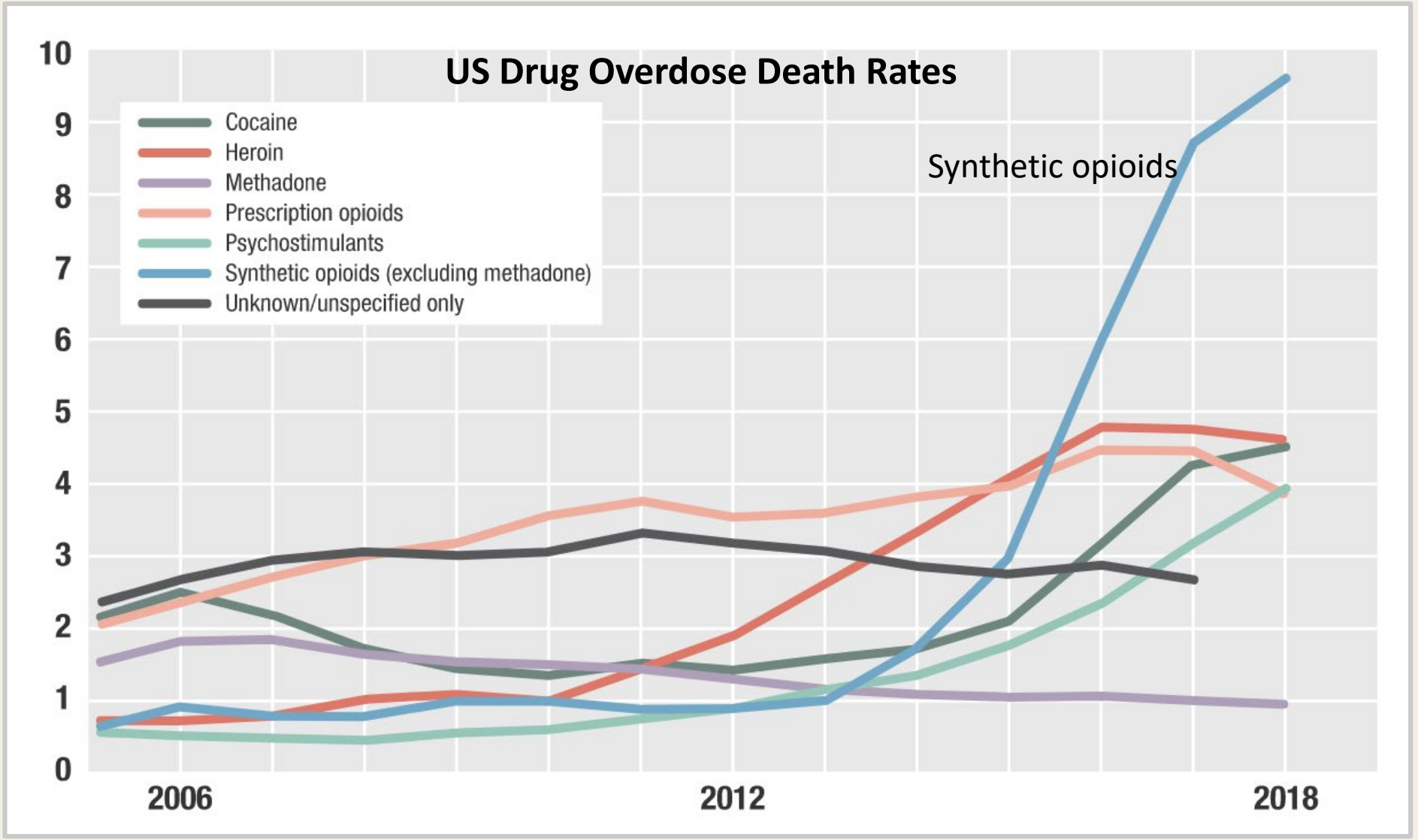
Cities with population over 500,000

Philadelphia has remained at the top of list for decades as one of the cities with the highest rate of homicides.



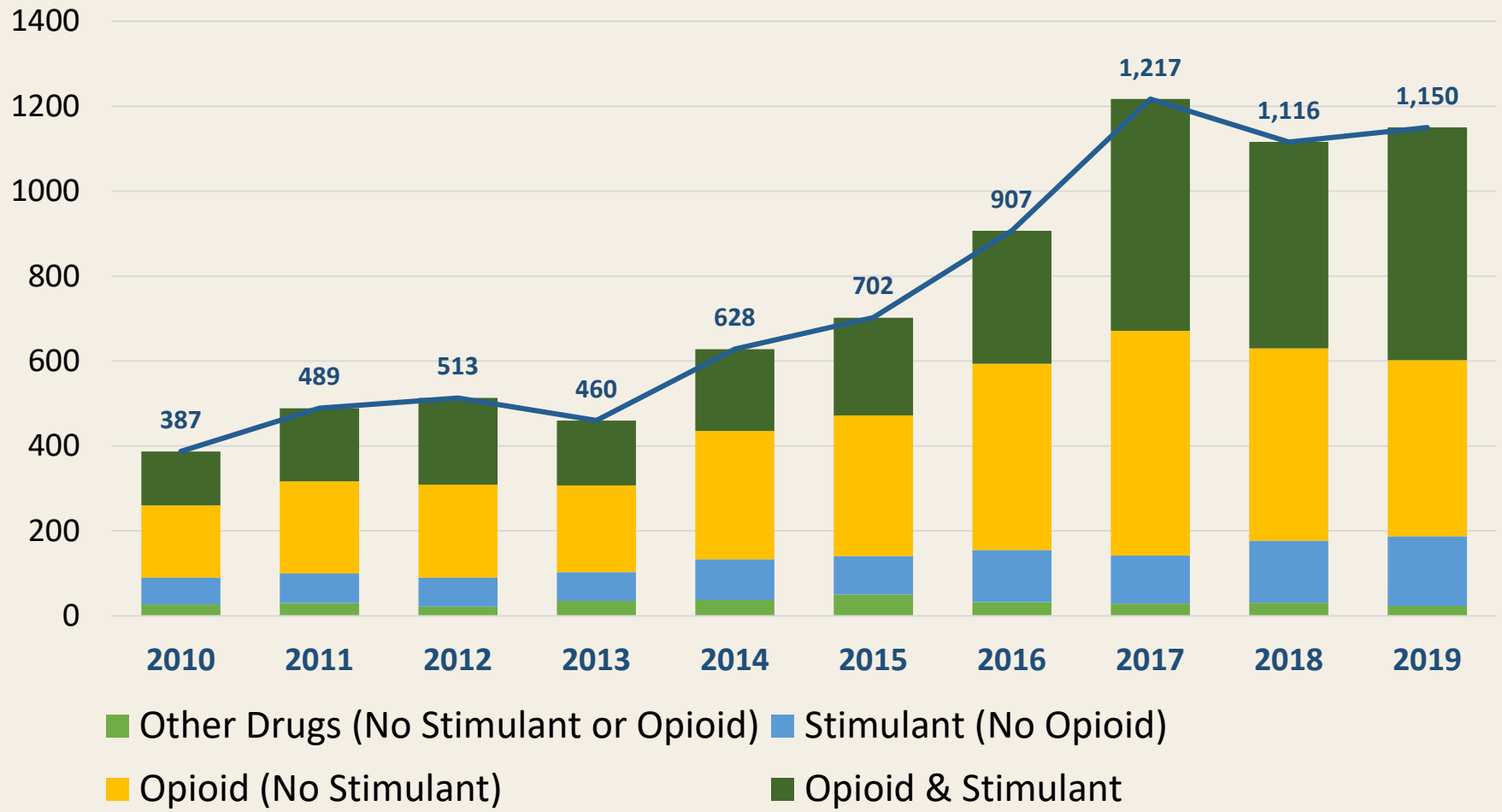
Source: John K Roman, Substack, May 2021

U.S. Drug Overdose Deaths, 2005 - 2018: Shift in today's drug markets



U.S. drug overdose death rates per 100,000 people, by year and drug category, using CDC data. Source: Pardo et al, 2019.

Philadelphia Drug Overdose Deaths, 2010- 2019



Source: Philadelphia Medical Examiner's Office

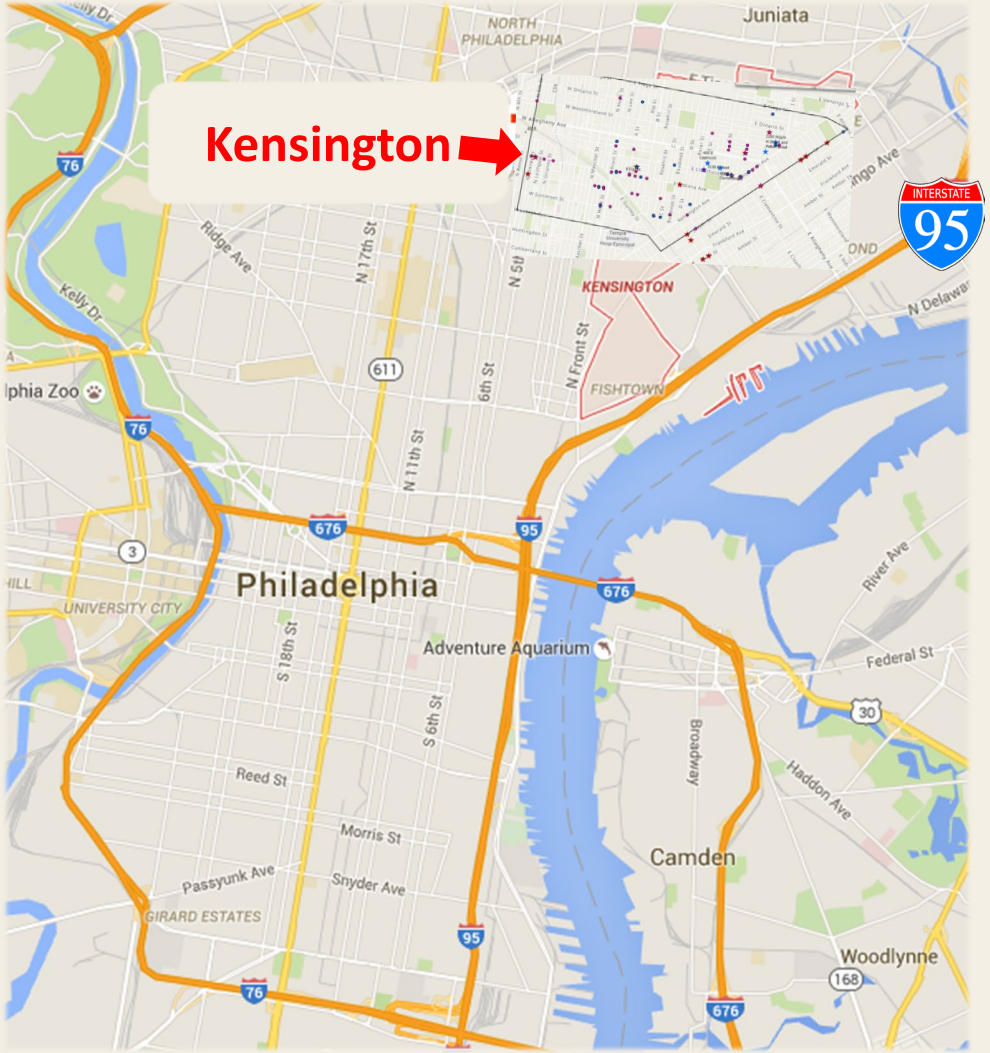
PHILADELPHIA & FENTANYL

- Increased fentanyl availability and misuse contributed to 65% overall increase in PA overdose deaths between 2015 and 2017
- Marked uptick in total seized weight of fentanyl in 2017
- Fentanyl profit margins ~9x higher than heroin
- An average kilo investment of $55,000 can lead to a *conservative* approximate street sales profit of **$5 million**
  (500,000 bags at $10 each, p.20 of DEA 2018 PA report)
- ½ kilo/**DAY** sold at some Kensington corners!
- Near billion dollar economy
- All Kensington drug markets sell fentanyl
- Monday's paper:


MONDAY, NOVEMBER 7, 2022 | VOL. 193, NO. 160 | ESTABLISHED IN 1829

The Philadelphia Inq

Kensington shooting leaves 9 hurt;

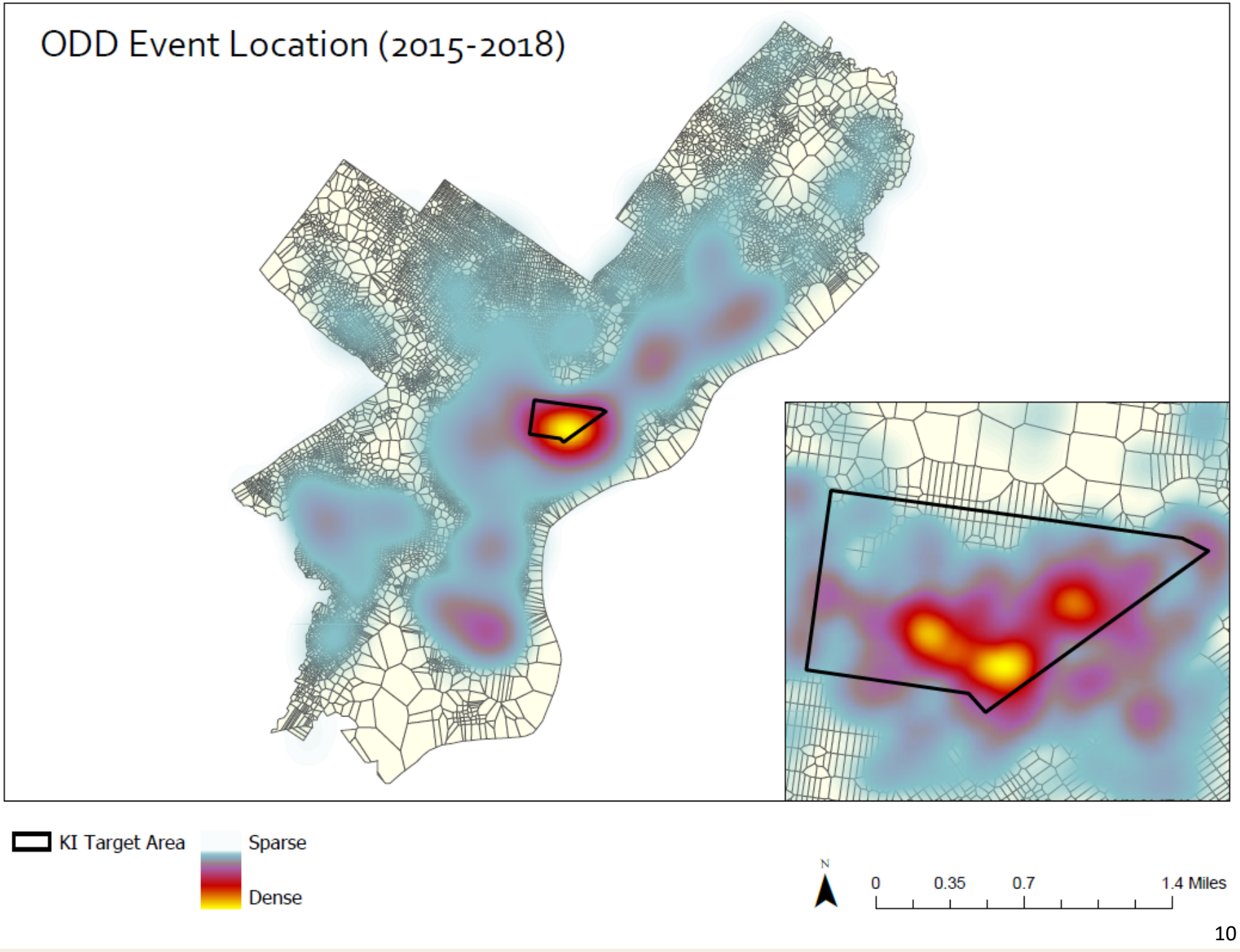


Sources: DEA: The Opioid Threat in PA (2018) DEA-PHL-DIR-036-18; PA OAG/BNI Interviews

A Look at Kensington Pre-COVID

Kernel density map:
Hot spots of overdose death locations

"Walmart of Heroin"

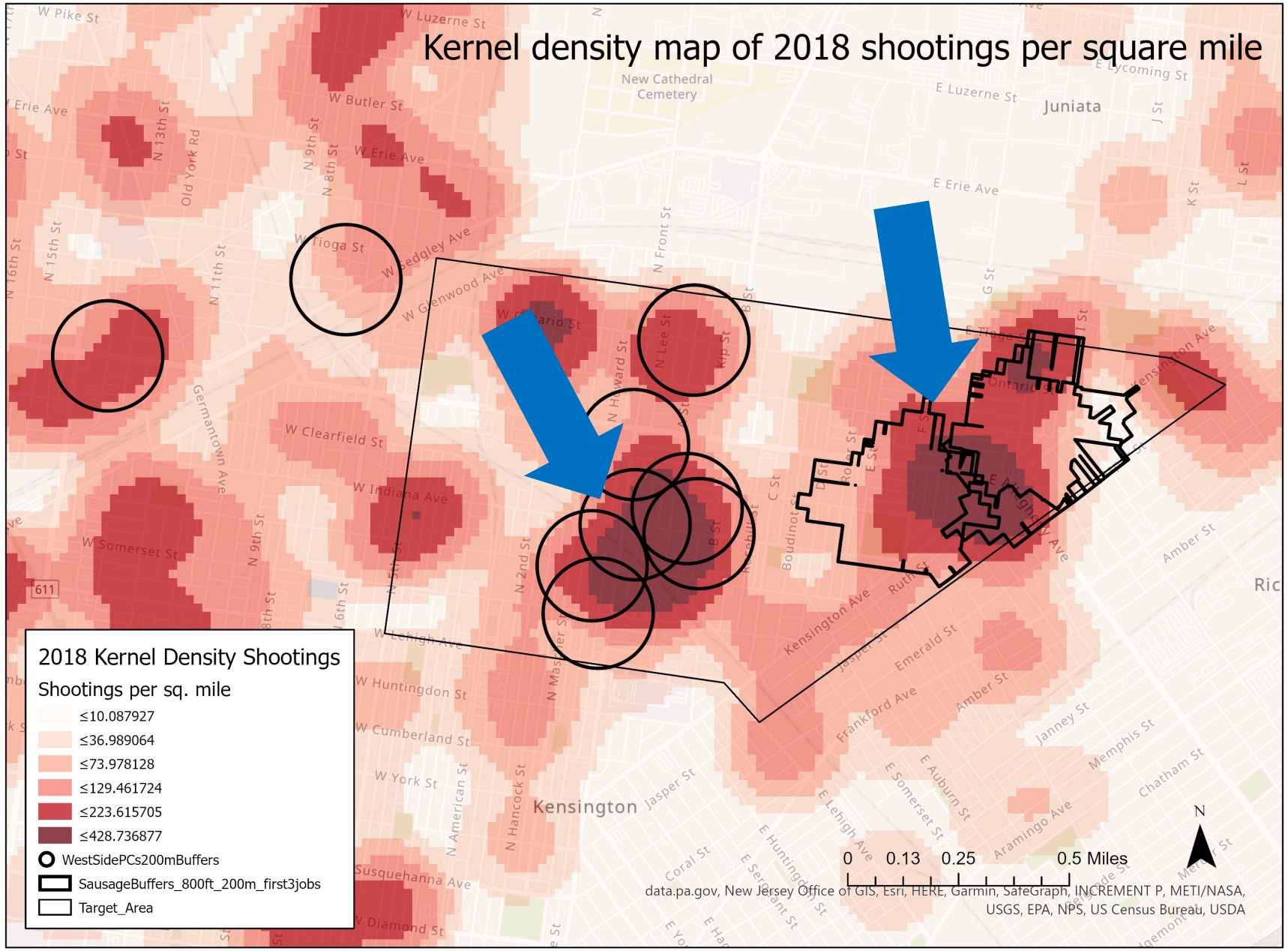


A Look at Kensington Pre-COVID

Kernel density map:

Shooting victims

Hot spots exist on common borders of DTOs



Theoretical Framework: How are drug markets linked to violence?

Drug markets → gun violence → contagion gun violence

- Social Disorganization
  - Highly disorganized neighborhoods have weak informal social control
- Routine Activity
  - Valuables/cash make drug dealers attractive targets; absence of capable guardians
  - Sellers and users ignore stay at home orders
- Rational Choice
  - Lack of legal recourse among actors, hence violence required
  - High profit margins, hence violence worth it

Not all drug markets = violent activity

Context dependent

COVID-19 adds shock to norms of drug trafficking organizations

Shock of fentanyl; increase in availability of fentanyl; fentanyl adulteration – easy to cut and sell; don't need skills. Most profitable of all drugs

Framework (2)

Pre-COVID

- Stability of *high gun violence neighborhoods*; stability of *drug market norms against violence*

COVID Onset/Peri-Pandemic

- Drug markets lure “motivated offenders” in for high wages (any wage); and “established” criminals from other neighborhoods already skilled in violence
- New users from pandemic trauma; competition for street corners, clientele; issues with regulation of employees in new organizations; new market participants pursue own self-interest/no allegiance to a broader organization or set of shared values to keep violence down
- CJS slows down, non-violent arrestees not detained; contacts but no arrests
- Already highly disadvantaged areas with low informal control cannot withstand onslaught

Contagion

- Gun violence more likely to spread than other forms of violence
- Contagion is efficient within structurally similar networks (need socio-economic homogeneity)

The Study: Research Questions

1. What was typical change in shootings before and after the onset of COVID? (temporal)
2. How did neighborhoods differ in shootings before the onset of COVID-19? Which neighborhood factors best predict variation?
3. If neighborhoods differ in their rate of change post-pandemic onset, which factors best predict this variability? (spatial)

Presence of drug markets – but no measure of extent of fentanyl sales/use

The Study: Predictors of Gun Violence (Census Tracts)

Drug market-related

- High drug activity tract (0/1) *(top 10% of drug arrests)*
- Distance in miles between each tract and all high-drug activity tracts

Sociodemographic/ Soc. Disorganization factors

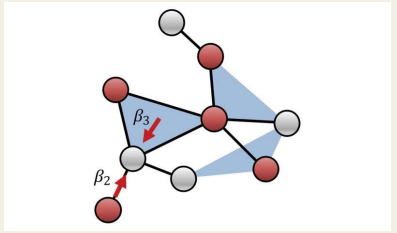
- Concentrated disadvantage
- Spatial lag of disadvantage
- Predominantly Black (0/1)
- Residential stability
- Foreign born
- % male;
- Total population

Policing

Count of police ped/car stops in each tract per bimonthly period

Incivilities

311 citizen calls for:
abandoned vehicles, graffiti removal, vacant lot cleanup, vacant house, streetlight outage



Contagion

- Spatial lag of shootings
- Temporal lag shootings

Methods

- All data were from publicly-available sources
- Dependent variable: geo-located shooting victims (bi-monthly rate of shootings in census tract)
- Mixed effects negative binomial model; time varying factors are Level 1 predictors; static neighborhood-based predictors are Level 2

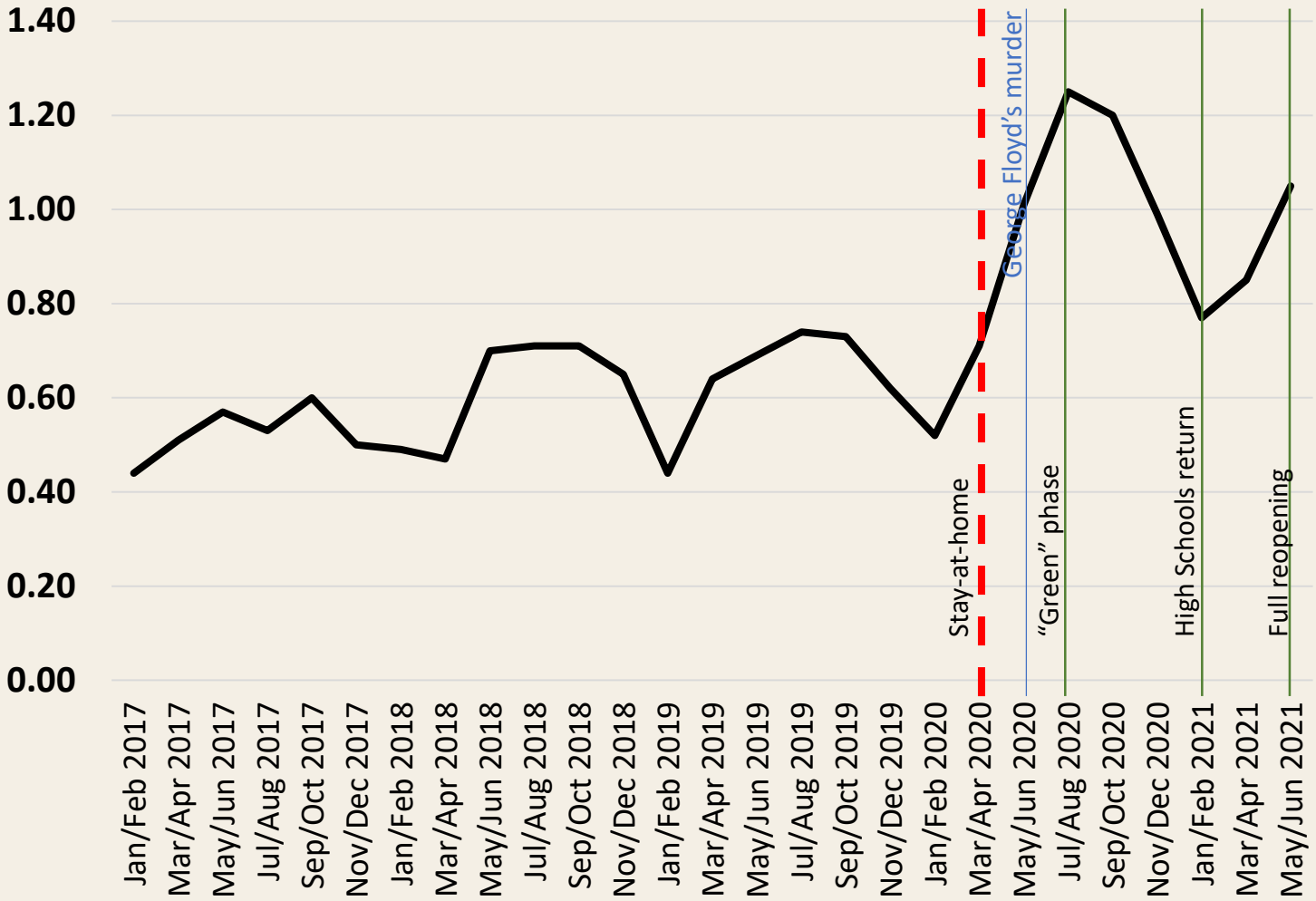
Findings

1. What was typical change in shootings for the average neighborhood before and after the onset of COVID?
   Pre-COVID: 2% bimonthly Peri-pandemic: 22%

   During pandemic, the rate of increase slowed significantly going into 2021
2. How did neighborhoods differ in shootings before the onset of COVID-19? Which neighborhood factors best predict variation?

3. If neighborhoods differ in their rate of change post-pandemic onset, which factors best predict this variability?

Findings: Temporal Change in Shootings Victims



Shooting rate per bimonthly period | N = **8,121** shootings during entire study period

Findings

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Findings RQ2: **Pre-COVID Onset**
Factors Predicting Variation in Shootings

Significant variables – associated w/higher shooting rates

- ✓ Distance (closer) to all high drug activity tracts
- ✓ Police stops
- ✓ Concentrated disadvantage
- ✓ Spatial lag of disadvantage
- ✓ Predominantly Black population
- ✓ *Spatial* lag of shootings

Not Significant:

- High drug activity tracts
- Incivilities (311 calls)
- Temporal lag of shootings

Findings

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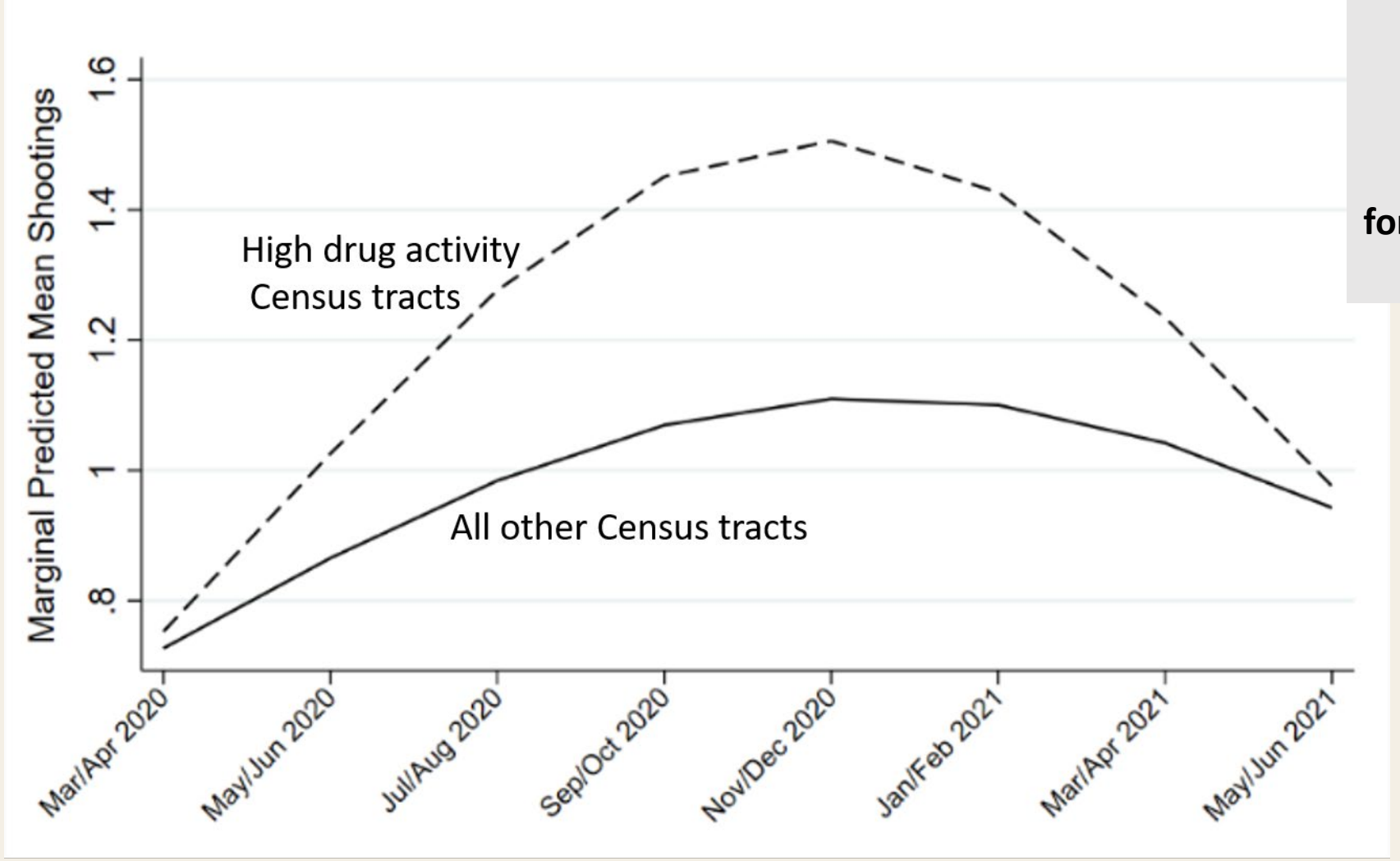
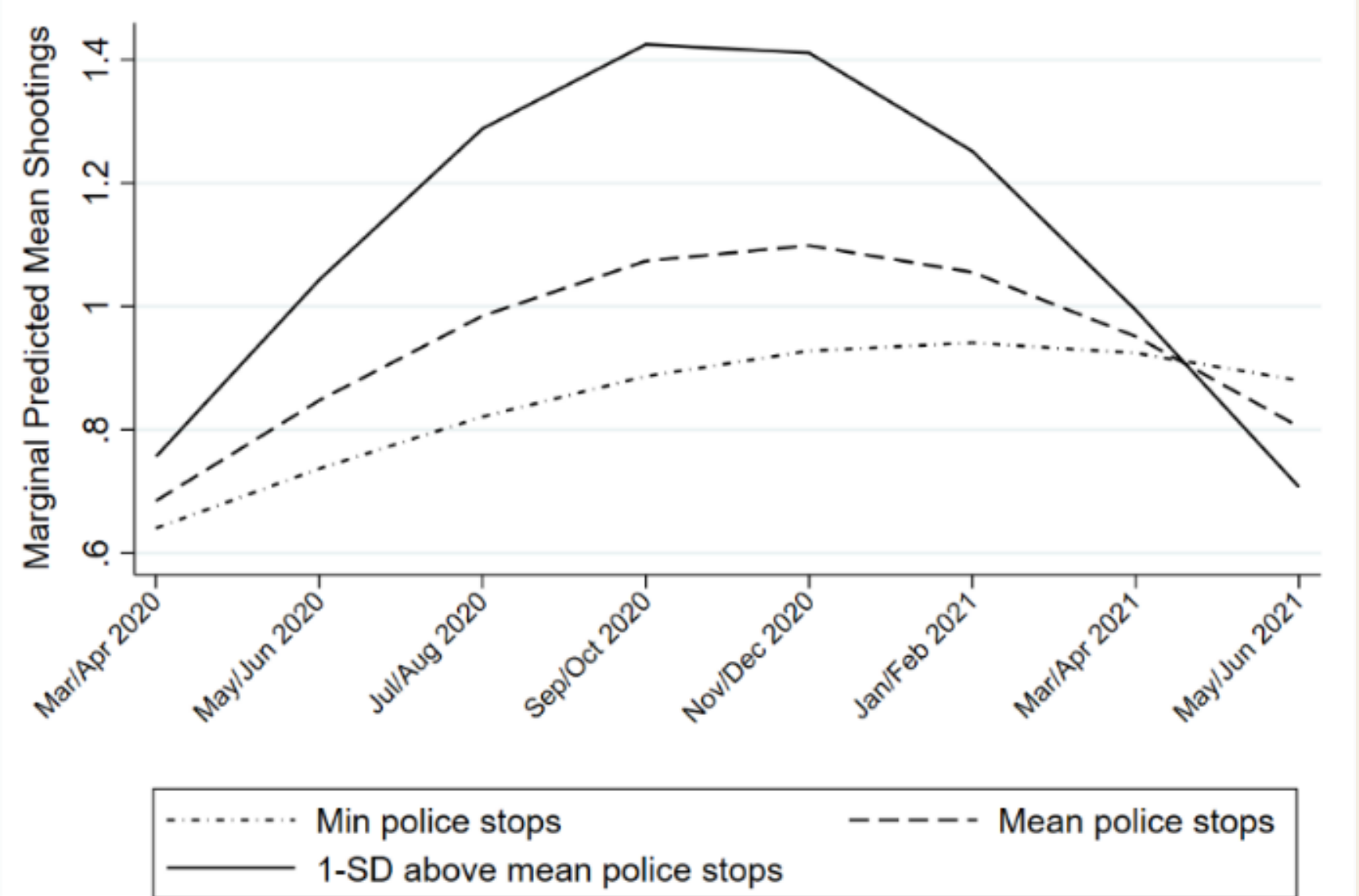
   Tested cross-level interactions of key variables with time slopes

Findings RQ3: Peri-Pandemic
Significant interaction: *high drug activity tract over time*

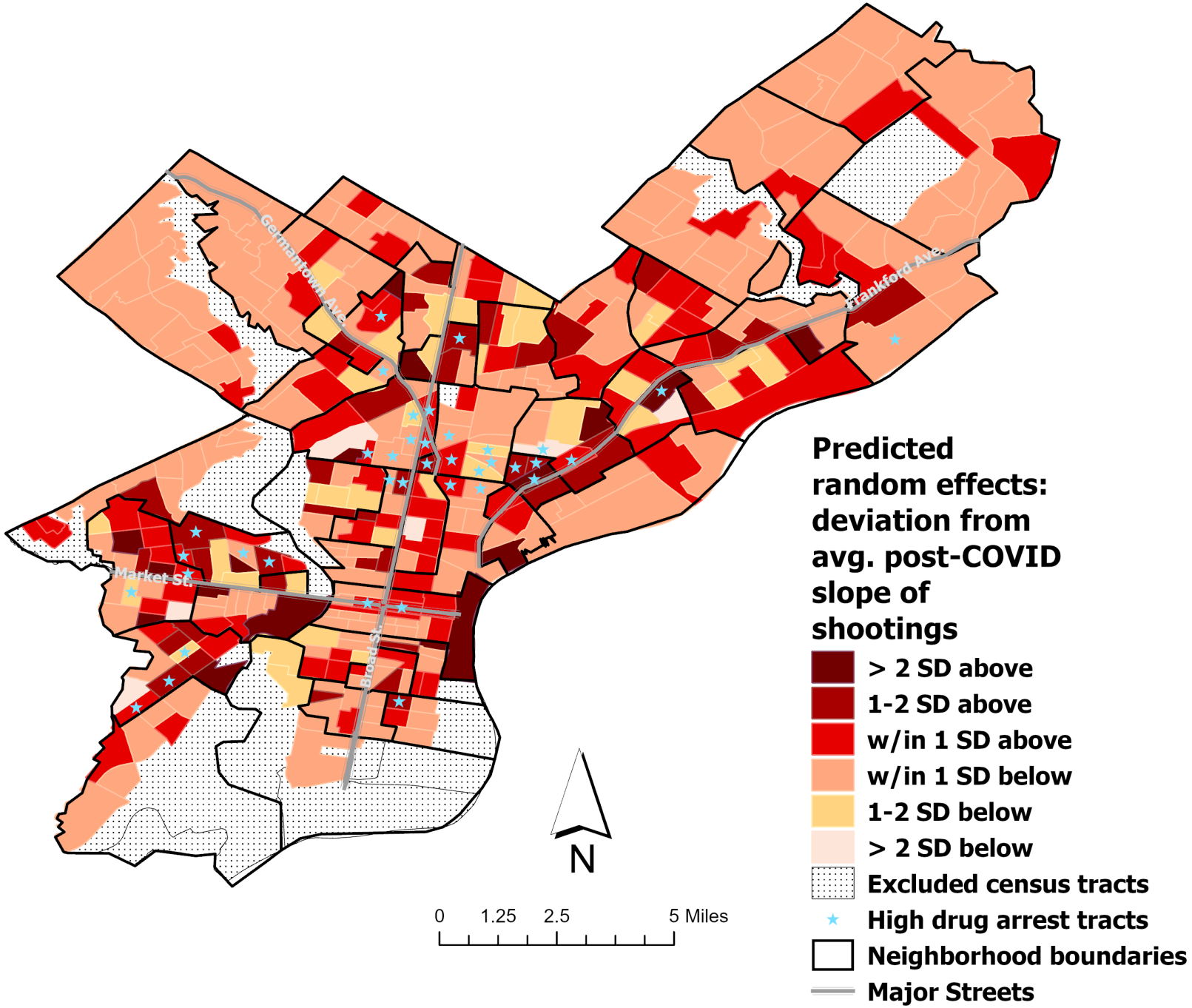


38 high DA tracts: 10% of tracts account for 68% of shootings in this period

Findings RQ3: Peri-Pandemic
Significant interaction: *police investigatory stops*



Peri-Pandemic Geography of Increasing Gun Violence



Summary/Implications and Limitations

Peri-Pandemic

- Something especially disorganizing about drug markets that make areas already at high-risk for gun violence even more vulnerable to the social and economic conditions brought on by 2020
- Communities with higher rates of police activity (investigatory stops) also had increasingly more gun violence over the pandemic, challenging the notion that a pull-back in policing (at least with regard to stops) corresponded to increases in shootings

Limitations:

- No measure related to fentanyl
- Police activity measure only captures “stops,” not arrest or incapacitation
- Few time varying measures; limited routine activity vars, no measure of inequality (versus disadvantage)

Is Philadelphia an anomaly because of agglomeration economy?

Avenues for Future Research

At neighborhood level, “wish” list of measures, such as (but not limited to):

- Contagion processes via measurable human behavior
  - Human mobility patterns; social contacts/networks; relational event models (J. Gravel et al. under review at *Network Science* 2022)
- Systematic data collection on who is killed, by whom, for what reasons - shooting motives, including topic of argument, gang involvement, DTO vs. corner drug sales, fentanyl
- Informal, unsanctioned party-forming alcohol outlets during pandemic
- Group/gang spaces and their networks, relationship to fentanyl vs. other drugs
- Institutional *capacity* – parochial control (Roman et al. 2009)
- Propensity/motivation, normative values of drug market participants (sellers and users)
- Cross-city/within city drug seizure data, street value
- Firearm access

Differential rates of decline in violence across neighborhoods?

Innovative qualitative research on markets-violence link

Extant Relevant Research on Drug Markets that Supports Idea that Change in Drug Markets Plays a Role

- Changes in the value of the drugs sold matter (P. Reuter)
- As drug dealers and buyers travel further, violence goes up
  (Phila study: L. Johnson 2016)
- As size of drug market increases, violence goes up
  (Phila study: J. Cho 2019)
- Multiple drug-selling groups on corner (vs. one) increases violence
  (Camden, NJ: Taniguchi, Ratcliffe, Taylor 2011)
- Increase in overdoses associated with increase in homicide over time (Rosenfeld et al. 2021); Indianapolis overdoses associated with future firearm injury (L. Magee et al. 2022)

THANK YOU!

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