

National and Local Trends in Serious Violence, Firearm Victimization, and Homicide*

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*Forthcoming in *Homicide Studies*



RESEARCH QUESTIONS

Increases in Homicide May Be the Result of Growth in:

- The number of violent incidents
- The proportion of violent incidents involving firearms
- The lethality of violent incidents involving firearms

We Assess these Potential Contributors at:

- The national-level using data from police, victim surveys, and other sources
- For the city of St. Louis using data from police

ALL EXISTING DATA ON FIREARM VIOLENCE IS INCOMPLETE IN SOME WAY

1. Uniform Crime Reports (UCR)

Data from police departments forwarded to FBI

- **Summary Reporting System (SRS)** (1929-present)
 - total counts for murder, rape, aggravated assault, and robbery
- **Supplementary Homicide Reports (SHR)** (1976-present)
 - homicide incident counts and details
- **National Incident Based Reporting System (NIBRS)** (1991-present)
 - total counts and incident details for 24 offense categories
 - covers 43% of agencies and roughly 30% of population

2. National Crime Victimization Survey (NCVS)

Census/BJS sample of persons ages 12 or older in U.S.

ESTABLISHED CONCERNS RE: NCVS

Cook (1985) found:

NCS 1973-1979 data appear to estimate about 1/3rd of gunshot victimizations.

Undercounting may result from:

- 1) Unwillingness of persons shot during criminal behavior, or shot by persons known to them to report such incidents to interviewers (item missingness or false reporting)
- 2) Unwillingness of persons engaged in criminal behavior to participate in survey interviews (unit missingness)

Comparison of 2003-2012 NEISS-AIP data (Cook et al., 2017) to NCVS data suggests similar level of gunshot victimization undercounting in more recent period.

NCVS DATA ON FIREARM USE AND SERIOUS VIOLENCE

1) UCR estimates of firearm use in nonlethal violence show generally similar levels and trends to NCVS estimates of victimizations involving firearms (that victims say were reported to the police)

EG:	UCR	NCVS
2014	271,000	278,000
2016	319,000	285,000

2) UCR and NCVS serious violence trends are similar beginning in late 1980s, and level estimates become comparable in late 1990s (once reporting to police is taken into account)

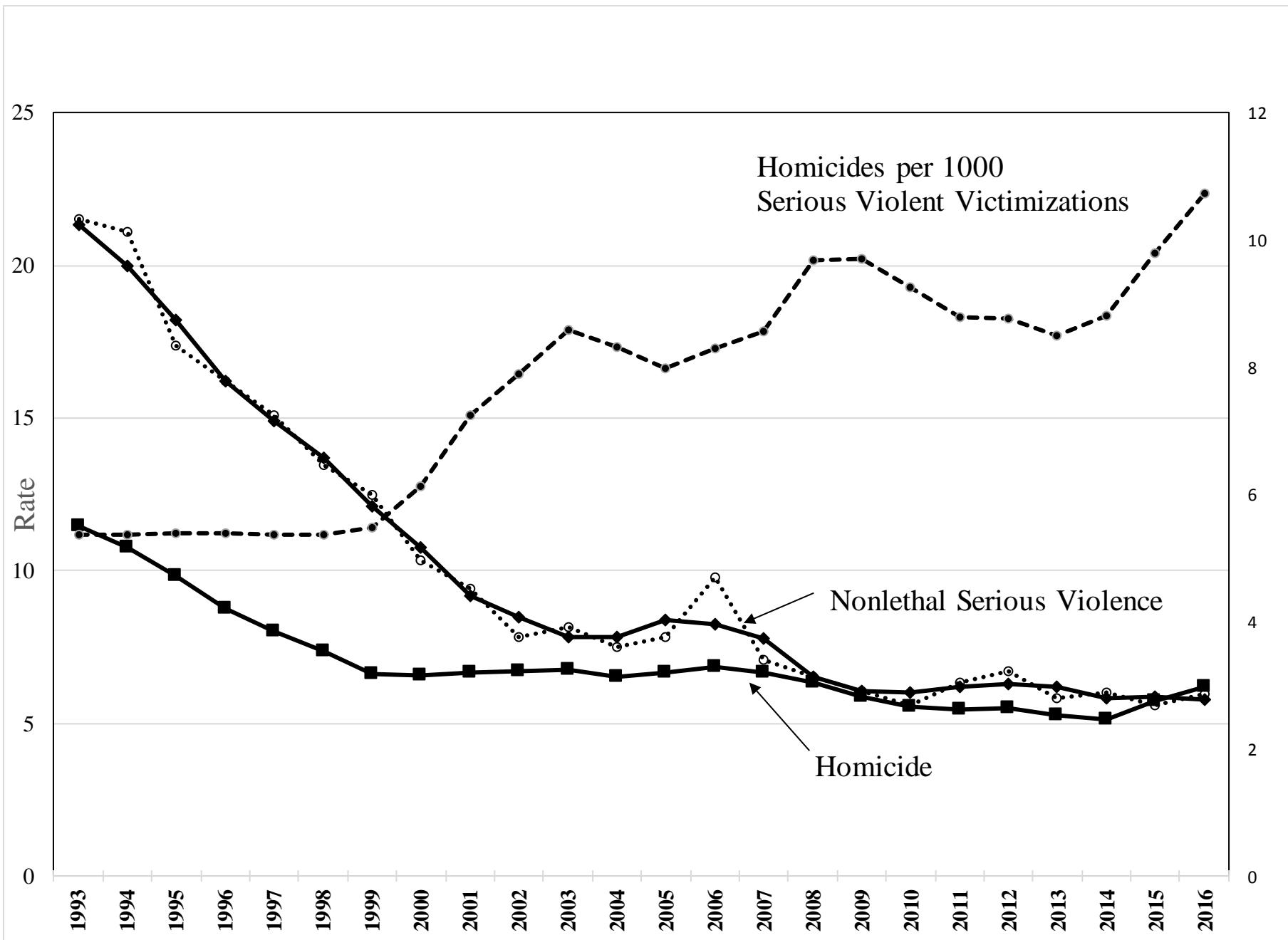
Although *gunshot* victimizations have been consistently underestimated in the NCVS, levels and trends in *gun use* and *serious violence* are reasonably reliable for assessing how changes in homicide may be associated with trends in serious violence and gun use.

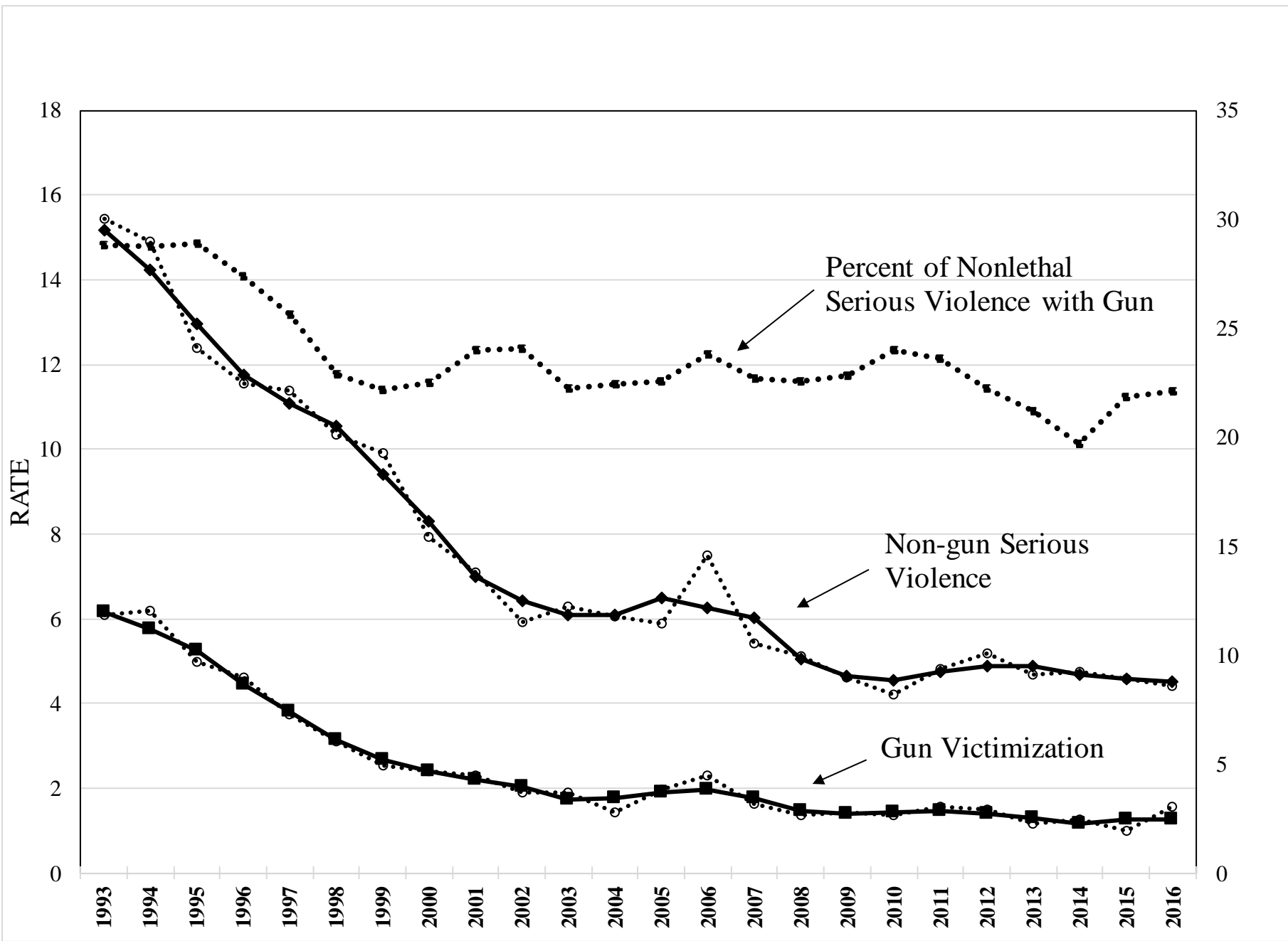
Data for National Trends (1993-2016)

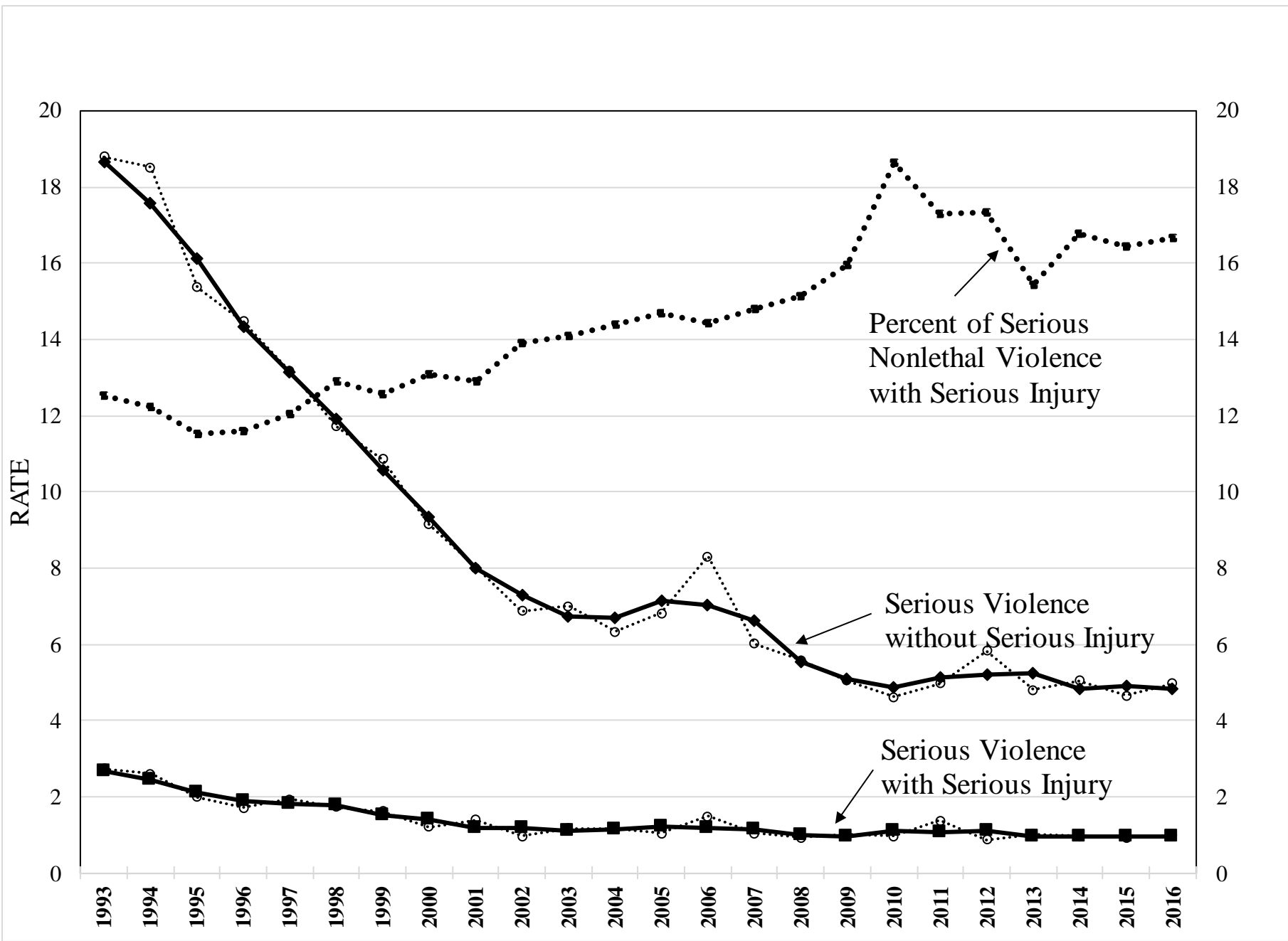
- 1) SHR data: homicides and homicides committed with a firearm
- 2) NCVS data: nonlethal serious violence = rape/sexual assaults, robberies, and aggravated assaults, victimizations committed with a firearm, and victimizations resulting in serious bodily injury

Lethality indicators:

Proportions and Ratios: e.g., $\text{Homicides} / (\text{homicides} + \text{nonlethal violence})$, homicide rate/nonlethal violence rates, etc.

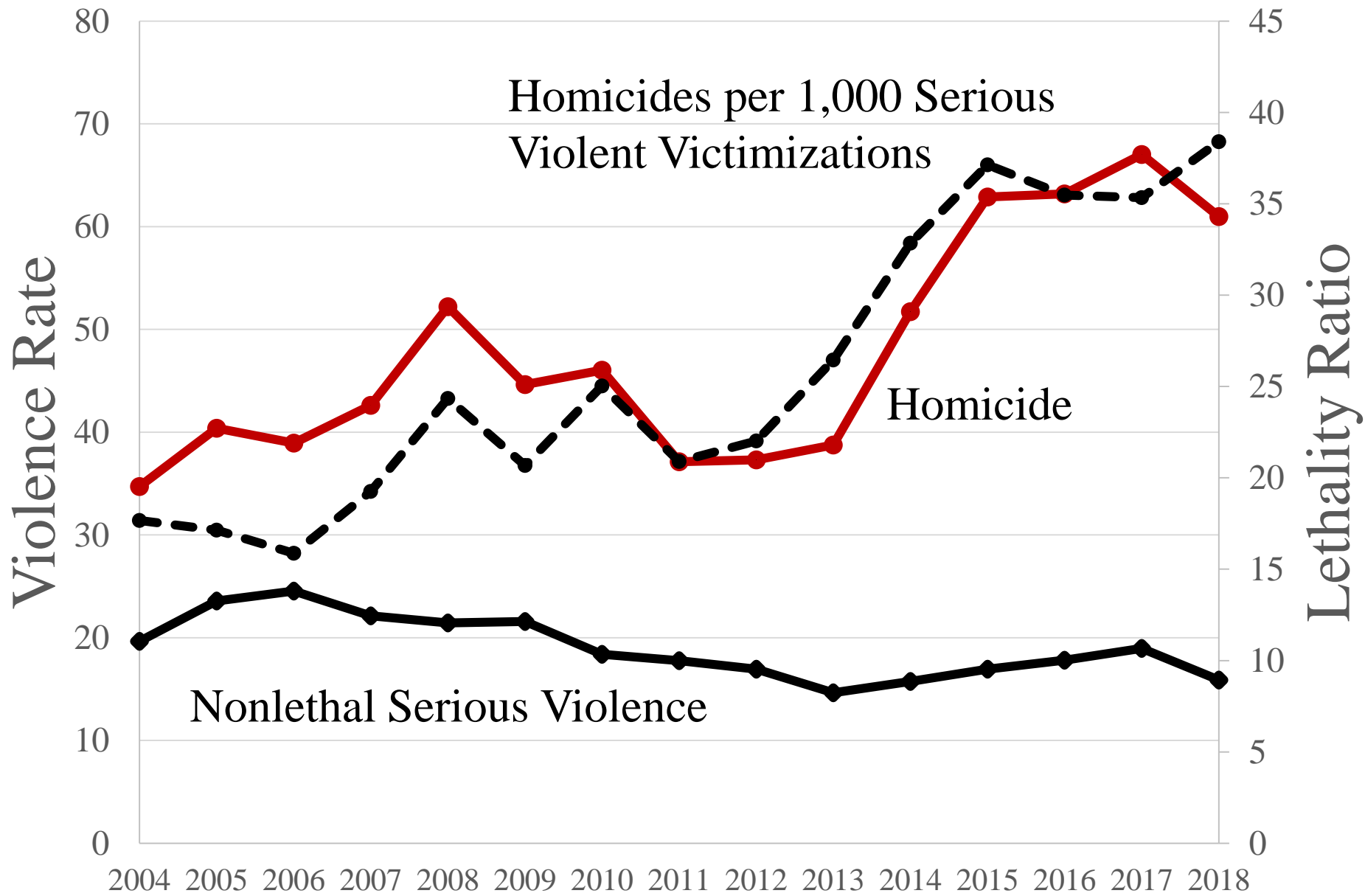


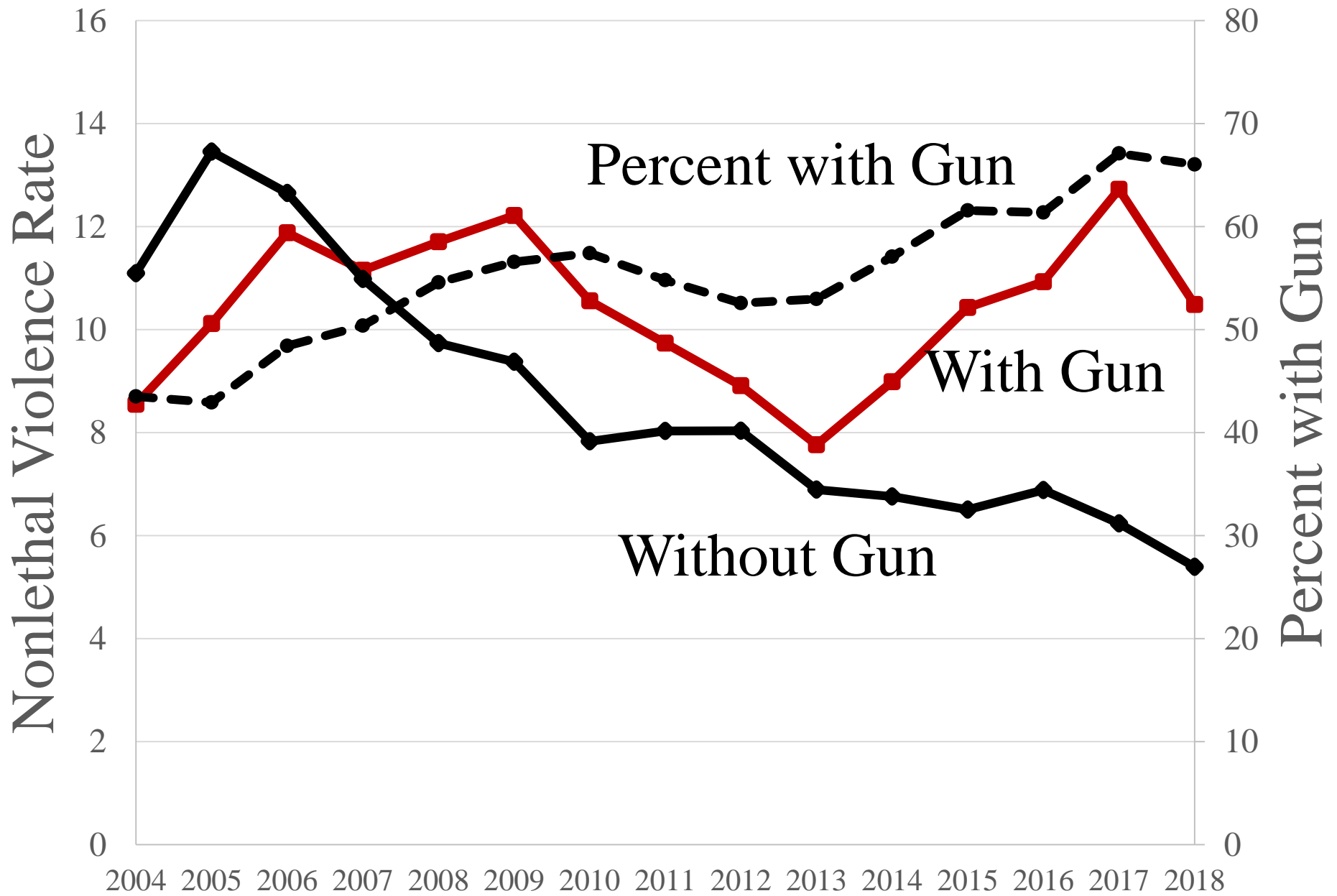




St. Louis Data (2004-2018)

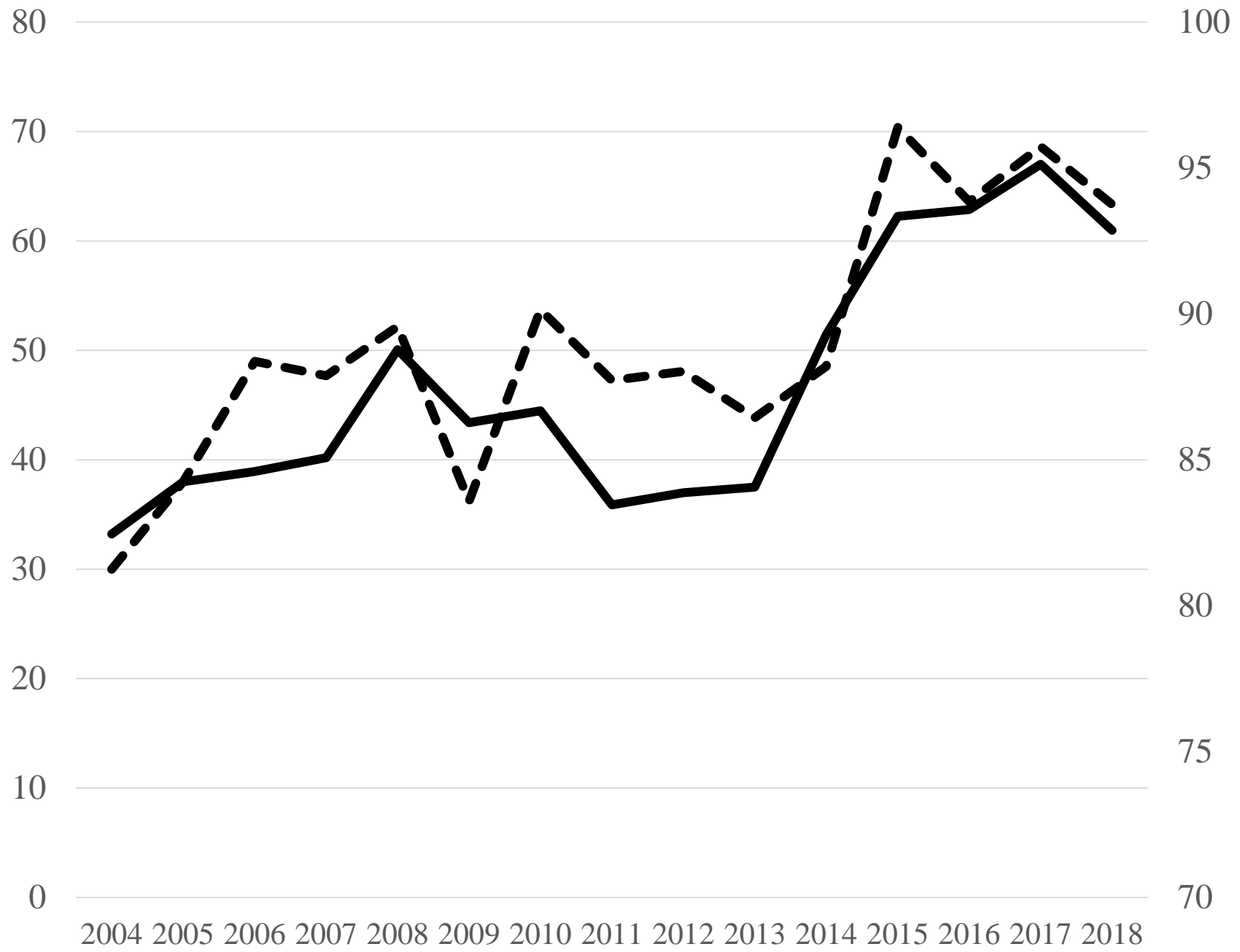
- Homicides & Nonlethal Serious Violence
 - Nonlethal=Robberies, aggravated assaults
 - Include date, location, & firearm use
- Reliable firearm use data not available until 2004 (>60% missing prior to 2004)
- Census data standardized to 2010 tracts
 - 2000 Decennial Census, ACS 2008-2012, ACS 2013-2017
 - Logan et al. (2014) interpolation



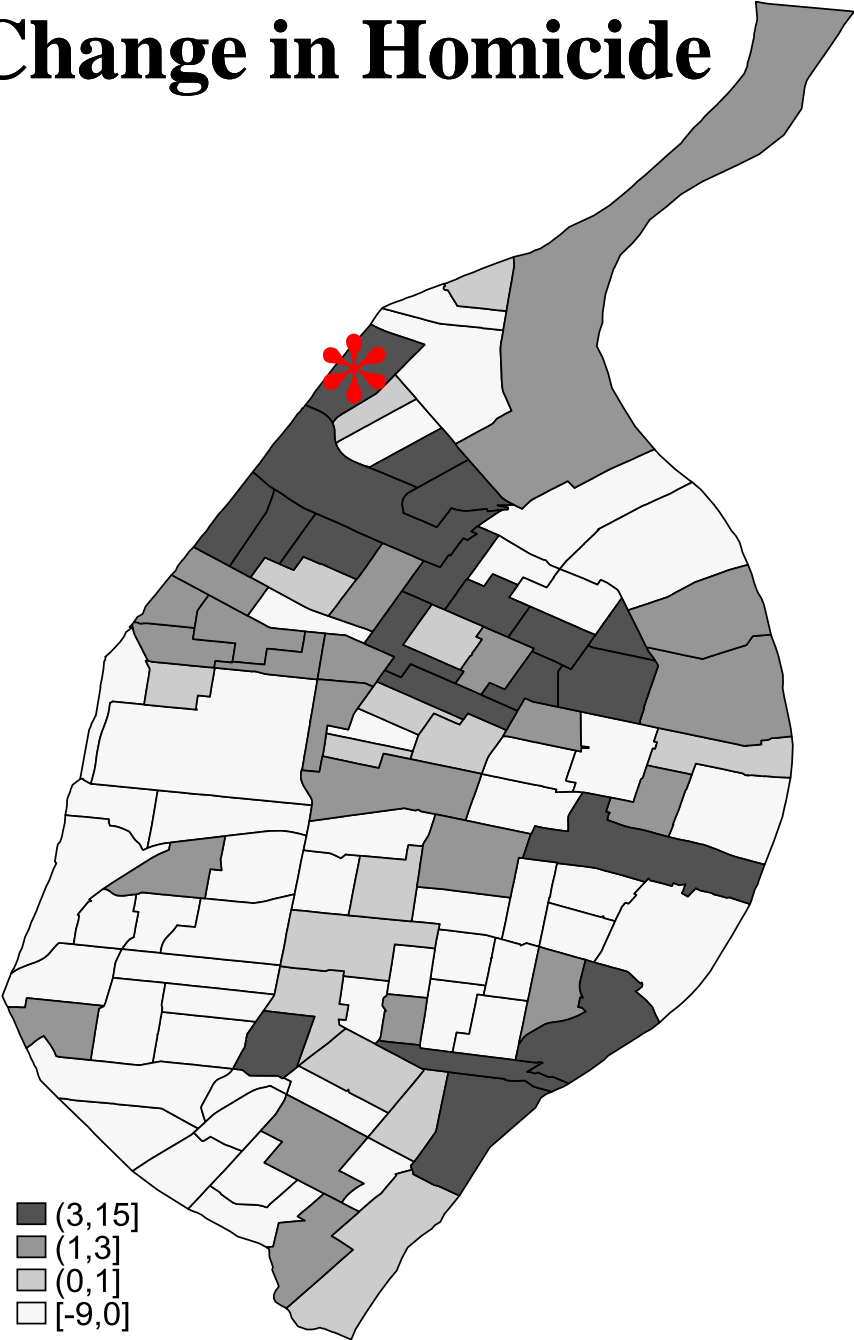


Rate per 100,000

Percent with Gun



Change in Homicide



Change in Nonlethal Violence



Change in Gun Violence

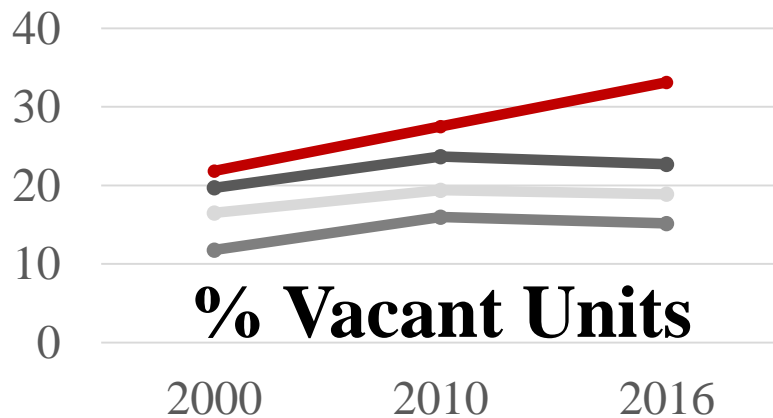
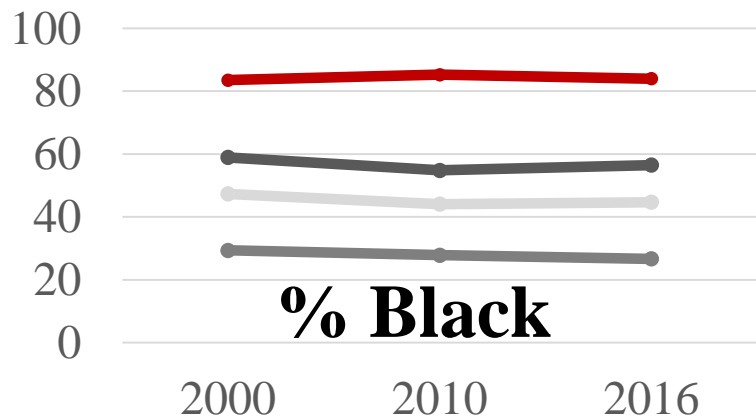
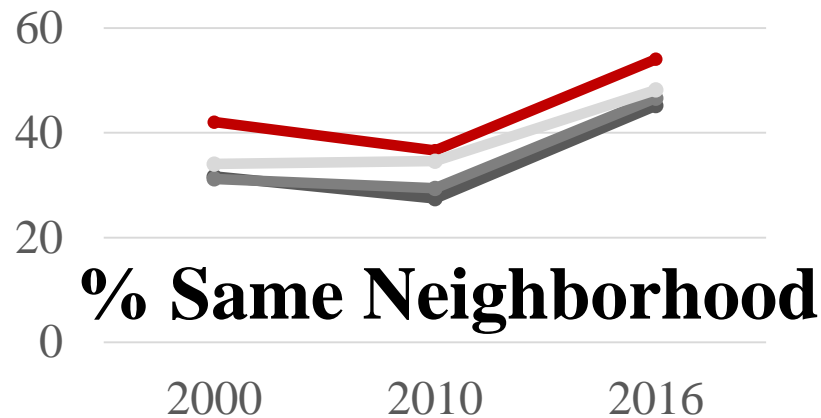
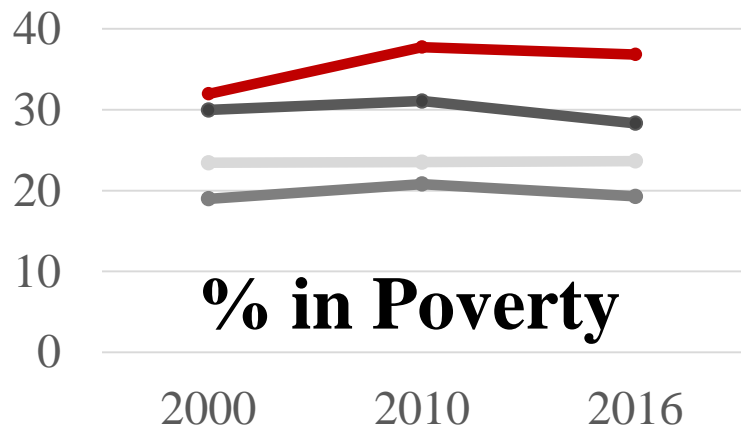


- (23,78]
- (8.5,23]
- (0,8.5]
- [-31,0]

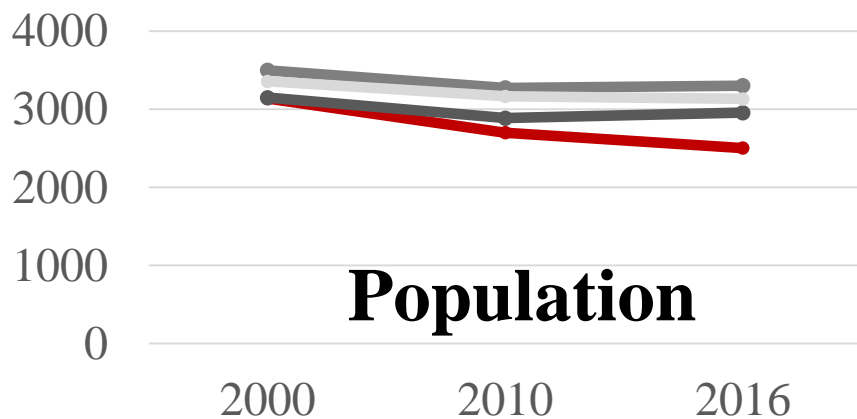
Change in Lethality



- (24.39,234.3]
- (5.189,24.39]
- (-.2801,5.189]
- [-90.91,-.2801]



- Top Homicide Quartile
- Second Quartile
- Third Quartile
- Bottom Quartile



SUMMARY OF MAIN FINDINGS

National-level:

- 2014-2016 homicide increase was not accompanied by comparable increases in nonlethal serious violence, nonlethal violence committed with a gun, or nonlethal violence with serious bodily injury.
- Increased lethal capabilities of guns over time may have contributed to the rise in lethality.

St. Louis:

- Higher levels of gun use and lethality, spatially concentrated in areas already high in violence. Changes in area structural factors and population composition not associated with changes in homicide rates.
- Increases in lethal and nonlethal gun victimization.
- Long-term increase in lethality and lethal capacity of firearms may be resulting in greater numbers of deaths when exogenous shocks (e.g., drug markets) occur.

Mean Change in:	All	Top	2nd	3rd	Bottom
Homicides	+1.4**	+5.4**	+1.8**	+0.1	- 1.8**
With Gun	+1.5**	+5.5**	+1.7**	+0.3	- 1.3*
Nonlethal Violence	+7.8**	+4.9	+11.2	+5.8	+9.5
All Gun Violence	+14.3**	+24.7*	+14.1*	+9.0	+9.3
Lethality Ratio	+13.5**	+43.2**	+32.0**	+1.0	- 21.9**
% Poverty	-1.2	+0.1	- 4.1	- 0.6	- 0.4
% 10 Years	+ 16.5**	+17.0**	+17.3**	+16.7**	+14.8**
% Black	+0.0	- 1.1	+0.9	- 0.4	- 0.3
% Vacant Units	+0.9	+5.9*	- 1.4	- 2.1	+0.9
Population	- 34.5	- 201.5	+76.3	+83.1	- 87.5
N	106	27	26	26	27

Gunfire Incidents Detected by ShotSpotter (N=1,356) in St. Louis Hot Spot, 2017

