

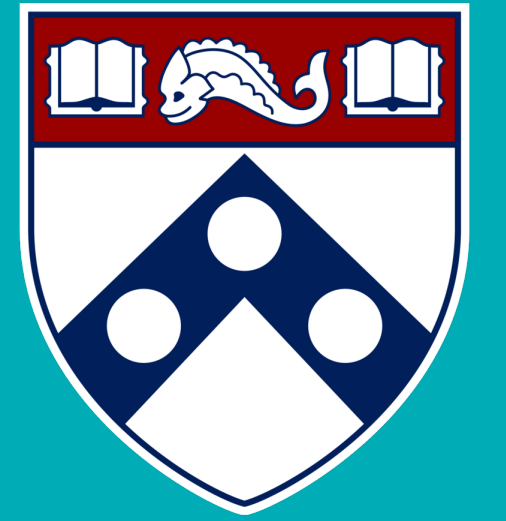
Beyond the Clean-Up: An analysis of the relationship between litter and gun violence in Philadelphia

Philadelphia

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Funded by: Penn Undergraduate Mentoring Program



Abstract

The Crime and Justice Policy Lab (CJP) at Penn is conducting a study investigating litter's effects on gun violence rates in Philadelphia. My research project will expand upon this idea investigating the relationship between litter and gun violence in Philadelphia from 2017-2019. Using a correlational analysis, linear regression, and Poisson regression, I determine how litter affects gun violence rates, also factoring in median income, median home value, poverty, unemployment, and lot vacancy throughout Philadelphia.

How does litter impact rates of gun violence in Philadelphia between 2017-2019?

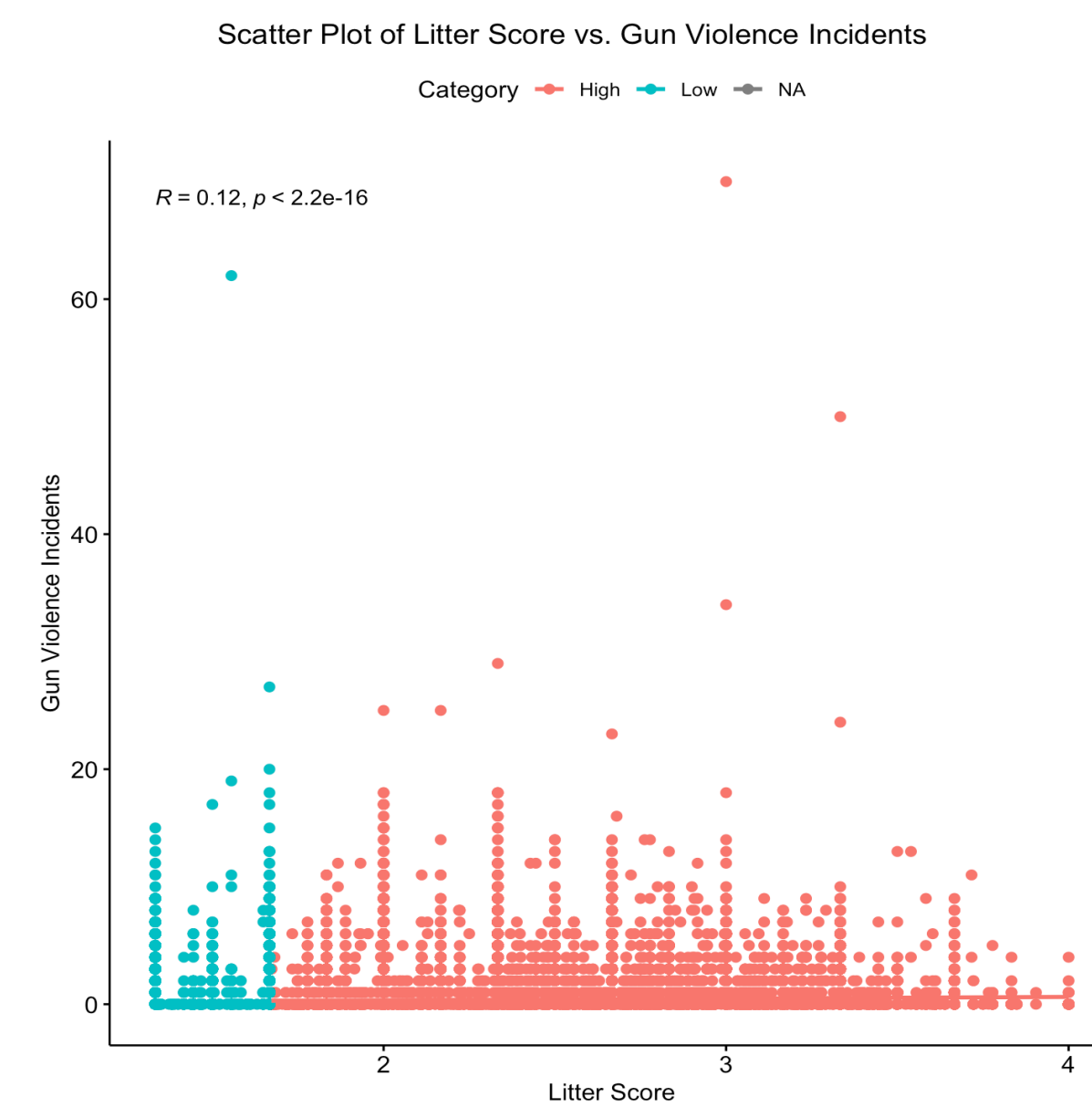


Figure 1

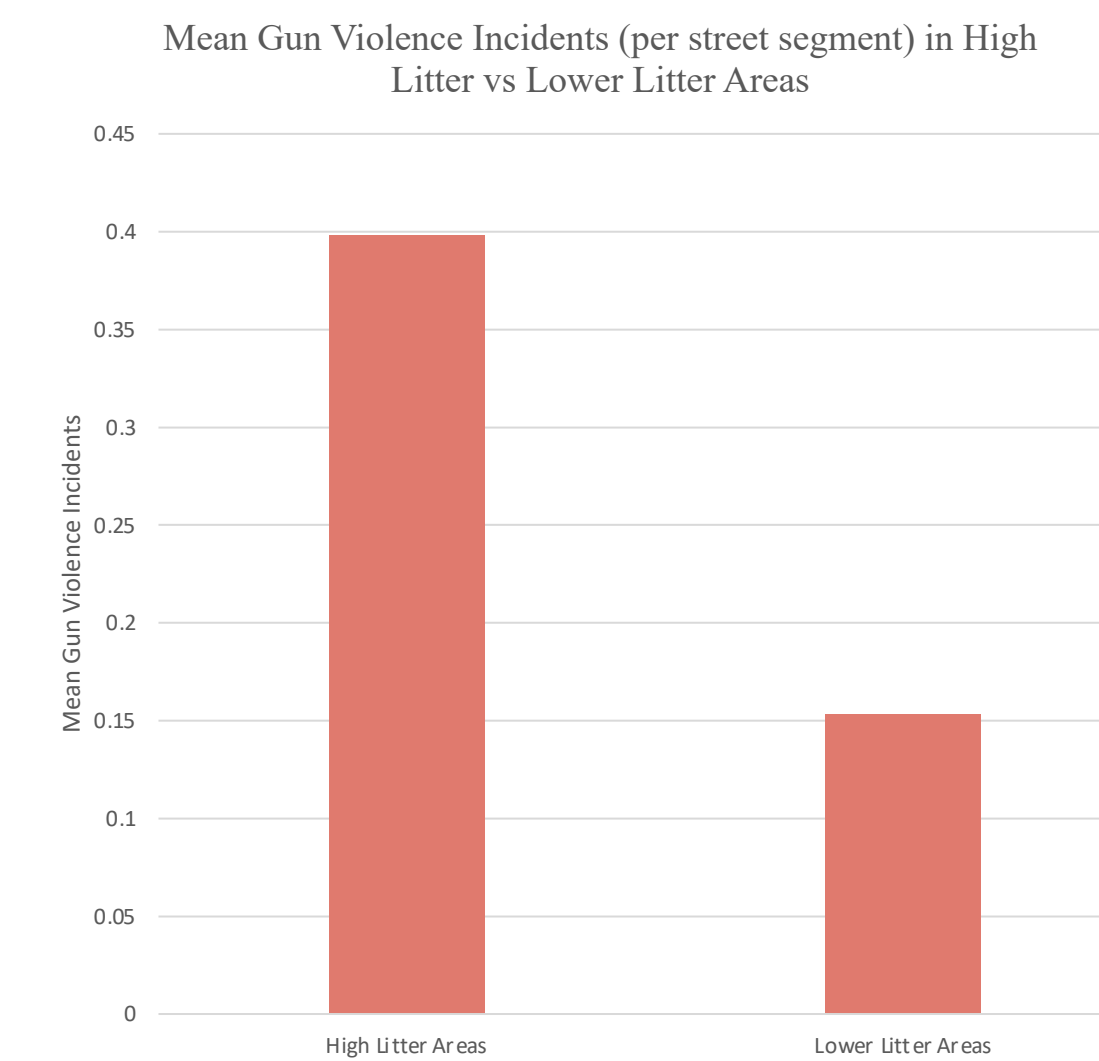


Figure 2

*Per street segment **Per Census Tract	Min	1st Quart	Median	Mean	3rd Quart	Max
Gun Violence Incidents*	0.000	0.000	0.000	0.258	0.000	70.0
Litter Score *	1.33	1.33	1.667	1.87	2.00	4.00
Per Capita Income**	7,527	19,752	26,210	33,003	39,319	153,912
Percent of People in Poverty**	0.00	11.83	20.57	22.85	31.74	71.79
Median Home Value **	44,500	104,000	173,400	214,412	270,800	984,800
Lot Vacancy Rate**	0.00	5.59	9.13	10.38	14.53	35.62
Unemployment Rate**	0.00	5.160	8.140	9.528	13.150	50.000

Table 1

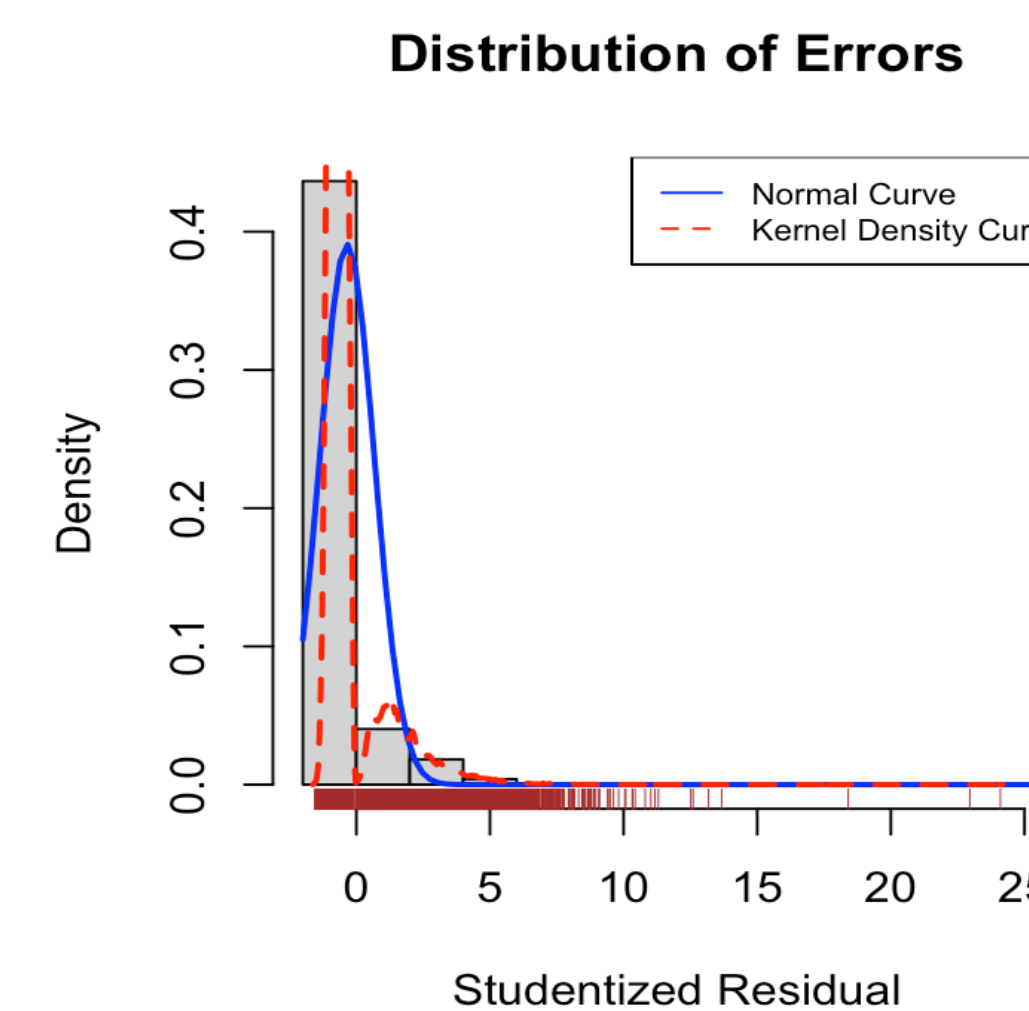
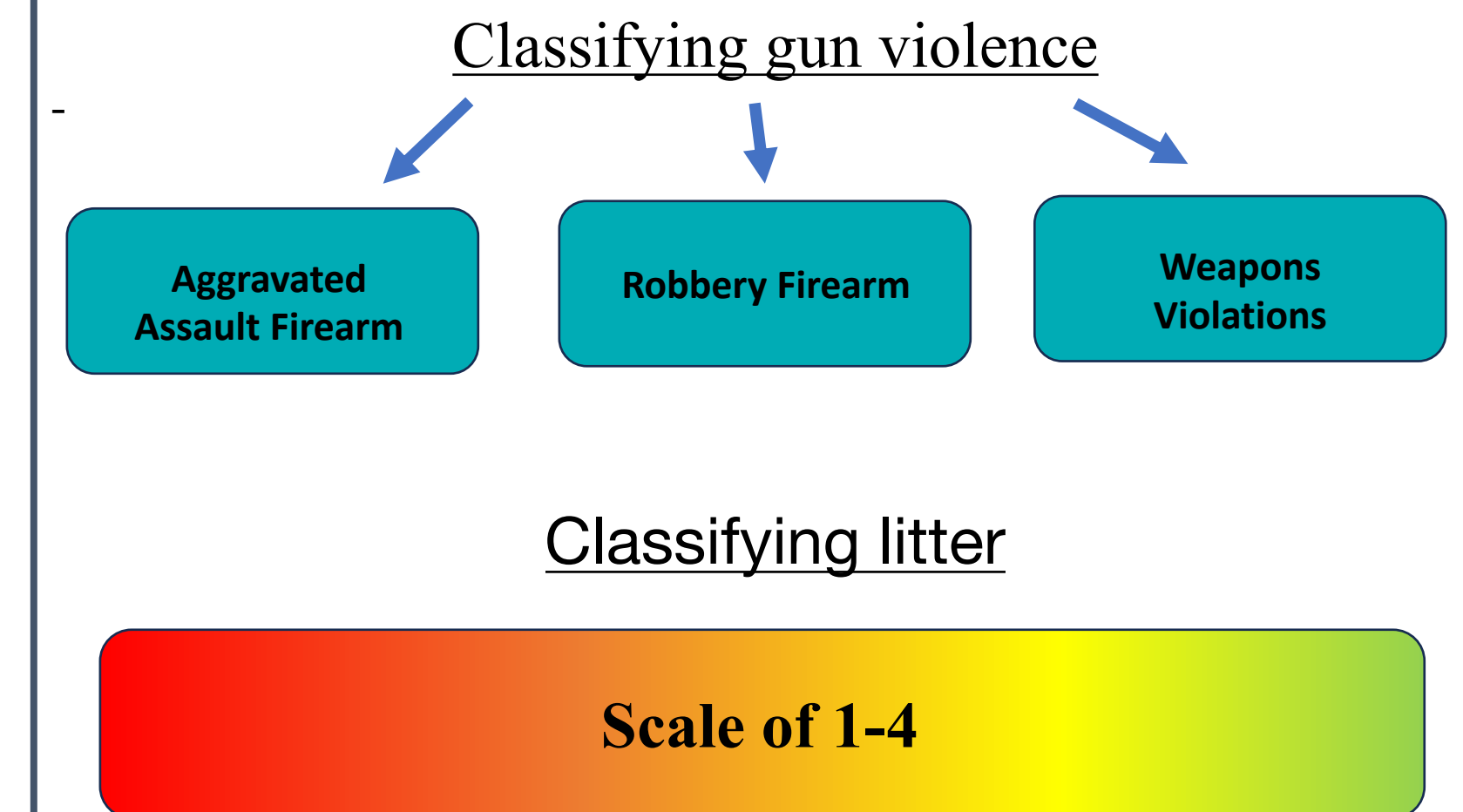


Figure 4

Methodology



Findings

Litter is a strong predictor of gun violence in Philadelphia from 2017-2019 (See Figure 1).

Areas with litter levels below the median threshold average 0.15 incidents of gun violence per street segment, whereas areas with litter above the median threshold average 0.398 incidents of gun violence per street segment (See Figure 2).

As the litter score increases by 1, gun violence-related crimes increase by 25%.

Litter is the strongest predictor of gun violence-related crimes compared to other predictors such as poverty, unemployment, income, lot vacancy, and home value.

The residuals of the data suggest that our findings are partially driven by outliers (See Figure 4).

Literature Review

- a. Broken Windows Theory (Wilson and Kelling, 1982)
 - a. Visual cues of social disorder beget more social disorder.
 - b. Cues of disorder in the built environment indicate a lack of social control or governance, thus enabling the spread of crime in the area.
- b. Collective Efficacy (Sampson, 2006)
 - a. The process of how a community activates social ties among residents in order to work towards common goals.
 - b. Activated social ties within a community help to reduce crime and minimize social disorder.
 - c. Areas with similar social values tend to have lower rates of delinquency.
- c. Cues to care (Nassauer, 1995)
 - a. Refers to landscape elements within an environment that signal human presence and care
 - b. Cues to care within an environment fall under three guidelines: the environment indicates human presence and intention to care, the environment is consistent with cultural norms and traditions, and the environment is recognizable.

References

Wilson, J. Q., & Kelling, G. L. (1982). Broken Windows. *The Atlantic Monthly*, 249, 29-38.
 Cullen, F. T., & Wilcox, P. (2010). *Encyclopedia of criminological theory*. SAGE.
 Jiayang Li, Joan Iverson Nassauer,
 Cues to care: A systematic analytical review, *Landscape and Urban Planning*, Volume 201, 2020, 103821, ISSN 0169-2046, <https://doi.org/10.1016/j.landurbplan.2020.103821>.