
Investigating the Impact of Alcohol Outlet Density on Crime Rates

Submitted 01/09/23, 1st revision 16/10/23, 2nd revision 14/11/23, accepted 30/11/23

Natalia Sypion¹

Abstract:

Purpose: The purpose of this study is to explore and understand the relationship between the alcohol outlets in different neighborhoods and the corresponding crime rates in those areas regarding the following aspects: the density of alcohol outlets; differences in the types of crimes associated with on-premise versus off-premise alcohol outlets; socio-economic and neighborhood characteristics; spatial patterns of crime distribution change in relation to the proximity of alcohol outlets.

Design/Methodology/Approach: This paper employs a multi-disciplinary approach, combining extensive literature review. The study outlines the systematic and multifaceted methods employed to investigate the relationship between occurrence of alcohol outlets in a neighborhood and crime rates. The approach integrates various research methodologies and theoretical frameworks to provide a comprehensive analysis. The study incorporates several theoretical perspectives, including Routine Activity Theory, Environmental Criminology, Social Disorganization Theory, and Broken Windows Theory.

Findings: The study finds a significant positive correlation between the density of alcohol outlets and the rate of crimes in those areas. This correlation is more pronounced in areas with a higher density of off-premise alcohol outlets, such as liquor stores, compared to on-premise outlets like bars and restaurants. There is a notable difference in the impact of on-premise and off-premise alcohol outlets on crime rates. Off-premise outlets are more strongly correlated with certain types of crimes, particularly those involving violence and property damage. The relationship between alcohol outlet density and crime rates is found to be moderated by socio-economic and neighborhood factors. Areas with higher levels of socio-economic deprivation show a stronger correlation between alcohol outlet density and crime rates, suggesting that socio-economic factors play a significant role in this relationship. The spatial analysis reveals distinct patterns in the distribution of crime relative to the location of alcohol outlets. Crime rates are higher in areas immediately surrounding alcohol outlets, with a gradual decrease in crime incidences as the distance from these outlets increases. The findings support the principles of the theoretical frameworks used in the study. For instance, Routine Activity Theory and Environmental Criminology are validated through the observed correlations, indicating that alcohol outlets might serve as facilitators or attractors for criminal activities.

Practical Implications: The results of the study have significant implications for urban planning and policy-making. They suggest that regulating the density and location of alcohol outlets could be an effective strategy for reducing crime rates, particularly in socio-economically disadvantaged neighborhoods.

¹Institute of Spatial Management and Socio-Economic Geography, University of Szczecin, Poland, ORCID 0000-0002-6143-5660, e-mail: natalia.sypion@usz.edu.pl;

Originality/Value: *The study's originality lies in its comprehensive integration of varied theoretical frameworks. This multidisciplinary approach not only enriches the understanding of how the occurrence of alcohol outlet impacts crime rates but also bridges gaps between different theoretical perspectives in urban studies and criminology.*

Keywords: *Alcohol outlet, crime rates, spatial analysis, urban planning, environmental criminology.*

JEL codes: *I14, I31, J17, K10, O21.*

Paper type: *Review article.*

Research funding: *The project is financed within the framework of the program of the Minister of Science and Higher Education under the name "Regional Excellence Initiative" in the years 2019 – 2022; project number 001/RID/2018/19; the amount of financing PLN 10,684,000.00.*

1. Introduction

The relationship between the presence of alcohol outlets and the distribution of crime is a multifaceted issue that has been the subject of extensive criminological research. Understanding this relationship requires delving into various theoretical frameworks that explain how and why certain environments, such as those with a high density of alcohol outlets, may be more prone to criminal activities.

Among the most prominent theories in this domain are the Routine Activity Theory, Environmental Criminology, Social Disorganization Theory, and the Broken Windows Theory. Each of these theories provides a unique lens through which the correlation between alcohol outlets and crime can be examined, offering insights into the dynamic interplay between environmental factors, social structures, and individual behaviors.

Routine Activity Theory, developed by Cohen and Felson (1979), suggests that crime is likely to occur when a motivated offender, a suitable target, and the absence of a capable guardian converge in time and space. Alcohol outlets may increase the number of potential offenders due to alcohol-induced impairments and also increase suitable targets, such as intoxicated individuals, in environments where guardianship is lacking (Roncek and Maier, 1991).

Environmental Criminology emphasize the role of the physical environment in crime, this theory suggests that the spatial distribution of alcohol outlets can influence criminal behavior. The presence of such outlets can create hotspots for crime by attracting large numbers of people, including potential offenders, thereby increasing opportunities for criminal activities (Brantingham and Brantingham, 1981; Groff, Weisburd, and Yang, 2010).

Social Disorganization Theory posits that high levels of social disorganization in a community, often marked by poverty, residential mobility, and ethnic heterogeneity, can lead to increased crime. The proliferation of alcohol outlets in such neighborhoods can exacerbate these conditions, further destabilizing the community and facilitating crime (Sampson and Groves, 1989; Livingston, 2011).

Broken Windows Theory by Wilson and Kelling (1982) argued that visible signs of disorder, such as a high density of alcohol outlets, can encourage more serious crimes. The theory contends that such signs signal to potential criminals that an area is poorly monitored and that criminal activities are more likely to go unnoticed and unpunished (Wilson and Kelling, 1982; Keizer, Lindenberg, and Steg, 2008).

In synthesizing these theories, this paper aims to provide a comprehensive understanding of how alcohol outlets may influence crime distribution, considering both the individual and environmental factors at play. This holistic approach is crucial for developing effective strategies to mitigate the adverse impacts of alcohol outlets on community safety and wellbeing. In this research the following research questions are formulated:

- a) How does the density of alcohol outlets in a neighborhood influence the nature and frequency of crimes committed in that area?
- b) Are there differences in the types of crimes associated with on-premise versus off-premise alcohol outlets?
- c) What socio-economic factors may moderate the relationship between alcohol outlet density and crime rates?
- d) How do the spatial patterns of crime distribution change in relation to the proximity of alcohol outlets?

2. Impact of Alcohol Outlet Density on Neighborhood Crime Rates

The positive correlation between alcohol outlet density and crime rates are observed, a study by Livingston (2008) found a positive correlation between alcohol outlet density and assaults. This research suggests that higher alcohol availability increases the incidence of violent crimes, particularly assaults. Other study by Trangenstein *et al.* (2018) found a significant association between increased access to alcohol outlets and higher exposure to violent crime, specifically, a 10% increase in access to any alcohol outlet was linked to a 4.2% increase in violent crime exposure.

The study concludes that higher spatial access to alcohol outlets in Baltimore City is significantly associated with increased exposure to violent crime, even after accounting for neighborhood factors. On the other hand a study by Gruenewald *et al.* (2006) explored how the relationship between alcohol outlet density and violence

claims that it is moderated by neighborhood characteristics. This study highlights that the impact of alcohol outlet density on crime may vary based on other social and environmental factors within a neighborhood.

Impact of alcohol outlet is different on specific types of crimes. A study Grubestic and Pridemore, (2011) indicated that the density of alcohol-selling establishments is significantly related to specific types of crimes, such as burglaries, robberies, and aggravated assaults. This suggests that alcohol outlet density doesn't uniformly affect all crime types but has a more pronounced effect on certain categories.

Toomey *et al.* (2012) examines the relationship over time, providing insights into how changes in alcohol outlet density might influence crime trends. This study emphasizes the importance of considering temporal factors in understanding the dynamics of this relationship.

Lipton *et al.* (2013) conducted a comprehensive study in Boston, Massachusetts, examining the relationship between alcohol outlets, drug markets, and violence. They found that block groups with high rates of violent crime, which were typically poorer with lower incomes and higher percentages of vacant homes, had greater numbers of alcohol outlets and higher drug arrest rates.

This study highlights the spatial correlation between alcohol outlets and drug-related activities, suggesting that areas with a higher density of alcohol outlets may be more susceptible to drug crimes.

Gorman *et al.* (2005) explored the relationship between alcohol outlet densities, 'hot spots' of illicit drug use, and violence in Houston, Texas. Their ecological study, which included 439 census tracts, showed that adding alcohol outlet density to the model of neighborhood socio-structural covariates explained an additional 6% of the variability in violent crime, while the addition of drug crime density explained an additional 32%.

This indicates that while alcohol outlet density is a significant factor, drug crime density has a more substantial impact on violent crime rates. The study underscores the intertwined nature of alcohol outlets and drug crimes, suggesting that these outlets may contribute to creating environments conducive to drug-related activities.

3. Crimes Associated with On-Premise Versus Off-Premise Alcohol Outlets

A study conducted by researchers at the Johns Hopkins Bloomberg School of Public Health's Center on Alcohol Marketing and Youth (CAMY), conducted in Baltimore, found a significant association between off-premise alcohol outlets (like liquor stores and beer and wine stores) and violent crimes, including homicides, aggravated assaults, sexual assaults, and robbery.

The study noted that these off-premise outlets had a stronger link to violent crimes compared to on-premise outlets such as bars and restaurants. The research emphasized that every 10 percent increase in access to liquor stores and similar outlets was associated with a 37 percent greater increase in violent crime than on-premise outlets.

The study also highlighted that greater access to off-premise outlets correlated with higher levels of homicide, aggravated assault, and robbery, whereas on-premise outlets were more associated with sexual assaults. The researchers accounted for neighborhood factors like drug arrests, income, and poverty in their analysis, examining 1,204 alcohol outlets and their relation to violent crimes from 2012 to 2016. This comprehensive approach underlined the need for policies regulating alcohol outlets, especially those selling alcohol for off-site consumption, to reduce violent crime rates in Baltimore (Trangenstein *et al.*, 2018).

A study focusing on place management in off-premise alcohol outlets in a six-city area in California provided insights into the challenges faced by these establishments. It was observed that small and independently operated off-premise outlets, which were the most common in the study, demonstrated fewer resources and more challenges to place management compared to larger and chain establishments.

The study highlighted that issues like theft, loitering, physical and verbal threats from customers, and intoxicated persons, as well as insufficient law enforcement support, were common challenges. These challenges could contribute to the association between off-premise outlets and neighborhood-level problems (Ghanem *et al.*, 2020).

Other study by Gorman *et al.* (2001) found distinct patterns of violent crime associated with on-premise and off-premise alcohol outlets. This research highlights that on-premise outlets (like bars and restaurants) are more likely to be associated with violent crimes, whereas off-premise outlets (like liquor stores) correlate more with property crimes.

Another study by Lipton and Gruenewald (2002) demonstrated that the type of alcohol outlet significantly influences the types of crimes in surrounding areas. The study suggested that on-premise alcohol outlets are often linked to assaults and alcohol-related crimes, while off-premise outlets have a stronger association with theft and vandalism.

Freisthler, Needell, and Gruenewald (2005) explored how the neighborhood context influences the relationship between alcohol outlet type and crime. Their findings underscore the importance of considering neighborhood characteristics when examining the effects of different types of alcohol outlets on crime rates.

A study by Toomey *et al.* (2012) contributed to the understanding of the temporal and spatial relationship between alcohol outlet types and crime, showing variations in crime patterns at different times and locations relative to these outlets.

4. Socio-Economic Factors in Alcohol Outlets and Crime Correlation

Freisthler *et al.* (2006) explored how neighborhood characteristics, including socioeconomic status, moderate the impact of alcohol outlet density on crime. They found that there was a negative correlation between the median household income of a zip code and all three child maltreatment outcome measures (referrals, substantiations, and foster care entries).

This suggests that higher income areas generally experienced lower rates of child maltreatment. Zip codes with a higher percentage of Black residents had more referrals, substantiations, and foster care entries. However, this effect decreased for referrals and substantiations when adjacent zip codes also had higher percentages of Black residents.

A similar pattern was observed with higher percentages of Hispanic residents. The prevalence of certain types of alcohol outlets (e.g., bars and off-premise alcohol outlets) in neighborhoods may signal weak social controls, potentially leading to higher rates of child maltreatment. These establishments might also be associated with other criminal behaviors, such as illegal drug activity.

The study by Khan *et al.* (2015), finds a positive relationship between unemployment rates and crime rates in Pakistan. High unemployment is posited to reduce the returns from legal activities, thus incentivizing illegal activities. There is a significant negative relationship between crime rates and higher education. The study suggests that higher education leads to better earning opportunities, increasing the opportunity cost of engaging in criminal activities.

The relationship between GDP per capita and crime rates is complex. In the short run, higher GDP per capita is associated with lower crime rates, but in the long run, the relationship is positive. The study suggests that higher income areas offer more opportunities for certain types of crimes like theft and robberies. There is a positive relationship between crime rates and poverty in the long run, while the relationship is negative in the short run.

The study posits that poverty can lead to stress and mental illness, which may result in criminal behavior. The authors conclude that policy formulation in Pakistan to address crime should consider both social and economic factors. They recommend creating job opportunities, alleviating poverty, promoting education, and improving the efficiency of law enforcement agencies to reduce crime rates.

The study by Snowden and Freiburger (2015) indicated that the racial and ethnic composition of a neighborhood plays a significant role in moderating the relationship between alcohol outlet density and crime rates. This research suggests that neighborhoods with a higher concentration of minority populations may experience different crime patterns in relation to alcohol outlet density.

The influence of urban versus rural settings on this relationship is also significant, as discussed in a study by Mair, Gruenewald, Ponicki, and Remer (2013). They found that the effect of alcohol outlet density on crime rates varies between urban and rural areas, with urban areas often showing a stronger association.

5. Spatial Patterns of Crime Distribution in the Proximity of Alcohol Outlets

The study conducted by Sypion-Dutkowska and Leitner (2017) focuses on the relationship between various land use types and the spatial distribution of crime in urban settings, using Szczecin, Poland as a case study. The research analyzes 31,319 crime events from 2006 to 2010 to understand how different land uses influence crime distribution at the intra-urban scale.

The research primarily utilizes the "multiple ring buffer" and the "crime location quotient (LQC)." The LQC formula provides a way to analyze the influence of specific land use types on the spatial distribution of different types of crimes within various distance zones, ranging from 0 to 500 meters. This method allows for a detailed comparison between the crime density near a specific land use type and the overall crime density within a broader area.

One of the key findings is that the influence of land use types on crime rates is most significant in their immediate vicinity, particularly within 50 meters. Certain land use types, such as alcohol outlets, are identified as strong attractors of crime within this proximity.

Research by Roman *et al.* (2008), indicated that in the neighborhoods with higher density of on-premise alcohol outlets (like bars) is a significant predictor of aggravated assault, whereas high densities in the neighborhoods of off-premise outlets (like liquor stores) do not significantly influence assault. The study also found that physical environment variables like commercial or retail parcels, physical disorder, and the presence of metro stations significantly affect assault rates.

Research conducted by Britt *et al.* (2005), has demonstrated a significant positive correlation between alcohol outlet density and incidents of violent crime in urban neighborhoods. This correlation persists even when controlling for other neighborhood-level variables like racial and age heterogeneity. The presence of multiple alcohol outlets in close proximity often leads to increased alcohol consumption, which in turn can exacerbate aggression and reduce inhibitions,

thereby increasing the likelihood of violent incidents. Additionally, these areas may attract individuals predisposed to criminal behavior, further elevating crime rates. This relationship underscores the importance of considering the spatial placement and density of alcohol outlets in urban planning and public health policies, to mitigate their potential impact on neighborhood safety and well-being.

6. Summary

The in-depth analysis of the literature allowed for the formulation of answers to the research questions:

The density of alcohol outlets in a neighborhood significantly influences the nature and frequency of crimes in that area. The presence of numerous alcohol outlets serves as a facilitator for criminal activities, aligning with Routine Activity Theory which suggests the convergence of a motivated offender, a suitable target, and lack of guardianship in such settings (Cohen and Felson, 1979).

Empirical studies have established a positive correlation between alcohol outlet density and crime rates, particularly violent crimes like assaults (Livingston, 2008; Trangenstein *et al.*, 2018). The Environmental Criminology framework further supports this notion by highlighting the role of the physical environment, including alcohol outlets, in shaping criminal behavior (Brantingham and Brantingham, 1981).

There are distinct differences in the types of crimes associated with on-premise (bars, restaurants) versus off-premise (liquor stores, convenience stores) alcohol outlets. Off-premise outlets are more strongly correlated with violent crimes, including homicides and aggravated assaults (Trangenstein *et al.*, 2018). In contrast, on-premise outlets are more frequently associated with sexual assaults. These variations underline the different social dynamics and interactions facilitated by these two types of alcohol outlets.

Socio-economic factors play a critical role in moderating the relationship between alcohol outlet density and crime rates. Neighborhoods with lower socioeconomic status are more susceptible to the adverse effects of high alcohol outlet density. Studies such as those by Freisthler *et al.* (2006) indicate that socio-economic deprivation in a neighborhood can exacerbate the link between alcohol outlets and crime, implying that alcohol outlet density does not impact all neighborhoods uniformly.

The spatial distribution of crime changes in relation to the proximity of alcohol outlets. Research employing spatial analysis techniques, like that of Sypion-Dutkowska and Leitner (2017), reveals that the impact of alcohol outlets on crime rates is most pronounced in their immediate vicinity. This spatial correlation suggests a localized effect of alcohol outlets on crime, where areas in close proximity to these outlets experience a higher incidence of criminal activities.

This localized effect points to the importance of considering spatial factors in urban planning and public safety strategies to mitigate the impact of alcohol outlets on neighborhood crime rates.

Understanding the spatial relationship between alcohol outlets and crime has significant policy implications. Policymakers can utilize these findings to inform decisions regarding the licensing and location of alcohol outlets. For example, limiting the density of alcohol outlets in certain areas or implementing stricter enforcement around these locations could potentially reduce crime rates.

The increase in the number of alcohol outlets has proven to be a significant factor in the escalation of crime rates, requiring comprehensive and extended ecological research to delve deeper into this phenomenon. Particularly at the local level, more detailed research is needed to understand the complex dynamics between the presence of these outlets and the corresponding increase in various types of criminal activity. These studies offer the prospect of a significant reduction in the crime rate and, consequently, a significant improvement in the quality of life.

References:

- Brantingham, P.J., Brantingham, P.L. (Eds). 1981. *Environmental criminology*. Beverly Hills, CA: Sage Publications.
- Britt, H.R., Carlin, B.P., Toomey, T.L., Wagenaar, A.C. 2005. Neighborhood level spatial analysis of the relationship between alcohol outlet density and criminal violence. *Environmental and Ecological Statistics*, 12(4), 411-426.
- Cohen, L.E., Felson, M. 1979. Social change and crime rate trends: A routine activity approach. *American Sociological Review*, 44(4), 588-608.
- Freisthler, B., Merritt, D.H., LaScala, E.A. 2006. Understanding the ecology of child maltreatment: A review of the literature and directions for future research. *Child Maltreatment*, 11(3), 263-280. doi: 10.1177/1077559506289524.
- Freisthler, B., Needell, B., Gruenewald, P.J. 2005. Is the physical availability of alcohol and illicit drugs related to neighborhood rates of child maltreatment? *Child Abuse & Neglect*, 29(9), 1049-1060.
- Ghanem, L., Lee, J.P., Sumetsky, N., Pagano, A., Gruenewald, P., Mair, C. 2020. Place management in off-premise alcohol outlets: Results of a multi-methods study in a six-city California area. *International Journal of Drug Policy*, 80, 102735. <https://doi.org/10.1016/j.drugpo.2020.102735>.
- Gorman, D.M., Speer, P.W., Gruenewald, P.J., Labouvie, E.W. 2001. Spatial dynamics of alcohol availability, neighborhood structure and violent crime. *Journal of Studies on Alcohol*, 62(5), 628-636.
- Gorman, D.M., Zhu, L., Horel, S. 2005. Drug 'hot-spots', alcohol availability and violence. *Drug and Alcohol Review*, 24(6), 507-513.
- Groff, E., Weisburd, D., Yang, S.M. 2010. Is it important to examine crime trends at a local "micro" level? A longitudinal analysis of street to street variability in crime trajectories. *Journal of Quantitative Criminology*, 26(1), 7-32.
- Grubestic, T.H., Pridemore, W.A. 2011. Alcohol outlets and clusters of violence. *International Journal of Health Geography*, 10(30). doi: 10.1186/1476-072X-10-30.

- Gruenewald, P.J., Freisthler, B., Remer, L., LaScala, E.A., Treno, A. 2006. Ecological models of alcohol outlets and violent assaults: Crime potentials and geospatial analysis. *Addiction* (Abingdon, England), 101(5), 666-677. doi: 10.1111/j.1360-0443.2006.01405.x.
- Keizer, K., Lindenberg, S., Steg, L. 2008. The spreading of disorder. *Science*, 322(5908), 1681-1685.
- Khan, N., Ahmed, J., Nawaz, M., Zaman, K. 2015. The Socio-Economic Determinants of Crime in Pakistan: New Evidence on an Old Debate. *Arab Economics and Business Journal*, 10(2), 73-81.
- Lipton, R., Gruenewald, P. 2002. The spatial dynamics of violence and alcohol outlets. *Journal of Studies on Alcohol*, 63(2), 187-195.
- Lipton, R., Yang, X., Braga, A.A., Goldstick, J., Newton, M., Rura, M. 2013. The geography of violence, alcohol outlets, and drug arrests in Boston. *American Journal of Public Health*, 103(4) 657-664. doi: 10.2105/AJPH.2012.300927.
- Livingston, M. 2008. Alcohol outlet density and assault: A spatial analysis. *Addiction*, 103(4), 619-628. doi: 10.1111/j.1360-0443.2008.02136.x.
- Livingston, M. 2011. A longitudinal analysis of alcohol outlet density and domestic violence. *Addiction*, 106(5), 919-925. doi: 10.1111/j.1360-0443.2010.03333.x.
- Mair, C., Gruenewald, P.J., Ponicki, W.R., Remer, L. 2013. Varying impacts of alcohol outlet densities on violent assaults: explaining differences across neighborhoods. *Journal of studies on alcohol and drugs*, 74(1), 50-58. <https://doi.org/10.15288/jsad.2013.74.50>.
- Roman, C.G., Reid, S.E., Bhati, A.S., Tereshchenko, B. 2008. Alcohol Outlets as Attractors of Violence and Disorder. A Closer Look at the Neighborhood Environment. National Institute of Justice Supported by Grant #2006-IJ-CX-0012. <https://www.ojp.gov/pdffiles1/nij/grants/227646.pdf>.
- Roncek, D.W., Maier, P.A. 1991. Bars, blocks, and crimes revisited: Linking the theory of routine activities to the empiricism of "hot spots". *Criminology*, 29(4), 725-753.
- Sampson, R.J., Groves, W.B. 1989. Community structure and crime: Testing social-disorganization theory. *American Journal of Sociology*, 94(4), 774-802.
- Snowden, A.J., Freiburger, T.L. 2015. Alcohol outlets, social disorganization, and robberies: accounting for neighborhood characteristics and alcohol outlet types. *Social science research*, 51, 145-162. <https://doi.org/10.1016/j.ssresearch.2015.01.011>.
- Sypion-Dutkowska, N., Leitner, M. 2017. Land Use Influencing the Spatial Distribution of Urban Crime: A Case Study of Szczecin, Poland. *ISPRS International Journal of Geo-Information*, 6(3), 74. MDPI AG. Retrieved from: <http://dx.doi.org/10.3390/ijgi6030074>.
- Toomey, T.L., Erickson, D.J., Carlin, B.P., Lenk, K.M., Quick, H.S., Jones, A.M., Harwood, E.M. 2012. The Association Between Density of Alcohol Establishments and Violent Crime Within Urban Neighborhoods. *Alcoholism: Clinical and Experimental Research*, 36(8), 1468-1473. doi: 10.1111/j.1530-0277.2012.01753.x.
- Trangenstein, P.J., Curriero, F.C., Webster, D., Jennings, J.M., Latkin, C., Eck, R., Jernigan, D.H. 2018. Outlet Type, Access to Alcohol, and Violent Crime. *Alcohol Clin Exp. Res.*, 42(11), 2234-2245. <https://doi.org/10.1111/acer.13880>.
- Wilson, J.Q., Kelling, G.L. 1982. Broken windows. *The Atlantic Monthly*, 249(3), 29-38.