
Policy Brief

Health in All Policies: Evaluating the Use of Alcohol Outlet Zoning Policy to Improve Health, Safety, and Economic Conditions in Urban Neighborhoods

2017 Applied Research Seed Grant Award

Background

On December 5, 2016, the Baltimore City Council approved a comprehensive new city-wide zoning code ordinance, known as *TransForm Baltimore*. The new zoning code included three provisions addressing the location, distribution, and density of alcohol outlets. Baltimore City has 1,300 alcohol outlets, more than double the 630 outlets allowed by Maryland state law based on its population.¹ Baltimore City also has one of the highest rates of violent crime among American cities.² Living in neighborhoods with higher alcohol outlet density and living in closer proximity to alcohol outlets have been associated with increased risk of exposure to neighborhood violence and alcohol related harms. The zoning provisions impacting alcohol outlets are as follows:

1. Alcohol outlets in residential zones were required to relocate or change the nature of their business by June 5, 2019
2. Taverns that function as both on- and off-premise outlets need to demonstrate substantial floor space and sales devoted to onsite consumption
3. New liquor stores are not allowed to open within 300 feet of existing liquor stores

The goal of these provisions is to reduce overconcentration of alcohol outlets in the interest of promoting economic development, quality of life and public health. They were informed by a health impact assessment (HIA) conducted by researchers at Johns Hopkins Schools of Medicine and Public Health in partnership between the Baltimore City Planning Department and Johns Hopkins researchers. The HIA recommended addressing the alcohol outlets density and location through zoning could decrease violent crime, improve health equity, and help disadvantaged neighborhoods become a better place to live. It found that in comparable neighborhoods in Baltimore, every additional alcohol outlet was associated with a 2.2% increase in the number of violent crimes.

Because *TransForm Baltimore* requires that non-conforming liquor stores in residential neighborhoods close, relocate, or stop selling alcohol and convert to an approved use by June 5, 2019; its passage resulted in mandated closure of 76 liquor stores or 3.3% of liquor stores in Baltimore City. This approach to addressing liquor store closures is innovative as it is distinct from the traditional approach to regulating liquor stores, which relies on liquor licensing laws to remove problem stores. Public health impacts of *TransForm Baltimore* have focused on its potential to produce reductions in neighborhood violence.

Our team's work funded by the 2017 21CC Applied Research Seed Grant sought to assess potential impacts of the zoning code changes on both neighborhood violence and economic conditions as part of a framework for ongoing evaluation of policy implementation and long-term impacts on health equity.

Our Work

We studied the potential impact of the new zoning code provisions through three methods:

1. Engaging community stakeholders and attending public hearings to better understand the local community's reaction to the new zoning law and examine challenges to implementation, potential for unintended consequences, and companion strategies to optimize its public health and economic impacts.
2. Engaging public policy and metropolitan housing and economic development experts to compile a list of candidate metrics that should be tracked over time to better understand the impact of the new zoning policy.
3. Conducting a quantitative assessment of the neighborhoods with affected liquor stores and their surrounding areas to predict the impact of the closures on crime using a random trend fixed effects panel model and using propensity score matching to identify comparable neighborhoods that can be tracked over time to assess the impact of the new policy.

Alcohol Outlets, Crime, and Health Outcomes

Living in a neighborhood with a high density of liquor stores is associated with negative health impacts and higher rates of violent crime.^{1, 3-5} This association holds independent of other factors including the prevalence of weapons and illicit drugs.^{6, 7} In Baltimore, low-income, predominantly African American neighborhoods disproportionately suffer the negative consequences of the overconcentration of liquor stores as compared to wealthier, predominantly white neighborhoods. Another study in Baltimore found that every 10% increase in access to any kind of alcohol store is associated with a 4.2% increase in violent crime. The effect of alcohol stores that function as both taverns and liquor stores was found to be greater than that of taverns alone.⁸ The overconcentration of liquor outlets affects low income neighborhoods disproportionately. Holding all control variables at their mean, a 1% increase in liquor availability results in a 0.908% increase in total crime for low income neighborhoods and a 0.295% increase in total crime for high income neighborhoods.⁹

Our quantitative analysis (in press) found that the affected stores were largely concentrated in poor, black neighborhoods with high vacancy rates.¹⁰ We also looked at liquor store closures in comparable neighborhoods and found that for every liquor store closing, violent crimes decline by 1.4%, or 0.19 crimes per year on the block group of the closing, on average. For every liquor store opening, violent crimes increase by 1.1% per year, or 0.15 crimes, on average for the block group of the opening. Additionally, spatial random trend fixed effects results showed that these reductions were not accompanied by increases in crime on contiguous block groups, indicating that displacement did not occur.

These results suggest that the liquor store provisions of the Baltimore zoning code could reduce crime and improve population health, at least in the short run.

Store Closures

The 76 alcohol outlets ordered to close or relocate by the new zoning ordinance were concentrated in neighborhoods with higher rates of violent crime, higher poverty and unemployment, and higher rates of rent burden and vacancy. Residents in these neighborhoods are on average more likely to be African American, more likely to be under the age of 18, and more likely to have lower levels of education as compared to residents of non-affected neighborhoods. Affected alcohol outlets also tend to be located in West and East Baltimore, which is also where poverty is concentrated and where vacancy rates are the highest.

Figure 1: Liquor stores and neighborhood poverty rate

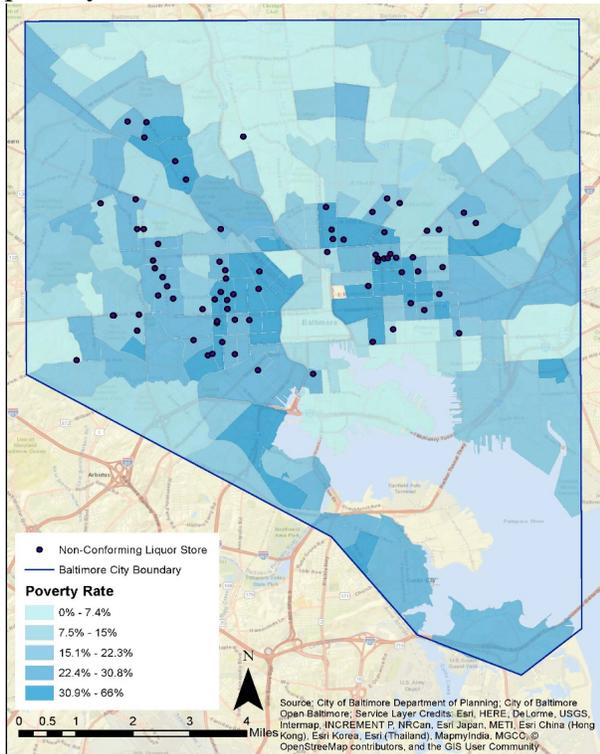
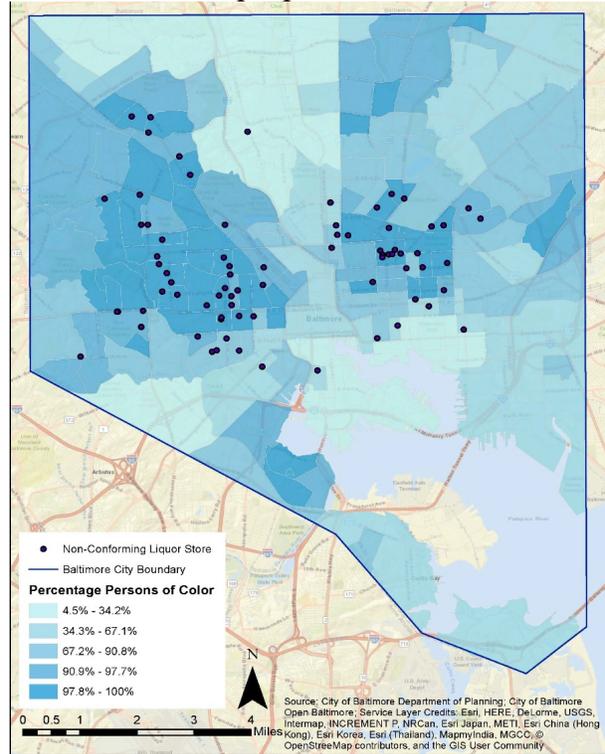


Figure 2: Liquor stores and proportion of residents that are people of color



Community Reactions

Perspectives regarding the pros and cons of this policy approach vary widely for stakeholders from different sectors and communities. Loss of neighborhood businesses, and lack of companion policies aimed at improving neighborhood investment and business development are cited by community members as potential downsides of the new zoning policy. Community residents from some of the neighborhoods affected by the policy also described feeling that their communities were being singled out for further disinvestment. There is fear that without companion policies to spur economic development in these vulnerable neighborhoods, the closures of these stores would result in additional vacancies and blight. Some community members felt that the new zoning code provisions specifically targeted low-income, black communities for disinvestment.

There were also concerns that the provision targeted certain stores that were seen as important sources of convenience items for communities. These vulnerable neighborhoods do not have grocery stores and the alcohol outlets are a source of over-the-counter medications and other convenience goods. Residents in certain neighborhoods also suggested that some of the 76 stores being targeted were business that were respected in the community and had never been involved in any incidents of crime or illicit activity. The policy also only targets non-conforming liquor stores in residential neighborhoods and as a result allows many conforming locations that are considered problematic to continue operating.

Looking Ahead

The provisions in the new Baltimore City Zoning Code are an innovative policy mechanism to address the over-concentration of alcohol outlets. The reactions of the local communities reflect a need to create companion policies that increase investment in these vulnerable

neighborhoods. The impact of the new policy on reducing crime will be better understood once all the stores have closed and new crime data is available for Baltimore City.

Products and Accomplishments resulting from 21CC Applied Research Seed Grants

Manuscripts

1. Stacy, Christina, Brady Meixell, Jacob Lowy, and Rachel Thornton. "Using Land Policy to Improve Population Health." Forthcoming, *Journal of Urban Health*
2. Christina Plerhoples Stacy, Joseph Schilling, Ruth Gourevitch, Jacob Lowy, Brady Meixell & Rachel L. J. Thornton (2019) Bridging the Housing and Health Policy Divide: Lessons in Community Development From Memphis and Baltimore, *Housing Policy Debate*, 29:3, 403-420, DOI: 10.1080/10511482.2018.1539858
3. Lowy J; Singh A; Stacy C; Meixell B; Feinberg L; Matson PA; Thornton, RLJ. Zoning and Population Health: Community and Stakeholder Perspectives. *Journal of Health Care for the Poor and Underserved*, Pending Review.

Presentations

1. Presentation to the Baltimore City Department of Planning by Christina Stacy, Rachel Thornton, and Pamela Matson on 8/26/2019. (The results presented in these slides were preliminary results and differ slightly from the ones presented in this policy brief)

Other Research Funding Resulting from 21CC Seed Grant Investment

Developing and Pilot Testing a Systems Dynamics Model of the Impact of Alcohol Outlet Zoning Policy to Improve Health, Safety, and Economic Conditions in Baltimore City Neighborhoods. PI: Thornton RLJ/Matson P/Siddiqui S. We used participatory model building methodology to develop and pilot test a systems simulation and optimization model of the consequences of implementing the liquor store provision of Baltimore City's new zoning code (ratified December 2016) on affected neighborhoods with a focus on health, violent crime, and economic conditions. (*Funding source: Bloomberg American Health Initiative, Award period: 1/1/2018-6/30/2018*).

Other Policy Impacts

Provided research findings, presentations, and background information to the Baltimore City Department of Law attorney assigned to litigate the appeals of the notices of violation issued by the Department of Housing and Community Development for those Class A Liquor stores that were mandated to be terminated in their current location under the new zoning code, but who were fighting the mandatory termination date set forth in the new code (June 2020). This contact was facilitated by a member of the code enforcement team in the Department of Housing and Community Development, and both attended the summary presentations delivered in August 2019 at the Baltimore Planning Department Staff meeting. In particular, the Department of Law and Department of Housing and Community Development staff were interested in incorporating research findings related to health outcomes associated with the new code into the foundational background materials presented to the course as part of what they thought could become drawn out litigation with multiple appeals that could slow or even halt enforcement of the closure of many of the 76 liquor stores terminated under the new code.

References

1. Jennings JM, Milam AJ, Greiner A, Furr-Holden CDM, Curriero FC, Thornton RJ. Neighborhood alcohol outlets and the association with violent crime in one mid-Atlantic City: The implications for zoning policy. *Journal of Urban Health*. 2014;91:62-71.
2. FBI USDoJ. Crime in the United States. <https://ucr.fbi.gov/crime-in-the-u.s/2018/crime-in-the-u.s.-2018/topic-pages/tables/table-6>: United States Department of Justice FBI; 2019.
3. Laveist Ta, Wallace JM, Wallace Jr. JM, Wallace JM. Health risk and inequitable distribution of liquor stores in African American neighborhood. *Social science & medicine (1982)*. 2000;51:613-617.
4. Johnson Thornton RL, Greiner A, Fichtenberg CM, Feingold BJ, Ellen JM, Jennings JM. Achieving a healthy zoning policy in Baltimore: results of a health impact assessment of the TransForm Baltimore zoning code rewrite. *Public Health Rep*. Nov 2013;128 Suppl 3:87-103.
5. Campbell CA, Hahn Ra, Elder R, et al. The Effectiveness of Limiting Alcohol Outlet Density As a Means of Reducing Excessive Alcohol Consumption and Alcohol-Related Harms. *American Journal of Preventive Medicine*. 2009;37:556-569.
6. Franklin FA, Laveist TA, Webster DW, Pan WK. Alcohol outlets and violent crime in washington d.C. *The western journal of emergency medicine*. 2010;11:283-290.
7. Yu Q, Li B, Scribner RA. Hierarchical additive modeling of nonlinear association with spatial correlations--an application to relate alcohol outlet density and neighborhood assault rates. *Stat Med*. Jun 30 2009;28(14):1896-1912.
8. Trangenstein PJ, Curriero FC, Webster D, et al. Outlet Type, Access to Alcohol, and Violent Crime. *Alcoholism: Clinical and Experimental Research*. 2018/11/01/ 2018;42(11):2234-2245.
9. Gyimah-Brempong K. Neighborhood Income, Alcohol Availability, and Crime Rates. *The Review of Black Political Economy*. 2005;33(3):21-44.
10. Stacy CM, Brady; Lowy, Jacob; Thornton, Rachel. Using Land Policy to Improve Population Health. Forthcoming.



Analysis of *TransForm* Baltimore's Liquor store provisions on Crime

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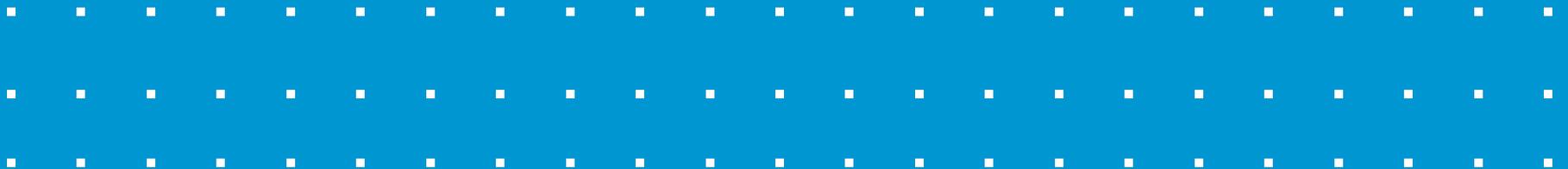
Rachel Thornton



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Overview



We look at whether the liquor store provisions of *TransForm Baltimore* can **reduce crime** and **increase health equity**

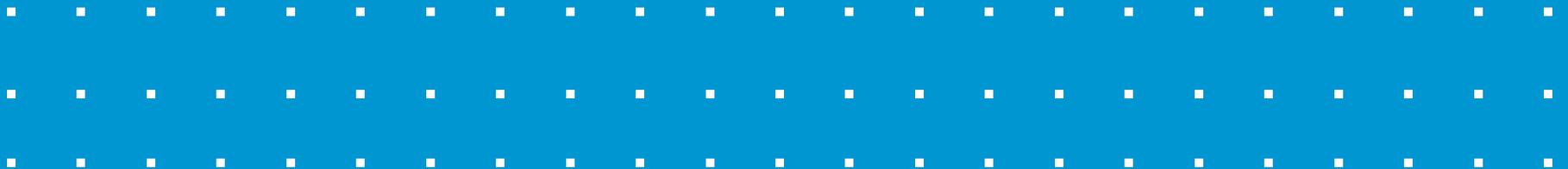
- How?
 - Baseline assessment of affected neighborhoods
 - Create comparison neighborhoods using propensity score matching
 - Predict impact based on previous liquor store closures



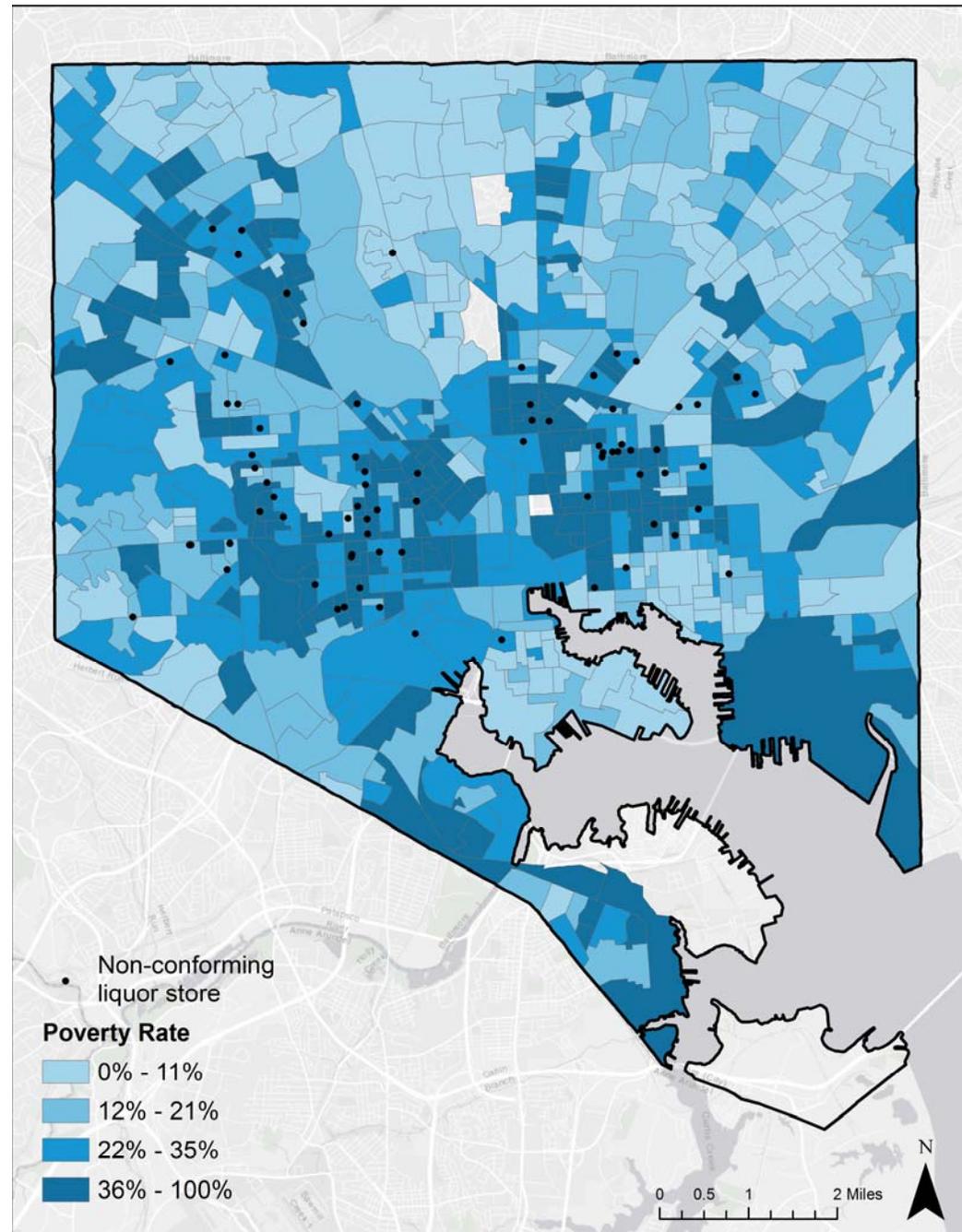
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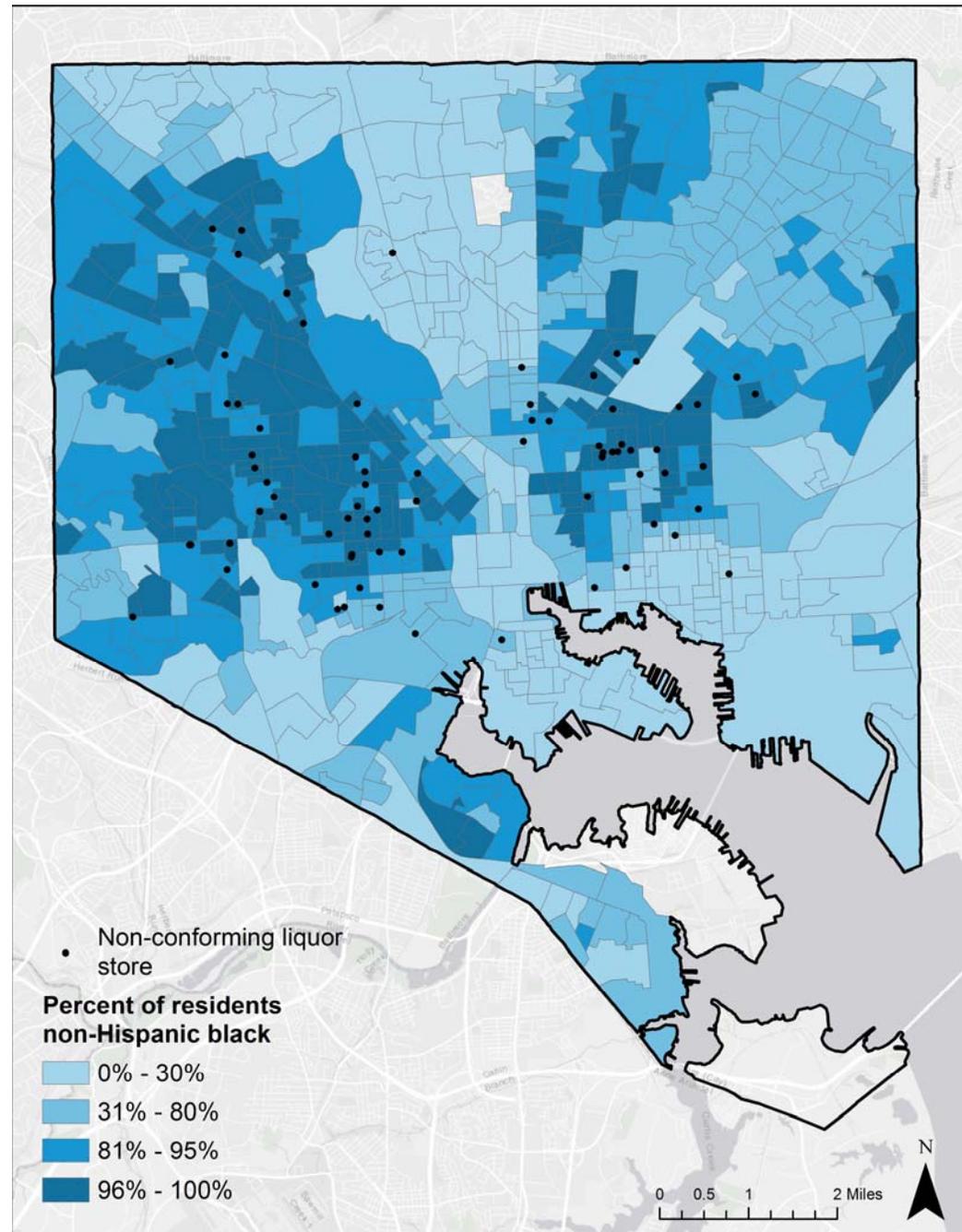
What do we find?



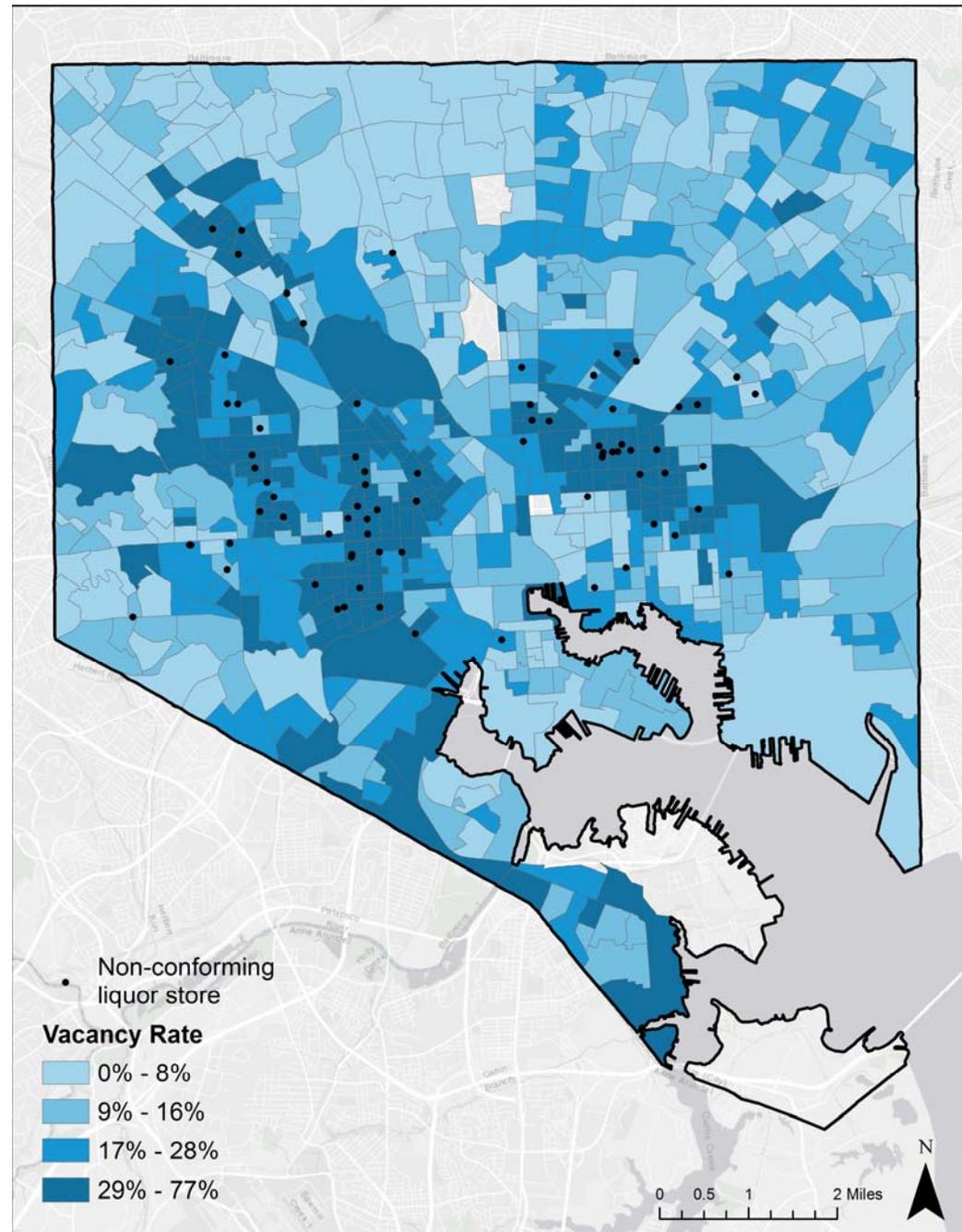
Affected stores are concentrated in **high poverty**, majority black neighborhoods with high vacancy rates



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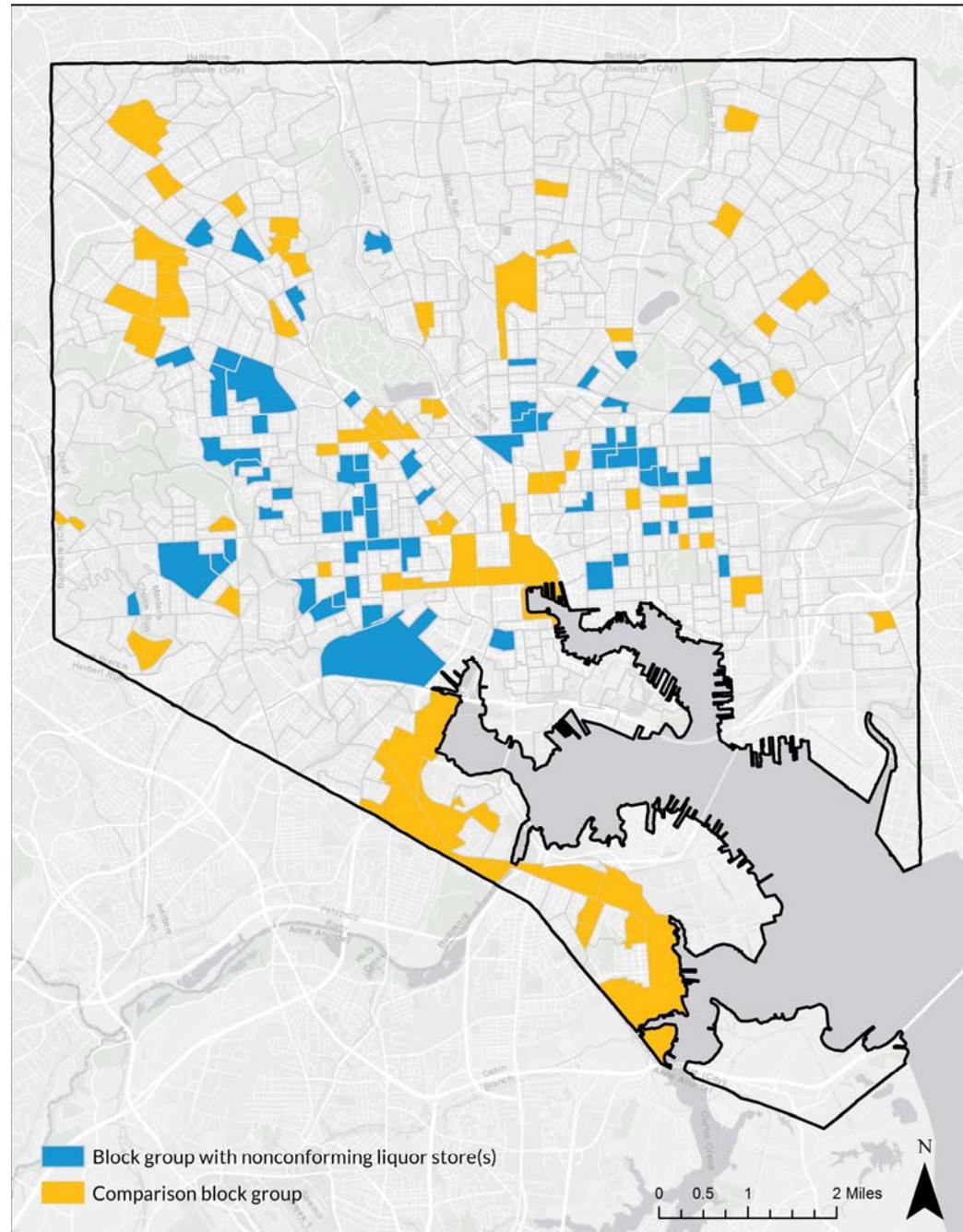


Affected stores are concentrated in high poverty, majority black neighborhoods with **high vacancy rates**

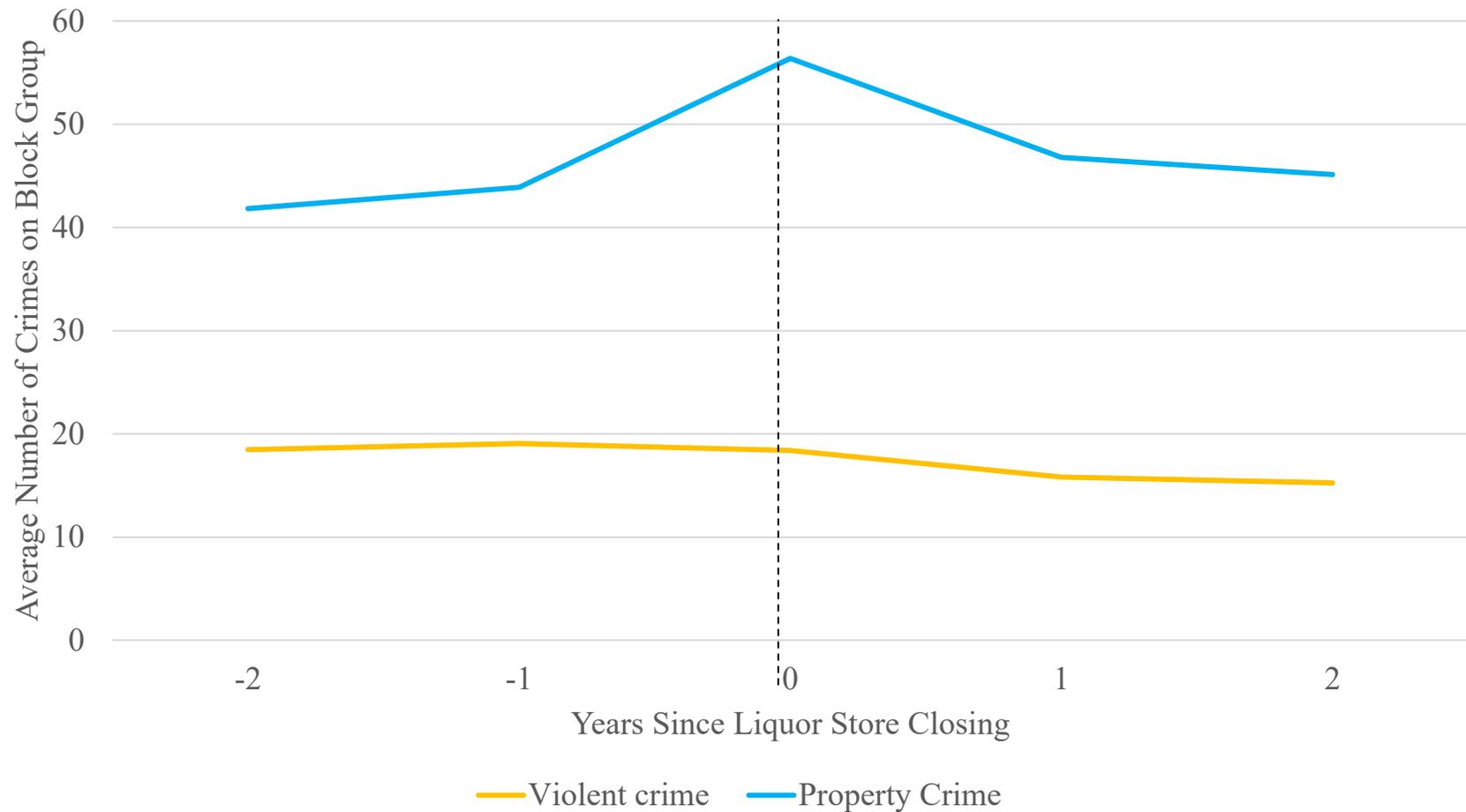


There are a number of good **comparison tracts** that could be used to monitor outcomes

(see handout for full list, also available electronically)



Previous liquor store closures are associated with a reduction in violent crime



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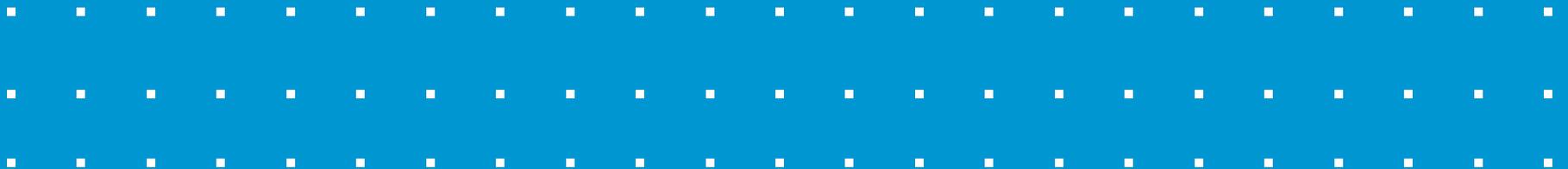
- For every liquor store closing, **violent crimes decline by 1.4%, or 0.19 crimes per year**, on average.
- For every liquor store **opening**, **violent crimes increase by 1.1% per year, or 0.15 crimes**, on average.

	(1)	(2)
	Violent Crime	Property Crime
	Poisson	Poisson
Liquor Store Closings	-0.014***	0.009
	(0.002)	(0.000)
Liquor Store Openings	0.011***	0.008
	(0.003)	(0.000)
Year Fixed Effects	Yes	Yes
Block Group Fixed Effects	Yes	Yes
Individual Block Group Time Trends	Yes	Yes
Observations	3,320	3,385
R-squared	0.04	0.07

There are **no negative impacts** of closures on nearby neighborhoods (although there **are negative impacts** of openings on nearby neighborhoods)

	(1)	(2)
	Violent Crime	Property Crime
	Poisson	Poisson
Liquor Store Closings	-0.004*** (0.001)	0.011 (0.000)
Liquor Store Closings on Contiguous Block Groups	-0.006 (0.004)	0.003 (0.000)
Liquor Store Openings	0.008*** (0.002)	0.003 (0.000)
Liquor Store Openings on Contiguous Block Groups	0.004* (0.003)	-0.000 (0.000)
Year Fixed Effects	Yes	Yes
Block Group Fixed Effects	Yes	Yes
Individual Block Group Time Trends	Yes	Yes
Observations	3,984	4,062

So what does this all mean?



The Liquor store provisions of *Transform Baltimore* have the potential to **reduce crime and improve population health**

- But they **should be monitored and evaluated** as they are rolled out to critically evaluate impacts and design companion policy approaches in an effort to optimize the desired impacts of the policy on neighborhood crime and health
 - Why?
 - Prior closing may be quite different from these closures, so they may have a different impact on crime
 - Additional qualitative and quantitative analyses of the closures will be needed to better understand the extent to which the law has inequitable impacts or unanticipated negative consequences for neighborhood residents in affected neighborhoods