Social Vulnerability and Criminal Justice Contact in North Carolina

Abstract

Criminal justice literature that focuses on correlates of contact typically uses socioeconomic controls that measure disadvantage in their modeling. It is no surprise that income is one of many indicators that predict increased interaction with the criminal justice system. Building on previous work, I apply a new set of dependent variables that measure vulnerability as opposed to disadvantage. I measure the effects of these variables on total (felonies, misdemeanors, and infractions) and misdemeanor arrests for Black and white North Carolinians. I then focus on Wake County as a case study of disparate correlates of misdemeanor contact in a residentially-segregated context. I end by discussing the implications of my findings in terms of theory-building and future modeling.

Keywords: arrests, misdemeanor contact, social vulnerability, criminalization of poverty

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Existing criminal justice literature on arrests typically makes use of measures of disadvantage as controls in modeling. Income, for example, can be operationalized in a variety of ways. These measures of disadvantage are positive predictors of increased contact for minority populations. There is room in the study of criminal justice contact for a different approach—one that accounts for the social vulnerability of a given population in relation to contact. This study uses indicators from the Centers for Disease Control's Social Vulnerability Index (SVI) as controls for modeling Black and white arrests (hereafter "contact") per capita.

The paper is organized as follows. The next section gives background on the issue based on a review of existing literature. The two sections that follow explore key indicators from the SVI in a statewide context, then apply them to an analysis of statewide total and misdemeanor contact for Black North Carolinians. The penultimate section repeats the misdemeanor analysis in a county-specific context. I conclude by explaining the significance of the findings and possible directions for future research.

Background

The relevant theoretical literature focuses largely on the criminalization of impoverished and vulnerable populations. Entering and propagating through the criminal justice system places an economic burden on already-vulnerable groups. Gustafson (2009) explores this dynamic through the welfare state. She finds that drug possession charges disqualify individuals from welfare for life in certain states (672). She moves on to note the emphasis placed on welfare fraud, with aggressive searches occurring in parts of California that infringe upon the Fourth Amendment rights of suspects (694, 699-708). This link between the welfare and carceral states is

foundational to the importance of examining criminal justice contact through the lens of economic vulnerability.

Natapoff (2015) similarly observes that the criminalization of poverty is a two-way street. The poor are treated as "latent criminals," and their subsequent contact with the justice system makes economic mobility more difficult (446). She notes the institutionalized implementation of this fact, citing welfare case managers actively awaiting fraudulent activity, and hospitals as the sites of open-warrant arrests (445). Poor individuals are often the subjects of surveillance by the justice system.

Manahan (2017) notes the interplay between the surveillance of the poor and the "categorization" of individuals by "perceived risk" to form a well-defined social stratum (192). Nuisance misdemeanors—public drunkenness, marijuana possession, driving without a license, etc.—serve as simple gateways to the carceral state for vulnerable populations. Even if justice contact does not end in a jail or prison sentence, punishments like fines, community service, house arrest, and drug tests create ties to the system that are difficult to sever (197). In this manner, justice system contact serves as an entry point to a larger surveillance state, out of which emerges clear social hierarchies.

Previous empirical literature has used indicators of disadvantage to examine the relationship between socioeconomic status and criminal justice contact. Here it is important to note the difference between disadvantage and vulnerability. Existing criminal justice literature commonly measures disadvantage—the interplay between factors such as race, age, sex, and income. Recently, Davidson, Johnson, and Baumgartner (2022) have made strides in operationalizing disadvantage, creating a "disadvantage score" by indexing race, sex, age, and neighborhood property values (4). Disadvantage and vulnerability are similar, but vulnerability

better describes the ability to recoup losses from shocks. In the vulnerability literature, these shocks are typically natural disasters or epidemiological outbreaks (Flanagan et al., 2011; Flanagan et al., 2020). In this study, I use vulnerability measures in place of disadvantage. I describe differences in the environments that experience high levels of contact at the front end of the justice system. This study builds toward future work that will examine the cost of justice contact—how people and places respond to shocks on the back end of contact.

I use Census tract-level data from the Centers for Disease Control's Social Vulnerability Index (SVI) as independent variables. By modeling the relationship between Black and white criminal justice contact and factors such as disability and housing burden, I will analyze whether social vulnerability has the same links as disadvantage to contact with the justice system. I first examine this relationship across the entire state of North Carolina. I then examine Wake County as an area with well-defined spatial segregation patterns, which in turn lead to differing correlates of misdemeanor contact for Black and white populations.

Exploring Social Vulnerability

One prominent theoretical motivator for the study of social vulnerability within the context of front-end justice system contact is the notion of life chances. Coined by Weber (1978), life chances refer to economic factors regulating one's ability to progress through a class structure. According to Fourcade and Healy (2013), the Weberian view of life chances is tied to "endowments," or what we now understand to be capital. This capital can take the form of occupational skills, property ownership, and the general ability to participate in the market. The notion of life chances is important to the discussion of front-end criminal justice contact, as it is theoretically linked to an individual's propensity for arrest and jail time (561). Vulnerable

populations by definition have lower life chances, and these populations' limited ability to recover from the shock of justice contact might further decrease their life chances in a cycle.

I employ a novel set of control variables in my analysis. The Centers for Disease Control maintains a database of tract-level indicators measuring social vulnerability. Pertinent to the current study are indicators measuring extreme poverty, unemployment, single parentage, housing burden, disability, and age. The Social Vulnerability Index (SVI) defines their extreme poverty threshold at the 150% federal level—a household of four earning roughly $41,000 annually, for example. Housing burden is defined as a household spending more than 30% of its income on housing. Disability and age have theoretical implications in terms of the criminalization of certain marginalized groups—for example, school-aged Black males with attention deficit/hyperactivity disorder. Contact for this particular group is beyond the scope of this study, but the forthcoming results demonstrate the need for future research in this area. Using these vulnerability indicators, this study paints a broader picture of social vulnerability and criminal justice contact that extends beyond the traditional socioeconomic disadvantage indicators found in the literature.

Statewide, North Carolina has racialized patterns in capital ownership and ability to obtain capital. Figure 1 demonstrates the relationship between the proportion of Black residents in a given tract and the six indicators that I employ in my models:

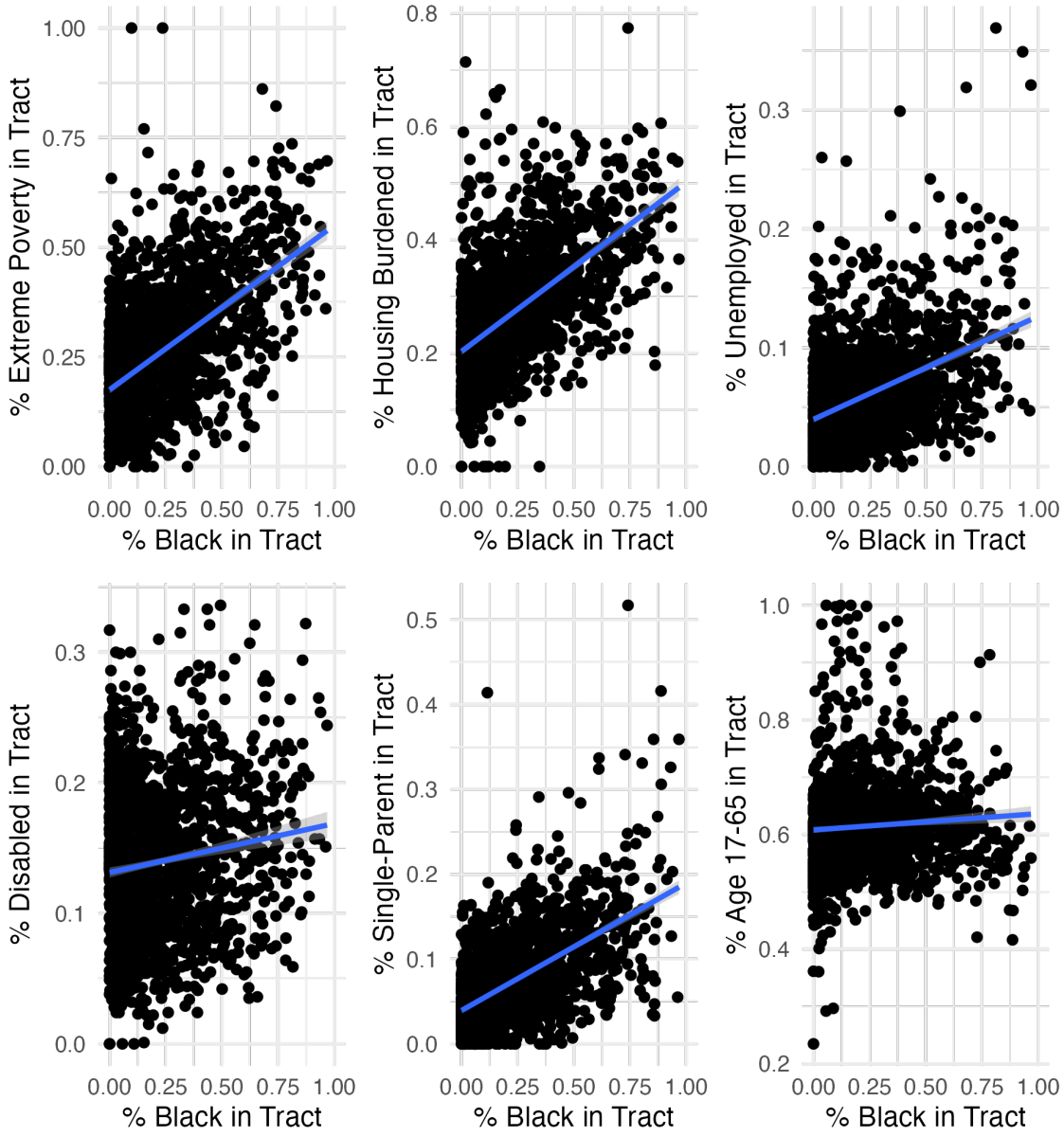


Figure 1: Black Tract Proportion Versus Extreme Poverty; Housing Burden; Unemployment; Disability; Single Parenthood; and Age.

On average, majority-Black tracts tend to experience more extreme poverty, more housing burden, more unemployment, and more single parenthood. There is not a clear relationship between the Black proportional population and disability or the proportion of working-age individuals.

There is a positive relationship between majority-Black tracts and most indicators of vulnerability. The question becomes how this relationship affects contact with the criminal justice system for Black populations. The forthcoming section will explore this in detail.

Exploring Criminal Justice Contact

Weber's indicators of life chances are theorized to be tied to, among other things, one's propensity to experience arrest and jail time (Fourcade and Healy 2013, 561). I employ least-squares regression to examine the effects of the previously explored vulnerability indicators—extreme poverty, housing burden, unemployment, disability, single-parenthood, and age—on both total contact and misdemeanor contact, defined below.

The North Carolina Administrative Office of the Courts provides individual-level arrest data for the years 2013-2019. This data was aggregated to tract-level felony and misdemeanor counts for both Black and white individuals. Similar to Davidson et al. (2022), I compute contact scores by calculating total (felonies, misdemeanors, and infractions) and misdemeanor-only contact as a proportion of the corresponding tract-level racial population for every one-hundred individuals:

$$Contact\ Score_{Tract} = \frac{[White|Black]\,[Total\ Arrests|Misdemeanors]_{Tract}}{[White|Black]\,Population_{Tract}} * 100.$$

This variable allows me to control for population proportions in my analysis and provides concise and repeatable language to discuss results.

On calculations for this metric: tracts with fewer than ten individuals in the population are omitted from the study, and scores over one-hundred indicate a greater number of arrests than individuals in the population and are rounded off to one hundred.

My first two regressions analyze statewide Black contact scores in relation to the measures of economic vulnerability explored above. The first model details this relationship for total Black contact:

Black Total Contact: Statewide

	Dependent variable:
	Black Total Contact (Per 100 Residents)
% Below 150 Poverty Line	-5.733
	(3.513)
% Unemployed	24.261***
	(4.173)
% Single Parent	-15.312*
	(8.708)
% Housing Burdened (>30% of Income on Housing)	38.429***
	(6.516)
% Disabled	20.942***
	(7.083)
% Age [17, 65]	-19.396***
	(4.691)
Constant	96.784***
	(3.221)
Observations	1,614
R^2	0.087
Adjusted R^2	0.084
Residual Std. Error	12.798 (df = 1607)
F Statistic	25.516*** (df = 6; 1607)
Note:	*p**p***p<0.01

Table 1: Total Black Contact, Statewide

Of note are positive and statistically-significant relationships between total Black contact and tract-level unemployment, housing burden, and disability.

The second model repeats the same analysis for Black misdemeanor contact:

Black Misdemeanor Contact: Statewide

	Dependent variable:
	Black Misdemeanor Contact (Per 100 Black Residents)
% Below 150 Poverty Line	58.063***
	(7.631)
% Unemployed	39.136***
	(9.065)
% Single Parent	-40.010**
	(18.916)
% Housing Burdened (>30% of Income on Housing)	108.179***
	(14.154)
% Disabled	-43.802***
	(15.385)
% Age [17, 65]	-11.984
	(10.189)
Constant	32.250***
	(6.997)
Observations	1,614
R^2	0.191
Adjusted R^2	0.188
Residual Std. Error	27.800 (df = 1607)
F Statistic	63.251*** (df = 6; 1607)
Note:	*p**p***p<0.01

Table 2: Misdemeanor Black Contact, Statewide

Extreme poverty, unemployment, and housing burden are all positive and significant predictors of Black misdemeanor contact statewide.

A clear and consistent relationship exists between vulnerable populations and heightened front-end justice contact at the state level. These findings provide a baseline to analyze the same question at a lower level. Policy changes in this area are most likely to be tested and implemented at the county level or lower, so analyses at this level are important.

In the forthcoming section, I compare models of Black and white misdemeanor contact to explore the impacts of vulnerability in Wake County—an example of a populous and prosperous yet residentially-segregated county in North Carolina.

Are There Disparities Between White and Black Contact?

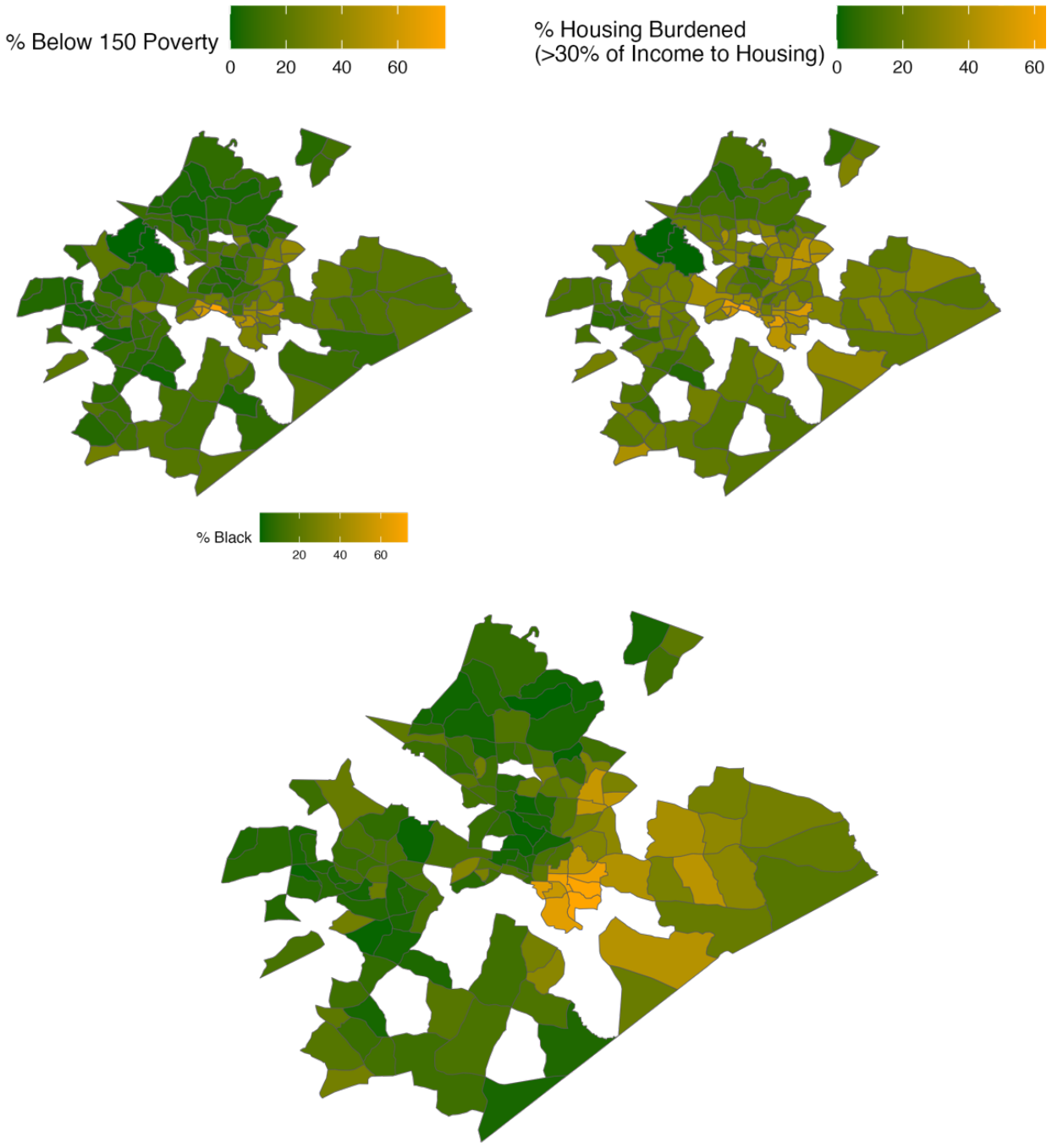
Wake County: A Case Study

Located in central North Carolina, Wake County is the state's most populous county. It is also a relatively prosperous state in terms of economic vulnerability. Table 3 compares median vulnerability in Wake and the rest of the state:

	Wake County	Rest of State
% 150 Poverty	11.7	24.1
% Unemployed	3.2	5.0
% Single Parent	5.1	6.0
% Housing Burden	21.8	25.3
% Disability	8.1	13.8
% Age $\in$ [17, 65]	63.5	60.6

Table 3: Median Vulnerability—Wake County vs Rest of State

Residents of Wake County are generally better off than the median North Carolinian in terms of their ability to obtain capital. However, mapping the spatial distributions of these indicators reveals a cluster of tracts in the middle of the county that experience high rates of economic vulnerability. These tracts also contain the highest concentration of Black North Carolinians:



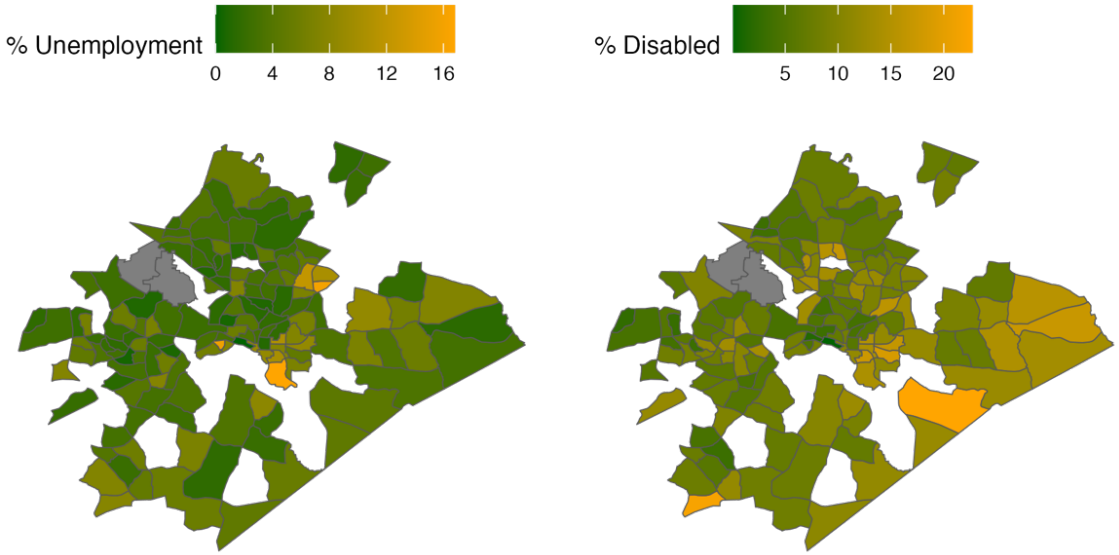


Figure 2: Spatial Patterns of Social Vulnerability in Wake County

Mapping contact reveals that total contact per capita for both populations is high across the county:

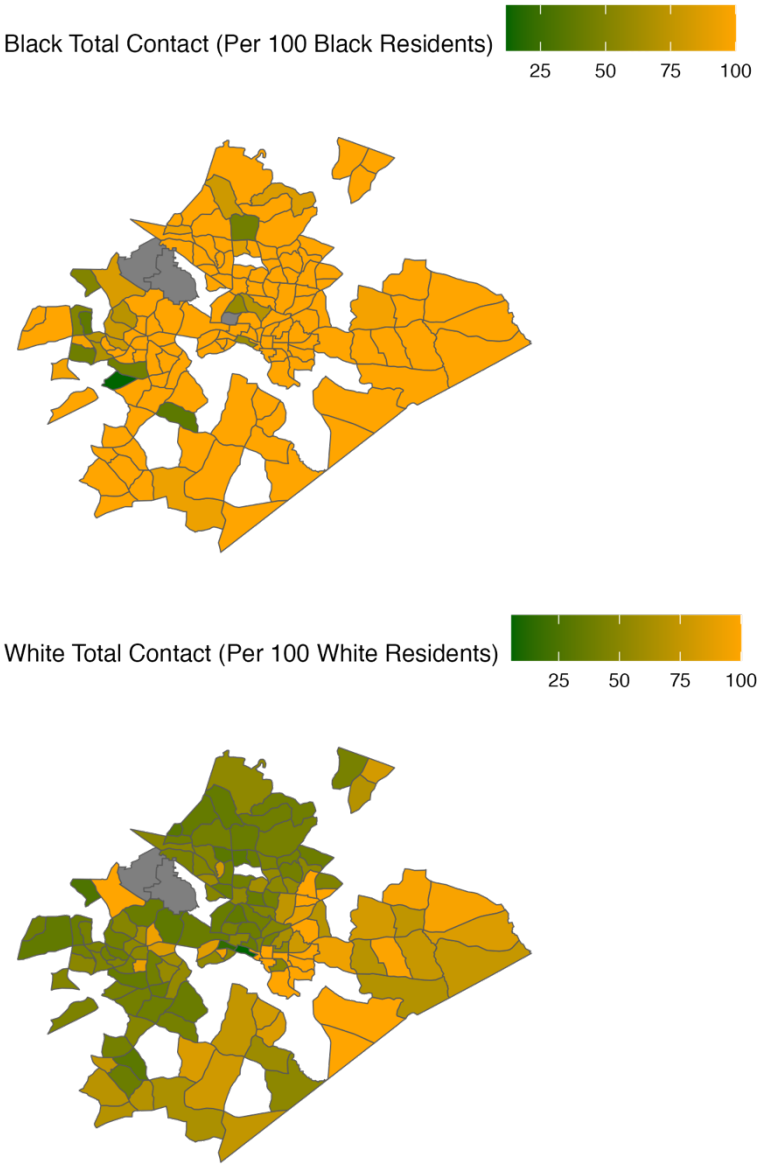


Figure 3: Total Contact in Wake County

However, misdemeanor contact for both populations is concentrated in the middle of the county similar to measures of vulnerability:

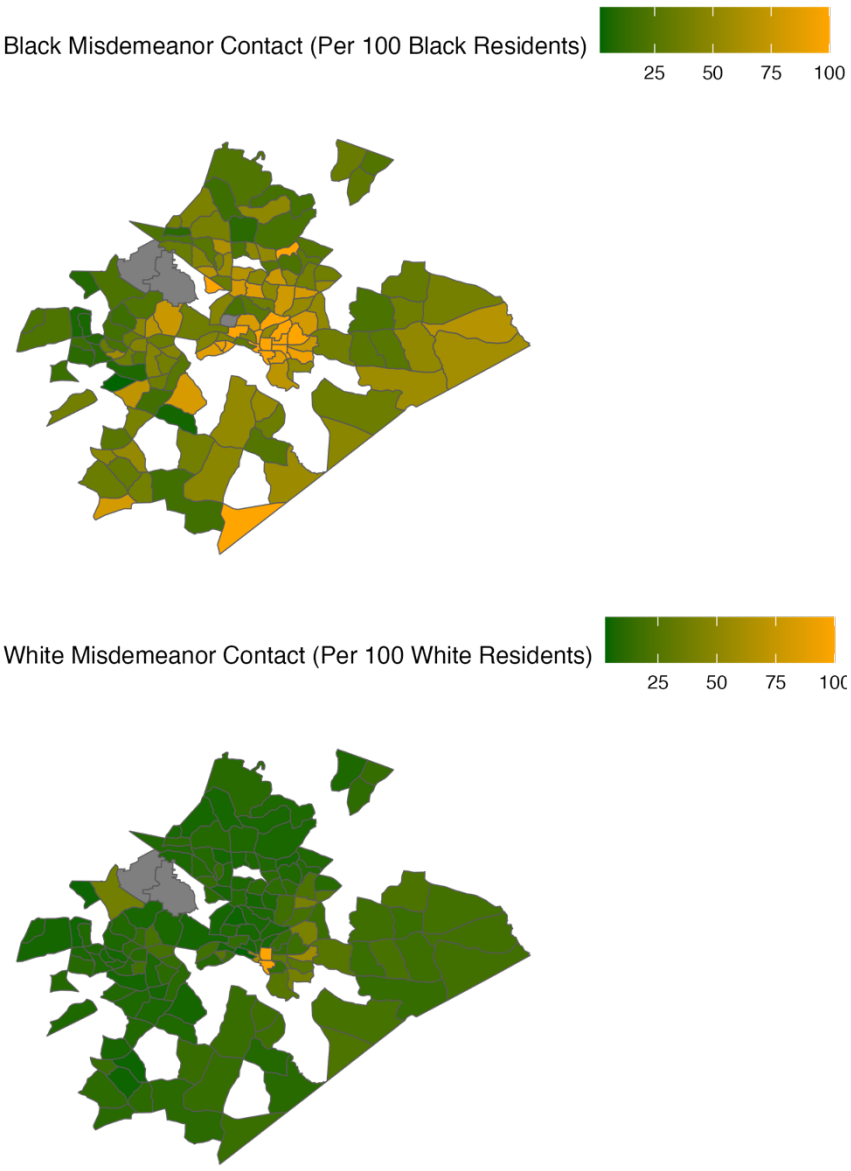


Figure 4: Misdemeanor Contact in Wake County

It has been demonstrated in the previous section that vulnerability indicators have the greatest impact on misdemeanor contact. Thus, this section will focus on misdemeanor contact,

comparing the impact of vulnerability on Black and white contact. To what extent does this overlap of vulnerability indicators impact misdemeanor contact?

I first model Black misdemeanor contact in the county:

Black Misdemeanor Contact: Wake County

	Dependent variable:
	Black Misdemeanor Contact (Per 100 Black Residents)
% Below 150 Poverty Line	72.735**
	(30.853)
% Unemployed	-0.486
	(35.317)
% Single Parent	115.406
	(81.216)
% Housing Burdened (>30% of Income on Housing)	173.680***
	(58.343)
% Disabled	-68.435
	(48.931)
% Age [17, 65]	27.047
	(33.533)
Constant	2.189
	(21.656)
Observations	142
R^2	0.283
Adjusted R^2	0.251
Residual Std. Error	23.712 (df = 135)
F Statistic	8.884*** (df = 6; 135)
Note:	*p**p***p<0.01

Table 4: Misdemeanor Black Contact, Wake County

Similar to the statewide misdemeanor model, tracts experiencing large percentages of extreme poverty and housing burden tend to experience more Black misdemeanor contact, on average. Diverging from the statewide model, unemployment is no longer a significant predictor.

I perform the same analysis for white misdemeanor contact:

White Misdemeanor Contact: Wake County

	Dependent variable:
	White Misdemeanor Contact (Per 100 White Residents)
% Below 150 Poverty Line	20.677
	(15.699)
% Unemployed	-24.677
	(17.907)
% Single Parent	66.596
	(41.297)
% Housing Burdened (>30% of Income on Housing)	77.310**
	(29.624)
% Disabled	61.541**
	(24.970)
% Age [17, 65]	58.257***
	(17.092)
Constant	-34.751***
	(11.027)
Observations	143
R^2	0.278
Adjusted R^2	0.246
Residual Std. Error	12.103 (df = 136)
F Statistic	8.741*** (df = 6; 136)
Note:	*p**p***p<0.01

Table 5: Misdemeanor White Contact, Wake County

In comparison to Black misdemeanor contact, white misdemeanor contact is higher in housing-burdened areas, areas with high rates of disability, and areas where a greater proportion of the population is middle-aged.

Though we are not discussing disparities in contact *per se*, these models exemplify the tract-level socioeconomic variations that influence contact. Future theoretical and empirical efforts should be put forth to explore this variation. What is the theoretical rationale behind 150% poverty being predictive for Black misdemeanor contact, but not white misdemeanor contact? Empirically, what role does the vulnerability landscape of a neighboring tract have on levels of misdemeanor contact?

Of methodological note is the negative intercept in this model. Whereas Black misdemeanor contact in Wake is normally distributed, white misdemeanor contact in the county is right-skewed. Subsequent work might focus on improved modeling for white contact to more accurately understand the environmental differences that produce Black versus white misdemeanor contact.

Conclusion

Front-end entry to the justice system is positively correlated with certain indicators of vulnerability at both the statewide and county levels. Before drilling down into the individual indicators, the fact that these correlations exist solicits further work to be done. As mentioned in the section above, work must be done on applying theory to these quantitative findings. These models open the door for such theory-building. There is a story behind each vulnerability indicator and its relation to contact. For example, new theories of disability and policing might be worth exploring in the spirit of intersectionality.

This work builds toward novel contributions to literature on the "cost" of justice system contact. As discussed briefly in the literature review, contact with the justice system is an economic shock that makes it difficult for individuals to leave the system. Future work should explore this shock.

Future methodological efforts should concentrate on improved modeling of these relationships. Data availability is one of the greatest limitations of this study. These vulnerability indicators represent *all* demographics in a given tract, introducing noise when trying to measure effects for specifically Black and white individuals. In a methodological, theoretical, and applied sense, future research should examine how vulnerable people and places respond to the shock of contact with the justice system, and the many ways in which vulnerable populations have difficulty distancing themselves from it.

References

Cutter, S. L., Mitchell, J. T., & Scott, M. S. (2000). Revealing the Vulnerability of People and Places: A Case Study of Georgetown County, South Carolina. *Annals of the Association of American Geographers*, *90*(4), 713–737. https://doi.org/10.1111/0004-5608.00219

Dawson, M. C., 1951-. (1994). *Behind the mule: Race and class in African-American politics*. Princeton, N.J. : Princeton University Press, [1994] ©1994. https://search.library.wisc.edu/catalog/999745834302121

Duncan, G. J., Yeung, W. J., Brooks-Gunn, J., & Smith, J. R. (1998). How Much Does Childhood Poverty Affect the Life Chances of Children? *American Sociological Review*, *63*(3), 406. https://doi.org/10.2307/2657556

Esmonde, J. (n.d.). *CRIMINALIZING POVERTY: THE CRIMINAL LAW POWER AND THE SAFE STREETS ACT*.

Flanagan, B. E., Gregory, E. W., Hallisey, E. J., Heitgerd, J. L., & Lewis, B. (2011). A Social Vulnerability Index for Disaster Management. *Journal of Homeland Security and Emergency Management*, *8*(1). https://doi.org/10.2202/1547-7355.1792

Flanagan, B. E., Hallisey, E. J., Adams, E., & Lavery, A. (2018). Measuring community vulnerability to natural and anthropogenic hazards: The Centers for Disease Control and Prevention's Social Vulnerability Index. *Journal of Environmental Health*, *80*(10), 34.

Fourcade, M., & Healy, K. (2013). Classification situations: Life-chances in the neoliberal era. *Accounting, Organizations and Society*, *38*(8), 559–572. https://doi.org/10.1016/j.aos.2013.11.002

Gustafson, K. (n.d.). *THE CRIMINALIZATION OF POVERTY*. *99*.

Herring, C., Yarbrough, D., & Marie Alatorre, L. (2019). Pervasive Penality: How the Criminalization of Poverty Perpetuates Homelessness. *Social Problems*. https://doi.org/10.1093/socpro/spz004

Johnson, K. R., & Baumgartner, F. R. (2022). Disproportionate Criminal Justice Contact: A System Working as Designed? *Journal of the Center for Policy Analysis and Research*.

Lv, M.-N., & Li, X. (2019). A Comparative Study on the "Social Disadvantaged Group" and "Social Vulnerable Group." *Proceedings of the 5th Annual International Conference on Management, Economics and Social Development (ICMESD 2019)*. Proceedings of the 5th Annual International Conference on Management, Economics and Social Development (ICMESD 2019), Suzhou, China. https://doi.org/10.2991/icmesd-19.2019.5

Monahan, T. (2017). Regulating belonging: Surveillance, inequality, and the cultural production of abjection. *Journal of Cultural Economy*, *10*(2), 191–206. https://doi.org/10.1080/17530350.2016.1273843

Natapoff, A. (n.d.). *Gideon's Servants and the Criminalization of Poverty*. *12*, 21.

Pager, D., Goldstein, R., Ho, H., & Western, B. (2022). Criminalizing Poverty: The Consequences of Court Fees in a Randomized Experiment. *American Sociological Review*, *87*(3), 529–553. https://doi.org/10.1177/00031224221075783

Pauwels, L. J. R., Vettenburg, N., Gavray, C., & Brondeel, R. (2011). Societal Vulnerability and Troublesome Youth Group Involvement: The Mediating Role of Violent Values and Low Self-Control. *International Criminal Justice Review*, *21*(3), 283–296. https://doi.org/10.1177/1057567711419899

St. Bernard, G. (2004). TOWARD THE CONSTRUCTION OF A SOCIAL VULNERABILITY INDEX – THEORETICAL AND METHODOLOGICAL CONSIDERATIONS. *Social and Economic Studies*, *53*(2), 1–29. JSTOR.

Weber, M. (2019). *Economy and Society* (K. Tribe, Ed.). Harvard University Press. https://doi.org/10.4159/9780674240827

Appendix: Summary Statistics

Statewide Summary Statistics

Summary Statistics: Statewide

Statistic	N	Mean	St. Dev.	Min	Median	Max
Black Total Contact (Per 100 Black Residents)	1,706	86.571	21.725	1.092	100.000	100.000
White Total Contact (Per 100 White Residents)	1,617	95.845	13.663	0.804	100.000	100.000
Black Misdemeanor Contact (Per 100 Black Residents)	1,617	59.956	30.906	0.000	56.364	100.000
White Misdemeanor Contact (Per 100 White Residents)	1,705	29.665	23.382	0.000	23.392	100.000
% Below 150 Poverty Line	1,715	0.256	0.148	0.000	0.241	1.000
% Unemployed	1,705	0.059	0.043	0.000	0.050	0.369
% Single Parentage	1,715	0.072	0.056	0.000	0.060	0.517
% Housing Burdened (>30% of Income on Housing)	1,715	0.267	0.112	0.000	0.253	0.774
% Disabled	1,703	0.139	0.058	0.000	0.138	0.336
% Age [17, 65]	1,706	0.614	0.079	0.234	0.606	1.000

Table 6: Statewide Summary Statistics

Wake County Summary Statistics

Summary Statistics: Wake County

Statistic	N	Mean	St. Dev.	Min	Median	Max
Black Total Contact (Per 100 Black Residents)	143	68.969	26.440	14.518	64.467	100.000
White Total Contact (Per 100 White Residents)	142	94.320	15.577	11.837	100.000	100.000
Black Misdemeanor Contact (Per 100 Black Residents)	142	46.639	27.403	1.610	40.051	100.000
White Misdemeanor Contact (Per 100 White Residents)	143	13.680	13.942	2.766	9.296	100.000
% Below 150 Poverty Line	145	0.151	0.132	0.000	0.117	0.770
% Unemployed	143	0.041	0.030	0.000	0.032	0.168
% Single Parentage	145	0.061	0.048	0.000	0.051	0.233
% Housing Burdened (>30% of Income on Housing)	145	0.229	0.121	0.000	0.218	0.652
% Disabled	143	0.088	0.040	0.001	0.081	0.227
% Age [17, 65]	143	0.646	0.083	0.513	0.635	0.976

Table 7: Wake County Summary Statistics