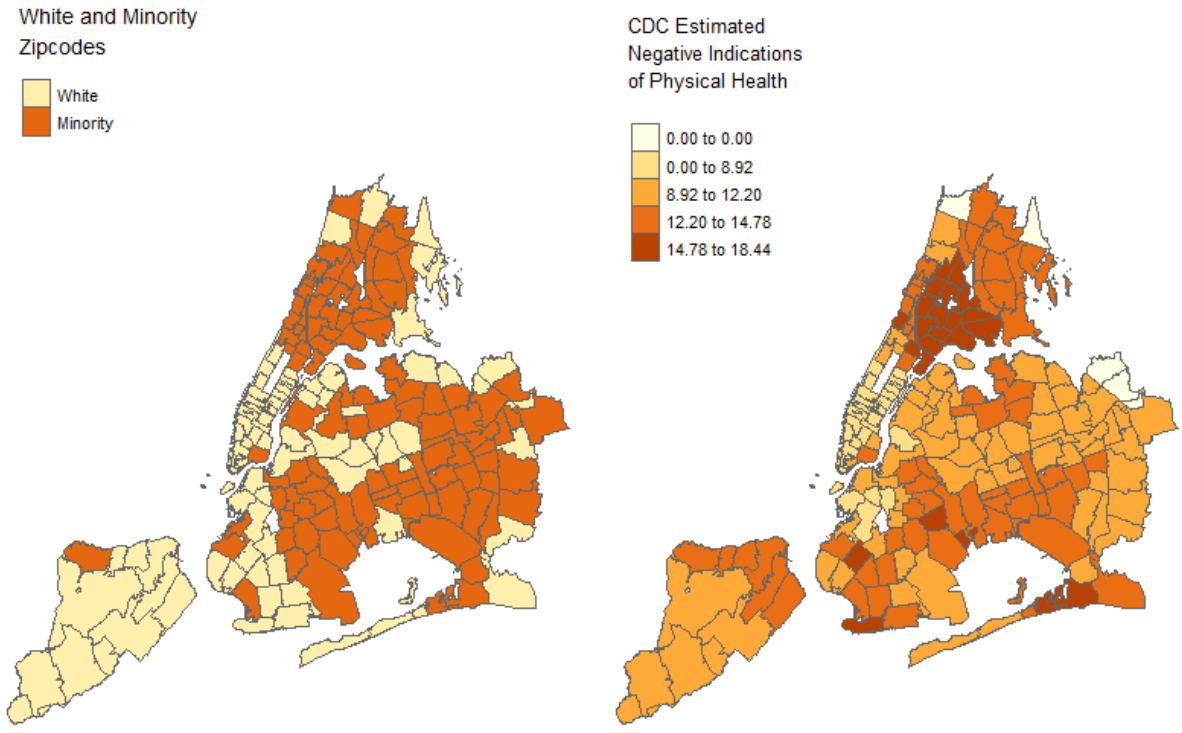
Elmer Camargo
ECON-452
Econometrics

CDA 6: COVID19 and Socio-Economic Disparities

COVID19 has been the forefront issue of the world and many researchers from various disciplines. One of the primary concerns from a governance and public health perspective are communities being more at risk than others due to various socio-economic factors. In a recent study done within a single undisclosed emergency room department in New York by Melissa James et al., patients were noted to be disproportionately affecting citizens by race, gender, and economic status. More specifically, males, minorities, and uninsured populations were affected at a higher rate than their counterparts [1]. This study remains consistent with the longstanding argument of disparities existing as a result of our health care system.

New York has been one of the most transparent governments regarding publishing timestamped COVID19 statistics such as testing rates and instances of test positive cases at the zip code geographic level via GitHub [2]. This makes New York city a unique study area such that various geographic data points can be used to analyze COVID19 trends specific to New York City. Of which that has been a strong predictor of COVID19 cases are pre-existing conditions and comorbidities including a variety of diseases ranging from asthma, diabetes, high blood pressure, and various other illnesses. The Centers for Disease Control and Prevention (CDC) make consistent models estimating physical health and wellbeing by area that can then be linked to the available New York COVID19 statistics along with census demographic information [3,4]. Below are graphs demonstrating the relationship between minority zip codes with negative physical health and minority communities.



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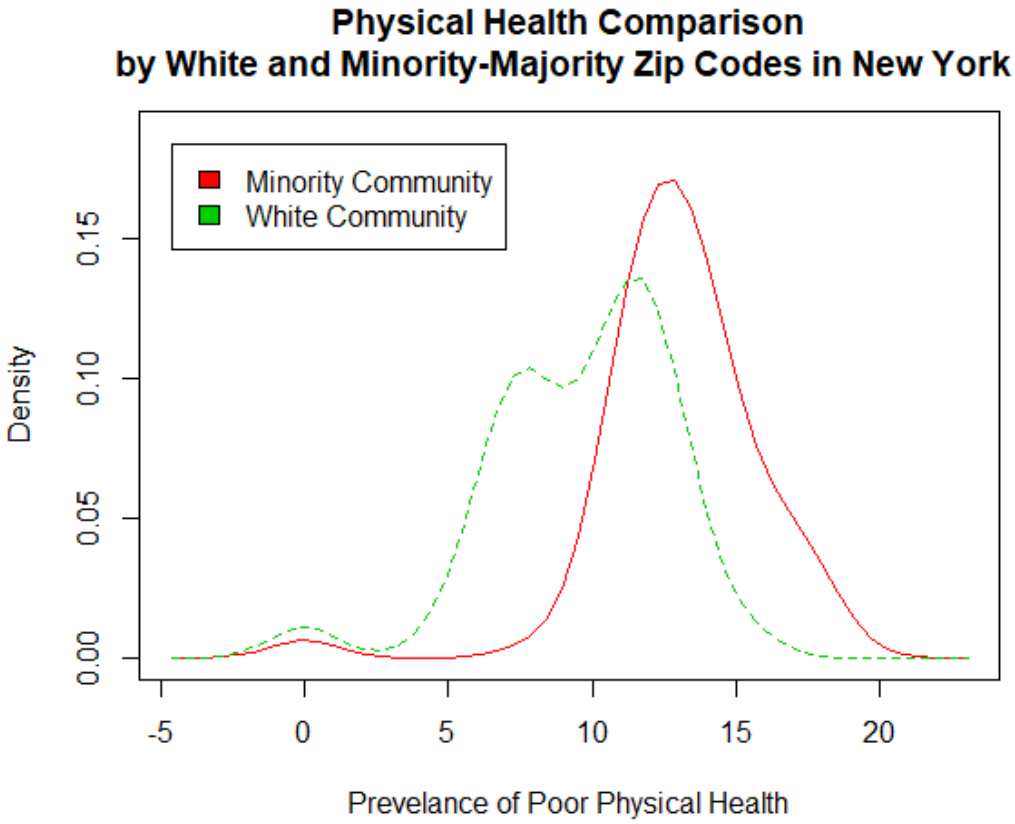

	Dependent variable:
	CDC_PHLTH
Constant	13.474***
	(0.633)
`minority-majority-50`	4.276***
	(0.877)
med_income	-0.00004***
	(0.00001)
`minority-majority-50`:med_income	-0.00004***
	(0.00001)
Observations	194
R2	0.529
Adjusted R2	0.522
Residual Std. Error	2.295 (df = 190)
F Statistic	71.201*** (df = 3; 190)
Note:	*p<0.1; **p<0.05; ***p<0.01

However, it is very unlikely that skin color or ethnicity is directly linked to poor physical health, but rather that many confounding factors exist such, as income and education, that results in poor health conditions. Lastly, although race is not directly linked to prevalence of COVID19 test positive case rates, as shown in the below regression output, CDC physical health estimates are strongly linked to areas in New York City with high test positive rates keeping various other variables constant. It is notable that many of the variables as described in the intra-hospital study were included in the regressions and of which percentage uninsured was also found to be potentially predictive of COVID19 case rates in the April 8th timeframe. From these results there is an argument for health disparities existing within New York City, however further analysis must be investigated such as exploring education and occupations census variables as well as understanding the spatial aspect of this problem.

	Dependent variable:	
	`4_8_2020_positive_rate`	
	Regression with Minority Var | (1)	|Regression Without Minority Var (2)
Constant	12.414***	12.073***
	(4.272)	(4.187)
CDC_PHLTH	2.119***	2.171***
	(0.401)	(0.381)
pop_density	117.202	115.395
	(87.110)	(86.816)
male	0.0002	0.0002
	(0.0002)	(0.0002)
per_uninsured	0.593	0.649*
	(0.369)	(0.345)
over_55	0.00004	0.00003
	(0.0004)	(0.0004)
`minority-majority-50`	1.102	
	(2.599)	
Observations	194	194
R2	0.364	0.364
Adjusted R2	0.344	0.347
Residual Std. Error	14.463 (df = 187)	14.431 (df = 188)
F Statistic	17.860*** (df = 6; 187)	21.490*** (df = 5; 188)
Note:		*p<0.1; **p<0.05; ***p<0.01

1. James, M. K., Kishore, M., & Lee, S. (2020). Demographic and Socioeconomic Characteristics of COVID-19 Patients Treated in the Emergency Department of a New York City Hospital. *Journal of Community Health*. doi:10.1007/s10900-020-00937-2
2. Nychealth. (n.d.). Nychealth/coronavirus-data. Retrieved November 19, 2020, from https://github.com/nychealth/coronavirus-data
3. Division of Population Health. (2019, March 01). Retrieved November 19, 2020, from http://www.cdc.gov/nccdphp/dph
4. A. (n.d.). American Census Survey (2018). Retrieved November 19, 2020, from https://data.census.gov/cedsci/