Racist Legacy of Redlining: Racial Composition, Student Expenditure and Economically Disadvantaged Students in Schools

Maryam Khalid Shah

McCourt School of Public Policy, Georgetown University

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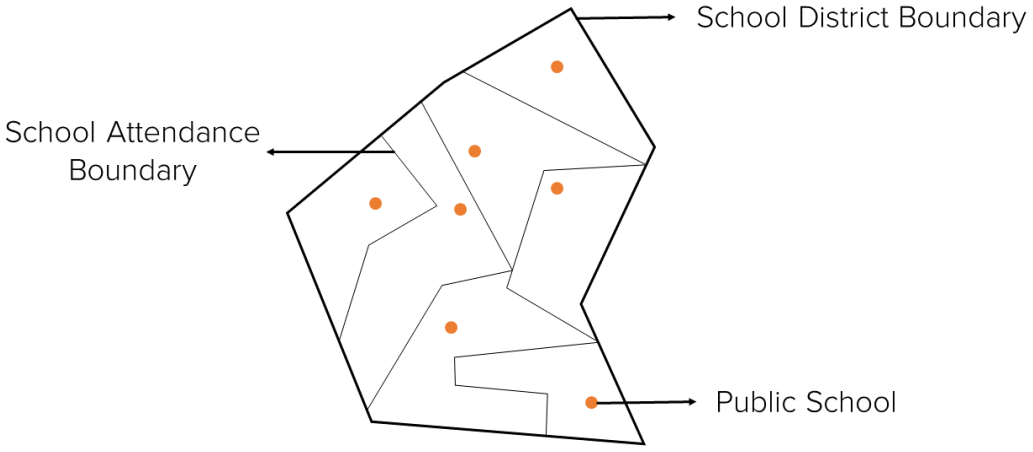
Background

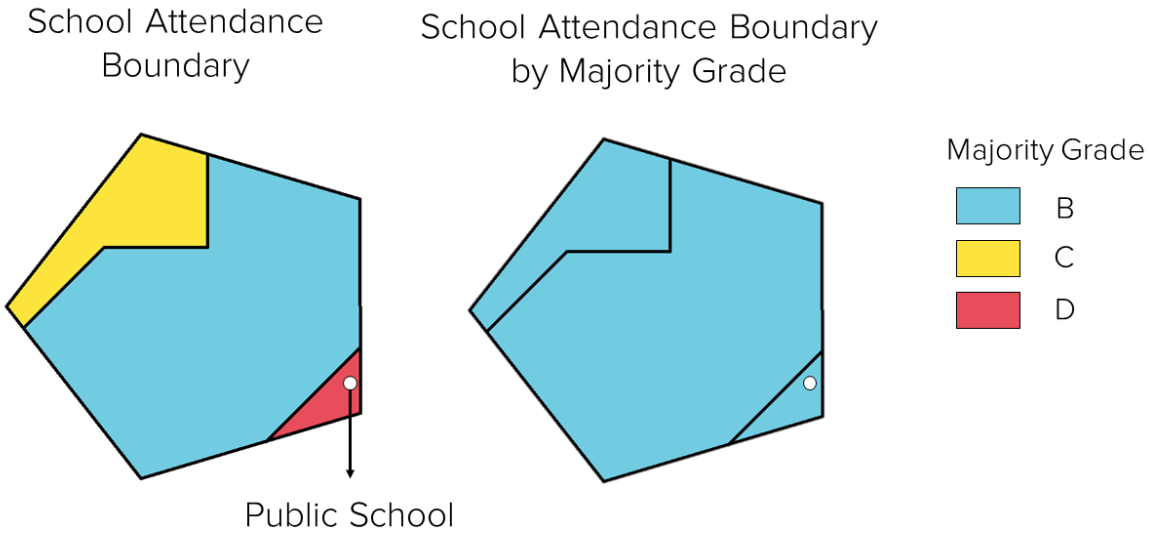
In the 1930s, the Home Owners' Loan Corporation (HOLC) drew maps for neighborhoods in most metropolitan cities in the United States. These maps were color-coded and assigned grades to indicate where it was safe to insure mortgages, with 'A' being the best grade a neighborhood could receive (colored green on the maps), and 'D' being the worst (colored red). An overview of the accompanying area descriptions (Nelson et al., 2021) that HOLC wrote for many neighborhoods makes it quite apparent that the motivation for these maps was not mortgage security, but rather to ensure that supposedly incompatible racial groups should not live in the same neighborhoods. Even though this practice (known as redlining) was banned in 1968 with the passing of the Fair Housing Act, its effects still persist (Jan, 2018).

Introduction

The education domain has not been explored as much as other domains (e.g. housing) have been in order to understand the effects of redlining. Some researchers have analyzed whether unequal school attendance boundaries are linked to redlining maps (Monarrez & Chien, 2021), while others have explored the impact of redlining on educational outcomes by analyzing districts and schools currently located in formerly redlined neighborhoods (Lukes & Cleveland, 2021).



However, there has been no analysis yet focusing on school attendance boundaries i.e. exploring the impact of redlining on educational outcomes by analyzing school attendance boundaries with formerly redlined neighborhoods. This analysis would be useful because students studying in public schools usually go to that school because their family lives in that school's attendance zone. This means that even though a school may be located in a former redlined area, most students coming to that school may be from a former 'B' grade neighborhood. Therefore, analyzing a school by looking at the former majority grade of its attendance boundary would be more representative of its student body.



Research Question

Is there a link between former redlining maps and current racial composition, student expenditure, and the number of economically disadvantaged students in schools? The hypothesis was that redlining maps relate to racial composition, student expenditure, and the number of

economically disadvantaged students in schools, while the prediction was that school attendance boundaries with a majority of formerly redlined neighborhoods have larger shares of students of color, lower student expenditure, and more economically disadvantaged students.

Methods

The region that was used for this analysis was the whole country because redlining was not specific to certain states or regions in the United States. The cities of Chicago, Los Angeles and New York were chosen for analysis based on the availability of relatively updated school attendance boundaries, and a large number of graded neighborhoods for analysis. The analysis was only limited to public elementary schools.

Area descriptions and shapefiles of the redlining maps were obtained from the Mapping Inequality project (Nelson et al., 2021), while shapefiles for elementary school attendance boundaries were obtained from open data portals for Chicago (Chicago Data Portal, 2018), Los Angeles (Los Angeles GeoHub, 2018), and New York (NYC OpenData, n.d.). The National Education Resource Database on Schools (Edunomics Lab, n.d.) was used for student expenditure data, and data on public elementary schools (including data on race and economic characteristics) was acquired from the Common Core of Data (U.S. Department of Education, n.d.-a) using the Elementary/Secondary Information System (ElSi) web application (U.S. Department of Education, n.d.-b). Data on students receiving free or reduced price lunch was used as a proxy for the number of economically disadvantaged students.

Using the shapefiles, school attendance boundaries that intersected with redlining maps were identified, and the area of each HOLC grade within an attendance boundary was calculated. The school attendance boundaries were then classified according to the majority HOLC grade, and comparisons were made between schools in majority A and D attendance boundaries, and

between schools in either A or B, and either C or D majority attendance boundaries (majority was defined as greater than 50% of an attendance boundary's area).

An ordered logistic model was also run with the variable storing the majority grade of school attendance boundaries as the dependent variable:

$$MajGrade_i = \beta_0 + \beta_1 WhiteMaj_i + \beta_2 BlackMaj_i + \beta_3 LunchMaj_i + \epsilon_i$$

All independent variables were binary, including variables indicating whether a school has a majority White student body, whether it has a majority Black student body, and whether a majority of the students are receiving free or reduced price lunch.

Results

Across all three cities analyzed, schools located in majority D grade school attendance boundaries had more economically disadvantaged students and higher per-pupil expenditures as compared to schools in majority A grade school attendance boundaries. Schools located in majority D grade school attendance boundaries also had higher shares of African American students in Chicago and New York, and a higher share of Hispanic students in Chicago and Los Angeles. Moreover, using the ordered logistic model results, it was found that an elementary public school is approximately 14% less likely to be in a majority D grade school attendance boundary if it has a majority White student population. This discrete difference was found to be statistically significant.

Limitations

Since only three cities were analyzed, these results may not be representative of all cities with a history of redlining. Moreover, although the percentage of students receiving free and reduced price lunch provides some information about relative poverty and has been commonly used by researchers as a proxy for poverty, it is not equivalent to the actual percentage of

economically disadvantaged students in schools (Snyder & Musu-Gillette, 2015). It should also be noted that this analysis was conducted for only elementary public schools, so it may not be representative of other school types and school levels. Finally, the definition of a majority grade may also change results.

Conclusion

These results highlight the need for further research in the education domain in order to understand the persistent effects of redlining better. Doing so is extremely important for policymakers involved in designing interventions focused on improving the educational outcomes of economically disadvantaged students and students of color. This analysis also highlights the need for an accurate and frequent collection of school attendance boundaries in order to enable more comprehensive research.

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