

## **Schools and the Legacy of Redlining**

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## **Abstract**

Much evidence has shown that the long-standing practice of redlining, despite being outlawed in 1968, nevertheless has had lingering effects on current conditions. Those include housing quality and value itself, but also the quality of schools in school attendance zones that overlap formerly redlined areas. This paper examines redlining's lingering effects on schools, reviewing how schools in formerly redlined areas strongly tend toward failure. It examines the systemic structure of this situation, positing that it is not the quality of housing, per se, that has led to failing schools. It is the lack of administrative effort, in many of those formerly-redlined attendance zones, to enforce good academic and behavioral standards and to support high effort from faculty. Policy experiments in a stylized model simulate improved faculty effort alone, improved academic and behavioral conditions alone, and a combination of the two, showing that significant improvements in school quality and in student performance are possible, especially with the combined approach.

## Introduction

In recent years, there has been widespread discussion of “systemic racism,” a situation under which members of minority races experience deleterious outcomes, such as higher arrest rates or greater wealth inequalities, stemming from explicit or implicit bias (see, for example, Brookings Institution 2022). Even though explicit bias is mostly illegal, systemic racism may still exist because of structures of policy or behavior that generate unnecessarily lopsided outcomes. One such systemic structure involves how school districts assign students to schools, using “school attendance zones” that may be vestiges of the now-outlawed practice of “redlining” urban neighborhoods.

Redlining was an overtly racist and discriminatory policy facilitated by a federal agency of the United States government, the Home Owners’ Loan Corporation (HOLC), founded in 1933 as part of the New Deal (National Archives of the United States, 2021). The HOLC commissioned “residential security maps” for scores of cities across the country. The

term “redlining” came from how the maps used four colors to depict neighborhoods as belonging to four categories of loan risk:

- Best (green)
- Desirable (blue)
- Declining (yellow)
- Hazardous (red)

See, for example, the HOLC residential security map for Columbus, Ohio in Figure 1.

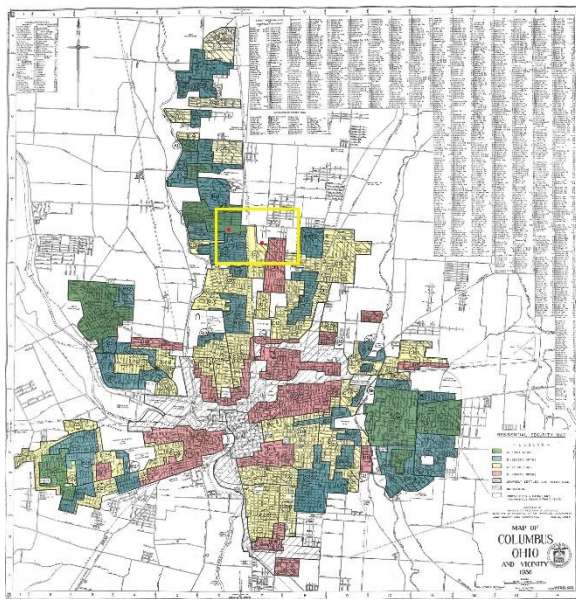


Figure 1 “Residential Security Map” for Columbus, OH, 1936. Source: University of Richmond Digital Scholarship Lab.

Later, I will discuss in greater detail the area in Figure 1 outlined in yellow; it contains two elementary schools (shown as red dots) with markedly different performance outcomes, which are located in different “school attendance zones.” These zones were in different neighborhoods on the 1936 HOLC map: one green (“best”) and the other yellow and red (“declining” and “hazardous”).

Numerous recent academic studies have rigorously examined the lingering effects of redlining. One stream of research has examined its effects on mortgage and home improvement lending (see, for example, McClure et al. 2019; Mehdipanah, 2020; Nardone, Chiang, and Corburn, 2020; Silverman, 2005; and Voyer, 2021). Another stream, which I examine in the next section, has studied its effects on student assignment to, and performance of, schools.

In the United States, schools are overseen by *school districts*, which are political subdivisions, typically defined in state law and governed by elected officials (DeRoche, 2020). They come in two varieties: geographically large districts, often coterminous with counties, and smaller districts coterminous with cities or towns. Within districts, unelected administrators usually create *school attendance zones*, which are administrative service areas; as DeRoche (2020: 71) puts it, “Government employees carve up the [district] map and determine who gets preferred enrollment at what school.”

School attendance zones create a link between housing quality and school quality. Burke and Schwabach (2020) say, “Housing and schooling are intrinsically linked in the United States, not only in terms of education opportunity, but also in terms of property values.” (Burke and Schwabach, 2020: 2) DeRoche (2020) gives many clear examples of the latter property value dynamic, as affluent parents looking for good schools for their children bid up the price of housing in school attendance zones that have those good schools. Parents who cannot afford expensive housing make do with the schools within their school attendance zones. What results is a patchwork of school attendance zones with different property values and schools of commensurate quality—expensive, high-quality housing with high-performing schools, cheaper, lower-quality housing with low-performing schools.

### School Attendance Zones and Redlining

Many scholars (Baladeres-Herbert, 2021; Burke and Schwabach, 2021; Calder, 2019; DeRoche, 2020; Lukes and Cleveland, 2021; Schwabach, 2022; White et al., 2019) have shown the high overlap between existing school attendance zones and the historic HOLC designations of neighborhoods. In other words, today’s affluent school attendance zones with good schools often are in areas designated green (“best”) or blue (“desirable”) in the HOLC maps of eighty-five years ago, while today’s failing schools are often in school attendance zones whose areas were designated yellow (“declining”) or red (“hazardous”) in those old maps.

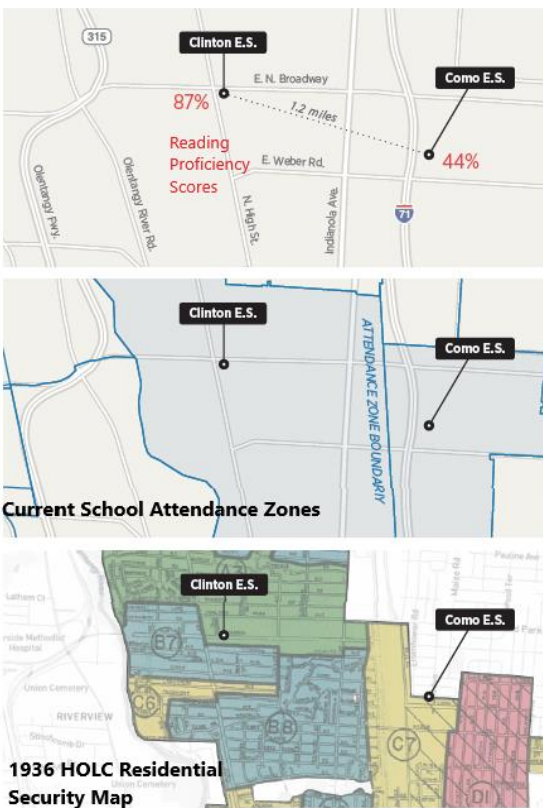


Figure 2 shows an interesting example, from Columbus, Ohio, in the area previously outlined in yellow in Figure 1. One school, Clinton Elementary School, is in a previously green HOLC area. The average reading proficiency score at Clinton Elementary is 87%. A mere 1.2 miles to the east is Como Elementary School, located in what was the borderline between yellow and red areas on the 1936 HOLC map. The average reading proficiency score at Como Elementary is 44%.

### Causes of the School Performance Gap

#### *Funding of Traditional Public Schools*

The question is why these performance discrepancies exist even though the geographic discrepancies were eliminated (formally, at least) in the 1960s. One obvious answer is funding. Perhaps the old yellowlined and redlined areas have been chronically underfunded, and hence underperforming, over the last five decades. However, in a comprehensive study, Lukes and Cleveland (2021) examined revenue and expenditure patterns across hundreds of school administrative districts. Instead of using green, blue, yellow and red, they categorized schools as HOLC A, B, C and D, respectively (nomenclature I will adopt here). They discovered that *revenues* in HOLC D school administrative zones were indeed lower than

Figure 2 School Redlining Case Study: Columbus, Ohio.  
Sources: DeRoche, 2021 and <https://dsl.richmond.edu/panorama/redlining/#loc=11/40.007/-83.189&city=columbus-oh>

those in HOLC A zones. However, because of federal funding provided to HOLC D schools, their *expenditures* were not statistically significantly different from HOLC A schools.

### *Insights from Charter School Research*

One clue to the difference in school performance across schools located in HOLC A versus HOLC D districts lies in the performance of charter schools. Charter schools are publicly-funded schools that differ from traditional public schools in some important respects (Holley, 2021):

- Flexibility: Charter schools tend to pass new ideas through their independent boards, as opposed to the bureaucracies and elected school boards of traditional public schools.
- Enrollment and admissions: Charter schools tend to be oversubscribed, so they typically use lotteries to enroll students. Traditional public schools must take all comers.
- Regulation: Both types of schools face similar regulation, but as mentioned earlier, charter schools tend to have more flexibility in adopting new ideas.
- Learning programs: Because of their greater flexibility, charter schools tend to be faster at recognizing and adopting new teaching and learning methods.

Sowell (2020b) obtained comprehensive data on charter schools in New York City; happily for Sowell's investigation, New York has many traditional public schools that rent vacant space in their buildings to charter schools. He limited his analysis to charter schools that were located in the *same buildings* as traditional public schools. Here is what Sowell had to say about students in Success Academy, a charter school system in New York City (Sowell, 2020a):

[At] Success Academy charter school network in New York City, [the] predominantly black and Hispanic students already pass tests in mathematics and English at a higher rate than any school district in the entire state. That includes predominantly white and Asian school districts where parental income is some multiple of what it is among Success Academy students.

And here is what Sowell found in his comparison of traditional and charter schools that occupy the same buildings (Sowell, 2020a):

In a number of low-income minority communities in New York City, charter school classes and classes in traditional public schools are held in the same buildings, serving the same communities. Some of the contrasts are almost unbelievable.

- In 28 classes in these buildings, fewer than 10% of the students reached the "proficient" level on statewide tests. All 28 classes were in traditional public schools.
- All charter school classes at the same grade levels in the same buildings did better—including six grade levels where the charter school majorities reaching the "proficient" level ranged from 81% to 100%.

The point of Sowell's research is that school performance is apparently *not* determined by residence; it is possible to design and implement schools that, despite their location in formerly redlined areas, are high performing.

Cohodes (2018) found a similar phenomenon in her examination of charter schools. With one type of exception, Cohodes found that charter schools and traditional public schools produced similar performance results. The type of exception was what she called “No Excuses” charter schools, which she described as follows:

No excuses schools emphasize high expectations for both academics and behavior, longer school days and years, and frequent observations of teachers to give feedback, tutoring, and data-driven instruction that uses assessment to frequently update teachers. (Cohodes, 2018: 6)

She says, “Urban charter schools and those serving low-income and minority students, a number of which share a no excuses philosophy, tend to produce the largest [achievement] gains.” (Cohodes, 2018: 1) She defines the no excuses approach as “a focus on discipline, uniforms, and student participation.” (Cohodes, 2018: 8)

### Dynamic Hypothesis

Figure 3 shows what might be called the conventional dynamic hypothesis—that poor quality of housing in formerly redlined areas somehow directly causes poor quality of schools in those attendance zones. But the literature reviewed above casts doubt on this hypothesis. Some charter schools (and possibly some traditional public schools) using the “no excuses” approach in formerly redlined attendance zones seem able to create very good outcomes. There are “missing links” in this conventional dynamic hypothesis.

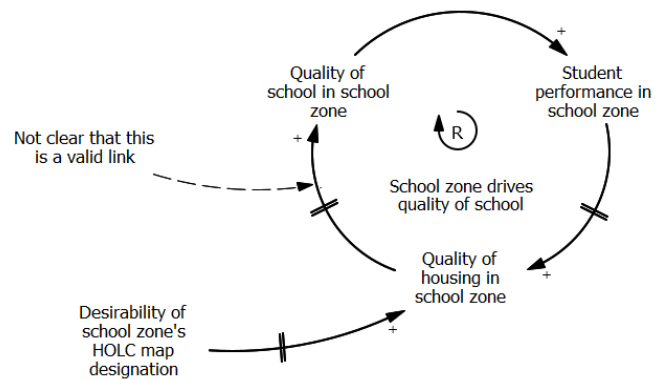


Figure 3 Conventional Dynamic Hypothesis

Figure 4 posits a dynamic hypothesis that includes proposed additional links. The key proposal is that the quality of housing does not, per se, lead to differences in school quality. Instead, stakeholders in affluent areas insist on greater attention to school quality from their administrators. The result is greater levels of the “no excuses” approach. This results in reinforcing Loop R1—greater application of the no excuses approach leads to higher faculty skill and greater academic rigor, leading to higher school quality and higher housing values in the respective attendance zone. Of course, as a reinforcing loop, this dynamic may go in the opposite direction: non-affluent attendance zones have administrations that pay less attention to faculty skill and academic rigor, leading to worse school quality, which maintains lower-value housing in that zone.

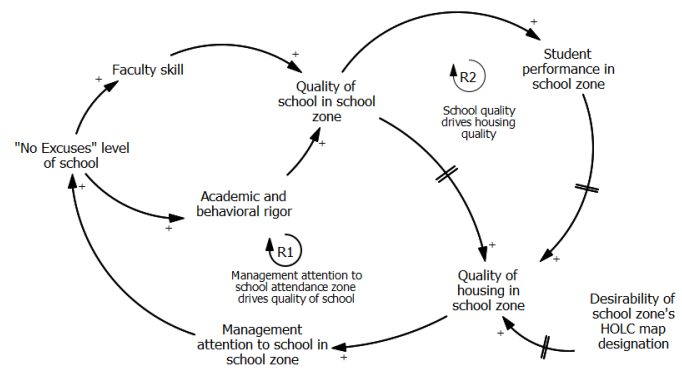


Figure 4 Elaborated Dynamic Hypothesis

## Stock and Flow Model

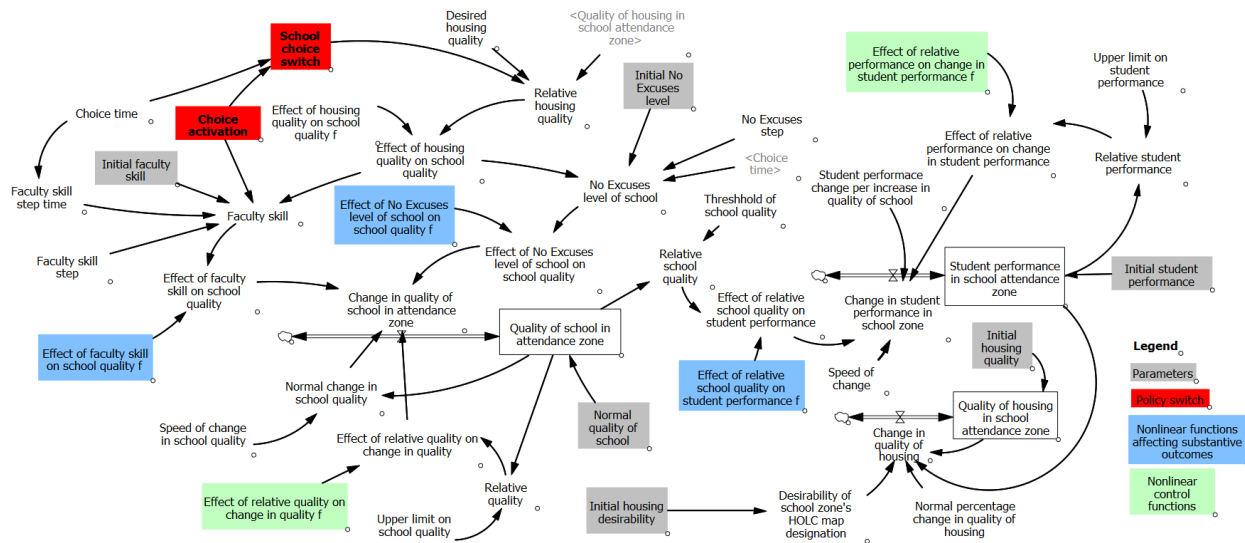


Figure 5 Stock and Flow Model of Elaborated Dynamic Hypothesis

Figure 5 shows a stock and flow model that tries to capture the dynamics of this situation. I should note that this model is a *stylized model*, intended to show the dynamics of this type of situation. It is *not* intended to depict the situation in any particular, identifiable school attendance zone.

The model has three stocks that conform to variables in the elaborated dynamic hypothesis:

- Quality of housing in school attendance zone
- Quality of school in attendance zone (this has a nonlinear control to prevent it from exceeding a plausible limit)
- Student performance in school attendance zone (this also has a nonlinear control to prevent it from exceeding a plausible limit)

These were modeled as stocks because they rise or fall over time. Quality of housing improves or decays gradually, and school quality and student performance do not improve instantaneously.

The model has six parameters. Three are initial stock conditions:

- Initial housing quality: 100 for HOLC A (green) zones, 50 for HOLC D (red) zones.
- Normal quality of school: 1 for HOLC A zones, 0.8 for HOLC D zones.
- Initial student performance: 1 for HOLC A zones, 0.8 for HOLC D zones.

One parameter (Initial housing desirability) is an input to a flow and two are variables that directly affect, through nonlinear functions, school quality and performance:

- Initial low excuses level: 1 for HOLC A zones, 0.1 for HOLC D zones.
- Initial faculty skill: 1 for HOLC A zones, 0.8 for HOLC D zones.

The model also has a “policy switch” that allows for policy testing; I will discuss this in greater detail later. The beginning time of the model was set at 1970, with an ending time of 2020. This approximates the beginning of the *formal* elimination of redlining down to the present day.

## Illustrative Policy Experiments<sup>1</sup>

### Baseline policy

Figure 6 shows Housing quality under typical “legacy” conditions of school attendance zones. Housing in the formerly green zones, HOLC A, gradually improves over the period, while housing in the formerly red zones, HOLC D, remains poor.

Figure 7 shows that, under typical conditions, the quality of schools in HOLC D attendance zones remains poor throughout the period, while, as hypothesized, it improves over time in the formerly HOLC A zones.

Figure 8 shows a similar result regarding student performance. Students in HOLC A zones show gradual improvement to the limit over time, while students in the formerly redlined areas show a gradual decline.

### Policies for Improvement: Greater Faculty Skill and Effort

As the research by Cohodes (2018) and Sowell (2020a, 2020b) showed, the leverage in this systemic structure lies in adopting more rigorous academic and behavioral standards (the so-called “no excuses” approach) coupled with greater skill of and effort by the faculty. School attendance zones can achieve this, with appropriate effort, in traditional public schools (see McGee, 2004) or in charter schools (Cohodes, 2018; Sowell 2020a, 2020b).

First, though, we will test whether either approach—“No Excuses” or greater skill of and effort by the faculty—used alone may lead to better results. We will start with greater skill of and effort by faculty.

Figure 9 shows that greater faculty effort, by itself, has only a modest positive effect, if started in 1970, on the quality of a school in an attendance zone located in a previously redlined area. Indeed, if started later (year 2000), its effect is negligible.

Figure 10 on the next page shows that its effect on Student performance is also modest. At best, Greater faculty effort, started early (1970), keeps Student performance level after an initial drop.

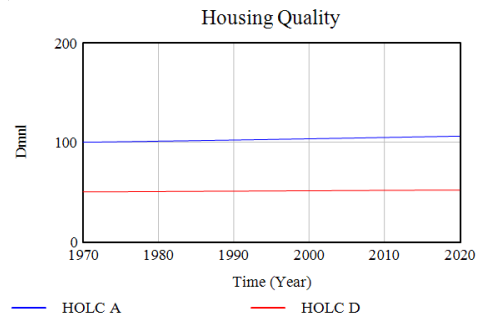


Figure 6 Housing Quality Under Typical Conditions

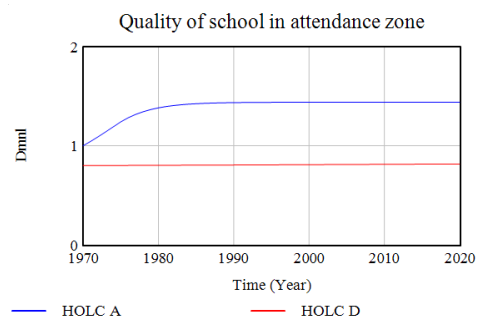


Figure 7 Quality of School Under Typical Conditions

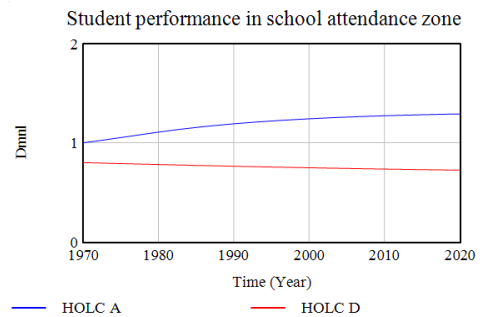


Figure 8 Student Performance Under Typical Conditions

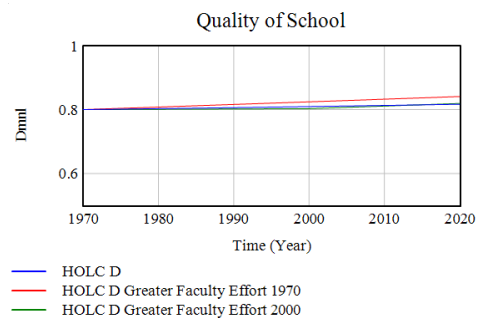


Figure 9 Effect on School Quality of Greater Faculty Effort

<sup>1</sup> Please see the Appendix for a full listing of all parameter settings for all policy experiments.



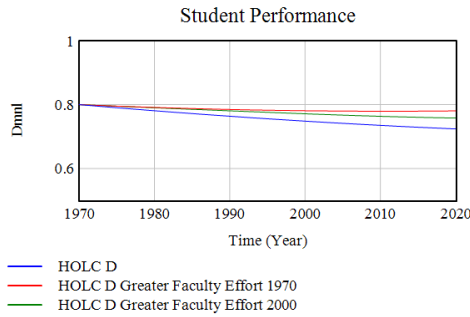


Figure 10 Effect on Student Performance of Greater Faculty Effort

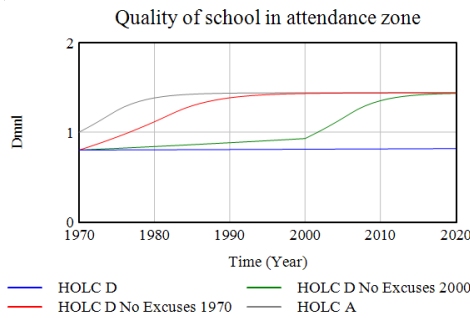


Figure 11 Effect on Quality of School of "No Excuses" Approach

### Policies for Improvement: "No Excuses" Approach

Next, we test the effect of the "no excuses" approach, which sets high expectations both for academics and behavior. Figure 11 shows this to be a high-leverage approach for improvement of School quality. Used starting in 1970 (red curve in Figure 11), it raises school quality to nearly the same level as those in HOLC A school attendance zones (gray curve in Figure 11). Even adoption as late as 2000 essentially closes the quality gap by 2020.

As Figure 12 shows, the effect of the "No Excuses" approach is also positive for Student Performance, but not as robust. The red (1970) and green (2000) implementations of this approach

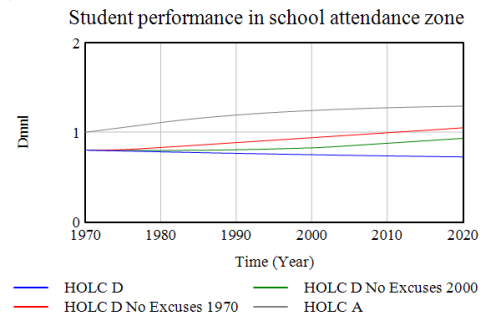


Figure 12 Effect on Student Performance of "No Excuses" Approach

appear that they will fully close the gap with the HOLC A schools, but not until well past the end of the simulated period.

### Policies for Improvement: Combination of "No Excuses" and Greater Faculty Skill and Effort

As the research by Cohodes (2018) and Sowell (2020a, 2020b) showed, the leverage in this systemic structure lies in adopting more rigorous academic and behavioral standards (the so-called "no excuses" approach) coupled with greater skill of and effort by the faculty. School attendance zones can achieve this, with appropriate effort, in traditional public schools (see McGee, 2004) or in charter schools (Cohodes, 2018; Sowell 2020a, 2020b).

One avenue for improvement comes from the policy of school choice, whether that comes from available charter schools, high-quality traditional public schools that lie outside the school attendance zone, or school vouchers allowing students' families to select schools outside the assigned school attendance zone. (See DeAngelis and Erikson, 2018, for a comprehensive review of the effects of school choice, most of which, but not all, are positive.) For the purposes of this paper, we subsume all of these policy alternatives as "choice."

To implement choice in the model, we set a year, either 1970 or 2000, to begin a regimen of faculty skill increasing from 0.8 to 1.0 and the level of "no excuses" from 0.1 to 1. The start time of 1970 was to see how this policy might have improved matters from an early date, while the start time of 2000 was to assess the effect of a later improvement.

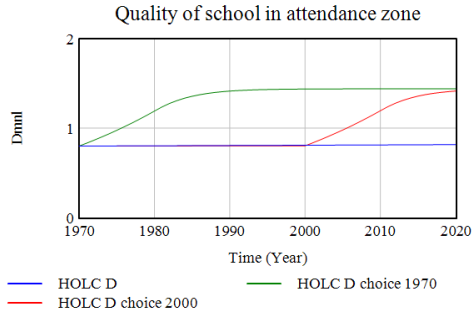


Figure 13 Effect on School Quality of "Choice" Policy

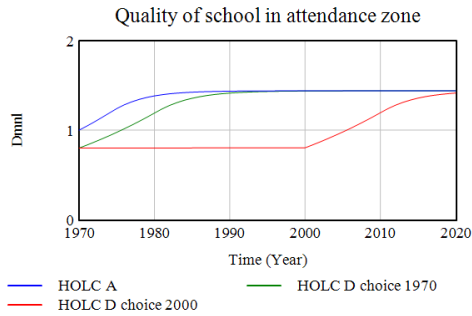


Figure 14 Effect on School Quality of "Choice" Policy Compared to Schools in "Green" Zones

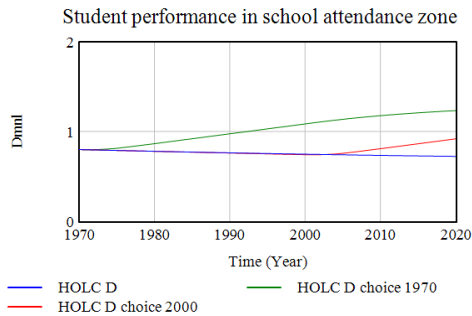


Figure 15 Effect on Student Performance of "Choice" Policy

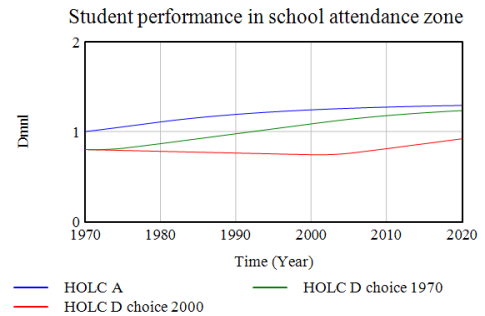


Figure 16 Effect on Student Performance of "Choice" Policy Compared to Schools in "Green" Zones

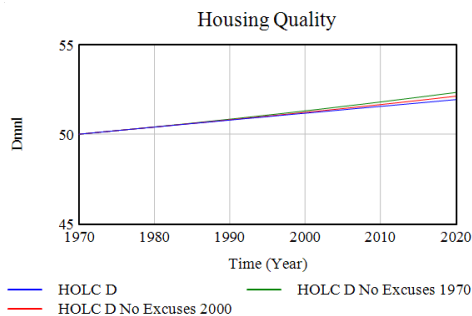


Figure 17 Effect on Housing Quality of "Choice" Policy

Figure 13 shows the effect of this policy on School Quality when compared to the historical approach used in HOLC D zones. Not surprisingly, with choice implemented in 1970, School quality improves from an early date and reaches a much higher level than what students in HOLC D zones typically experienced. It is interesting to see that even a late (2000) implementation of this policy results in significant improvement (red curve).

Figure 14 shows these policies compared to the typical pattern in HOLC A zones. They both achieve parity of quality with schools in those zones, one early (1970 implementation, the green curve) and one later (the 2000 choice implementation, the red curve).

Figure 15 shows similar results for Student performance. The gradual decline of student performance from the traditional policy in HOLC D zones turns around to a gradual improvement in that performance.

Figure 16 shows that this improvement does not completely close the gap with HOLC A zones. However, the early implementation of choice nearly closes the gap by 2020, so there is reason to believe that even the later, year 2000, implementation eventually would narrow, or even close, the gap.

### Effects on Housing

While housing quality, as an outcome, is not of central interest to this paper, it is interesting to note that the choice policy has a modest positive effect on the quality of housing in formerly redlined, HOLC D, zones, as Figure 17 shows. This is consistent with the view that quality of schools ultimately raises the quality of housing in a school attendance zone.

## Conclusion

Much evidence has shown that the long-standing practice of redlining, despite being outlawed in 1968, nevertheless has had lingering effects on current conditions. Those include housing quality and value itself, but also the quality of schools in those school attendance zones that overlap formerly redlined areas. This paper focused on the lingering effects of redlining on schools, reviewing how schools in formerly redlined areas strongly tend toward failure. It examined the systemic structure of this situation, positing that it is not the quality of housing, per se, that has led to failing schools. It is the lack of administrative effort, in many of those formerly-redlined attendance zones, to enforce good academic and behavioral standards and to support high effort from faculty.

The policy experiments in the stylized model used in this paper simulated improved faculty effort alone, improved academic and behavioral conditions (the “no excuses” approach) alone, and a combination of the two. The results showed that significant improvements in school quality and in student performance are modest with improved teaching, significant with the “no excuses” approach alone, and high with the combined approach. Indeed, the combined approach closed the gap between HOLC A and HOLC D zones in school quality. For student performance, the gap remained after implementation of the combined approach, but the trend was in the direction of closing it. For some charter schools, in New York City and elsewhere, this combined approach has already closed the quality and performance gaps.

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## Appendix

Table of Parameter Settings for Simulation Runs

Run	Initial No Excuses Level	Step in No Excuses Level	Initial Faculty Skill	Step in Faculty Skill	Initial Student Performance	Initial Housing Quality	Normal Quality of School
HOLC A	1	0	1	0	1	100	1
HOLC D	0.1	0	0.8	0	0.8	50	0.8
HOLC D Greater faculty effort 1970	0.1	0	0.8	0.2	0.8	50	0.8
HOLC D Greater faculty effort 2000	0.1	0	0.8	0.2	0.8	50	0.8
HOLC D "No Excuses" 1970	0.1	0.9	0.8	0	0.8	50	0.8
HOLC D "No Excuses" 2000	0.1	0.9	0.8	0	0.8	50	0.8
HOLC D "Choice" 1970	0.1	0.9	0.8	0.2	0.8	50	0.8
HOLC D "Choice" 2000	0.1	0.9	0.8	0.2	0.8	50	0.8