Tabulating HOLC Area Description Sheet Data

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September, 2021

Abstract
In the 1930s, the Home Owners' Loan Corporation (HOLC) oversaw a massive federal program that graded thousands of urban neighborhoods. The precise aims of this infamous program are still disputed, but the grading criteria were almost certainly devised to convey the level of risk each area posed to property investors. The Digital Scholarship Lab at the University of Richmond has graciously digitized the maps and field notes produced by the HOLC and have made them freely available to the public. While these "redlining" maps have received considerable academic and media attention, the field notes used to assign risk grades—available for most cities in their "area description sheets"—remain virtually unusable for most multi-city analyses. Addressing this problem, I convert three of the most consequential variables from the description sheets for 129 cities into an accessible and analyzable tabular format. These include the average building age, Black population percentage, and "foreign-born" population percentage. In addition, I organize the description sheets into three semi-compatible tables, assisting future researchers incorporate other HOLC field note variables into their projects.

Background and Summary
The Home Owners' Loan Corporation (HOLC) was a New Deal-era federal agency established in 1933 to refinance mortgage loans for homeowners facing foreclosure. Over forty years later, historian Kenneth Jackson discovered that after the refinancing program ended in 1936, the HOLC created a series of "residential security" maps that graded thousands of urban neighborhoods across hundreds of cities (Jackson 1980, 1985; Hillier 2003). The maps relied on a now-infamous A-to-D grading schema that ranged from "Best" (green) to "Hazardous" (red) and was heavily influenced by the area's racial, ethnic, and class compositions (see **Fig. 1**). These so-called "redlining" maps were also accompanied by "area description" sheets that contain an incredibly rich collection of qualitative and quantitative information about the places being mapped. For most HOLC neighborhoods, these sheets include detailed descriptions of their racial and demographic, socioeconomic, housing, and even physical characteristics (see **Fig. 2**).

In recent years, the HOLC's security maps have gained significant attention among scholars and the broader public. They featured prominently in Ta'Nehisi Coates's (2014) *The Case for Reparations* and Richard Rothstein's (2017) *The Color of Law* and were even referenced in the policy platforms of three candidates in the 2020 Democratic primary (Capps and Mock 2019). They are also the subject of ongoing debates about the federal government's role in (re)producing racial housing segregation and inequality (Aaronson, Hartley, and Mazumder 2017; Appel and Nickerson 2016; Crossney and Bartelt 2005; Fishback et al. 2021; Hillier 2003; G. D. Nelson 2021; Winling and Michney 2021; Xu 2021). However, much of these discussions—both academic and

popular—have remained narrowly focused on the maps themselves, neglecting the description sheets. This is unfortunate because these data provide unparalleled access into the governing ideology of the real-estate industry of the time. Indeed, it is difficult to make much sense of the maps without them.

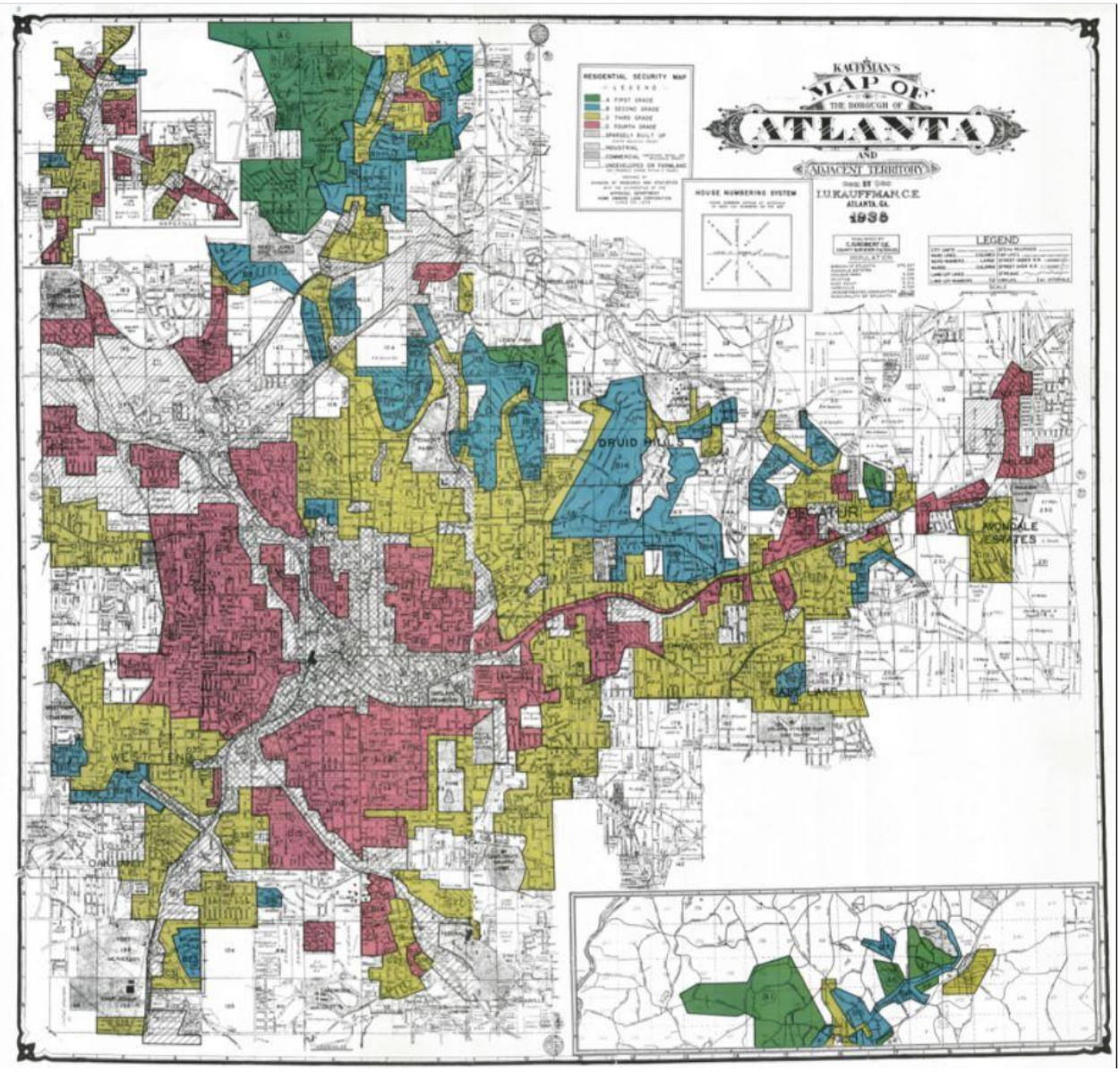

Figure 1. Atlanta HOLC map. Source: (R. K. Nelson et al. 2021).

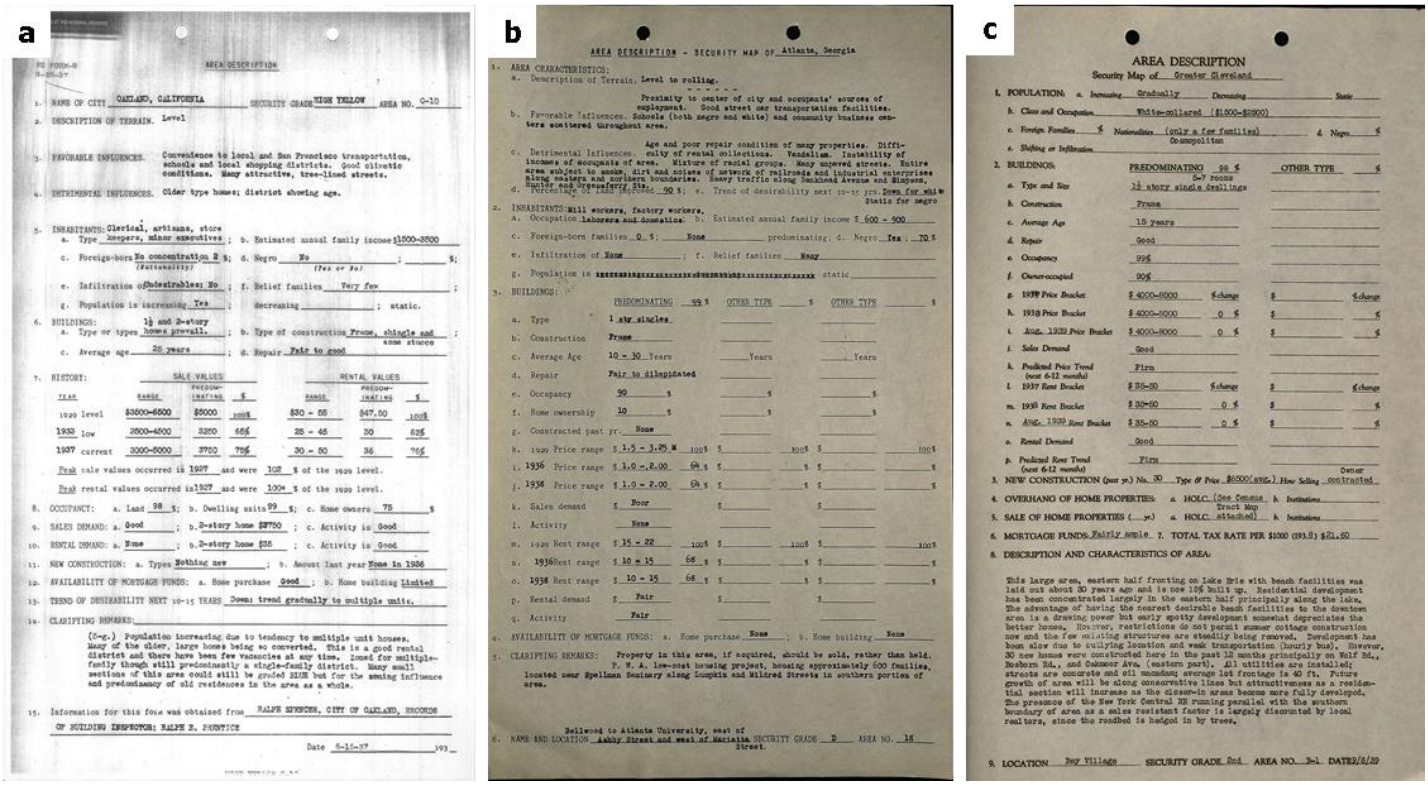

Figure 2. Area description sheets for (a) Oakland, CA (early37), (b) Atlanta, GA (late37), and (c) Cleveland, OH (x3940). Source: (Nelson et al., 2021).

A major reason researchers have often ignored the description sheets is that they are much less accessible than the maps. Although the Digital Scholarship Lab (DSL) at the University of Richmond has scanned and digitized the sheets for over one hundred cities, their data entries have not yet been made available in a tabular format (Nelson et al., 2021). Thus, researchers are unable to conduct large-scale, multi-city analyses using this unique data source unless they put in a substantial amount of work up front. Assisting this process, I have tabulated the area description sheet (ADS) data for 129 cities. This file is available free for download in the linked Open Science Framework (OSF) project (called "ADS_organized.xlsx"). As an Excel workbook, this data is much easier for most researchers to process than the GeoJSON file available through the DSL website. However, due to idiosyncrasies in how HOLC field agents recorded their notes (and in how those notes were digitized), this data table is not yet ready for statistical analysis. For that, I prepare three variables often considered to be among the most consequential for determining neighborhood grades: the average building age, Black population percentage, and "foreign-born" population percentage (Greer 2013; Hillier 2005; Michney 2021; Woods 2012). The table ("ADS_FINAL.csv") and accompanying GIS polygons—as well as the R code used to produce them—are also available via OSF.

The following section outlines the methods and procedures I follow to generate this data. After this section, I present a series of exploratory descriptive data analyses using my output tables. These analyses are less designed to break new ground in the HOLC literature than to demonstrate what kinds of questions can be investigated using this dataset. Still, some of the findings invite

new ways to think about the HOLC neighborhood appraisal process. The section following that one concludes the paper by describing how and where researchers can access the output data and code. Further instructions about this can also be found in the GitHub repository linked in the OSF project.

Methods

Data Collection and Organization

The DSL has received much deserved praise for their extensive *Mapping Inequality* project. Although their downloadable shapefiles and user-friendly web interface have garnered much of the attention, the team has also digitized the HOLC's richly detailed area description sheet data. They provide all text from each neighborhood's description sheet as a single attribute in a GeoJSON file (found on this page). Within this file, appraiser comments are separated from their respective section numbers with a colon. Splitting the comments from the section numbers into two distinct columns is a straightforward procedure in most software programs. The trouble with this data, however, is that the section numbers are not consistent between cities. For example, the "foreign born" entry may be listed in section 1c in some cities but 2c or 5c in other cities (see **Fig. 2**). Still other variables, such as the "trend of desirability," are completely left off of some versions. The problem here is that I cannot simply rename all "1c" sections as "percent foreign born." I must first identify each sheet type before applying a customized reclassification schema to each. I do this manually.

Table 1 shows the breakdown of the description sheet types I identify. The three with a white background are those I keep, while those shaded gray are discarded. Among the latter are neighborhoods with no accompanying description sheet ("none") and those providing only a descriptive paragraph ("para"). Among the former are the three sheet types corresponding with the dates printed on them: early 1937, late 1937, and 1939–40. Their formats are displayed side-by-side in **Figure 2** above.

Table 1. HOLC area description sheet (ADS) types.

ADS Type	Cities	N'hoods
early37	56	2,068
late37	55	2,118
x3940	18	2,574
para	26	836
unique	1	27
none	46	1,251

Following manual identification, I proceed with reclassification. I keep section number renames as consistent as possible across sheet types, but their descriptions were sometimes altered by the HOLC, making an exact, one-to-one crosswalk challenging to construct. The output of this initial cleaning process is an Excel workbook called "ADS_organized.xlsx," which is located in the DATA_DOWNLOAD/TABLES folder in the associated GitHub repository. The description sheet types are located in separate sheets within the workbook. Column headings are the reclassified names of section numbers, and the cells are filled with the digitized entries provided by the DSL.

This organized description sheet workbook is useful for researchers who wish to link variables between sheet types. It also provides an easily navigable and searchable table to assist with qualitative research. However, it is not yet able to be used in statistical analyses.

Building Age

To generate analyzable tables, I convert three variables: the average building age, percent Black, and percent "foreign born." These variables are included in all description sheet types and are among the field note entries that have generated the most discussion since Jackson's (1980; 1985) original work. The percent Black and "foreign born" variables are handled similarly, so I discuss them together in the next subsection. I start with the building age.

In all three description sheet types, there is a blank to fill in the "average age" in a category called "Buildings." In the *early37* version, average age is listed as a single entry, making the processing steps on my end relatively straightforward. The main tasks are to remove the word "years," change the word "new" to zero, replace spelled-out numbers, and convert the strings to numbers. In many cases, however, the appraiser listed a range (*e.g.*, "1–15 years") instead of a single value. Since there is not a dependable method for determining the true average in these instances, I take the midpoint. Hence, "1–15" is transformed into "8."

In the later description sheet versions, the layout is a bit more complicated. Average building age data is provided in multiple columns (see **Fig. 2**). The first column is for building structures that are "predominating" an area, whereas the second and third are designated for "other types." This means that for many entries in the GeoJSON file, the average age reads something like "1–15 years 1–25 years." In some of these cases, the appraiser indicated what percentage of buildings are in the "predominating" group versus the other groups, theoretically enabling me to weight the age ranges provided. However, this practice was not especially common. Thus, I follow the same conversion steps as with *early37* sheets. I take the minimum and maximum value of all numerical characters listed for a given entry and then calculate their midpoint. In my example above ("1–15 years 1–25 years"), the minimum is one, and the maximum is 25, so the final value I include—the building age midpoint—is 13.

Black and "Foreign Born" Percentage

The Black and "foreign born" entries are listed next to each other in all three sheet types. They are subcategories of an description sheet section called "Inhabitants" in *early37* and *late37* sheets and of "Population" in *x3940* sheets (see **Fig. 2**). Making conversion fairly clear-cut, both entries were printed with a percent sign (%) already on the sheet, prompting the appraiser to fill in the blank with a number. In the majority of cases in which the field agent obliged, a simple conversion from a string to a number completes the task. In many cases, however, the appraiser does not make things so simple. Sometimes, they spelled out the percentage (*e.g.*, "two"); wrote a fraction (*e.g.*, 2 ½); or responded with "no," "N/A," or "none." In other cases, the appraiser listed the number of families rather than the percentage. There are 18 such instances in the "foreign born" category and 75 in the Black category. For these, I conservatively assume that one family

translates to 0.5 percent of the neighborhood population. A final special case worth mentioning here occurred only in the West. In dozens of neighborhoods, the appraiser entered "few none" for the "foreign born" category. To help with the next step, I changed these to two percent.

There are 6,748 area description sheets total, each attached to an HOLC neighborhood. After correcting these simpler issues, I have numerical percentages for about 98 percent of the Black data entries and 94 percent of the "foreign born" data entries. Primarily left over are cases in which the appraiser used a quantitative descriptor, such as "few", "nominal", "many", or "some" (see **Table 2** for a breakdown). Handling these is considerably trickier.

Table 2. Quantitative descriptors in the HOLC area description sheets. The n value represents the number of sheets with one of these descriptors and no accompanying numerical percentage.

Descriptor	% Black (n)	% For. Born (n)
few	63	242
mix, mixed, or mixture	0	22
negligible	0	1
several	1	0
small	2	5
some	4	5
substantial	1	3
threatening	1	1
various	0	5
very few	10	33
yes	23	6
[nationality]	0	53
Total	105	376

If one area has "a few" "foreign born" families listed, while another has "several," we can probably surmise that the latter has more than the former. But how many more? And how can we be sure that one appraiser's conception of "few" or "several" is the same as another's? There is no perfect solution to these problems. The description sheets do, however, provide important clues. Since the field note entries for both the Black and "foreign born" categories include slots for the appraiser to enter both a numerical percentage and a comment, many sheets with numerical percentages also have an accompanying descriptor—*e.g.*, "few 5%". By calculating the mean percentage accompanying a given descriptor in the sheets with both, I can impute that numerical value in the sheets with only the descriptor provided. The resulting estimate would then indicate the average percentage that appraisers understood a given descriptor to represent. However, what might count as a "few" Black or "foreign born" families in Brooklyn might not count as a "few" in Birmingham. To help control for the pronounced regional differentiation in both populations, I calculate these means by region. Regions are mostly defined using the standard Census definitions. The exceptions are Baltimore, which I count as Northeast instead of South, and Pennsylvania cities west of Harrisburg, which I count as Midwest instead of Northeast. **Table**

3 shows the results for the descriptor "few" for Black and "foreign born." In cases where there are fewer than three entries for a given region, such as in the Northeast (NE) in **Table 3**, I use the national percentage.

Table 3. Means by region for the description sheets with the descriptor "few". Ns are in parentheses and represent the number of sheets listing both *"few"* and *a numerical percentage.*

Region	% Black	% "For. Born"
MW	3.07 (7)	5.41 (27)
NE	3.62 (2)	2.74 (1)
S	5.40 (5)	2.33 (3)
W	1.83 (3)	1.99 (94)

Following this step, I now account for 100 percent of the Black population entries and over 99 percent of the "foreign born" entries. There remain 53 cases in which the appraiser listed only a nationality—*e.g.*, German, Polish, "Latins," etc.—with neither a numerical percentage nor a quantitative descriptor. To avoid misassigning these values, I flag these cases with a null value, allowing researchers to treat these cases as they see fit. In addition, accompanying both the Black and "foreign born" variables, I provide a column that includes the text written by the field agent. This enables researchers to check—and potentially correct—my numerical values.

Exploratory Descriptive Analysis

Variables by HOLC Grade and Region

The final output table, titled "ADS_FINAL.csv," permits researchers to analyze the actual data inputs used in the original HOLC sheets. Here, I highlight some basic insights yielded from an exploratory analysis of this data. To start, I calculate the means of my three variables by HOLC grade and region. The results can be seen in **Figure 3**.

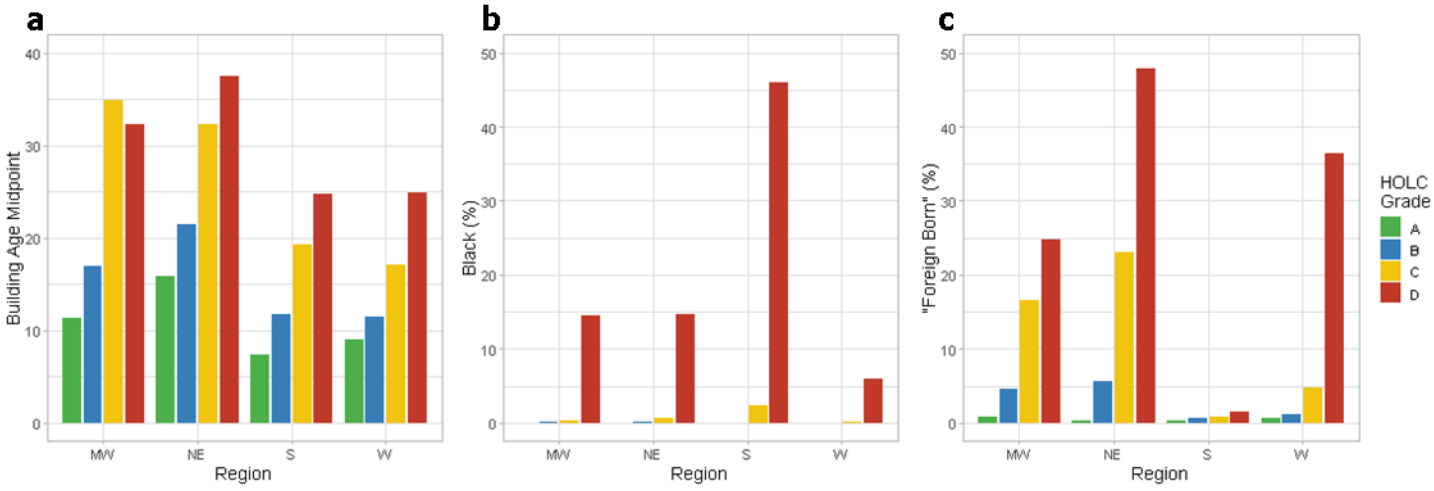

Figure 3. Description sheet means by HOLC grade and region for (a) the building age midpoint; (b) % Black; and (c) % "foreign born."

Figure 3a shows the breakdown of the building age midpoint. In general, as a neighborhood's letter grade goes down, its building age goes up. This aligns with previous research and is not itself surprising (Greer 2013). A dominant assumption within the real-estate industry during the time was that upon construction, buildings moved inexorably toward obsolescence (Harris 2012; Metzger 2000; Stuart 2003). Hence, concentrations of older structures were typically interpreted as signs of risk, and HOLC agents graded those areas accordingly. The one exception shown above is in the Midwest, where C areas have an older building age midpoint than D areas. Though further investigation is warranted, this may simply be a byproduct of using midpoints. A final observation to emphasize here is that there is considerable regional variation in the building age regardless of HOLC grade. Thus, researchers examining building age in particular—but perhaps all HOLC data—should control for regional differences.

Figure 3b also affirms much of the existing understandings of HOLC maps. As this chart suggests, neighborhoods receiving a D grade—*i.e.*, those that were "redlined"—had substantially higher Black populations, on average, than neighborhoods receiving other grades. This is true in all regions of the US and is especially pronounced in the South where the majority of the US's urban Black population lived in the 1930s. Although **Figure 3b** makes clear that Black neighborhoods were not the only places that were redlined—the mean Black share is not above 50 percent in any region—the visible presence of any substantial number of Black residents in an area was usually sufficient for an appraiser to issue it a D grade (Freund 2007; Jackson 1980; Winling and Michney 2021).

Further insights about how appraisers understood the connections between race and value in residential space are offered by **Figure 3c**. Similar to what is shown in the last graph, neighborhoods with the highest concentrations of "foreign born" residents were most likely to receive a D grade. However, the distribution between grades is notably different. In the Midwest and Northeast, neighborhoods with "foreign born" residents were considerably more likely to receive a B or C grade than neighborhoods where Black residents lived. This is likely because the "foreign born" residents here were largely from Europe, and influential real-estate theorists of the day taught that the presence of European immigrants was not as detrimental to nearby property values as the presence of Black residents (e.g., Babcock 1932; Hoyt 1933).

Figure 3c also suggests a relationship between the specific "foreign born" population in a place and its HOLC grade. This is reflected in the wider gap between D and C neighborhoods in the West compared to the rest of the country. A quick search through the "ADS_FINAL.csv" file reveals that 89 percent of HOLC area descriptions sheets noting the presence of Hispanic (often listed as "Latin") residents and 93 percent noting the presence of East Asian or Filipino residents were located in the West. Given the well-documented history of anti-Asian and anti-Hispanic racism in the US, especially in the realm of housing, it is not altogether surprising that areas where these populations lived would receive lower neighborhood grades, on average, than the places where their European counterparts lived (Lee 2019; Nightingale 2012; Shah 2001). Indeed, as Light (2010) and Woods (2012) both document in Los Angeles, HOLC appraisers and other housing officials of the time were especially concerned about areas with "'heavy concentration[s]` of people of Mexican ancestry" (Woods 2012: 1047).

HOLC Grades by Population Group

Using the "ADS_FINAL.csv" file, I further investigate the HOLC grading process by breaking down the distribution of grades across the population groups mentioned in the field notes. **Figure 4** displays the results. The bar on the far right labeled "Total" represents the grade distribution of all HOLC neighborhoods across the 129 cities included. The bar immediately to its left labeled "None" includes only neighborhoods that do not mention the presence of any Black or "foreign born" residents. The rest show the grade distributions for neighborhoods explicitly mentioning the ethnic, racial, or national group indicated on the x-axis, regardless of its percentage.

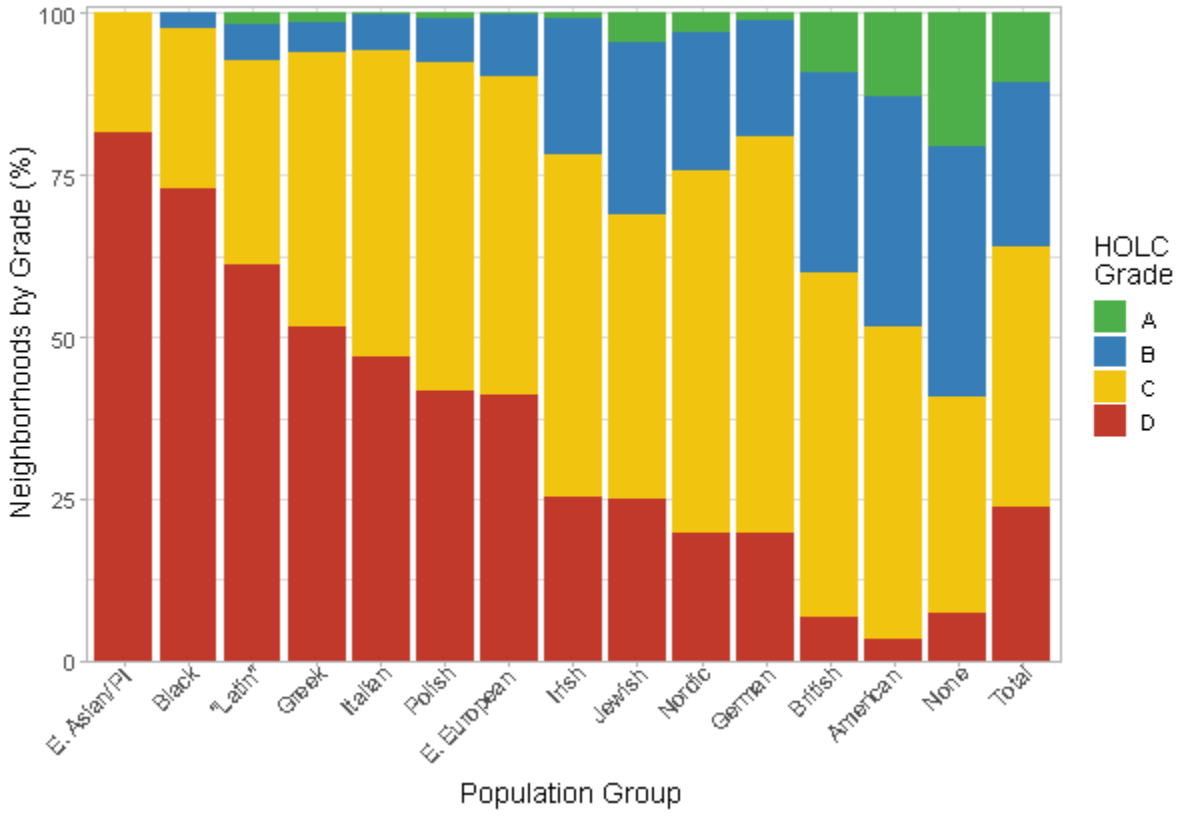

Figure 4. HOLC neighborhood distribution by population group mentioned in the area description sheet.

Neighborhoods where field agents noted the presence of East Asians or Filipinos—marked in the chart as "E. Asian/PI"—were the most likely to be redlined. Next were neighborhoods with any number of Black residents mentioned, followed by areas where field agents remarked on the presence of "Latins," "Mexicans," "Cubans," or "Puerto Ricans." Southern and Eastern Europeans—the latter of which includes "Russians," "Slavs," "Czechs," "Bohemians," "Hungarians," and others—come next and are followed primarily by groups historically considered to be whiter (Painter 2010; Roediger 2005). Though it was not common, HOLC appraisers did sometimes note the presence of "Americans." As expected, these areas were given A or B grades more often than areas mentioning other groups but slightly less often than areas with no mention of any Black or "foreign born" residents. Although **Figure 4** depicts only averages, it suggests a grading schema that strongly favors whiteness generally. As many scholars of twentieth-century urban housing segregation have emphasized, this reflects an entrenched and long-standing

conviction within the housing industry—whether consciously registered or not—that whiteness serves as the guarantor of property investments (Freund 2007; Gotham 2002; Taylor 2019; Zaimi 2020).

Given that debates within the HOLC literature have heavily focused on the relationship between neighborhood grades and Black residential presence, some may find it surprising that neighborhoods with East Asian/PI residents were more frequently redlined on average. One important bit of context, however, is that there are only 70 neighborhoods in this dataset listing E. Asian/PI residents compared to over 1,200 noting Black residents. Still, this result highlights an important feature of the HOLC grading process that is not commonly discussed in the relevant literature. Namely, it points to one way racist perceptions of Asian—and especially Chinese—living space dating back to the 1800s were cemented in the institutional practices of the 1900s (Nightingale 2012; Shah 2001).

HOLC Grades by Black Population Share

A major limitation of **Figure 4** is that it does not account for the prevalence of each group mentioned. Thus, an area with a Black population share of two percent is marked the same as an area with a Black population share of 50 percent. To take a more detailed look, I break down Black population percentages by neighborhood grade. Results are depicted in **Figure 5**. As this chart shows, areas with higher proportions of Black residents were more likely to be assigned a D grade. Areas with a Black population of less than two percent but greater than zero were more than twice as likely to be redlined as areas with no Black residents at all. And well over 90 percent of neighborhoods in which at least one-fifth of their total population were Black were redlined.

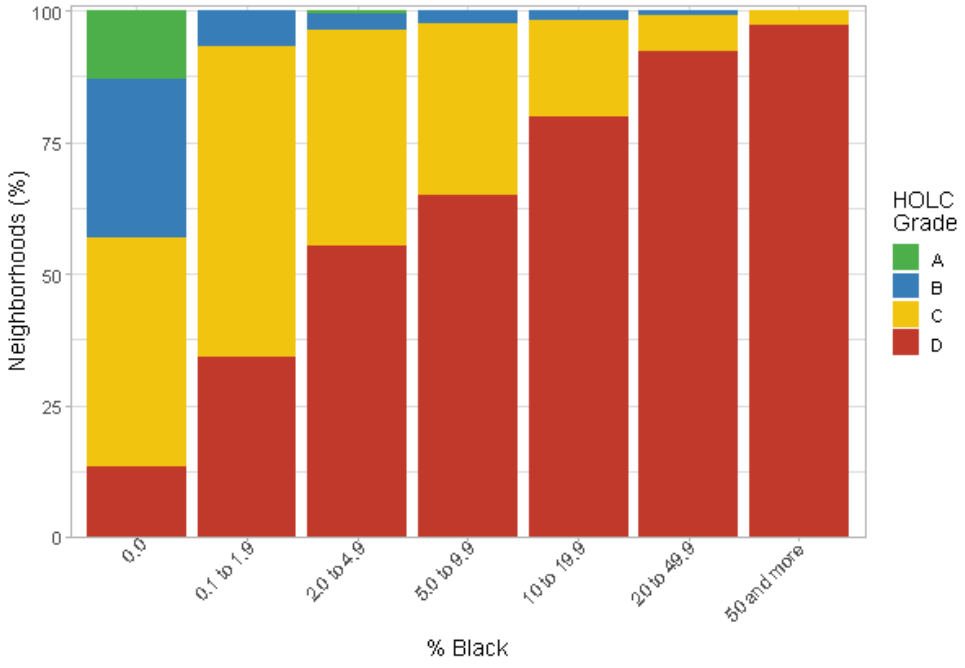

Figure 5. HOLC grade distribution by Black population percentage.

Figure 5 illustrates an important fact about the HOLC grading process that is sometimes muddied in the debates. The mere presence of Black people in a place did not always result in an automatic D grade. In many C areas with only a small number of Black households, the appraiser would simply note their presence and state where within the neighborhood they lived. For example, searching the "ADS_organized.xlsx" file, I find that in area C-3 of Stamford, CT—which has a Black population of two percent—the HOLC agent remarked, "There are a few colored families along the railroad and on Crosby Street." The idea, it would seem, was to signal a potential "threat" within the area without adjusting its grade. Regardless, such instances highlight the importance of treating the maps and notes together as a unified product. They also imply a within-grade variability that is seldom, if ever, acknowledged in the HOLC literature. In the past, technological barriers have made these lines of inquiry difficult to pursue. Now, researchers have a cleaned, searchable table containing these richly detailed historical data at their disposal.

Output Data and Code Availability

All of the above figures were produced using the data in the "ADS_FINAL.csv" file located in the DATA_DOWNLOAD/TABLES folder. This folder is located in the GitHub repository linked in the OSF project. It contains a total of five output tables. In addition to ADS_FINAL, this includes the tabulated ADS entries (ADS_organized.xlsx), which can help researchers process other area description sheet variables, as well as tables that break down cities by region (Cities_by_Region.xlsx), provide sheet type and coverage information by city (HOLC_Cities.csv), and offer summary statistics by region (Sum_Stats.xlsx). Researchers using the quantitative values in the ADS_FINAL file are encouraged to check all estimates against their corresponding text columns.

The DATA_DOWNLOAD directory also hosts two other folders. First, there is one called "BAR_GRAPHS." It contains the TIFFs of all five bar graphs included here plus an additional one that adjust the bar heights in **Figure 4** by the number of neighborhoods they represent. Second, there is a folder called "SHAPES" that houses an Esri shapefile and identical GeoJSON file. These both include the HOLC neighborhood polygons gathered from the DSL, along with a unique neighborhood identifier and the data produced.

Users are free to download any of this data and incorporate it into their own projects as long as they include proper attribution. All R code used to produce these tables and figures—in addition to the manually produced input tables—are also provided.

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