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Abstract

This article analyzes the impact of the residential security maps created by the Home Owners' Loan Corporation (HOLC) during the 1930s on residential mortgages in Philadelphia. Researchers have consistently argued that HOLC caused redlining and disinvestment in U.S. cities by sharing its color-coded maps. Geographic information systems and spatial statistical models were used to analyze address-level mortgage data from Philadelphia to determine if areas with worse grades actually had less access to residential mortgage credit as a result. Findings indicate that the grades on HOLC's map do not explain differences in lending patterns with the exception of interest rates, which were higher in areas colored red. Archival material and journal articles from the 1930s also reveal that lenders were avoiding areas colored red before HOLC made its maps, that HOLC's maps were not widely distributed, and that lenders had other sources of information about real estate risk levels.

Keywords

redlining, discrimination, home owners' loan corporation, federal housing administration, philadelphia

Disciplines

Urban, Community and Regional Planning

Comments

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REDLINING AND THE HOME OWNERS' LOAN CORPORATION

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This article analyzes the impact of the residential security maps created by the Home Owners' Loan Corporation (HOLC) during the 1930s on residential mortgages in Philadelphia. Researchers have consistently argued that HOLC caused redlining and disinvestment in U.S. cities by sharing its color-coded maps. Geographic information systems and spatial statistical models were used to analyze address-level mortgage data from Philadelphia to determine if areas with worse grades actually had less access to residential mortgage credit as a result. Findings indicate that the grades on HOLC's map do not explain differences in lending patterns with the exception of interest rates, which were higher in areas colored red. Archival material and journal articles from the 1930s also reveal that lenders were avoiding areas colored red before HOLC made its maps, that HOLC's maps were not widely distributed, and that lenders had other sources of information about real estate risk levels.

Keywords: redlining; discrimination; Home Owners' Loan Corporation; Federal Housing Administration; Philadelphia

The federal government created the Home Owners' Loan Corporation (HOLC) during the Depression to slow down the dramatic increase in the rate of housing foreclosures.¹ Between 1933 and 1936, HOLC made new low-interest, self-amortizing mortgages to one million homeowners who were in default or had already lost their homes. As HOLC was nearing completion of its original lending in 1935, HOLC's parent organization, the Federal Home Loan Bank Board (FHLBB), established a program that used HOLC staff and local realtors and lenders to appraise real estate risk levels in 239 cities.² This

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City Survey Program produced detailed reports for each city along with a series of now infamous security maps that assigned residential areas a grade from one to four. Areas with African Americans, as well as those with older housing and poorer households, were consistently given a fourth grade, or “hazardous,” rating and colored red.

Kenneth Jackson discovered HOLC’s maps while conducting research for *Crabgrass Frontier* and connected the areas colored red to those that were later redlined. Redlining refers to lending (or insurance) discrimination that bases credit decisions on the location of a property to the exclusion of characteristics of the borrower or property. Usually, it means that lenders will not make loans to areas with African Americans or other perceived risks to real estate investments. Jackson argued that the Federal Housing Administration (FHA) and private lenders obtained copies of the HOLC maps and that the grades on the maps impacted their lending decisions.³ Subsequent research on HOLC has consistently cited Jackson’s work about the effect of these maps on lending and urban disinvestment. But none of it has provided specific evidence that the maps actually impacted residential mortgage patterns or that FHA and private lenders were not using other maps and sources of data to determine where to make loans. Using archival research, geographic information systems, and spatial statistical modeling based on data from Philadelphia, this article provides evidence that challenges the HOLC redlining thesis and offers an alternative explanation for how redlining happened.

BACKGROUND

Community groups in Chicago’s Austin neighborhood coined the word *redlining* in the late 1960s, referring literally to red lines lenders and insurance providers admitted drawing around areas they would not service.⁴ Both the National Commission on Urban Problems and the President’s National Advisory Panel on Insurance in Riot-Affected Areas found evidence of such literal mortgage and insurance redlining.⁵ The Fair Housing Act of 1968 does not specifically mention redlining, but it does prohibit discrimination at any stage of the lending or home insurance process, and subsequent court decisions have held that it does prohibit redlining.⁶ The Equal Credit Opportunity Act of 1974, the Home Mortgage Discrimination Act of 1975, and the Community Reinvestment Act of 1977 have all created additional protections against redlining. But in the 1930s and 1940s, there were virtually no legal obstacles to lending discrimination. Redlining—not yet given a name—was simply considered to be good business.⁷

Kenneth Jackson’s 1980 article in the *Journal of Urban History* was the first published research to connect HOLC’s color-coded maps with the practice of redlining.⁸ He included the article as a chapter in his seminal 1985 book,

Crabgrass Frontier, using the maps to support his larger thesis that the policies of the federal government accelerated suburbanization at the expense of urban neighborhoods. The neighborhood appraisal activities of the overlooked HOLC fit a larger pattern of promoting the suburbs and devaluing urban neighborhoods.

As provocative as it was, Jackson's connection between the maps and later redlining was as much a suggestion as an argument. A conservative reading of *Crabgrass Frontier* supports the notion that HOLC institutionalized, rather than initiated, redlining. Jackson implied that HOLC was largely reactive, influenced by the leading ecological theorists of the day such as Homer Hoyt as well as professionals in the field.⁹ There was a "free interchange" among HOLC, FHA, and private realtors, he explained, noting that local lenders and realtors served as map consultants for the City Survey Program.¹⁰ In effect, then, HOLC's maps constituted federal endorsement of standards that were already in practice.

A more liberal reading of *Crabgrass Frontier* leads to the unqualified conclusion that HOLC initiated redlining. The closest Jackson came to saying this was at the beginning of the chapter, offering a contrast to the glowing assessment of HOLC's impact that C. Lowell Harriss provided in his 1951 *History and Policies of the Home Owners' Loan Corporation*. "A less favorable judgment," Jackson wrote, "would be that the Home Owners Loan Corporation initiated the practice of 'red-lining'" (p. 197). While many researchers who have cited Jackson have noted the influence of map consultants and others on HOLC, few have hesitated to declare that HOLC caused redlining. Based more on Jackson's authority than the evidence he provided, subsequent research on HOLC has taken for granted HOLC's redlining and ultimate impact on urban residential patterns. Instead of testing the redlining thesis, then, research on HOLC has served to magnify the effect of Jackson's original work by extending his conclusions to numerous cities and introducing countless researchers of urban history to the redlining practices of the HOLC.¹¹

Coloring areas red based on their housing and demographic characteristics may have reflected racial prejudice on the part of HOLC, but it does not constitute redlining unless lenders actually used the maps to decide where to make loans and what types of loans to make. Existing research on HOLC has leapt over the evidence of redlining, basing its harsh assessments of HOLC on loose correlations between areas colored red on the residential security maps and those that experienced rapid decline in later decades. This approach has contributed almost no information about how local and federal institutions developed standards and shared appraisal information or how lenders actually made decisions about mortgages. In other words, it has given us little insight into how redlining occurred, particularly whether redlining involved different practices and different consideration in different places.

HOLC AND REDLINING

A variety of evidence suggests that HOLC was not responsible for redlining. First, analysis of the location of HOLC's own loans in several different cities demonstrates that the agency did not practice redlining itself. Sources from the 1930s and 1940s, including the appraisal sheets for individual neighborhoods filled out by HOLC field agents, also indicate that lenders were avoiding areas they perceived to be high risk even before HOLC created its maps. A review of the process through which the maps were created and maintained indicates that relatively few lenders probably had access to HOLC's maps, limited most likely to those who served as map consultants to HOLC. The research conducted and maps created by organizations other than HOLC, including FHA and private lenders, further indicate that HOLC's maps were not the only, or even the best, source of information about real estate risk levels. Finally, analysis of mortgage lending in Philadelphia for the decade after HOLC made its maps shows that lenders did not categorically refuse to make loans to areas colored red by HOLC or provide loans with considerably different terms. Together, these findings cast doubt on the argument that HOLC caused redlining, instead lending support to alternative explanations of how redlining happened and providing direction for future research.

HOLC'S OWN LENDING

HOLC did not practice redlining through its own lending program. Nothing in HOLC's policies put areas with older homes or racial and ethnic minorities at a disadvantage. HOLC staff did not have access to the residential security maps because the maps were made after HOLC made most of its loans, but HOLC did make loans in all areas, particularly those later colored red and yellow. Previous research about HOLC's lending has drawn from loan summaries that the agency created after making loans. These summaries, apparently created only for cities that HOLC resurveyed, reported the number of loans in each of the four different graded areas. Jackson reported that 60 percent of HOLC loans made between 1935 and 1936 in Essex County, New Jersey (Newark), and 68 percent of loans in Shelby County, Tennessee (Memphis), were made to third- and fourth-grade areas.¹² Lizabeth Cohen and John Metzger have reported that HOLC made 60 percent of its loans in Chicago to properties in C or D neighborhoods. Metzger further determined that 95 percent of the 2,156 HOLC loans made in the vicinity of Chicago's downtown Loop were made on properties in neighborhoods given fourth-grade ratings.¹³ An analysis of HOLC loans in Philadelphia, a city not resurveyed by HOLC, using local mortgage records found that HOLC made more than 60 percent of its loans to areas colored red and another 20 percent to areas colored yellow.¹⁴

HOLC did apparently reinforce racial segregation in some situations. When the agency acquired properties through foreclosure because homeowners were unable to make their payments to HOLC, they allowed the local brokers who were responsible for selling off those properties to follow local segregation standards.¹⁵ But this constituted racial steering, not redlining, because it discriminated against individuals rather than areas. An argument that HOLC caused redlining, then, must focus on the impact HOLC's maps had on other lenders.

REDLINING BEFORE HOLC

The practice of not making loans to areas considered high risk predated HOLC's maps, something that HOLC's own fieldwork confirmed. The forms field agents used to complete the area descriptions that accompanied the maps asked about the availability of mortgage funds. In explaining the basis for each of the four grades, FHLBB materials said that mortgage lenders were already more conservative in areas HOLC assigned as third grade ("C") and offered mortgages with lower loan-to-value ratios. Lenders often refused to lend in neighborhoods HOLC subsequently considered fourth grade ("D"), while "others will lend only on a conservative basis."¹⁶ In Philadelphia, field agents noted that mortgage funds were available in some of the third- and fourth-grade areas on a very limited basis, while in others—such as the western half of South Philadelphia, large sections of Southwest Philadelphia, and part of North Philadelphia—none were available.¹⁷ Regardless of whether they were actually using maps to identify high-risk areas, lenders across the country were already choosing not to make loans in certain areas by the time HOLC conducted its surveys.

HOLC field agents were not the only ones to identify early redlining practices. In the wake of the 1919 race riot, the Chicago Commission on Race Relations determined that African Americans faced significant barriers in securing mortgages, with some lenders completely avoiding areas where African Americans lived.¹⁸ The Mortgage Conference of New York was also involved in redlining, sharing block-level maps as early as 1932 and encouraging member banks to avoid areas with concentrations of African Americans.¹⁹ These two examples are probably rare only in that they were documented. Refusing to lend to certain areas, particularly those with African Americans, was such common practice that apparently few people found it remarkable during the 1920s and 1930s.

ACCESS TO HOLC'S MAPS

For HOLC to have caused redlining, FHA and private lenders had to have had access to the maps. Otherwise, even if mortgage-lending patterns in red areas were different, the maps could not have been the cause. Some private

lenders and the FHA definitely did have access to the HOLC maps, but evidence indicates that access was not nearly as widespread as prior historical narratives have assumed. The confidential nature of the survey and efforts taken by the FHLBB to keep track of all copies of the maps, the difficulty that would have been involved in making additional (unauthorized) copies, the sheer number of institutions making loans then, and the lack of references to the maps in journals and books all suggest that most lenders did not have access to the maps.

The FHLBB considered all of the materials assembled through the extensive City Survey Program to be confidential, taking measures to safeguard them and prevent the materials from being used for purposes other than their own. The City Survey Program was intended to support FHLBB's collection on the million mortgages HOLC extended to distressed homeowners as well as to help the board support the savings and loan industry.²⁰ The board was also concerned about protecting the identity of the local realtors and consultants who provided information with the assurance that only the FHLBB would use it.

The board received requests for copies of the reports created through the City Survey Program and, starting in 1938, decided to distribute copies of summaries for each city after deleting material judged to be confidential.²¹ The maps, too, were in demand. "Almost from the beginning of the Survey Program there was a constant demand for copies from that part of the public which was familiar with the theme of them," according to a FHLBB memo summarizing the City Survey Program. After receiving many written requests for copies of the maps, the board decided to limit distribution to agencies within the FHLBB and "such government agencies having interests allied with those of the Board." The FHLBB feared that the "maps would be misused or interpretations placed upon the grades indicated therein which were not intended."²²

Only fifty to sixty copies of each map were made, most of which were distributed to FHLBB and HOLC staff members in the national and regional offices. FHLBB also provided copies to a handful of government agencies including the FHA, the U.S. Housing Authority, the California Veterans Welfare Board, the Federal Public Housing Authority, National Housing Administrator's office, the Commissioner of Banks for Wisconsin (Milwaukee map only), "and one or two others."²³ The board invited other "outside" government agencies with an interest in the maps to review them at the Washington, D.C., office of the Division of Research and Statistics. Fearing that even government agencies could misinterpret and misuse the maps, the board suggested that the Division of Research and Statistics "should make certain that those who expect to use the maps understand the objective, purposes, and uses of them. Otherwise, wrong conclusions may be drawn and thus more harm has been done than good."²⁴

No copies were given to "private interests," and even regional managers for HOLC were required to eventually return the maps to the Division of Research

and Statistics. The board also expected HOLC regional managers to be “reasonably diligent in safeguarding the confidential nature of the material to the end that the maps, in particular, do not fall into private hands.”²⁵ Given the repeated statements in the explanation of the security grades that good loans could be made in red and yellow areas, the board probably feared that misunderstanding of the maps would cause further disinvestment in poorly rated areas. The maps were difficult and expensive to reproduce, a fact that dissuaded the board from providing additional copies for a fee. The color maps were large, often 36" × 48", and would not have been copied easily by anyone trying to circumvent the formal reproduction process. So while it is possible that those within the federal government, including HOLC and FHA staff, who received copies of the HOLC maps could have shared their copies with people outside their agencies, this would clearly have been in violation of FHLBB policy.

By the time the FHLBB resurveyed some twenty-three cities in 1939, staff members were in the habit of sending a copy of the written summary to all of the local realtors and lenders who provided material. These summaries provided overviews of real estate conditions in each city, indicating what FHLBB was concerned about, but they did not provide detailed descriptions of HOLC ratings for individual neighborhoods. The City Survey Program archival files for several cities, such as Atlantic City, Chicago, and Los Angeles, include mailing lists of about fifty individuals who were sent copies. There are no such distribution lists for the maps. One letter addressed to City Survey Program Director Clifford Boyd from the business manager of the Chicago Real Estate Board acknowledging receipt of the Chicago summary did mention the maps. “Incidentally,” he wrote in parentheses, “I hope to be able to ‘borrow’ a map from your portfolio when you are not looking during your journey in Chicago.” Even if he did succeed in getting a copy of Chicago’s security map, his comment indicates that he knew FHLBB’s policy was to not share the maps.²⁶

Jackson based his conclusion that private lenders had access to the security maps on interviews the FHLBB conducted with banks and savings and loan associations in Essex County (Newark), New Jersey, during the late 1930s. Many of the lenders reported that they considered “A and B” or “blue” areas as the most desirable, while they would not make loans to “red and most yellow” or “C and D” neighborhoods. Jackson understood these responses to be written by the lenders, referring directly to HOLC’s maps and grading system. “Obviously, private banking institutions were privy to and influenced by the government’s Residential Security Maps.”²⁷ These interviews were completed as part of the resurvey of northern New Jersey in 1939 through the City Survey Program. It was field agents, not the lenders themselves, who wrote up the answers from the survey, so it is possible that the grades and colors were the field agents’ shorthand rather than the literal answers provided by the lenders.²⁸ It is much more likely that lenders would have described areas using town and neighborhood names (which were mentioned in the responses along with

grades and colors) rather than “D-3” or “C-16,” for example. These interviews do not, then, constitute unequivocal proof that lenders had access to HOLC’s maps or that lenders avoided areas because of their HOLC ratings.

The sheer number of institutions involved in residential mortgage lending in the years immediately after HOLC created the maps casts further doubt on the idea that they all had access to the maps. In Philadelphia, several hundred different lenders provided mortgages in the ten-year period following the creation of the maps. Only a handful of the city’s realtors and lenders served as map consultants to HOLC and definitely knew that the maps were being made, even if they never saw the final version. If the FHLBB authorized the creation of sixty copies of Philadelphia’s security map and restricted access to them, it is unlikely that more than a fraction of the local lenders ever saw it. For smaller cities, the proportion of local lenders involved in the HOLC appraisal process would have been greater, but still the majority of lenders were most likely not involved.

Finally, the fact that there were almost no references to HOLC’s maps in books and journals before Jackson published his research suggests that the FHLBB largely succeeded in keeping the maps a secret.²⁹ The real estate and appraisal industries were eager to share new techniques for rating neighborhoods during this time period, and their journals contained numerous articles about neighborhood risk ratings through the 1930s and 1940s. Had there been widespread knowledge of FHLBB’s maps, the articles probably would have discussed them more frequently. Secondary sources describing HOLC made absolutely no mention of the maps before *Crabgrass Frontier*. Harriss’s 1951 *History and Policies of the Home Owners’ Loan Corporation* never mentioned the maps or even the City Survey Program. Harriss had access to HOLC records and staff members, so it is hard to believe that he had no knowledge of them. But even if he chose (or was asked) to leave this part of HOLC’s history out of his book, this decision indicates that the mapping enterprise was basically kept secret.

Most surprising is that frequent HOLC critic Charles Abrams never saw the maps. Abrams mentioned HOLC in several of his books, complaining that HOLC directed its assistance more toward bailing out lenders than aiding homeowners and that HOLC’s lending policies reinforced racial segregation. In *Forbidden Neighbors* (1955), he did cite an article describing HOLC’s neighborhood rating system. Abrams took HOLC’s work as proof that the agency, like FHA, undervalued areas with African Americans and supported racial segregation. But had he actually seen the maps and understood the scope of the City Survey Program, it is likely that he would have offered much more extensive, and harsh, commentary.³⁰

Who, then, had access to the maps? Clearly, FHA staff did since FHLBB made copies specifically for the agency. The dozen or so realtors and lenders who served as map consultants in each city no doubt knew of the maps and saw some version of them. But the evidence indicates that the maps were neither

distributed nor available to a wide audience. The access both FHA and private lenders had to other information about neighborhood risk, including maps, also suggests that the maps were not as precious or unique as previous HOLC research has implied.

OTHER SOURCES ON NEIGHBORHOOD RISK

If FHA and private lenders had access to information about neighborhood risk other than HOLC's maps, then there are other possible explanations for any redlining that occurred. Evidence suggests that they did have other sources along with the technical skills to conduct their own surveys and create their own maps. FHA carried out several different research studies that generated maps and reports. In addition, FHA developed a detailed risk rating system of its own, even before the FHLBB started its City Survey Program, that most likely had a much larger influence on private lenders than the FHLBB's did. Lenders also conducted their own research, and the widespread use of maps within and outside the real estate and banking industries further supports the notion that private lenders did not need HOLC's maps to determine where they should and should not make loans.

The FHA was the most important source of information about neighborhood risk during the 1930s and 1940s. The National Housing Act, passed in June 1934 before the FHLBB initiated its City Survey Program, required that FHA's research director make "such statistical surveys and legal and economic studies as he shall deem useful to guide the development of housing and the creation of a sound mortgage market."³¹ The Division of Economics and Statistics was responsible for most of this work and conducted several different studies and collected existing data from a variety of sources. FHA frequently cited this legal mandate when introducing the division's research findings.³²

FHA had an extensive map collection, consisting largely of maps the Division of Economics and Statistics created based on data from the 1934 and 1939 Works Progress Administration's Real Property Surveys.³³ FHA expected that its block-level maps, in particular, could help an appraiser "refresh his memory as to the danger points in the neighborhood."³⁴ In addition to gathering existing sources of information, FHA conducted its own surveys under the supervision of Principal Housing Economist Homer Hoyt. Hoyt issued detailed guidelines in "The Preparation of Maps Showing the Dynamic Factors of City Growth" in January 1935. "The maps, if prepared carefully according to the suggestions now to be given, should lay the groundwork for the rating of neighborhoods," he explained. Hoyt instructed staff responsible for creating the maps to draw lines in specific colors around certain types of areas. In the first set of maps, red was to be used to mark off areas with concentrations of an "undesirable element" such as distinct racial, national, or income groups.³⁵ These maps were part of FHA's larger Program for the Study of Sixty-two Cities that formed the

basis for *The Structure and Growth of Residential Neighborhoods in American Cities* authored by Hoyt and published by FHA in 1939.

The FHA also conducted a series of Housing Market Analyses, large data collection and map-making efforts undertaken between 1937 and 1942. This project was intended to generate maps that would indicate areas where it was “safe” for FHA to insure mortgages. John Metzger included a copy of a FHA mortgage risk map for Chicago from 1938 in his dissertation that may have been the product of one of these Housing Market Analyses. The map used letters and colors, with “D” and red indicating areas with the highest risk, to categorize districts in Chicago.³⁶

More important than having conducted studies and created maps, FHA provided detailed instructions for appraising neighborhood risk through its *Underwriting Manual*. Unlike FHLBB’s City Survey Program materials and some of the reports FHA generated, the underwriting manuals were intended for use outside the agency and were widely publicized and distributed.³⁷ FHA’s original (1935) risk-rating system used the same letter grades as HOLC’s, reserving the “D” category for properties with the lowest rating that were rejected for insurance.³⁸ As with the HOLC field agents, a neighborhood’s stability and “protection from adverse influences” and “infiltration of inharmonious racial or nationality groups” were primary considerations in ranking it.³⁹ FHA’s system focused on appraising individual mortgages rather than whole areas like HOLC, but the final summary rating determined by the chief underwriter incorporated information about neighborhood risk along with ratings of the property and borrower. Lenders interested in securing FHA insurance for their loans had an incentive to follow FHA’s guidelines because, in addition to protecting against losses, FHA insurance virtually guaranteed that a loan could be resold on the secondary mortgage market. The assistant secretary at a building and loan association in New Jersey acknowledged the pressure to adopt FHA’s standards in an interview with the FHLBB: “The most desirable lending areas are considered to be those having the approval of F.H.A., and in all probability no loans will be made in areas not approved by that agency.”⁴⁰ Lenders had no such incentives to adopt HOLC’s ratings beyond the ability of the grades to actually predict risk.

The fact that FHA had its own maps and ideas about mortgage risk does not rule out the possibility that FHA was influenced by HOLC’s maps. But it does show that FHA fulfilled its legal mandate to assess risk by gathering information from a number of different sources even before FHLBB’s City Survey Program was under way in late 1935. There are striking similarities between the survey methods and questionnaires used by FHA and FHLBB, as well as their maps and grading system, and it is hard to imagine that the two agencies were not working together. In fact, the FHLBB minutes show that board members approved the request of Ernest Fisher, director of FHA’s Economics and Statistics Division, that Corwin Fergus, the director of FHLBB’s Division of Research and Statistics, “be permitted to cooperate with him in the exchange

of information gathered by their respective divisions."⁴¹ But it is likely that FHA influenced FHLBB as much or more than FHLBB influenced FHA. Hoyt's emphasis on the constantly changing nature of neighborhoods suggests that HOLC's static maps would have been inadequate for FHA.

While FHA saw itself as the leader in conducting research and setting standards, the agency did encourage private lenders to systematically investigate conditions in cities, as well. "Mortgage lenders and real-estate men can aid in obtaining those local statistics," explained James Taylor, associate director of FHA's Division of Economics and Statistics, "and if we combine forces in getting them we can all ride to town together."⁴² The division supported local research efforts by sending the data it had to local lenders on request.⁴³

The FHLBB wanted lenders to conduct their own analyses of real estate trends as well. The *Federal Home Loan Bank Review* published an article in 1936 describing the need for security maps. In an apparent reference to the City Survey Program, the article credited FHLBB's Mortgage Rehabilitation Division with showing the practical value of such maps: "As a result, several hundred institutions which had never previously considered such an approach to their mortgage problem have begun to develop and maintain security maps." FHLBB's Mortgage Rehabilitation Division facilitated this widespread mapmaking by preparing "simple instructions for the making of security maps of residential neighborhoods from information available to any experienced mortgage lender."⁴⁴ In introducing a similar article about neighborhood rating, a writer for the *Review of the Society of Residential Appraisers* explained that the FHLBB's Division of Research and Statistics had developed standards for determining neighborhood risk. HOLC had adopted these standards in conducting its own study of cities, but "it is also suggested that the procedure might profitably be adopted by other lending institutions or groups of institutions wishing to analyze the lending area in which they operate."⁴⁵

There are many other references, and actual examples, of security maps created outside of FHA and FHLBB. In the 1961 edition of their book *Real Estate Finance*, Henry Hoagland and Leo Stone noted that savings and loan associations had accepted the need to study neighborhoods before making loans. "Sometimes the results of this study are dramatized in the form of a security map of their market," perhaps created from a regular street map and using different colors to represent different conditions. "Red spots on the map are danger signs," they wrote, while green was used for the most desirable areas, blue represented good areas "passed their peak of values," and yellow indicated that an area was declining.⁴⁶ Hoagland served on the FHLBB during the time it conducted the City Survey Program, so the similarity between this grading scheme that he and Stone described and the one used by the FHLBB is not a coincidence. Even if the authors were being coy in not mentioning the FHLBB maps directly, their discussion of risk-rating systems indicates that a wide group of institutions had been making security maps of their own.

Security-First National Bank of Los Angeles outlined its research program in a 1940 article in the FHA journal *Insured Mortgage Portfolio*.⁴⁷ Acknowledging FHA's pioneering role in bringing attention to the effect of neighborhood conditions on mortgage risk, Smith noted that other lending institutions like his were also working to develop methods for analyzing neighborhoods. Neighborhoods have a life cycle through which they are born, grow rapidly, become mature, begin to decline, and eventually become blighted, he explained, consistent with the ecological principles that were the basis for HOLC's neighborhood appraisals. The use of somewhat different language, though, suggests that Security-First National Bank did not just adopt HOLC's grading system. The article included a map applying this life-cycle concept to Los Angeles, categorizing each neighborhood's life cycle as subdivision, growth, maturity, decline, or decadence (see Figure 1). Clearly, Security-First National Bank saw itself playing an active role in determining neighborhood appraisals, not passively adopting HOLC's (or even FHA's) methods and maps.

J. M. Brewer, director of a clearinghouse for real estate information in Philadelphia and a former chief appraiser for the Metropolitan Life Insurance Company, completed another ambitious mapping project in 1934, before HOLC started its City Survey Program the following year. The block-level data Brewer recorded was based on his own survey rather than the Real Property Survey.⁴⁸ Using different colors and crosshatchings, Brewer indicated the location and degree of concentration of Jews, Italians, and "Colored people." He offered location ratings based on class rather than each neighborhood's life cycle, distinguishing highest-class residential, upper-middle-class, middle-class, lower- or working-class, and decadent areas. He noted which blocks included businesses and industry and estimated the age and value of housing. As mentioned earlier, the Mortgage Conference of New York was also making and sharing maps during this period. These included block-level maps indicating small and large concentrations of African Americans.⁴⁹

A survey of appraisal practices reported in a 1941 article in the *Review for the Society of Residential Appraisers* confirmed that appraisers and lenders took advantage of many different sources of information about neighborhoods. Not content with standard forms or those prepared by contracted appraisers, lenders developed their own forms. "Primarily, lending institutions indicated that they purchased their statistical information, both that which was national in scope and that which was local in character, such as real property inventories and statistical data, from title companies, assessors offices, and the like," according to the survey. Some lenders also reported collecting their own statistical data.⁵⁰

By the 1930s, maps had also become popular tools for understanding sales patterns outside of the real estate industry. The emerging city planning profession used maps extensively in the 1920s and 1930s, taking advantage of the array of survey data collected during the Depression to identify slums and

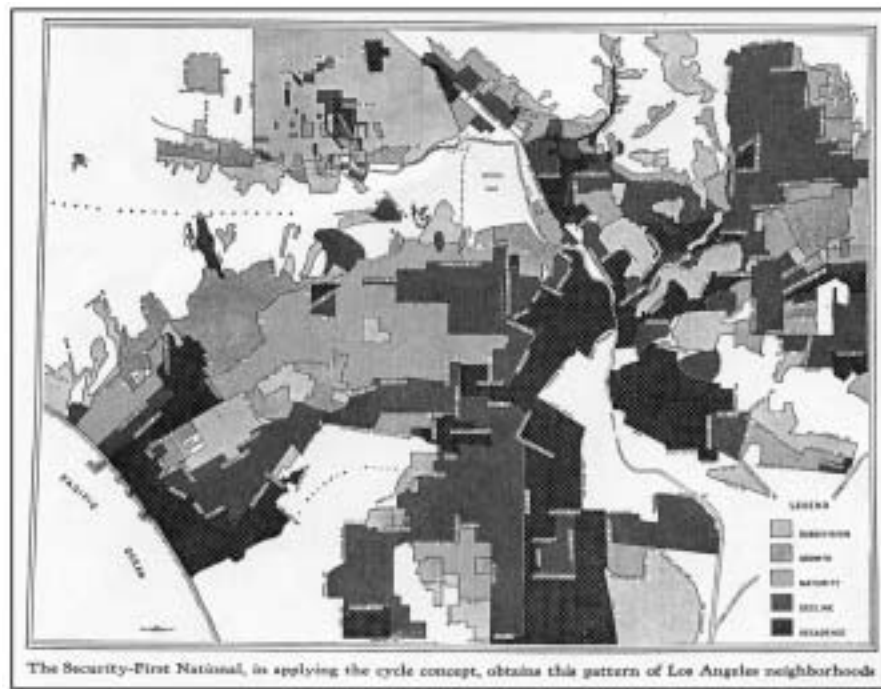


Figure 1: Neighborhood Life-Cycle Map from Security-First National Bank of Los Angeles, 1940

SOURCE: *Insured Mortgage Portfolio 2* (February 1938): 9-11, 23.

NOTE: From darkest to lightest, the five categories indicate decadence, decline, maturity, growth, and subdivision.

support certain policy interventions.⁵¹ The *Detroit Free Press*'s research department produced maps that categorized Detroit into "A," "B," and "C" districts based on newspaper retail sales.⁵² The Curtis Publishing Company published a handbook for salesmen in 1935 to help them distinguish "good" and "poor" areas.⁵³ These types of maps suggest that the practice of judging neighborhoods based on their economic value extended outside the real estate industry. Maps were ideal ways of presenting this information to a diverse audience, and an increasing number and type of groups had learned how to make them on their own.

Clearly, the HOLC maps were not the only source of information available to FHA and private lenders during the 1930s and 1940s. The detailed housing and demographic data made available through the U.S. Census and Real Property Surveys, in addition to the miscellaneous other maps and data sources available in different cities, would have allowed them to determine neighborhood risk on their own. With their knowledge of the local real estate based on the success of their own investments, they were probably in a better position to interpret real estate data than some of HOLC's field agents were. Although the HOLC maps may have projected a certain authority because they were created by the agents of the federal government, lenders may also have recognized that

the federal government depended on local experts and other sources of data that were available to them. To the extent they did look to the federal government for data and guidelines for conducting their own research, it is more likely that they looked to FHA. With easy access to FHA's advice through the *Underwriting Manual*, *The Structure and Growth of Residential Neighborhoods in American Cities*, and articles in real estate, appraisal, and government-sponsored journals, they would not have had to look far.

HOLC GRADES AND MORTGAGE-LENDING PATTERNS

Even if redlining had not existed before and if lenders all had access to HOLC's maps and no other sources of neighborhood risk, it would still be necessary to show a correlation between the grades and mortgage-lending patterns to prove that HOLC caused redlining. Using a digitized version of the HOLC map for Philadelphia, address-level mortgage data from 1938 to 1950 were analyzed to determine if mortgage patterns varied across HOLC grade (see Figure 2).⁵⁴ Five different samples of mortgage transactions were analyzed. The first represented a random citywide sample of five hundred properties. The other four samples included all the properties in twenty- to twenty-five-block areas where three or more different HOLC grades came together. The citywide sample was intended to maximize the generalizability of the findings, while the small area samples were intended to maximize internal validity by only comparing properties within the same part of the city.

Most previous research on HOLC has interpreted redlining as lenders' refusal, or at least reluctance, to make loans to areas deemed high risk because of their racial, ethnic, income, and housing characteristics. More current research, and even legislation aimed at preventing redlining, holds that redlining also occurs when different (less favorable) terms are offered.⁵⁵ Rather than refusing to make a loan, a lender might offer a mortgage with a higher interest rate, lower loan-to-value ratio, or shorter term. Current studies on mortgage lending also look for patterns in the types of lenders that invest in certain areas.⁵⁶ In addition to looking at whether mortgages were made and what types of loans were made in red areas, then, a test of HOLC's redlining impact should also determine if the security maps led certain types of lenders to avoid red areas while others serviced them disproportionately.

Four different characteristics of mortgages were analyzed: total number of mortgages, interest rate, loan-to-value ratio, and type of lender.⁵⁷ None of these adequately captures the nature of residential mortgage lending in a given area by itself, but together they offer a reasonably sufficient method of testing for redlining. The total number of mortgages addresses the issue of categorical redlining. This measure does not, however, reflect the varied demand for mortgages in an area, treating households that were denied a mortgage the same way as those that had no interest in buying or selling. Some properties would have inevitably been involved in more mortgage transactions by virtue of

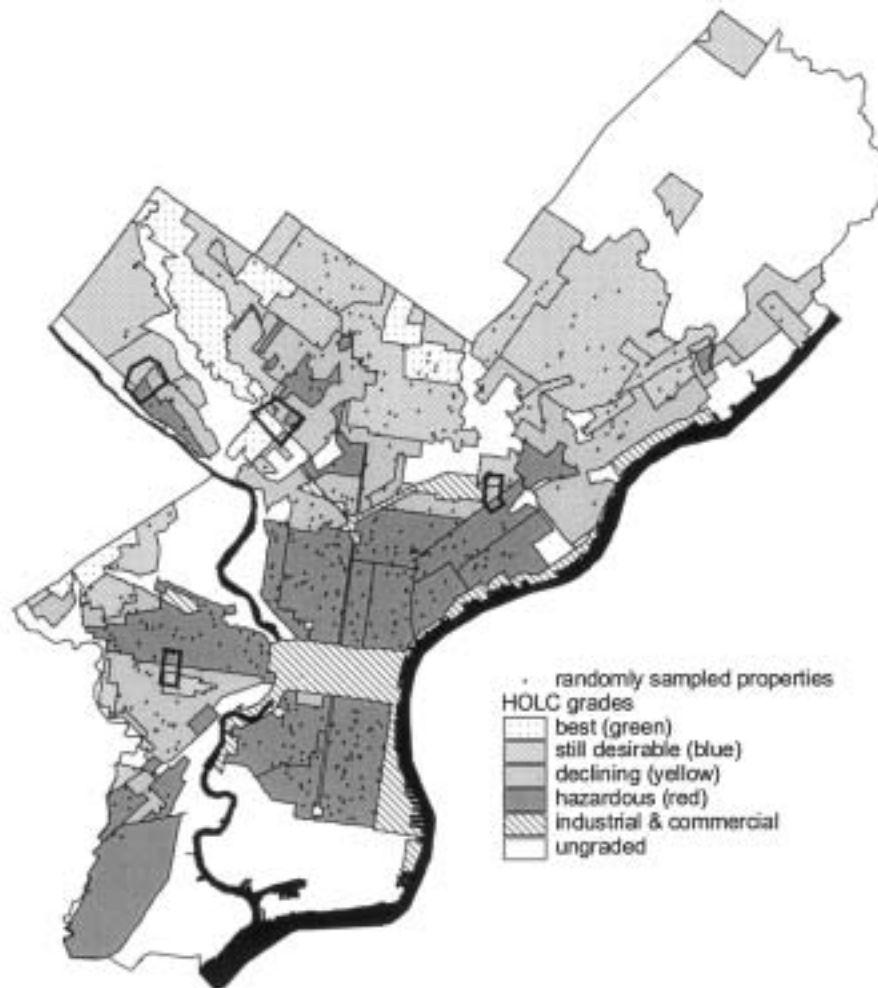


Figure 2: Residential Security Map for Philadelphia with Sample Areas and Sample Properties

having been built before this period rather than during it. Analysis of the interest rate and loan-to-value ratio avoids this problem by only considering properties that actually received mortgages. Using these two characteristics, it is also possible to determine whether redlined areas received mortgages with less favorable terms, even if mortgages were available. Finally, lender type is used to determine if categorical redlining occurred among certain groups of lenders.

Linear regression, spatial lag models, and Bayesian spatial probit models were used to analyze the relationship between HOLC grades and these different mortgage characteristics while controlling for certain property characteristics.⁵⁸ In addition to the HOLC grade for the area in which a property was located, its distance from a red area (“red line”) was analyzed.⁵⁹ The number of

transactions and number of sheriff sales between 1928 and 1937 per residential structures on a block were used to control for lending patterns and risk levels before HOLC made its maps.⁶⁰ Ideally, the credit worthiness of the borrower would be included as a control variable, but while lenders had access to some form of credit history for borrowers at the time, that information is no longer available. Information about the characteristics of the property is available, including the size, assessed value, and whether the owner occupied it. Together with the year of the transaction, these were used as control variables (see Table 1).⁶¹

Results of the statistical analyses show that the relationship between HOLC grade and the number of mortgages for a property varied by area, but the direction of the relationships was not consistent, and none of them was even marginally significant. The results of the analyses of interest rates were the most consistent in terms of the direction and significance of the relationships. For all five samples, loans on properties with higher (worse) grades had higher interest rates, while loans on properties farther from red areas had lower interest rates (see Tables 2, 3, and 4). These relationships were statistically significant for all except the Roxborough/Manayunk sample.

Analysis of the loan-to-value ratio generated very inconsistent, and mostly nonsignificant, results. Analysis of the type of lender showed differences in lender type across HOLC grades for each of the sample areas, but in almost every case these differences are explained away by property and loan attributes, and there was no categorical redlining based on the HOLC grades by any type of lender. The only statistically significant differences in lender type that the property and loan characteristics do not account for were among federal savings and loan associations in Roxborough/Manayunk and among mortgage companies and nonfederal savings and loan associations in Frankford/Kensington. In Roxborough/Manayunk, federal savings and loan associations were less likely to make loans in or near red areas. In Frankford/Kensington, mortgage companies were less likely to make loans in or near red areas, while nonfederal savings and loans were more likely to make loans in or near red areas.⁶²

These results confirm that lenders did not categorically redline areas that HOLC colored red. Households in all parts of the five sample areas succeeded in securing mortgages. This analysis does not account for different levels of demand for mortgages in those areas, and red areas may have had higher loan rejection rates than those with more favorable assessments. It also does not include contract sales, which may have been more common in red areas.⁶³ But the analysis does indicate that there was a significant amount of conventional mortgage activity in all parts of the city involving many different types of lenders. While these different types of lenders showed preferences for certain areas and types of properties, none categorically refused to lend to all red areas. While the differences in interest rates across grade was significant, the rates only varied from 4 to 6 percent anywhere in the city.⁶⁴ These differences might be explained in several different ways. If FHA did use HOLC's maps, they may

TABLE 1
Variables for Statistical Models of Mortgage Characteristics

| <i>Variable</i> | <i>Type</i> | <i>Data Source</i> |
|--|--------------------------|--------------------------------------|
| Number of mortgages | Dependent (continuous) | <i>Philadelphia Realty Directory</i> |
| Loan-to-value ratio | Dependent (continuous) | <i>Philadelphia Realty Directory</i> |
| Interest rate | Dependent (continuous) | <i>Philadelphia Realty Directory</i> |
| Lender type | Dependent (dummy) | <i>Philadelphia Realty Directory</i> |
| HOLC grade | Independent (continuous) | HOLC Residential Security Map |
| Distance from red area | Independent (continuous) | HOLC Residential Security Map |
| Assessed value of house | Control (continuous) | <i>Philadelphia Realty Directory</i> |
| Year mortgage made | Control (continuous) | <i>Philadelphia Realty Directory</i> |
| Owner occupied | Control (dummy) | <i>Philadelphia Realty Directory</i> |
| Size of house | Control (continuous) | <i>Philadelphia Realty Directory</i> |
| Mortgages on face block, 1928-1937 | Control (continuous) | <i>Philadelphia Realty Directory</i> |
| Foreclosures on face block, 1928-1937 | Control (continuous) | <i>Philadelphia Realty Directory</i> |

TABLE 2
Spatial Lag Results for Small Area Samples (Interest Rate)

| <i>Variable</i> | <i>East Falls/ Germantown</i> | <i>West Philadelphia</i> | <i>Frankford/ Kensington</i> |
|------------------------|-----------------------------------|------------------------------|----------------------------------|
| Constant | 5.070 (16.561) | 5.836 (24.601) | 5.876 (26.653) |
| HOLC grade | 0.233*** (3.773) | 0.221*** (5.588) | 0.241*** (6.394) |
| Loan to value | -0.096 (-0.427) | -0.899*** (-4.999) | -0.675*** (-3.748) |
| Assessed value | -0.003 (-0.385) | -0.004*** (-2.847) | -0.0052 (-0.612) |
| Size | -0.015* (-1.924) | -0.016 (0.470) | 0.0068 (0.402) |
| Year | -0.058*** (-4.431) | -0.074*** (-6.075) | -0.084*** (-8.857) |
| Pre-1938 transactions | -0.147* (-1.907) | -0.490*** (-4.236) | -0.084 (-1.53) |
| Pre-1938 sheriff sales | -0.289 (-1.305) | 1.252*** (3.999) | -0.244 (-1.016) |
| Owner occupied | -0.054 (-0.608) | 0.027 (0.439) | 0.099 (1.261) |

NOTE: Pseudo $R^2 = .12$ for East Falls/Germantown; $.19$ for West Philadelphia; and $.37$ for Frankford/Kensington; z values in parentheses.

* $p < .10$. *** $p < .01$.

have avoided insuring loans in red areas. FHA-insured properties had low interest rates, so this could account for the higher interest rates in red areas.⁶⁵ More likely, the higher interest rates probably reflected perceived risk levels, particularly because of the presence of African Americans. Lenders could have obtained information about racial composition and other neighborhood

TABLE 3
Spatial Lag Results for Small Areas Samples (Interest Rate)

| <i>Variable</i> | <i>East Falls/ Germantown</i> | <i>West Philadelphia</i> | <i>Frankford/ Kensington</i> |
|------------------------|-----------------------------------|------------------------------|----------------------------------|
| Constant | 5.919 (25.469) | 6.679 (31.000) | 6.823 (37.455) |
| Distance to red | -0.258*** (-3.620) | -0.210*** (-5.674) | -0.247*** (-6.219) |
| Loan to value | -0.066 (-0.293) | -0.933*** (-5.217) | -0.713*** (-4.115) |
| Assessed value | -0.0034 (-0.494) | -0.003** (-3.105) | -0.001 (-0.118) |
| Size | -0.015** (-2.014) | -0.046 (-1.737) | -0.0026 (-0.157) |
| Year | -0.061*** (-4.639) | -0.073*** (-5.994) | -0.086*** (-9.317) |
| Pre-1938 transactions | -0.139* (-1.803) | -0.403 (-3.498) | -0.070 (-1.282) |
| Pre-1938 sheriff sales | -0.244 (-1.098) | 1.234*** (3.942) | -0.304 (-1.290) |
| Owner occupied | -0.055 (-0.618) | 0.001 (0.018) | 0.100 (1.289) |

NOTE: Pseudo $R^2 = .12$ for East Falls/Germantown; $.19$ for West Philadelphia; and $.36$ for Frankford/Kensington; z values in parentheses.
* $p < .10$. ** $p < .05$. *** $p < .01$.

TABLE 4
**Ordinary Least Squares Regression Results
for Random Citywide Sample (Interest Rate)**

| <i>Variable</i> | <i>HOLC Grade</i> | <i>Distance to Red</i> |
|-----------------------|----------------------|------------------------|
| Constant | 5.134 (0.283) | 6.392 (0.229) |
| HOLC grade | 0.375*** (0.049) | NA NA |
| Distance to red | NA NA | -0.091*** (0.013) |
| Loan to value | -0.764*** (0.230) | -0.663*** (-0.233) |
| Assessed value | -0.022 (0.026) | -0.003 (0.026) |
| Size | 0.034 (0.044) | 0.069 (0.045) |
| Year | -0.054*** (0.015) | -0.057*** (0.015) |
| Pre-1938 transactions | 0.031 (0.047) | 0.011 (0.048) |
| Owner occupied | -0.084 (0.095) | -0.073 (0.096) |

NOTE: HOLC = Home Owners' Loan Corporation. Multiple $R^2 = 0.31$ for HOLC grade and 0.29 for distance to red. Standard errors in parentheses. HOLC grade and distance to red were not included in the same equation because of concern for extreme multicollinearity (correlation greater than 0.8).
*** $p < .01$.

characteristics from a variety of sources, such as their own surveys or U.S. Census and Real Property Survey data. They did not need secret maps to make these judgments.

These statistical results relate only to the effect of HOLC grades on mortgage-lending patterns in Philadelphia. The impact may have been different in other cities, particularly those where HOLC conducted resurveys that would have provided more up-to-date information for lenders. However, prior research on HOLC has suggested that HOLC's maps caused redlining in all the surveyed cities. The results for Philadelphia call into question this blanket conclusion.

CONCLUSION

It is unlikely that HOLC caused redlining. Redlining existed prior to the initiation of the City Survey Program, and areas colored red by HOLC were already suffering from a lack of mortgage funds before the maps were made. Lenders did not have widespread access to HOLC's maps, but they did have access to a wide array of other sources of information about housing and demographic patterns in their communities. Areas HOLC assigned worse grades and areas near red areas did not have fewer mortgages, and no group of lenders categorically refused to make loans to red areas. HOLC grades do help to explain differences in interest rates, but they do nothing to explain differences in loan-to-value ratios.

The fact that the maps were not widely distributed or discussed in the major real estate and appraisal journals also undermines the conclusion that HOLC institutionalized the practice of redlining. If FHA and private lenders had adopted HOLC's appraisal standards and procedures, rather than the actual maps, the language with which they described their own maps would have been more similar to HOLC's. The fact that it was not indicates that most lenders either were not aware of HOLC's mapping efforts or viewed them as just one of many examples of how to appraise neighborhoods.

HOLC was as much a follower as a leader when it came to neighborhood appraisals. Leading real estate texts had started calling for assessments of neighborhood conditions, particularly racial composition and housing quality, before HOLC was even created. Congress mandated that FHA develop a system of appraising mortgage risk levels, leading its research department to establish and actively promote guidelines for choosing neighborhoods in which to insure mortgages, before HOLC launched its City Survey Program. Private lending institutions, many of which wanted to meet FHA's standards so that the loans they made could be insured, were also busy categorizing neighborhoods and creating their own risk maps during the 1930s and 1940s.

To argue that HOLC was following the lead of FHA and private lenders is not to insist that HOLC residential security maps were insignificant. As

researchers who have studied HOLC have implied, these are invaluable primary sources; they have simply been misinterpreted. Rather than being the primary cause of redlining, these sources point to a more complicated story that involves a much wider cast of characters and maps. Buzz Bissinger wrote that in the Philadelphia residential security map “lay startling evidence of the seeds of the city’s destruction.”⁶⁶ This is probably true, but the map provides evidence that ecological and infiltration theories, racial prejudice, and real estate and appraisal industry codification of all these sentiments in combination with federal endorsement and promotion of them—not the maps, themselves—caused urban decline. The HOLC maps are probably the clearest, most accessible, and most dramatic evidence of this collusion, but that does not make them the most influential.

ORIGINS OF THE HOLC REDLINING THESIS

Researchers did not connect the red-shaded areas of HOLC’s residential security maps to redlining by FHA and private lenders until the maps had become historic artifacts, tucked away within FHLBB records at the National Archives. The massive changes that cities experienced between the time the maps were created and their rediscovery in the late 1970s influenced efforts to make sense of them. Americans had seized on FHA- and VA-insured loans as a way to leave the city and purchase single-family homes in the suburbs. Manufacturers had largely deserted cities as well, and federal highway spending had further accelerated metropolitan dispersal. In the wake of widespread rioting in the late 1960s, community groups had mounted campaigns against lenders who refused to make loans to their urban neighborhoods. A series of federal laws recognized redlining as a form of housing discrimination and took steps to eliminate it. Since the 1970s, researchers have struggled to make sense of all these developments. Long-hidden maps that predated the crises in the cities capturing the federal government’s harsh appraisals of urban neighborhoods across the country seemed to provide a clue.

Urban researchers across academic disciplines have since relied on one set of maps to explain the loss of capital in central city neighborhoods and a single chapter in Jackson’s ambitious and wide-ranging book to bridge an enormous gap in redlining research. The proposition that HOLC’s maps explain urban disinvestment from the Depression until the riots in the late 1960s is illogical, yet this is the logical implication of many statements about HOLC’s role. In the absence of fine-level data showing where FHA insured homes within cities and detailed information about the underwriting practices of private lenders, HOLC appeared to be the one caught with the smoking gun.⁶⁷ The 150 boxes of archival material relating to FHLBB’s City Survey Program contain little in the way of an explanation, leaving room for researchers to assign meaning to the elaborate maps and reports. Once found, it was easy to connect HOLC’s bleeding maps to the conditions in America’s bleeding cities. Discovery of

HOLC's maps has brought needed attention to the role that access to credit plays in the well-being of urban neighborhoods, but it has also diverted energy from investigating the role of other maps and other agents of redlining.

ORIGINS OF REDLINING

Even before the Depression, private lenders chose to avoid certain areas, particularly those home to African Americans, certain ethnic groups including new immigrants, and with older, cheaper housing. There is no evidence that they used red lines on maps to mark off these areas, but they were practicing redlining. During the 1930s, real estate agents, appraisers, and lenders all became obsessed with neighborhood risk ratings, in part because they blamed poor real estate appraisal methods for their Depression losses and in part because they adopted the long-term mortgage as the standard. With the short-term mortgages common through the 1920s and early 1930s, lenders had little concern for real estate trends in the neighborhoods they serviced. But the long-term self-amortizing loans that HOLC (fifteen-year) and FHA (thirty-year) instituted made lenders much more eager to consider the long-term prospect of their investments. Toward that end, they shared information through textbooks and the journals and conferences sponsored by the newly formed national real estate and appraisal associations. FHA and FHLBB publications further facilitated this exchange.

FHLBB established its City Survey Program in the middle of all this activity around risk rating, reflecting—rather than infecting—widespread neighborhood appraisal practices and standards. FHA, on the other hand, was a leader in establishing and promoting standards and procedures for neighborhood appraisals. Whether or not it used maps with red lines, FHA did more to institutionalize redlining than any other agency by categorizing mortgages according to their risk level and encouraging private lenders who wanted insurance for their mortgages to do the same. Having completed its lending by the time it finished its first set of maps, HOLC was not in as influential a position as FHA was, with its widely distributed *Underwriting Manual* and long-term involvement in residential mortgage lending. Since the publication of *Crabgrass Frontier*, researchers have blamed HOLC for steering FHA away from central city neighborhoods. But there is no evidence that FHA would have looked on homes in the city any more favorably had it not been for HOLC's maps. On the contrary, FHA's *Underwriting Manual*, numerous surveys, and own mapmaking reflected an antiurban and racial bias deeper than HOLC's. The written materials that accompanied HOLC's maps consistently stated that loans could still be made profitably in areas considered high risk; FHA's materials did not. So while Jackson and others have put too much emphasis on HOLC's role in redlining, all the evidence suggests that the federal government did, in fact, have a very real impact on private lending. But it was the policies and practices of FHA that seem to have been the primary influence.

The larger lesson, though, is that focusing on one agent of change, even if it is a large federal agency, is to assign relatively passive roles to the thousands of appraisers, realtors, and lenders who decided where to make loans. In assuming that they all adopted one set of maps to guide their decisions, researchers have underestimated the initiative and research skills of this large group. Alternatively, to view them as agents of change who shared some basic ideas about real estate valuation but did not necessarily implement them the same way is to invite the telling of a much richer and complicated redlining story than has been presented before.

DIRECTIONS FOR FUTURE RESEARCH

Much additional research is needed to piece together the many actors and sources of neighborhood risk ratings into a coherent narrative of historical redlining. While further research of FHA archives could turn up additional information, it is more likely that future searches through the records of municipal agencies, lenders, and real estate organizations will turn up new evidence of redlining, possibly in the form of maps and underwriting guidelines.⁶⁸ Analysis of mortgage records is also needed to determine the extent of redlining and the level of consensus among lenders about where to make loans. Case histories of particular lending institutions and neighborhoods could also make contributions. It is unlikely that searches through government archives will reveal fine-level data describing the location of FHA-insured loans, but it may be possible to use local sources—including mortgage records, newspaper articles, interviews, and lender records—to figure this out.

In addition, future research on redlining needs to make sense of the relationships among the many mapmaking and risk-rating efforts. How were FHLBB's City Survey Program and the data collection and mapmaking taking place at FHA related? Was there a relationship between the map that J. M. Brewer created in Philadelphia in 1934 and the maps the Mortgage Conference of New York were making throughout the 1930s? To what extent were these smaller, local mapping efforts responses to industry-wide pressure as opposed to the independent products of enterprising lenders?

Most important, future research on early redlining needs to demonstrate how FHA and lenders used maps, or other sources of information about neighborhoods, to make decisions. This does not require quantitative analysis, although the tools of social science—including geographic information systems and spatial statistical analysis—can make important contributions. But making a case for redlining does require empirical research. By themselves, maps with red lines are not adequate proof of redlining. Future research needs to make a direct connection between underwriting criteria and lending decisions to show how redlining affected cities like Philadelphia.

NOTES

1. The number of foreclosures nationally increased every year starting in 1926, reaching 248,700 in 1932 and 252,400 in 1933. Foreclosures peaked in the spring of 1933 at the rate of 1,000 per day. See Charles Abrams, *The Future of Housing* (New York: Harper Brothers, 1946), 42. Abrams cites the *Statistical Abstract of the US*, 1941, 307; and *FHLBB Review, Statistical Supplement*, 1945.

2. Congress set June 1936 as the deadline for new Home Owners' Loan Corporation (HOLC) loans. Approximately one in five recipients of HOLC loans still lost their home to foreclosure, and HOLC continued to provide mortgages to purchasers of the 198,706 properties it acquired through such foreclosures. See Henry E. Hoagland and Leo D. Stone, *Real Estate Finance* (Homewood, IL: Richard D. Irwin, 1961), 474.

3. Kenneth Jackson, *Crabgrass Frontier* (New York: Oxford University Press, 1985). See chapter 11, "Federal Subsidy and the Suburban Dream: How Washington Changed the American Housing Market," 190-218.

4. Jean Pogge, "Reinvestment in Chicago Neighborhoods," in Gregory Squires, ed., *From Redlining to Reinvestment* (Philadelphia: Temple University Press, 1992), 134:

The practice of redlining was first identified and named in the Chicago neighborhood of Austin in the late 1960s. Saving and loan associations, at the time the primary source of residential mortgages, drew red lines around neighborhood they thought were susceptible to racial change and refused to make mortgages in those neighborhoods.

5. National Commission on Urban Problems, *Building the American City: Report on the National Commission on Urban Problems* (New York: Praeger, 1969), 101; and the President's National Advisory Panel on Insurance in Riot-Affected Areas, "Meeting the Insurance Crisis of Our Cities" (Washington, DC: Government Printing Office, 1968), 6.

6. *Laufman v. Oakley Building and Loan Company*. See Squires, *From Redlining to Reinvestment*, 8-9; and John Yinger, *Closed Doors, Opportunities Lost: The Continuing Costs of Housing Discrimination* (New York: Russell Sage Foundation, 1995), 188.

7. Arguably, the Civil Rights Acts of 1866 and 1870 made any form of housing discrimination illegal. George C. Galster, "Use of Testers in Investigating Discrimination in Mortgage Lending and Insurance," in Michael Fix and Raymond J. Struyk, eds., *Clear and Convincing Evidence: Measurement in Discrimination in America* (Washington, DC: Urban Institute Press, 1993), 33, n. 14. Also, the Justice Department charged the Mortgage Conference of New York with anticompetitive business practices in 1946 because it circulated block-level maps showing where African Americans lived. Oscar Schisgall, *Out of One Small Chest: A Social and Financial History of the Bowery Savings Bank* (New York: Amacom, 1975), 189-98; and John T. Metzger, "Social Capitalism in American Cities: Financial Institutions and Community Development" (Ph.D. dissertation, Columbia University, 1999), 195-8.

8. Kenneth T. Jackson, "Race, Ethnicity, and Real Estate Appraisal: The Home Owners Loan Corporation and the Federal Housing Administration," *Journal of Urban History* 6 (August 1980): 419-52. Jackson first presented his work as the Letitia Woods Brown Memorial Lecture to the Columbia Historical Society and George Washington University in January 1977. Jackson also presented his findings at "The Dynamics of Modern Industrial Cities: Comparative Perspectives on Order and Disorder" in the fall of 1979. His article, "The Spatial Dimensions of Social Control," was published in Bruce M. Stave, ed., *Modern Industrial Cities: History, Policy, and Survival* (Beverly Hills, CA: Sage, 1981).

9. Jackson, *Crabgrass Frontier*, 198.

10. *Ibid.*, 363.

11. Raymond A. Mohl and Neil Betten, *Steel City: Urban and Ethnic Patterns in Gary, Indiana, 1906-1950* (New York: Holmes & Meier, 1986), 66-70; Raymond A. Mohl, "Trouble in Paradise: Race and Housing in Miami During the New Deal Era," *Prologue* 19 (1987):19; David Bartelt, David Elesh, Ira Goldstein, George Leon, and William Yancey, "Islands in the Stream: Neighborhoods and the Political Economy of the City," in Irwin Altman and Abraham Wandersman, eds., *Neighborhoods and Community Environment* (New York: Plenum, 1987), 176; Ira J. Goldstein, "Methods for Identifying Lenders for Investigation under the Fair Housing Act," in John Goering and Ron Wienk, eds., *Mortgage Lending, Racial Discrimination, and Federal Policy* (Washington, DC: Urban Institute Press, 1996), 507; Thomas J. Sugrue, *The Origins of the Urban Crisis* (Princeton, NJ: Princeton University Press, 1996), 43-4; Elizabeth Cohen, *Making a New Deal* (Cambridge: Cambridge University Press, 1990), 276; Buzz Bissinger, *A Prayer for the City* (New York: Random House, 1997), 204; Squires, *From Redlining to Reinvestment*, 4; Marsha Ritzdorf,

“Family Values, Municipal Zoning, and African American Family Life,” in June Manning Thomas and Marsha Ritzdorf, eds., *Urban Planning and the African American Community: In the Shadows* (Thousand Oaks, CA: Sage, 1997), 80; Roger Biles, *A New Deal for the American People* (DeKalb: Northern Illinois University Press, 1991), 178; Metzger, *Social Capitalism in American Cities*, 113; Douglas S. Massey and Nancy A. Denton, *American Apartheid* (Cambridge, MA: Harvard University Press, 1993), 51-2; and Thomas W. Hanchett, *Sorting Out the New South City: Race, Class, and Urban Development in Charlotte, 1875-1975* (Chapel Hill: University of North Carolina Press, 1998). Hanchett offered a somewhat different interpretation of HOLC’s impact, focusing on its role in institutionalizing redlining:

The HOLC’s work served to solidify practices that had previously only existed informally. As long as bankers and brokers calculated creditworthiness according to their own perceptions, there was considerable flexibility and a likelihood that one person’s bad risk might be another’s acceptable investment. The HOLC wiped out that fuzziness by getting Charlotte’s leading real estate agents to compare notes, and then publishing the results. The handsomely printed map with its sharp-edged boundaries made the practice of deciding credit risk on the basis of neighborhood seem objective and put the weight of the U.S. government behind it. (P. 231)

12. Jackson, *Crabgrass Frontier*, 202.

13. Cohen, *Making a New Deal*, 274 and 482, n. 49; John T. Metzger, *Social Capitalism in American Cities*, 157, n. 15.

14. Amy Hillier, “Who Received Loans? Home Owners’ Loan Corporation Lending and Discrimination in Philadelphia in the 1930s,” *Journal of Planning History* 2(February 2003): 3-24.

15. Charles Abrams, *Forbidden Neighbors* (New York: Harper Brothers, 1955), 237; Richard W. Thomas, *Life for Us Is What We Make It* (Bloomington: Indiana University Press, 1992), 243; *Detroit Tribune*, 9/23/39 and 10/14/39; “Files Suit in U.S. Court, Sought to Buy in W. Philly,” *Philadelphia Tribune*, May 22, 1943, 1; “Army Man Asks Court to Force Home Sale,” *Evening Bulletin*, May 14, 1943, McDowell Collection, HOLC card 10; and “Officer Wins Suit to Secure Home,” *Philadelphia Tribune*, July 3, 1943, 3.

16. FHLBB Division of Research and Statistics, “Explanation: Philadelphia, Pennsylvania,” in City Survey Files, RG 195, 450/68/03/02.

17. FHLBB Division of Research and Statistics, “Area Descriptions: Philadelphia, Pennsylvania,” in City Survey Files.

18. Chicago Commission on Race Relations, *The Negro in Chicago: A Study of Race Relations and a Race Riot* (Chicago: University of Chicago Press, 1922), 221.

19. Abrams, *Forbidden Neighbors*, 174-5; Schisgall, *Out of One Small Chest*, 189-98; and Metzger, *Social Capitalism in American Cities*, 33.

20. “City Survey Program: A Review of the Objectives, Achievements, Administrative Operations, and Related Policies” (1942), p. 1 in Forrest R. Holdcamper, “Preliminary Inventory of the Records of the Federal Home Loan Bank System” (RG 195), March 1965.

21. The reports generally consisted of a narrative summary of the economic and real estate conditions in a community and write-ups of interviews with local lenders and appraisers.

22. “City Survey Program: A Review,” 4.

23. *Ibid.*, 5-6.

24. *Ibid.*, 8.

25. *Ibid.*, 8 and 10.

26. Letter from Leonard Downie, Chicago Real Estate Board, to Clifford Boyd, Federal Home Loan Bank Board [FHLBB], September 14, 1940, RG 195, 450/68/03/01, Box 135, National Archives, College Park, MD.

27. Jackson, *Crabgrass Frontier*, 203.

28. Interviews, Northern New Jersey, FHLBB, Records of the City Survey Program, RG 195, 450/68/03/02, Box 48, National Archives II, College Park, MD. Patterns within the three sets of interview write-ups support this interpretation. Handwriting and use of language indicate that there were three different interviewers.

29. One major exception was a report published by the FHLBB in 1940 describing the results of the Waverly Community Conservation Test HOLC conducted in Baltimore: *Waverly: A Study in Neighborhood Conservation* (Washington, DC: FHLBB, 1940), viii, 7. In its introduction, the report referred to “confidential” security maps that were not available to the public. “Could they examine these maps, hundreds of thousands of home owners . . . would be dismayed to realize that potential blight and ultimate loss even now overhang their dwellings.” The two other known references were in journals. In 1936, the *Federal Home*

Loan Bank Review published an article in August 1936 that described efforts of the FHLBB's Mortgage Rehabilitation Division to create a set of residential security maps and explained how and why lending institutions should create such maps themselves; see "Security Maps for Analysis of Mortgage Lending Areas," *Federal Home Loan Bank Review* 2 (August 1936): 389-90. The third reference came in the August 1940 article of *The Review of the Society of Residential Appraisers* ("Neighborhood Ratings," 7-9), but this one just mentioned HOLC's neighborhood rating system rather than the actual maps. The real estate and appraisal industries were eager to share new techniques for rating neighborhoods during this time period, and their journals contained numerous articles about neighborhood risk ratings through the 1930s and 1940s. Had there been widespread knowledge of FHLBB's maps, the articles probably would have discussed them much more frequently and directly.

30. Charles Abrams, *Forbidden Neighbors*, 237.

31. National Housing Act, June 1934, Pub. L. No. 73-479.

32. Homer Hoyt, *The Structure and Growth of Residential Neighborhoods in American Cities* (Washington, DC: Federal Housing Administration, 1939); "Advances in FHA Mortgage Risk Rating," *Insured Mortgage Portfolio* 2 (March 1938): 10; "Where Is Mortgage Research Leading?" *Insured Mortgage Portfolio* 2 (January 1938): 15; Frederick Babcock, "The Determination of Mortgage Risk," *Journal of the American Institute of Real Estate Appraisers* 3 (July 1935): 321.

33. Many of these maps are contained in Federal Housing Administration's (FHA's) cartographic records at the National Archives II (RG 31, Records of the FHA, cartographic records, Philadelphia folder, National Archives II, College Park, MD). Homer Hoyt also described these in *The Structure and Growth of Residential Neighborhoods in American Cities*. Jackson referred to a block-level map of racial composition in Brooklyn in *Crabgrass Frontier*, 209, 365, n. 56.

34. "A New Map Aid for Mortgage Lenders," *Insured Mortgage Portfolio* 1 (June 1937): 8-10.

35. "The Preparation of Maps Showing the Dynamic Factors of City Growth," Exhibit J, "Program for the Study of Sixty-two Cities," 1935, FHA, RG 31. Red was not always used to indicate grave risk, reserved in the second set of maps for areas with the wealthiest population.

36. Metzger, *Social Capitalism in American Cities*, 111-2. Metzger found the map in an Illinois State Housing Board report within the Ernest Burgess papers. The map has "Chicago Housing Authority" written at the bottom, suggesting that the Chicago Housing Authority, rather than FHA, actually created the map. The categories do coincide with those outlined by FHA's *Underwriting Manual*.

37. Real estate and appraisal journals, including FHA's own *Insured Mortgage Portfolio*, were full of references to the *Underwriting Manual*. See "New Manual Gives FHA Method of Rating Mortgage Risk," *National Real Estate Journal* 36 (April 1935): 25-6; Frederick M. Babcock, "Influence of the FHA on Mortgage Lending Policy," *Review of the Society of Residential Appraisers* 5 (February 1939): 12-14; Frederick Babcock, "The Determination of Mortgage Risk," *Journal of the American Institute of Real Estate Appraisers* 3 (July 1935): 316-23; Frederick M. Babcock, Maurice R. Massey, and Walter L. Greene, "Techniques of Residential Location Rating," *Journal of the American Institute of Real Estate Appraisers* 6 (April 1938): 133-40. See also Ayers J. DuBois, "The Valuation and Mortgage Risk Rating System of the Federal Housing Administration," *Journal of the American Institute of Real Estate Appraisers* 3 (July 1935): 324-34; and Percy E. Wagner, "Appraisal Procedure of Federal Agencies," *Journal of the American Institute of Real Estate Appraisers* 5 (July 1937): 245.

38. FHA, *Underwriting Manual* (Washington, DC: Government Printing Office), Part II, 101-11. Copies of the 1935, 1936, 1938, and 1947 underwriting manuals are available at the Library of Congress.

39. The other factors included "adequacy of transportation"; "appeal of the neighborhood"; "sufficiency of utilities and conveniences"; "level of taxes and special assessments"; "presence of civic, social, and commercial centers"; and "topography and special hazards of neighborhood." See *Underwriting Manual*, 1935, 301, Part II, 301-4.

40. Interviews, Northern New Jersey, FHLBB.

41. FHLBB Minutes from June 9, 1936, "Miscellaneous/Withdrawn Items of HOLC," FHLBB, Records of the City Survey Program, RG 195, 450/68/17/7, National Archives II, College Park, MD.

42. "Where Is Mortgage Research Leading?" *Insured Mortgage Portfolio* 2 (January 1938): 16.

43. James S. Taylor, "City Growth and Real-Estate Cycles," *Insured Mortgage Portfolio* 2 (July 1937): 24.

44. "Security Maps for Analysis of Mortgage Lending Areas," *Federal Home Loan Bank Review* 2 (August 1936): 389-90.

45. "Neighborhood Rating," *Review of the Society of Residential Appraisers* 6 (August 1940): 7.

46. Hoagland and Stone, *Real Estate Finance*, 209.

47. L. Elden Smith, "Measuring the Neighborhood Risk," *Insured Mortgage Portfolio* 2 (February 1938): 9-11, 22-3.
48. "J. M. Brewer Survey of Philadelphia," Map Collection, Free Library of Philadelphia, Philadelphia, PA. The variables Brewer included were different from those in Philadelphia's 1934 Real Property Survey. The map legend also included the following note: "All location ratings and racial concentrations quoted are the opinion only of J. M. Brewer after careful investigation of the location."
49. A copy can be found in Metzger, *Social Capitalism in American Cities*, 33.
50. "Current Survey on Appraisal Practices and Policies," *Review of the Society of Residential Appraisers* 7 (September 1941): 6-16. Quote on p. 7.
51. Alison Ellen Isenberg, *Downtown Democracy: Rebuilding Main Street Ideals in the Twentieth Century American City* (Ph.D. dissertation, University of Pennsylvania, 1995), 348-9.
52. "Confidential Reports," FHLBB, Records of the City Survey Program, RG 195, 450/68/03/02, Box 21.
53. *Sales Opportunities: Handbook for Salesmen* (Philadelphia: Curtis, 1935), 10 and 42.
54. The boundaries and grades were determined by looking at full-size, black-and-white copies of the maps, created by staff in the National Archives Cartographic Division (color photocopying is not available for large materials) and smaller color photographs of the maps. On-screen digitizing was done using ArcView GIS 3.1 and a 1990 census block shapefile.
55. The Fair Housing Act prohibits discrimination in the terms of mortgages against certain protected groups. See, for example, Squires, *From Redlining to Reinvestment*: "Redlining is a process by which goods or services are made unavailable, or are available only on less than favorable terms, to people because of where they live regardless of their relevant objective characteristics" (p. 2); The Urban Institute, "What We Know about Mortgage Lending Discrimination in America" (Washington, DC, September 1999); and Daniel Immergluck and Marti Wiles, *Two Steps Back: The Dual Mortgage Market, Predatory Lending and the Undoing of Community Development* (Chicago: Woodstock Institute, 1999).
56. Immergluck and Wiles, *Two Steps Back*; and Anthony Pennington-Cross, Anthony Yezer, and Joseph Nichols, *Credit Risk and Mortgage Lending: Who Uses Subprime and Why?* (Arlington, VA: Research Institute for Housing America, 2000).
57. The *Philadelphia Realty Directory* did not include the length of the mortgage, so this could not be considered. The amount of the mortgage relative to the amount paid for the property was used to approximate the loan-to-value ratio. Usually, the ratio is calculated by comparing the mortgage to the appraised value, which could differ from the sales price, but the appraised value is not recorded in the *Realty Directory*. The *Philadelphia Realty Directory* does include the annual assessed value, but this was thought to be even less consistent with the appraised value because it was established by the city for tax purposes and does not necessarily reflect either the market or appraisal value. Based on their name, lenders were categorized into eight groups: federal savings and loans, (nonfederal) savings and loans, mortgage companies, life insurance companies, commercial banks, savings banks, individuals, and other. This classification scheme follows that used by HOLC and identified by texts on real estate finance from that period. Building and loans and building associations, both earlier names for savings and loans, were included in the savings and loan category. Ideally, savings and loans would have been designated as federal, state chartered, or neither. However, the name of the institution did not indicate if it was state chartered, so savings and loans were only distinguished as federal or not federal. Mortgage and life insurance companies were easily classified by their name. Banks that did not have "savings" in their name were classified as commercial banks, while those with "savings" in their name were classified as savings banks, including savings fund societies. All lender names that only included a person's first and last name were classified as individuals. The "other" category included a variety of lenders, including churches, pension funds, and lenders with names that did not clearly indicate their type.
58. Multiple regression is commonly used to determine the size and statistical significance of an independent (explanatory) variable's unique relationship with a dependent variable, controlling for several other variables. Because it assumes that each observation is independent, analyzing observations that are nearby in space requires tests for spatial dependence. Spatial lag models were used in cases where the Moran's I statistic indicated that there was significant spatial autocorrelation (dependence). The spatial lag model incorporated a weight matrix that defined transactions made on the same year and same block face as neighbors to incorporate the structure of the spatial autocorrelation. Because neither ordinary least squares nor spatial lag models are appropriate for analyzing categorical dependent variables, lender type was analyzed using Bayesian spatial probit models. The spatial lag and Bayesian spatial probit models were run using scripts written for MATLAB by Tony E. Smith, University of Pennsylvania.

59. The Euclidean distance between the location and the edge of the closest grade-four areas was calculated in ArcView using the "Nearest Feature Analysis Tool" script written by Timothy J. Fox on April 28, 1998. For properties located within red areas, the distance to the closest red line was negative.

60. The listings in *Philadelphia Realty Directory* do not distinguish between mortgages and transactions that simply involved change in ownership until 1940, so the number of transactions was used as the best available proxy for the level of mortgage activity. The number of transactions and sheriff sales on each faceblock was calculated for properties in the four small area samples since data were collected on all properties in the area. But these block characteristics were not calculated for properties in the random sample because characteristics of nearby properties were not collected. The statistical equations for the random sample, therefore, do not include these control variables. However, the total number of transactions on a particular property from 1928 to 1937 was included as the best proxy.

61. The age of the property and the race of the owner would also have been included as control variables in an ideal model, but this information was not available at the address level.

62. Significant relationships had p values below .05. The program used to run the spatial Bayesian probit models ("probit_run.m" for MATLAB) does not generate tabular output. The p values of the independent variables were checked individually.

63. Contract sales were not considered because they were not recorded in the *Philadelphia Realty and Service* since they did not usually involve a legal change in ownership until the occupant completed payments.

64. A total of three mortgages included in the samples had interest rates lower than 4 percent; none had an interest rate higher than 6 percent. The average interest rate ranged from 5.1 to 5.6 percent and the median interest rate ranged from 5 to 6 percent across the five samples.

65. The absence of address-level data on properties insured by FHA and, later, through the Veterans Administration program makes it impossible to distinguish between HOLC's and FHA's impact on redlining. See Jackson, *Crabgrass Frontier*, 209, for a description of FHA data available from that time period.

66. Bissinger, *A Prayer for the City*, 204.

67. Jackson noted that he was unable to locate FHA data for anything below the county level (*Crabgrass Frontier*, 365, n. 56).

68. Mohl has reported finding dozens of other "redlining maps" within municipal agency records in Miami, particularly within the Dade County Building and Zoning Department records, since publishing his original work on HOLC. H-Urban posting, April 14, 1999; personal communication, February 5, 2001.

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