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A Historiography of Early NBER Housing and Mortgage Research

Kenneth Snowden

As the United States grew rapidly and urbanized between 1870 and 1930, nonfarm residential construction and home mortgage debt became increasingly important to the nation's capital formation, financial structure, and short-run aggregate performance. However, both activities remained highly localized, institutionally diverse, and unevenly regulated during this period. As a result, residential construction and mortgage credit were poorly measured and largely unexamined before 1930. This all changed during the Great Depression when the federal government responded to the worst housing and mortgage crisis in the nation's history with a five-year burst of regulatory initiatives. Some of these were temporary, emergency interventions, while others permanently transformed the nation's homebuilding and residential mortgage lending sectors. These interventions created a more institutionally mature and integrated national housing market, and provided new sources of data and opportunities for research.

The National Bureau of Economic Research (NBER) played a central role in the academic discussion of residential construction and mortgage finance that blossomed over the next quarter century.[1] Between 1935 and

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1. The work of Richard Ely's Institute for Research in Land Economics and Public Utilities needs to be acknowledged because it was, according to Marc Weiss (1989, 115), "[t]he orga-

1960, the NBER sponsored six distinct research programs that produced thirteen major monographs examining the performance and transformation of the housing and mortgage markets. The appendix to this chapter provides a complete enumeration of these contributions. When viewed collectively, these works provide a broad and deep analysis of residential construction and financing before World War I, through the boom and bust of the interwar years, and during a remarkable post–World War II expansion. To set the stage for the discussion of these early NBER research initiatives, we begin with a brief account of the development of the housing and mortgage markets between 1920 and 1950.

1.1 Setting the Stage: Housing and Home Mortgages, 1920–1950

The earliest formal investigation of the US housing market was conducted by the Calder Committee, created by US Senate Resolution 350 that was passed on April 17, 1920.[2] The committee was asked to make legislative recommendations to respond to the acute excess demand for housing that had developed by the end of World War I. The committee's first observation in its final report was that private enterprise, rather than public intervention, should be relied on to alleviate the imbalance.[3] At the time, this recommendation was more than a generic endorsement of free markets. It was, instead, a response to groups of architects, labor organizations, and even the military services who, at the time, advocated for the continuation, and even the expansion, of wartime federal housing programs that had originally been established for defense workers (Wood 1931,76, 8). Moreover, by this time, several European countries had established public housing programs to address their own postwar housing problems. The Calder Committee examined the foreign programs and gave particularly harsh assessments of

nization most responsible for studying the economics aspects of housing policy during the 1920s." Weiss documents the contributions of Ely and associates of his institute through the late 1930s, including publication of *The Journal of Land & Public Utility Economics* and important monographs on all elements of urban property development, participation in Hoover's 1931 conference on homeownership (see following), close connections to the National Association of Real Estate Boards and the American Savings and Loan Institute, and influence during the 1930s on the development of the Federal Home Administration. Ely was a strong advocate of increasing homeownership throughout the period, and one of his institute's first research projects was the *Report on Mortgages* (1923), which was written for the Bureau of the Census from data on homeownership and encumbrance that it collected in the 1920 population census.

2. The resolution instructed the committee to inquire into and report on "(a) The existing situation in relation to the general construction of houses, manufacturing establishments, and buildings, and the effect thereof upon other industries and the public welfare and; (b) such measures as it may deem necessary to stimulate and encourage such construction work, to encourage popular investment rather than spending, to foster private initiative in building, and to insure cooperation between labor and persons or corporations engaged in transportation, banking, or other businesses necessary to the development of such construction" (*Congressional Record*, vol. 59, pt. 6, p. 5765).

3. The Calder Committee's report was presented as Senate Report 829 dated March 2, 1921.

the British and French initiatives.[4] In the end, the federal wartime housing programs were soon discontinued.

Although skeptical of direct federal intervention in the housing market, the Calder Committee recognized the inadequacies in the nation's housing stock and recommended the implementation of a set of public programs and policies for the purpose of assisting, rather than replacing, private market initiatives and local governments. The first was to compile and maintain a comprehensive statistical record of national building activity. In response, the Bureau of Labor Statistics (BLS) took over a small program from the US Geological Service to collect annual building permit series from local governments. Beginning in 1921, the BLS used these data to compile an annual report of planned nonfarm construction activity in 257 principal cities. The Calder Committee also endorsed federal sponsorship of a national clearinghouse for information about residential zoning regulation and building standards that varied widely across local markets. The Division of Building and Housing in the Department of Commerce was charged with compiling this information and, in 1926, began to publish *Zoning Progress in the United States* to inform local governments and their constituents about new and best practices within the urban planning community (Hubbard and Kimball 1929, 162–63).

The Calder Committee identified the residential mortgage market as a third area where federal policy could make a positive contribution. It recommended a relaxation of strict prohibitions on urban mortgage lending by nationally chartered commercial banks—and policies that did so were gradually adopted during the 1920s. The committee also gave its support for proposals to establish a new Federal Home Loan Bank (FHLB) system that could provide liquidity and oversight for residential mortgage lenders in much the same way as the recently created Federal Reserve and Federal Farm Loan Bank systems were doing for commercial banks and farm mortgage lenders. The proposal was championed by, and designed to assist, building and loan associations, which at the time were the nation's leading institutional residential mortgage lenders and the only ones that specialized in home mortgages. The proposal foundered when other mortgage lenders—mutual savings banks, life insurance companies, and state banks—strongly opposed the new system. These latter groups prevailed, and the federal government continued to play a small role during the 1920s in a residential mortgage market that remained fragmented in structure and subject to a patchwork of state regulation.

The Calder Committee's confidence in the productive capacity of the private housing sector was borne out as the nation's postwar housing demands were soon satisfied by a historic building boom. After averaging just over 300,000 nonfarm housing starts between 1905 and 1916, produc-

4. See pp. 13–16 in S. Rep. 829 (1921).

tion reached a peak of more than 700,000 units in 1925 and averaged more than 600,000 units per year between 1921 and 1928. Ultimately, 8 million new housing units were added to an initial stock of 24 million during the 1920s, as the nonfarm homeownership rate surged from 41 to 46 percent. Because the BLS began to record housing starts as the committee had recommended, we know that the jump in building occurred in all regions of the country, in both single- and multifamily markets, and especially in the new suburban ring areas of metropolitan areas (Kimbrough and Snowden 2007). Additionally, the discussion of housing regulation and building standards intensified during this period as groups such as the National Housing Association, the Better Homes movement, and the National Association of Real Estate Boards promoted new policies and approaches as the physical layout of US cities were being transformed by increased density and suburbanization (see Veiller 1929).[5]

The home mortgage market of the 1920s grew even more rapidly than the nonfarm housing stock, with nonfarm residential debt tripling (from $9 to $30 billion) in less than a decade as the ratio of debt to residential wealth doubled to nearly 30 percent (Snowden 2010). The credit was supplied by a diverse set of lenders. Life insurance companies and mutual savings banks expanded their mortgage portfolios rapidly, while building and loans (B&Ls) grew both in number and size and spread geographically. At the same time, two new innovations—private mortgage insurance and two early forms of mortgage securitization—served noninstitutional investors, who remained the largest single source of residential mortgage credit.[6] Lenders of second mortgages also appeared in great numbers during the lending boom to provide borrowers with the opportunity to purchase homes with smaller down payments than the 40 to 50 percent generally required by first mortgage lenders. Besides requiring low loan-to-value ratios, these first mortgage contracts also differed from the familiar long-term, amortized modern mortgage loan by being short in term and structured as balloon or sinking-fund loans. Despite the rapid growth and innovation, by the end of the 1920s, the American home mortgage market remained highly localized, regionally fragmented, and institutionally immature relative to modern standards.[7]

One sign of the federal government's "hands off" attitude toward the home mortgage market during the 1920s, and a development that continues to this day to impair our understanding of the mortgage lending boom of the

5. Despite these efforts, Field (1992) argues that the uncontrolled pattern of development during the 1920s created physical and legal impediments to recovery in homebuilding throughout the 1930s.

6. Participation certificates were issued by private mortgage guaranty companies and single-property real estate bonds by bond houses (see Goetzmann 2009; Snowden 2010).

7. National banks were allowed to hold urban mortgages in 1916, but only with maturities of one year until 1927. The size of their mortgage portfolios was also limited to one-half of time deposits (Behrens 1952, 17–21). Morton (1956, 21) and Gray and Terborgh (1929, 14) document regional disparity in mortgage rates in the 1920s.

1920s, was the Census Bureau's decision to remove the question regarding home mortgages from the 1930 population census form, even though it had regularly been asked since 1890. As a result, we do not know with any precision the role that mortgage credit played during one of the greatest homebuilding booms in US history. The federal indifference ended quickly, however, when the 1920s housing expansion turned into a severe and protracted foreclosure crisis in 1930. The change was signaled by President Hoover's decision to organize a national housing conference in the summer of 1931. The purpose of this conference was to provide a comprehensive examination of the state of the nation's housing and mortgage markets (Gries and Ford 1932a, 2).

Hoover enlisted more than five hundred housing professionals, experts, and practitioners—organized into twenty-five different subcommittees—to collect and assess information on topics as diverse as planning and zoning, house design and construction, slums and large-scale housing, and home improvement and repair. These reports were transformed into an eleven-volume conference report that provides a remarkable, detailed, and comprehensive snapshot of the state of US homebuilding and finance in 1930. However, by the time the participants convened as a group in December 1931, the discussion focused on the economic crisis and a mortgage credit system that was identified as "the greatest hindrance" to progress toward the national goal of increasing homeownership (Gries and Ford 1932b, 9).

Conference participants identified several problems in home mortgage lending: high interest rates that varied substantially across the country, contracts that were short in term and renewable only with additional costs, and the widespread use of second liens. To address the rising number of foreclosures, the conference endorsed Hoover's plan to revive the Calder Committee's recommendation for a federal home loan discount bank. Just as in the early 1920s, banks and life insurance companies opposed the creation of such a system because it was structured to serve the building and loan industry.[8] The proposal succeeded this time, and the Congress passed the Federal Home Loan Bank Act on July 22, 1932. Its advocates argued that the new system was established "not only to relieve the present financial strain . . . but [to] have permanent value . . . as a means of promoting home ownership in the future."[9]

The Federal Home Loan Bank system began operation in the spring of 1932, but, as its critics had warned, it was designed for, and used only by, building and loan associations. While the FHLB system was successful in gradually transforming B&Ls into the modern savings and loan industry,

8. Bodfish and Theobald (1938, 288–90) describe in their account of the bill's legislative history that officials of the United States Building & Loan League actually helped draft the legislation.

9. This language appeared in the first of two resolutions approved by the participants of the President's Conference on Home Building and Home Ownership. See p. 21 in Gries and Ford (1932b).

it proved to be incapable of stemming the general mortgage crisis of the early 1930s. Against this backdrop, Roosevelt promoted several initiatives between 1933 and 1935 that immediately addressed the mortgage crisis and permanently changed the market's institutional structure. The first was the Home Owners' Loan Corporation (HOLC), which was proposed in the spring of 1933 "[t]o provide emergency relief with respect to home mortgage indebtedness, to refinance home mortgages, [and] to extend relief to owners of homes . . . who are unable to amortize their debt elsewhere."[10] The HOLC was a publicly owned entity that purchased one million defaulted home mortgage loans from private lenders between 1933 and 1936 and refinanced them on a long-term, low interest basis. Along with the HOLC, Congress created a new system of federal savings and loan (S&L) charters, and even more support for the new S&L industry came when the Federal Savings and Loan Insurance Corporation was created in 1935. The other major New Deal initiative was the Housing Act of 1934, which created the Federal Housing Administration (FHA) and its program to insure long-term, low down payment, amortized mortgages. The volume of FHA lending was disappointingly small at first, but grew robustly after the Federal National Mortgage Association (the FNMA or "Fannie Mae") was created in 1938 to support a secondary market for these insured loans.

Five years of New Deal legislation forged a new framework through which housing was built and financed in the United States for the next three decades. Savings and loan associations served local mortgage markets and small-scale builders; commercial banks and mortgage companies used FHA and VA loans to finance large-tract builders and multifamily projects; and life insurance companies and mutual savings banks dominated the interregional residential mortgage market through networks of dedicated mortgage companies. Within this structure, institutional portfolio lenders came to dominate the residential mortgage market as never before or since; regulatory boundaries limited competition among lender groups; financial innovation was deemphasized; and loan origination, servicing, and credit risk management were integrated within single or small networks of institutions. A historic surge in both homebuilding and homeownership was financed through this new structure during the post–World War II era, and the research programs of the NBER documented both its institutional structure and its accomplishments.

1.2 The Early NBER Housing Programs

The National Bureau of Economic Research was a decade old when the Great Depression presented the young organization with both opportunities and challenges. Survival was foremost among the latter—a significant loss

10. Language taken from H.R. 5240, the Home Owners' Loan Act.

of external support in 1932 forced the NBER to suspend several research programs and to contemplate dissolution.[11] Even after the severe fiscal challenges were resolved in 1933, the NBER still had inadequate resources to maintain its research agenda into general features of economic life—including the measurement of national income, wholesale prices, and industrial production—while responding to the opportunities that arose during and because of the economic crisis. The trade-off became even more complicated when "a Federal administration proclaiming a philosophy of 'rugged individualism' [was] succeeded by an administration seeking to secure a 'New Deal' by governmental action."[12] The NBER maintained its traditional detachment concerning specific policy proposals, but recognized "the need for a more effective science of economics" to support "a policy of public control over many economic activities in the hope of increasing common welfare."

The diversion of attention to New Deal policy was so demanding that Wesley Mitchell declared in 1935 that the NBER's "chief embarrassment" was a lack of progress on its long-term research projects.[13] By then, one-half of the NBER's permanent research staff were on loan at least part-time to federal agencies—Leo Wolman as chairman of the Labor Advisory Board of the National Recovery Administration, Simon Kuznets with the Department of Commerce to form national income estimates, and Mitchell himself as a member of the National Resources Board. Although these activities delayed progress on important elements of the bureau's agenda, Mitchell noted that they also "brought fresh information, wider contacts and often keen insights into economic problems." These all turned out to be important advantages as the NBER turned its attention to residential housing.

1.2.1 The Program on Real Estate Financing and Economic Stability: 1935–1941

While the 1930 census did not ask households about their mortgage indebtedness, it continued to collect information about the value of their owned homes and the amounts of rent paid by tenants. These data provided valuable information about the total value of the occupied housing stock in 1930. One limitation, however, was that the census still defined a dwelling unit as the domicile of a census family.[14] Within this survey structure, no information was collected concerning the physical structure or characteristics of the buildings in which units were located. Consequently, we have no information on how much of the nation's housing stock in 1930 was in

11. "Report of the Director of Research of the NBER for the Year 1933 (1934)," pp. 5–6.

12. "Report of the Director of Research (1933)," p. 26.

13. Material in this paragraph drawn from pp. 5–6 of the "Report of the Director of Research of the NBER for the Year 1934–1935 (1935)."

14. The census does provide counts of the number of "dwellings" in 1930 and before with all residential structures, single- as well as multifamily, counted as one dwelling.

single-family versus multifamily structures, how much was substandard in quality, or even its age. In fact, the census did not even collect or report data on the number of dwelling units that were vacant at the end of one of the largest building booms in US history.

To provide at least some information on the housing stock and temporary employment for white-collar workers, the New Deal's Civil Works Administration conducted detailed Real Property Surveys in 1934 for sixty-four cities that varied in size, location, age, and rate of growth.[15] The survey instrument and procedures were developed under the Bureau of Domestic and Foreign Commerce and were designed to capture information about the type and age of structure, heating, and plumbing facilities, and the value, rent, and mortgage status for both occupied and vacant units. This first wave of real property inventories was so well received that similar surveys were conducted in an additional 140 cities in 1934, 1935, and 1936. Nearly all of these questions were included in the first census of housing in 1940; so, from 1934 on, we have much more detailed information about the composition and quality of the US housing stock in major urban areas.

The available information about the financial condition of housing markets and homeowners was increased markedly when the Department of Commerce decided to follow up its Real Property Survey with an extensive Financial Survey of Urban Housing for samples of households in sixty-one of the original sixty-four inventoried cities (Wickens 1937). This survey asked homeowners and tenants additional questions regarding the value of their homes and the debt owed on them in 1930, 1933, and 1934; rent and income in 1929, 1932, and 1933; and the sources and terms of the mortgage debt. The Financial Survey was conducted by mail and captured an average of 12 percent of tenant families and 15 percent of homeowners across the sixty-one cities.

The Social Science Research Council (SSRC) took immediate note of the Financial Survey as an opportunity to investigate the structure and stability of the channels through which capital formation was being financed in the United States. The SSRC found the survey particularly important because "real estate finance had been commonly under-stressed in the discussions of banking and credit phases of stabilization problems," even though construction was the largest component of aggregate capital formation (Wickens 1941, vii). For this reason, the SSRC and NBER joint committee on banking and credit decided in 1934 to sponsor an examination of "Real Estate Financing and Economic Stability."

The project got underway in 1935 when David L. Wickens, the government economist who had supervised the collection of data for both the Real Property Surveys and the Financial Survey of Urban Housing, was

15. Stapp (1938, ix–xii). CWA was within the New Deal's Federal Emergency Relief Administration.

appointed chief investigator and an NBER research associate. The first output from the project was a series of national estimates of "Non-Farm Residential Construction, 1920–1936" by Wickens and Ray Foster.[16] To construct the estimates, Wickens and Foster used the building permit activity of the 257 cities, which the BLS had been reporting since 1921, to construct separate estimates of building permits and housing starts for nonreporting urban localities and the entire nonfarm rural sector. Wickens did so by fitting relationships between population growth rates and permit activity in reporting areas and then using these to predict building activity in nonreporting areas on the basis of their own population trends. These estimates were then combined with adjusted permit data from the reporting areas to construct national estimates of authorized dwelling units and starts.[17]

The project was designed to provide for the first time a comprehensive picture of the nonfarm housing stock. To do so, Wickens relied heavily on the primary data collected in the Financial Survey of Urban Housing, information on rents and values from the 1930 census, and the BLS permit data. The result was *Residential Real Estate* (NBER 1941) which, according to the foreword, "remove[s] real estate and mortgage financing from the list of economic and financial factors about which we know the least" (vii–viii). Much of the monograph describes data and explains the methods used to compile and draw estimates from them. The essential resource for historical research within the volume, however, is nearly 100 tables that provide detailed measures of housing values, rents, mortgage indebtedness, and family income across cities, states, and regions.

1.2.2 The Urban Real Estate Finance Project: 1945–1955

In 1937, the NBER's Exploratory Committee on Financial Research surveyed existing research in the field and suggested directions for further study. Its conclusion about the urban real estate market will sound familiar to modern readers:

> The financing of real estate constitutes one of the most basic and essential financial activities in our economy. It is widely felt, however, that the real estate mortgage was subjected to more abuse and over-extension during the expansion of the twenties than any other credit instrument. During the [D]epression the real estate mortgage market was probably more completely frozen than any other domestic financial market. Stimulated by recent legislative changes designed to remedy the most conspicuous abuses in this type of financing, banks and other financial institutions are again expanding their mortgage loans. The recent crisis made material

16. Foster and Wickens's work appeared as NBER Bulletin 65, September 1937.

17. The BLS adopted Wickens's estimates for 1920–1936 as its official housing start series and then employed similar techniques to construct estimates for the 1937–1944 period. In 1942, BLS used the results of the 1940 census of housing to revise Wickens's estimates for 1930–1936 and its own estimates for 1937–1939. See notes to table Dc510-530 in Carter et al (2006).

> available for a broad analysis of our experience with mortgage financing and for a formulation of fundamental credit standards designed to maintain sound conditions in the mortgage market. Immediate analysis of this material would be of incalculable value to our national economy as a whole as well as to the specific institutions that specialize in mortgage financing.[18]

Despite the apparent urgency, the exploratory committee decided to delay an additional urban mortgage project until Wickens completed his analysis of real estate financing and stability. The wait turned out to be far longer than expected when the United States entered World War II. Once the war ended, the NBER outlined a second and more elaborate research program into the urban mortgage market. Beginning in 1945, a team of seven researchers worked on the "Urban Real Estate Finance Project" for nearly a decade to produce a set of NBER monographs that examined the development and performance of the US mortgage market over the period 1920 to 1950.[19] The project had three components.

The first part was designed to document the legal, contractual, and institutional foundations of the nonfarm residential mortgage market and the changes that occurred between 1920 and 1950, including the growing influence of government within the market. The two monographs commissioned for this work were written by individuals who had actually helped shape the transformation that they described. Ernest Fisher was a prolific real estate scholar in the 1920s and had participated in Hoover's 1931 housing conference.[20] During the 1930s, he became active in the National Association of Real Estate Boards and served as director of research for the Federal Housing Administration, later becoming the first director of the Institute for Urban Land Use and Housing Studies at Columbia University. Miles Colean began his career as an architect in Chicago but moved to Washington in the early 1930s to help draft the legislation that created the Federal Housing Administration, and then served as its first technical director.[21] In subsequent years, Colean was a long-term consultant to both the Mortgage Bankers Association and the federal government; in the latter capacity, he was credited with coining the term "urban renewal" in the late 1950s.

18. NBER (1937, NBER Bulletin 64, p. 9).

19. The Urban Real Estate Project was a joint project of the Institute for Urban Land Use and Housing Studies of Columbia University and the staff and research associates of the National Bureau of Economic Research.

20. Fisher was professor of real estate management at the University of Michigan in the 1920s and moved to Columbia in 1945, where he was appointed as first director of the Institute for Urban Land Use and Housing Studies in 1948.

21. Colean's early career was in architecture (he helped design the Palmer House in Chicago), but after becoming involved in government policy, he briefly served as director of the Twentieth Century Fund, became associated with the Institute for Urban Land Use and Housing, and worked extensively as a consultant with the Mortgage Bankers Association.

The two monographs reflect the depth of their authors' experience and knowledge. Fisher's *Urban Real Estate Markets: Characteristics and Financing* (1951) surveys the legal background and development of institutional structures governing real estate transactions, homeownership, rental arrangements, and mortgage finance. His chapter on "Instruments of Real Estate Finance," for example, provides the most complete treatment available of the wide range of contracts used in the mortgage market over the first half of the twentieth century. Colean displays the same instincts in his *Impact of Government on Real Estate Finance in the United States* (1950), which neither apologizes for nor defends policies he helped to create. His general approach is to detail how government policy had influenced the size and composition of the investment flows that financed real estate development. For example, he argued that the FHA program created a structure through which federal regulation would reshape housing policy that had previously been local in character—including zoning regulations, building regulation, and town planning. Colean emphasized that residential mortgage lending policies implemented in response to crises were likely to generate unintended long-run effects.

The second part of the Urban Real Estate Finance Project focused on the four largest groups of institutional urban lenders between 1920 and 1950. Studies on life insurance companies, commercial banks, and the Home Owners' Loan Corporation were published as monographs between 1950 and 1952, while the draft manuscript for the fourth, savings and loan associations, was never published.[22] A key component of each of these studies was a detailed survey based on the mortgage records of a sample of institutions drawn from each lending group. These surveys yielded samples of 8,000 individual loans for life insurance companies and commercial banks, 6,000 for savings and loan associations, and more than 3,000 mortgages for the HOLC. All of these loans were made between 1920 and 1950 and, together, they provide a detailed view of changes in the structure and terms written into mortgage contracts over this period. Information and documentation for all of these samples, as well as the loan data itself, remain available on the NBER website, in digitized form for the HOLC and on microfilm for the other three lender groups.

Beyond the similarities in research designs, all four investigations detail the specific lending and contractual structures used by the lenders and the specific role each played in the nonfarm mortgage market. Raymond Saulnier's *Urban Mortgage Lending by Life Insurance Companies*, for example, establishes that the lending activities of most of the large insurance

22. The NBER project did not investigate the fifth important institutional lender because John Lintner, *Mutual Savings Banks in the Savings and Mortgage Markets* (1948) had just appeared.

companies were national in scope and became increasingly focused during the period on residential, as opposed to commercial, mortgage lending. The majority of the companies used correspondents to originate and service loans rather than their own internal branch networks. By 1946, more than one-half of the insurance companies' home mortgages were federally insured or guaranteed. As a result, their loan contracts were written for longer terms, carried higher loan-to-value ratios, and required full amortization—a radical change from the terms of pre-1930 loan contracts.

Carl Behrens was a member of the Federal Deposit Insurance Corporation's research staff when he was enlisted by the NBER to research and write *Commercial Bank Activities in Urban Mortgage Financing*. Changes in regulation between 1913 and 1930 set the stage by permitting nationally chartered commercial banks to become more active in nonfarm, and especially residential, mortgage lending. After joining in the mortgage boom, commercial banks curtailed their residential lending until the second half of the 1930s, when they returned to the market by providing federally insured and guaranteed mortgages to an even greater extent than insurance companies. These generalizations refer only to the mortgage loans that banks held in their portfolios, not, as Behrens cautions, to bank lending that was used to finance short-term construction loans or the activities of independent mortgage originators and correspondents. Both proved to be critical components of the home financing system in the 1950s as shown in a later NBER study by Saul Klaman (1961).

Edward Edwards completed a draft of *Urban Real Estate Financing by Savings & Loan Associations* in 1950, but a final version of the monograph was never approved for publication by the NBER. His task was particularly difficult because B&Ls were more affected by the 1930s mortgage crisis than any other lending group. By 1929, some twelve thousand building and loan associations were operating in the home mortgage market but, over the next decade, one-third of these institutions failed while most of the remainder were transformed into new savings and loan associations. Edwards's draft describes little of this transition, but his quantitative evidence identifies three important trends associated with it. First, by 1948, S&Ls had almost regained the position of being the largest single source of institutional home mortgage credit that B&Ls had maintained throughout the 1920s. Second, Edwards shows that the transition from B&Ls to S&Ls involved a change in the mortgage contracts used within the industry from the traditional B&L sinking fund contract to the modern, fully amortized loan. Finally, the transition in contracts occurred primarily in the conventional mortgage market because S&Ls were less involved in FHA lending than all the other lending groups during the postwar era.

The loan surveys conducted within the Urban Real Estate Finance Project provided new and granular detail about the practices, lending costs, and returns of the leading urban mortgage lenders during a period of significant market turmoil and institutional change.[23] The data indicated that life insurance companies, commercial banks, and S&Ls all experienced average rates of foreclosure between 15 and 20 percent on mortgage loans made during the last half of the 1920s. They also establish a clearer view of the diversity that existed in the structure of mortgage loan contracts before 1930, the liberalization of mortgage lending terms between 1935 and 1950, and the differential impact that the introduction of government mortgage loan insurance and guarantee programs had on the major lending groups. It is important, at the same time, to acknowledge that the NBER loan surveys were subject to substantial response and survivorship biases, so all of these patterns need to be interpreted with care. These problems with the sampling methodology might explain why the data for commercial banks, life insurance companies, and savings and loan associations remain unused by other researchers more than sixty years after they were collected.

The same cannot be said for the sample of loans that Lowell Harriss collected for *The History and Policies of the Home Owners' Loan Corporation*. The HOLC was an unusual mortgage lender in a couple of important respects. To begin with, it was created as an emergency federally financed corporation in 1933 and, over the next three years, it became the nation's largest holder of residential mortgage debt after it had purchased and refinanced more than one million home loans. Second, after finally liquidating its mortgage portfolio in 1951, the HOLC was dissolved as originally intended. The agency's business was restricted to purchasing and refinancing only existing home loans that were in default and facing foreclosure. Borrowers like these were plentiful in the mid-1930s, and, by 1936, the HOLC held loans on one out of every ten of the nation's owner-occupied homes. Harriss had access to the HOLC's staff and documents just before it dissolved, so his study provides unusual detail about the costs and profitability of its operation, the procedures it used to appraise property values, and how it set loan terms and serviced its loan portfolio. Because the HOLC was the key New Deal intervention designed to ameliorate the home mortgage crisis of the 1930s, its performance and effectiveness has been of great interest since 2007. Harriss's monograph has proved to be invaluable to both policymakers and academics in these discussions, and his sample of more than three thousand HOLC loans from the New York region has recently been used by Jonathan

23. Saulnier enlisted twenty-four of the largest life insurance companies, a group that held nearly two-thirds of the industry's urban mortgage loans, to report detailed information from origination to retirement for a 1 percent sample of the mortgage loans that they had made each year between 1920 and 1946. In addition, he secured information from dozens more concerning their costs and returns on urban mortgage lending. Behrens's bank survey was distributed to just under 500 commercial banks, of which 116 reported detailed information about loans made between 1920 and 1947 and several dozen more about their activities in 1947. Edwards received retrospective loan data from 92 of 500 surveyed savings and loans and contemporaneous information (for 1947) from more than 100 others.

Rose to show that the HOLC brought substantial benefits to lenders as well as to delinquent borrowers.[24]

The third component of the NBER's Urban Real Estate Finance Project was designed to integrate the examinations of the principal mortgage lenders provided by Saulnier, Behrens, Edwards, and Harriss with the institutional environment described by Fisher and Colean.[25] This task was undertaken by J. E. Morton, who provided the project's seventh and last monograph *Urban Mortgage Lending: Comparative Markets and Experience.* The volume by Morton offers a wide-ranging picture of the nonfarm mortgage market during a period in which outstanding home mortgage debt grew rapidly in size relative to both residential wealth and other types of debt. In it, he documents how the home mortgage market was transformed between 1920 and 1950 as residential mortgage finance became dominated by a differentiated set of institutional portfolio lenders that were each shaped by federal regulation, policies, and subsidies. By focusing on the activities and experience of these principal lending agencies, the NBER's Urban Real Estate Finance Project contributed significantly not only to our understanding of the development of the supply side of the mortgage market between 1920 and 1950, but also the forces that affected mortgage investment experience before, during, and after the worst mortgage crisis in the nation's history.

1.2.3 Capital Formation in Residential Real Estate: Trends and Prospects, 1950–1954

Contemporaneously with the Urban Real Estate Finance Project, the NBER sponsored a project that focused more narrowly on residential housing and its mortgage market. *Capital Formation in Residential Real Estate: Trends and Prospects* was part of Simon Kuznets's larger project on "Capital Requirements in the American Economy." Kuznets structured the project as a series of independent studies of capital formation and financing in agriculture, manufacturing, regulated industries, and government, as well as residential housing. Each was published as a separate monograph by the NBER and then integrated by Kuznets in his own analysis of *Capital in the American Economy: Its Formation and Financing* (1961). Leo Grebler was chosen to lead the effort on residential capital. Grebler was a German émigré who worked between 1939 and 1946 for the Federal Home Loan Bank system and as chief of the FHA's housing finance division before becoming a research professor with the Institute for Urban Land Use and Housing Studies at Columbia University, which cosponsored his NBER study.[26]

24. See Rose (2011), Fishback et al. (2011), and Courtemanche and Snowden (2011). Fishback, Rose, and Snowden (2013) provide additional background about the HOLC and a unified view of recent research about it.

25. Morton (1956) also makes extensive use of Lintner's study of mutual savings banks to complete the institutional picture.

26. In later years, Grebler served with the President's Council of Economic Advisors and as a consultant with the Commission on Money and Credit, the President's Task Force on Low

Kuznets envisioned that each component of the capital formation project would analyze available data for the 1870 to 1950 period rather than collect new evidence. However, no systematic or reliable statistics were available for the period before 1920 for either residential construction or mortgage finance. Grebler's coauthor David M. Blank attacked the former problem by extending back to 1889 the estimates of housing starts that Foster and Wickens had constructed for the post-1920 period. This work was accomplished using building permit data for the pre-1920 era that had been collected during the 1930s by the Works Progress Admininstration (WPA) but never used. Like Wickens and Foster, Blank relied on relationships between population and building permits to derive his estimates, but his approach was considerably more sophisticated. Blank reports his estimates and a complete description of his methodology in *The Volume of Residential Construction, 1889–1950* (1954). The BLS adopted Blank's annual estimates for 1889 to 1919 as its official housing starts series for that period.

There was also a need for comprehensive historical estimates of the size and structure of the nonfarm residential mortgage market. Grebler, Blank, and Winnick assembled these estimates beginning in 1896 by combining several sources, including data that appeared in Raymond W. Goldsmith's NBER volume, *A Study of Saving in the United States, Volume I* (1955), and estimates of institutional residential mortgage holdings that the FHLB had assembled for the period beginning in 1925. Using this information, Grebler, Blank, and Winnick estimated the total amount and institutional distribution of residential mortgage debt each year beginning in 1896, with a disaggregation of the totals into debt on one-to-four family and multifamily dwellings beginning in 1925. The derivation and reliability of the annual series are laid out meticulously in two lengthy appendices, and these estimates continue to provide the best and most comprehensive view of the size and structure of the American mortgage market before 1950.

Grebler, Blank, and Winnick did much more than fill obvious gaps in the statistical record. Their monograph provides a broader and more detailed analysis than earlier NBER contributions into the forces that shaped the performance and development of housing and home mortgage markets between 1890 and 1950. The scholarship brought to this task was exhaustive, well documented, and a major contribution in its own right. Two-fifths of the monograph is taken up by seventeen appendices that report and document information not only about housing starts and mortgage holdings, but also conversions and demolitions of housing units, depreciation, housing prices and costs, household formation, and mortgage lending terms. As we shall see in this volume, some of these ancillary estimates and discussions have ended up playing a much larger role in subsequent literature than Grebler, Blank, and Winnick could have envisioned in the mid-1950s.

Income Housing, the Board of Governors of the Federal Reserve System, and the United Nations. In 1958, he moved to UCLA and its Real Estate Research Program.

Grebler, Blank, and Winnick also differed from the previous NBER authors by focusing on longer, six-decade trends in the residential housing and mortgage markets. They establish, for example, that additions to the housing stock over this period in the United States were closely connected to population growth and influenced by the declining size and changing composition of nonfarm households. As a result, they link a declining aggregate importance of residential construction between 1890 and 1950 to the deceleration in population growth over the same period. This trend was reinforced, according to the authors, by a surprising decrease in the average size and real investment made in individual housing units over the same period.[27] While the importance of residential construction activity diminished in this relative sense, households showed a marked increase in their willingness to purchase homes on credit. This behavior, in turn, drove the spectacular growth and rapid development of the home mortgage market between 1890 and 1950 that was driven in large part after 1930 by federal programs, regulation, and subsidies.

1.2.4 Postwar Residential Mortgage Market: 1955–1961

In 1955, the NBER established a program to examine the three major components of the postwar capital market: the markets for government securities, corporate securities and loans, and nonfarm mortgage loans. Saul Klaman, an economist on leave from the Federal Reserve Board of Governors, was chosen to conduct the examination of the residential mortgage market.[28] As Raymond Goldsmith points out in his introduction to *The Postwar Residential Mortgage Market* (1961), the home mortgage market after World War II was central to the performance of the entire capital market because it grew faster than all other components between 1946 and 1955. In addition, the home mortgage market experienced a fundamental structural change during the period as institutional lenders became increasingly dominant and federal credit programs reshaped the channels through which mortgage finance flowed.

Klaman's monograph focuses primarily on institutional lenders and the supply side of the market, so it can be read as an extension of the earlier Urban Real Estate Finance Project. The time period examined by Klaman is much shorter than those examined in previous NBER studies, and he responded by offering a more detailed and technical analysis of the topic. Klaman shows that the institutional transformation of the nonfarm, residential mortgage market in the postwar decade produced a larger discontinuity than had previously been understood. At the center of the transition was the influence of the federal credit programs that gave institutional lenders

27. Margaret Reid (1958) offers a detailed critique of this particular result. See Grebler, Blank, and Winnick (1959) for a rejoinder.

28. Klaman later served as chief economist and president of the National Association of Mutual Savings Banks.

greater liquidity and access to an active secondary market in mortgage loans. With this new foundation in place, Klaman demonstrates that the single-family residential market expanded much faster than all other components of the urban mortgage market after the war, and that the four big institutional lenders—savings and loans, life insurance companies, commercial banks, and mutual savings banks—achieved dominance within this segment of the market. Klaman documents marked differences across these lending groups in their reliance on the FHA program, the methods they used to acquire mortgage loans, the extent of participation in interregional lending, and how they balanced lending activity across the single-family, multifamily, and commercial property markets. Klaman also describes and explains how innovation reshaped the methods these institutions used to facilitate connections between construction, interim, and permanent mortgage financing.

To lay a foundation for this analysis, Klaman constructed new estimates of the volume of residential mortgage debt that were first reported in his *Volume of Debt in the Postwar Decade* (1958). Klaman's goal in constructing these estimates was to improve on previous studies that examined net flows of mortgage credit measured with changes in the volume of outstanding debt between two dates. Klaman believed that measures of the gross flows of mortgage debt—which accounted for the total volumes of originations, secondary market transactions, and retirements for each period—could provide a much clearer picture of how mortgage credit actually flowed between investors and borrowers. Klaman was able to construct tentative estimates of gross flows for S&Ls, insurance companies, and savings banks, but not for commercial banks. By doing so, he established for the first time a statistical record of the complex interinstitutional networks that emerged during the postwar decade to facilitate greater scale and geographic reach in lending activities.

Klaman's second noteworthy contribution in *The Postwar Rise of Mortgage Companies* (1959) was to document the institutional developments during the postwar period that facilitated these mortgage flows. During the 1920s, mortgage companies had expanded their mortgage loan origination and servicing activities by writing private mortgage loan insurance and issuing mortgage-backed securities. These techniques disappeared when nearly all of the urban mortgage companies failed during the 1930s. Klaman establishes that a new breed of mortgage companies emerged in the post–World War II decade to originate and service mortgage loans as correspondents for life insurance companies and mutual savings banks. Federally insured and guaranteed loans dominated the flow of funds through these networks, while innovations such as forward and standby commitments were developed to smooth the transitions between interim and permanent financing. Klaman's scholarship in *The Postwar Residential Mortgage Market* is first rate in all dimensions, and the monograph remains the definitive account of the postwar development of the US residential mortgage market.

1.2.5 Extensions of Earlier NBER Projects: 1958–1964

Between 1958 and 1964, two final projects extended earlier NBER research contributions into the nonfarm housing market. The first was a comprehensive examination of federal credit programs that served agriculture, business, and, most importantly here, the FHA-insured and the VA-guaranteed home loan programs. Raymond Saulnier, Harold Halcrow, and Neil Jacoby began this work in 1951. It then took six years to assemble data on the volume and lending experience within each category of the programs and to analyze their economic impacts.[29] In *Federal Lending and Loan Insurance* (1958), they show that federal housing credit programs had reduced the costs of mortgage credit to borrowers, decreased regional differences in mortgage loan rates, increased the ratio of debt to equity, lengthened the final maturities of loans, and promoted the principle of periodic amortization. More surprisingly, they also conclude that the introduction of the programs had not appreciably increased the economy-wide use of mortgage credit or significantly influenced the institutional structure of the mortgage market.

The last NBER housing project of this early era extended annual estimates of aggregate residential construction back to 1840. Interest in this subject arose in the early 1950s when Kuznets identified fifteen- to twenty-year "long swings" in economic growth, demographics, and construction that appeared to be closely connected to historical "building cycles" that had been widely examined in the 1930s. Abramovitz provides an extensive survey of this literature in his NBER volume, *Evidences of Long Swings in Aggregate Construction since the Civil War* (1964). More specifically relevant to residential housing, however, is Manuel Gottlieb's *Estimates of Residential Building, United States, 1840–1939* (1964).

Gottlieb's estimates were designed to provide an alternative to the Blank/BLS estimates before 1915 and to extend that series back an additional fifty years in order to capture additional evidence of Kuznets's long swings. To do so, Gottlieb introduced a new approach and new data. Rather than relying on building permits, Gottlieb assembled his housing production series from housing stock and vintage data that were collected in the 1940 census of housing and from an almost complete 1890 inventory of housing in Ohio. His method involved first estimating decadal totals of new housing and then distributing these totals across housing age categories by using weighted averages of the annual building indexes constructed by several earlier authors. His monograph contains a detailed description of the methodology used along with comparisons with competing estimates. Gottlieb's argument that his urban housing production series represented an improvement on the BLS official housing start series convinced Nathan

29. Saulnier, Halcrow, and Jacoby produce a particularly detailed examination of the business loan program of the Reconstruction Finance Corporation.

Balke and Robert J. Gordon (1989) to use it as a central part of their analysis of long-run changes in the US business cycle.

1.3 Conclusion

Between 1935 and 1960, the National Bureau of Economic Research sponsored a series of programs that documented the structure, performance, and institutional development of the markets for nonfarm housing and residential mortgages going back to the nineteenth century. This volume attests not only to the value of these early NBER efforts, but also to the enduring quality of that work. Seven of the ten contributions within this volume cite NBER monographs from this era, and in most of them these sources are relied upon heavily. There can be no better evidence that historical research provides unique and important insights than its capacity to instruct even after being completed and in ways that could not have been anticipated when the work was being done. The contributors to this volume hope that their own work will stand up equally well to this test of time.

Appendix

National Bureau of Economic Research Programs, Monographs, and Papers on Housing Markets, 1935–1964

Below we list the resources discussed in this chapter. All except those indicated with an asterisk are available at http://data.nber.org/booksbyyear/.

1935–1941: The Program on Real Estate Financing and Economic Stability

Ray Foster and David L. Wickens. 1937. *Non-Farm Residential Construction, 1920–1936*. NBER Bulletin 45.
David L. Wickens. 1941. *Residential Real Estate: Its Economic Position as Shown by Values, Rents, Family Incomes, Financing, and Construction, Together with Estimates for All Real Estate*.

1945–1955: The Urban Real Estate Finance Project

Raymond J. Saulnier. 1950. *Urban Mortgage Lending by Life Insurance Companies*.
Miles L. Colean. 1950. *The Impact of Government on Real Estate Finance in the US*.
Ernest M. Fisher. 1951. *Urban Real Estate Markets: Characteristics and Financing*.
C. Lowell Harriss. 1951. *History and Policies of the Home Owners' Loan Corporation*.
Carl F. Behrens. 1952. *Commercial Bank Activities in Urban Mortgage Financing*.
J. E. Morton. 1956. *Urban Mortgage Lending: Comparative Markets and Experience*.

Edward E. Edwards. 1950. "Urban Real Estate Financing by Savings and Loan Associations" (unpublished draft).*

Mortgage Loan Experience Cards (data on 27,000 mortgage loans from Lender Surveys: Data and Documentation) available at http://data.nber.org/nberhistory/.

1950–1954: Capital Formation in Residential Real Estate: Trends and Prospects

Leo Grebler. 1953. *The Role of Federal Credit Aids in Residential Construction*.

David M. Blank. 1954. *The Volume of Residential Construction, 1889–1950*.

Leo Grebler, David M. Blank, and Louis Winnick. 1956. *Capital Formation in Residential Real Estate: Trends and Prospects*.

1955–1961: Postwar Residential Mortgage Market

Saul B. Klaman. 1958. *The Volume of Mortgage Debt in the Postwar Decade*.

Saul B. Klaman. 1959. *The Postwar Rise of Mortgage Companies*.

Saul B. Klaman. 1961. *The Postwar Residential Mortgage Market*.

1957–1964: Other Housing Monographs

Raymond J. Saulnier, Harold G. Halcrow, and Neil H. Jacoby. 1957. *Federal Lending: Its Growth and Impact*.

Raymond J. Saulnier, Harold G. Halcrow, and Neil H. Jacoby. 1958. *Federal Lending and Loan Insurance*.

Moses Abramovitz. 1964. *Evidences of Long Swings in Aggregate Construction Since the Civil War*.

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Fishback, Price, Shawn Kantor, Alfonso Flores-Lagunes, William Horrace, and Jaret Treber. 2011. "The Influence of the Home Owners' Loan Corporation on Housing Markets During the 1930s." *Review of Financial Studies* 24: 1782–813.

Fishback, Price, Jonathan Rose, and Kenneth Snowden. 2013. *Well Worth Saving: How FDR Safeguarded Homeownership during the 1930s*. Chicago: University of Chicago Press.

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