A Historiography of NBER Publications on Housing and Mortgage Markets

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The central role played by housing in the "Great Recession" of 2007 poses the question: "What was different this time? This volume provides a broad historical context for understanding recent events by examining how historical housing and mortgage markets worked and how they sometimes failed. Although this area of economic history has received little attention in the past half century, there was an extraordinary burst of scholarship into residential housing and finance that was supported by the NBER between 1935 and 1960. We begin this introductory chapter with a survey of this earlier research, which provides the foundation for much of the work presented in this volume, as well as, nearly all historical scholarship into pre-1960 U.S. housing and mortgage markets. The large debt that we owe to our past NBER colleagues is seen in the overview of the research in this volume that is presented at the end of the chapter.

Background to Early NBER Research on Housing

As the U.S. 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. Home building and mortgage lending grew quickly but remained highly localized, institutionally diverse, and unevenly regulated activities. As a result, residential construction and mortgage credit were poorly measured and largely unexamined before 1930. This changed radically 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 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 1960 the Bureau 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 essay provides a complete enumeration of this work.] When viewed collectively, this work provides a broad and deep analysis of the development of the 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. However, even the NBER research initiative had precedents, notably two federally-sponsored investigations of nonfarm housing.

[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 organization 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 which include *The Journal of Land & Public Utility Economics* which began to be published in 1925, important monographs on all elements of urban property development, participation in Hoover's 1931 conference on homeownership (see below); close connections to the National Association of Real Estate Board and the American Savings and Loan Institute; and important 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.

The first investigation was conducted by the Calder Committee, created by U.S. 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 this time the conclusion was more than a generic endorsement of free markets. To begin with, there had been strong support from architects, labor organizations and even the military services that the war-time federal housing programs for defense workers be allowed to finish all ongoing construction after the War ended, and it was completed (Wood, 1931, 76;8). In addition, 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 the British and French initiatives.[4]

Although skeptical of direct federal intervention in the housing market, the Calder Committee recognized the general inadequacy of the nation's housing stock in 1920 and recommended more general forms of public support that could assist private agents and local governments in improving the housing stock. The first was to compile and maintain a comprehensive, statistical record of national building activity. In response, the Bureau of Labor Statistics took over a small program from the U.S. Geological Service to collect annual building permit series from local

[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."
[3] The Calder Committee's report was presented as Senate Report 829 dated March 2, 1921.
[4] See pp. 13-16 in S. Rep. 829 (1921).

governments. Beginning in 1921 the BLS used these data to compile an annual report of planned nonfarm construction activity in 257 principal cities. However, it would take much more time and effort to develop reliable, national measures of building activity. The Calder Committee also endorsed federal sponsorship of a national clearing house 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 et al, 1929, 162-3).

The Calder Committee identified the residential mortgage market as a third area where federal action made sense. 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's recommendation for a new Federal Home Loan Bank system, on the other hand, was not implemented. The precedents for this proposal were the recently created Federal Reserve System, designed to serve commercial banks and the Federal Farm Loan Bank System, aimed at supporting farm mortgage lenders. Proponents of this parallel agency did not give up and home mortgage lenders began to campaign for their own federal, regionally-based discount bank. The proposal was championed by, and designed to assist, Building & Loan associations, which accounted for more mortgages than any other kind of commercial lender at that time and were the only lenders that specialized in home mortgages. But the proposal foundered when other mortgage lenders—mutual savings banks, life insurance companies and state banks—strongly opposed the idea. Their arguments prevailed, and the federal government continued to play a small role in a residential mortgage market, which remained fragmented in structure and subject to a patchwork of state regulation throughout the 1920s.

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, production 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 homes were added during the 1920s to an initial stock of 24 million while at the same time the nonfarm homeownership rate surging 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 multi-family 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 while the physical layout of U.S. cities were 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, while

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

the ratio of debt to residential wealth doubled from 14 to nearly 30 percent (Snowden, 2010). The loans were supplied by a diverse set of lenders. Life insurance companies and mutual savings banks expanded their mortgage portfolios rapidly, while Building & Loans grew by increasing in both number and size, and by spreading geographically. At the same time, two new innovations helped non-institutional investors remain the largest single source of residential mortgage credit—private mortgage insurance and two early forms of mortgage securitization.[6] Second mortgage lenders also appeared in great numbers during the lending boom which allowed borrowers 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. Yet, in spite of rapid growth and innovation, the American home mortgage market remained highly localized and regionally fragmented at the end of the 1920s., and institutionally immature relative to modern standards.[7, 8]

One sign of the federal government's "hands off" attitude towards the home mortgage market of the 1920s and one that impairs our understanding of the boom was the Census Bureau's decision to take the question regarding home mortgages off of the 1930 Population Census form, after asking the question between 1890 and 1920. As a result, we do not know with precision the role that mortgage credit played during one of the greatest expansions of housing in U.S. history.

[6] Participation certificates were issued by private mortgage guaranty companies and a single-property real estate bonds by bond houses (see Goetzmann (2009) and 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).
[8] Morton (1956, 21) and Gray and Terborgh (1929, 14) document regional disparity in mortgage rates in the 1920s.

Federal non-intervention ended quickly when the 1920s housing boom turned into a severe foreclosure crisis during the Great Contraction from 1929 to 1933. This 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, 1932b, 2).

Hoover enlisted more than five hundred housing professionals, experts and practitioners—organized into twenty-five different sub-committees—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 U.S. homebuilding and finance in 1930. However, by the time the participants convened as a group in December 1931, their discussion focused on the economic crisis and a mortgage credit system that they identified as "the greatest hindrance" to progress towards the national goal of increasing home ownership (Gries, 1932a, 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 primarily serve the Building & Loan industry.[9] 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."[10]

The Federal Home Loan Bank system began operation in spring 1932, but, as its critics had warned, it was designed for, and used only by, Building & Loan associations. While the FHLB system was successful in gradually transforming B&Ls into the modern Savings & Loan industry, 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 change the market's institutional structure. The first was the Home Owners' Loan Act which was proposed in spring 1933 "To provide emergency relief with respect to home mortgage indebtedness, to refinance home mortgages, to extend relief to owners of homes occupied by them and who are unable to amortize their debt elsewhere…".[11] The legislation created 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. The HOLC Act also created a new system of federal Savings and Loan (S&L) charters and the New Deal provided even more support for the new S&L industry came in the form of the Federal Savings and Loan Insurance Corporation in 1935. The other major New Deal initiative was the Housing Act of 1934 which

[9] Bodfish and Theobold (1938, 288-90) recount that officials of the United states building & Loan League actually helped draft the legislation in their account of the bill's legislative history.
[10] 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).
[11] Language taken from H.R. 5240 the "Home Owners' Loan Act".

created the Federal Housing Administration and its program to insure long-term, low down payment, amortized mortgages. The FHA program had a slow start, but became much more successful after the Federal National Mortgage Association (the FNMA or "Fannie Mae") was created in 1937 to support a secondary market for trading these insured loans.

Five years of New Deal legislation forged a new framework through which housing was built and financed in the U.S. for the next three decades. Savings & 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.

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 of external support in 1932 forced the Bureau to suspend several research programs and to contemplate dissolution.[12] Even after the severe fiscal challenges were resolved in 1933, the Bureau still had inadequate resources to both maintain its research agenda into general features of economic life—including the measurement of national income, wholesale prices and industrial production—and to respond to the opportunities that arose during and because of the economic crisis. The tradeoff became even more complicated when "a Federal administration proclaiming a philosophy of 'rugged individualism' has been succeeded by an administration seeking to secure a 'New Deal' by governmental action".[13] The Bureau 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 Bureau's "chief embarrassment" was a lack of progress on its long-term research projects.[14] By then one-half of the Bureau'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 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.

[12] Report of the Director of Research of the NBER for the Year 1933 (1934), p. 5-6.
[13] Report of the Director of Research (1933) p. 26.
[14] Material in this paragraph drawn from p. 5-6 of the Report of the Director of Research of the NBER for the Year 1934-1935 (1935).

1935-1941. The Program on Real Estate Financing and Economic Stability.

While the 1930 Census did not ask about mortgage indebtedness, it continued to request homeowners to report the value of their homes and tenants to report the amount of rent they paid. 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.[15] 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 single-family versus multi-family structures, how much was sub-standard 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 U.S. 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 64 cities that varied in size, location, age and rate of growth.[16] The survey instrument and procedures were developed under the Bureau of Domestic and Foreign Commerce, and included information for both occupied and vacant units including the type and age of structure, heating and plumbing facilities, and their value, rent and mortgage status. 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

[15] The Census does provide counts of the number of "dwellings" in 1930 and before with all residential structures, single- as well as multi-family, counted as one dwelling.
[16] Stapp (1938) pp. ix-xii. CWA was within the New Deal's Federal Emergency Relief Administration.

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 U.S. 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 61 of the original 64 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 61 cities.

The Social Science Research Council 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 U.S. 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, p. 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 and Financial Survey, was 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.[17] 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 non-reporting 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 using these to predict building activity in non-reporting 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.[18]

The project was designed to provide for the first time a comprehensive picture of the non-farm 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) that, 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." 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.

[17] Foster and Wickens' work appeared as NBER Bulletin #65, September 1937.
[18] The BLS adopted Wickens' 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' estimates for 1930-1936 and its own estimates for 1937-1939.

1945-1955. The Urban Real Estate Finance Project.

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 depression 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 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.[19]

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 U.S. 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 U.S. mortgage market over the period 1920 to 1950.[20] The project had three components.

The first part documented the legal, contractual and institutional foundations of the nonfarm residential mortgage market and the changes that occurred between 1920 and 1950, including the

[19] NBER Bulletin Number 64, p. 9.
[20] 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.

growing influence of government within the market. Two monographs were commissioned for this work with both volumes written by individuals who had actually helped shape the transformation that they describe. Ernest Fisher was a prolific real estate scholar in the 1920s and had participated in Hoover's 1931 Housing conference.[21] 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.[22] 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".

The two monographs reflect the depth of their author's 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, home ownership, 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*

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[21] Fisher was Professor of Real Estate Management at the University of Michigan in the 1920s, and moved to Columbia in 1945 and where he was appointed as first director the Institute for Urban Land Use and Housing Studies in 1948.

[22] 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. Colean is credited with introducing the term "urban renewal" in the late 1950s.

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 four of the largest 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 association, was never published.[23] The central research contribution of all these studies were detailed surveys of lenders' records that yielded samples of thousands of individual mortgage loans made between 1920 and 1950. In each case the data on individual loans were used to document changes in the structure and terms of the mortgage contracts over the period and to establish a quantitative record of lending costs and returns, including foreclosure experiences, for all four lending groups. The samples capture more than 8,000 loans each for life insurance companies and commercial banks, more than 6,000 for savings and loan associations, and more than 3,000 HOLC loans. Information and documentation for all of these samples, as well as the loan data, remain available on the NBER website, in digitized form for the HOLC and on microfilm for the other three lenders.

[23] 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.

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 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 Corporations 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 no other group of lenders was more affected by the events in the 1930s. Before 1930 thousands of Building & Loan associations were active in the home mortgage market, but one-third of these institutions failed during the mortgage crisis, while the remainder was transformed into new Savings & Loan associations. Edwards' draft describes little of this transition, but his quantitative evidence identifies three important trends that were associated with it. By 1948 S&Ls had almost regained the position as the largest single source of home mortgage credit that they ancestral B&Ls had maintained through the 1920s. Further, the transition from B&Ls to S&Ls involved a shift in mortgage instruments within the industry from the traditional B&L sinking fund contract to the modern, fully-amortized loan that repaid the principal on the loan immediately with each payment. Finally, S&Ls were much less involved in FHA lending during the postwar era than other lenders. Instead, they concentrated on the conventional and VA loan markets.

The major lender surveys conducted within the Urban Real Estate Finance program provided new and granular detail about the practices, lending costs and returns of leading urban mortgage lenders during a period of significant market turmoil and institutional change.[24] The surveys show that life insurance companies, commercial banks and S&Ls experienced average rates of foreclosure between 15 and 20 percent on mortgage loans made during the last half of the 1920s. They also provide a much clearer idea of the diversity that existed in the structure of loan contracts before 1930, how the terms offered by all mortgage lenders became much more liberal between 1935 and 1950, and the differential impact across these lenders that government programs played in these developments. The NBER loan surveys were subject to substantial response and survivorship biases and must be used with caution, which may explain why they were not used for analysis in the intervening six decades.

The same cannot be said for the sample of loans Lowell Harriss collected for *The History and Policies of the Home Owners' Loan Corporation*. The HOLC was an unusual mortgage lender in several respects. It was created as an emergency federally-financed corporation in 1933 that purchased and refinanced roughly one million home loans over the next three years. After liquidating is mortgage portfolio, it dissolved in 1951. The agency's business was further restricted to refinancing existing loans that were in default and facing foreclosure. Borrowers like these were plentiful in the mid-1930s; and by 1936, the HOLC was the nation's largest mortgage lender and held loans on one out of every ten owner-occupied homes. Harriss had access to the HOLC's staff and documents just before it was dissolved, so his study provides

[24] Saulnier enlisted 24 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% 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' 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 & Loans, and contemporaneous information (for 1947) from more than 100 others.

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 3,000 HOLC loans from the New York region has recently been used by Jonathan Rose to show that the HOLC brought substantial benefits to lenders as well as to delinquent borrowers.[25]

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.[26] 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 is 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. Between 1920 and 1950 the structure, of the market changed dramatically as home 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

[25] See Rose (2010), Fishback et al (2010) and Courtemanche and Snowden (2011).
[26] Morton (1956) also makes extensive use of Lintner's study of mutual savings banks to complete the institutional picture.

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.

1950-54. Capital Formation in Residential Real Estate: Trends and Prospects.

Contemporaneous 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' 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 co-sponsored his NBER study.[27]

Kuznets envisioned that each component of the project would analyze the available data for 1870 to 1950 rather than by collecting new evidence. For the residential construction and finance,

[27] 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 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.

however, there were few statistics before 1920s, Grebler's co-author David M. Blank extended back to 1889 the estimates of housing starts that Foster and Wickens had constructed for 1920 to 1936. The project involved transcribing building permit data for the pre-1920 era that had been collected during the 1930s by the WPA, but never used. Blank relied on relationships between population and building permits to derive his estimates, like Wickens and Foster, 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 1889-1919 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*, Vol. 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 1-to-4 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 more than fill obvious gaps in the historical record, however. 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 the task, moreover, was exhaustive, well-documented and a 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.

Grebler, Blank and Winnick also differ from the previous NBER authors by focusing on trends in the residential housing and mortgage markets over a longer, six-decade period. They find, for example, that additions to the housing stock in the U.S. were closely connected to population growth during the period but were also influenced by the declining size and changing composition of nonfarm households. Consistent with this view they also link the deceleration in population growth between 1890 and 1950 with a decline in the importance of residential construction relative to overall economic activity. This trend was reinforced, according to the authors, by a surprising decrease in the size of dwellings and the real investment made in each one during the period.[28] While residential construction activity diminished in a relative sense, households showed a marked increase in their willingness to purchase their homes on credit. This behavior, in turn, led to what the authors characterized as spectacular growth and rapid

[28] Margaret Reid (1958) offers a detailed critique of this particular result. See Grebler et al (1959) for a rejoinder.

development of a home mortgage market driven partly by federal regulation and subsidies after 1930.

1955-61. Postwar Residential Mortgage Market

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.[29] As Raymond Goldsmith points out in his introduction to *The Postwar Residential Mortgage Market* (1961), the postwar home mortgage market was central to the performance of the entire capital market because it was growing 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, reshaping the channels through which mortgage finance flowed.

Klaman's monograph focuses primarily on institutional lenders and the supply-side of the market, so that it can be read as an extension of the similar volumes in the Urban Real Estate Finance project. The time period examined by Klaman is much shorter than those examined in previous NBER studies, but he offers 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

[29] Klaman later served as chief economist and President of the National Association of Mutual Savings Banks.

the center of the transition was the influence of the federal credit programs that gave institutional lenders 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 big four institutional lenders—Savings & Loans, life insurance companies, commercial banks and mutual savings banks—achieved dominance within this market segment. Klaman documents marked differences in the role and practices of these lenders in their reliance on the FHA program, the methods they used in acquiring mortgage loans, their participation in interregional lending, and their balance between single-family, multi-family and commercial mortgage lending. As these differences emerged, moreover, innovation reshaped the methods these lenders used to facilitate connections between construction, interim and permanent mortgage financing.

In order to lay out his story Klaman constructed new estimates of debt which were first reported in the *Volume of Debt in the Postwar Decade* (1958). Klaman's goal in constructing these new estimates was to augment the traditional analysis of net flows of mortgage credit—where changes in the volume of outstanding debt between two dates are examined—with measures of the gross flows of mortgage debt that accounted for the volumes of originations, secondary market transactions and retirements that combine to determine the net flows. Klaman was able to construct tentative estimates of gross flows for S&Ls, insurance companies and savings banks, but not for commercial banks. In doing so, he demonstrated the complex inter-institutional networks that emerged during the postwar decade to facilitate greater scale and geographic reach in lending activities.

Klaman's second noteworthy contribution was to document a key institutional development that facilitated these mortgage flows in *The Postwar Rise of Mortgage Companies* (1959). Mortgage companies had expanded their lending rapidly during the 1920s by writing private mortgage loan insurance and issuing mortgage-backed securities. This growth ended disastrously and nearly all of the urban mortgage companies failed during the 1930s. Klaman found that a new breed of mortgage companies emerged in the decade after World War II to act as correspondents to conduct origination and servicing for life insurance companies and mutual savings banks. Federally-insured and guaranteed loans dominated the flow of funds through these networks and within them innovations such as forward and stand-by commitments were developed to smooth the transitions between interim and permanent financing. Klaman integrated this work in *The Postwar Residential Mortgage Market* (1961) which still stands as a definitive interpretation of the postwar emergence of the modern American residential mortgage market.

1958-1964. Extensions of Earlier NBER Projects

Between 1958 and 1964 two more limited 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 work in 1951 on the project. It took six years to assemble data on the volume and lending experience within each category of the programs and to analyze the economic impact of each one.[30] 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 of loans. Despite the evidence that the programs encouraged private lending agencies to liberalize credit terms, they conclude that the introduction of the programs had not appreciably increased the use of mortgage credit or significantly influenced the institutional structure of the mortgage market.

The last NBER project of this era extended annual estimates of aggregate residential construction back to 1840. Interest in this area arose in the early 1950s when Kuznets' identified fifteen- to twenty-year "long swings" in economic growth, demographics and construction which dovetailed with the literature on "building cycles" of similar length that had been investigated during the depression of 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 so that there would be a longer record capturing the "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

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

almost complete inventory of housing in Ohio before 1890. His method involved first estimating decadal totals of new housing, and then to distribute these totals across housing age categories by using weighted averages of the annual building indexes constructed by several earlier authors. His monograph contains detailed description of the methodology used along with comparisons of other estimates. Gottlieb's argument that his urban housing production series represented an improvement on the BLS official housing start series convinced Nathan Balke and Robert J. Gordon (1989) to use it as a central part of their analysis of long-run changes in the U.S. business cycle.

Housing and Mortgage Markets in Historical Perspective

The essays in this volume are divided into four groups. The first section is composed of three essays that examine the sources, magnitude and impact of the real estate boom and bust of the 1920s and 1930s with an eye towards comparing that experience to events in 2001-2011. The contributions in "Housing and the Interwar Business Cycle" rely heavily on statistical and institutional evidence assembled by the NBER programs described above, but employ modern conceptual and empirical approaches. The second group of papers takes "A Closer Look at Boom and Bust in the Interwar Housing Market." The goal in these contributions is to refine our understanding of the housing crisis itself—the spatial pattern of boom and bust in housing production, the changes in home prices during the period, and failures among the nation's most important source of institutional home mortgage credit—Building & Loan associations.

The focus shifts away from the interwar period in the final two sections of the book, but not away from issues that are relevant to the post-2000 housing crisis era. Securitization played a major role in the 2007 mortgage crisis, and since then there has been much discussion and conjecture about whether it can once again become a major source of mortgage credit. The chapters that look at "Securitization in Earlier Times" provide perspective for the debate by examining success and failure in two different forms of securitization that were introduced in the eighteenth century. The essays in "Postwar Housing Policies" address another important issue under debate in the aftermath of 2007—the role that public policy played in promoting homeownership. Both essays attack the issue by examining the market forces and public policies that drove the historic upward surge in homeownership in the U.S. between 1940 and 1960.

Housing and the Interwar Business Cycle

Alexander Field starts the volume by addressing an intriguing and important question—how does the housing crisis of the interwar period compare to events in the 2000s? He begins by showing that the decrease in residential building that began in 1926 was more severe and protracted than the one that began in 2007. He argues on the basis of this observation that the collapse in home construction, once transmitted to consumption spending through the multiplier, was likely to have made the greater contribution to the decrease in aggregate output in the early 1930s. Field notes that this impact was reinforced by the unplanned character of residential construction during the 1920s building boom that left significant legal and financial barriers to recovery in the 1930s.

Although the decline in housing production was greater during the 1930s crisis, Field argues that financial shocks associated with it had smaller impacts than those felt between 2007 and 2011. Home price movements are central to his analysis. Nominal home prices fell modestly between the 1926 peak and 1929, and more rapidly over the next four years. These decreases were much smaller in magnitude than those that occurred during and after 2007. In addition, the relatively sharper decline in nominal prices between 1929 and 1933 was accompanied by similar decreases in the general price level so that real home prices fell only modestly between 1926 and 1929 and then actually increased slightly over the next four years. Field also observes that the stability in real housing prices during the interwar crisis was connected to relatively low leverage among homeowners—fewer households owned homes in 1930 than 2007, fewer financed their homes with mortgages, and those that did were subject to more conservative underwriting requirements.

Field acknowledges that the fall in housing prices had negative impacts on the balance sheets of households and lenders in the early 1930s, but concludes that their influence on output and employment was not as strong as after 2007. According to Field, this explains why New Deal regulation focused heavily on reforming the securities markets and the commercial banking system—these, and not residential mortgages, were considered to be the important source of financial distress that helped to start and prolong the Depression.

Steven Gjerstad and Vernon Smith see things differently. They argue that the role of housing was "remarkably similar" during the financial crises of the interwar period and 1997-2011, although the parallels in the origins and transmission of the two crises have been largely neglected in the literature. One reason for the neglect is that Friedman and Schwartz's authoritative emphasis on monetary collapse as the source of the Great Depression leaves little room for the possibility that expansionary monetary policy by itself could not have eliminated or reversed the impacts of a "debt-fueled real estate bubble." To make the case that such a bubble occurred during the interwar period, Gjerstad and Smith assemble a broad range of evidence for the 1920s and 1930s that includes housing production, household spending, total output, mortgage indebtedness, housing prices, housing sales, rents, unemployment and foreclosures. Using this information, they argue that the interwar crisis was transmitted to the broader economy through five channels that were also at work between 2000 and 2011.

The first is the direct impact of reduced residential construction. Gjerstad and Smith, like Field, find that the decrease in homebuilding was relatively larger in the late 1920s and early 1930s than after 2007. They also point out that the share of construction spending in aggregate output was higher in the earlier period which made its impact on total output even larger. A second channel that Field also mentioned was the deterioration in the balance sheet of households as home values fell in the face of fixed nominal debt burdens. Gjerstad and Smith argue that this influence was more powerful and important and show evidence that the fall in nominal house prices was substantial in several markets relative to fixed mortgage debt burdens. Moreover, the deterioration in household balance sheets was closely connected to three other channels of influence. Businesses reduced production and their demand for inventories and fixed investments as households cut back spending, especially on consumer durables, as their balance sheets deteriorated.[31] This, in turn, created a feedback effect on households' employment and incomes which created further uncertainty and distress. As distress turned into mortgage delinquency and foreclosure, the balance sheet of banks and mortgage lending specialists also

[31] Mishkin (1978) provides evidence of the impact of balance sheet changes during the 1930s on household consumption demand.

deteriorated and the supply of credit to housing and other forms of investment was curtailed.[32] According to Gjerstad and Smith, this fifth and last channel completed the powerful transmission mechanism that operated after the real estate booms of both the 1920s and the 2000s.

Eugene White also sees similar forces at work during the “Great Real Estate Boom and Bust of the 1920s” and the events leading up to the crisis of 2007. He argues that bubble-like behavior was evident during both episodes and supports that characterization for the earlier period by examining patterns in homebuilding, home prices and foreclosure rates. His primary objective, however, is to evaluate whether similar influences contributed to the two booms. To this end, White enumerates twelve factors that have frequently been identified as important forces behind the recent real estate bubble. White’s project is to assess which of these were also operating in the 1920s.

Not surprisingly given the role of banks in the recent crisis, six of White’s factors relate to monetary policy and bank regulation. To assess the potential role of easy money during the 1920s White estimates the Taylor Rule on interwar data and finds that the short-term time rate fell below its predicted Taylor rule level for two years in the mid-1920s when the building boom was at its height. He also identifies and estimates the impact of the 1920s version of the “Greenspan put” which he argues was driven by the Fed’s commitment to reduce the uncertainty associated with seasonality in interest rates. He is most interested in assessing how large a role these combined influences played in increasing housing production during the boom of the 1920s. White estimates that these two forces contributed about 200,000 additional housing units

[32] Bernanke (1983) makes also makes reference to housing finance in his seminal examination of credit market constraints during the 1930s.

that represented a large share of the starts that he classifies as having been overproduced relative to the number of units needed to catch-up for low wartime production. White emphasizes, however, that catch-up production in the 1920s was so great (in excess of 1 million units) that there would have been a large boom in construction during the 1920s even had monetary policy been more restrictive. White's analysis of bank regulation focuses on elements that influenced the willingness and ability to engage in risky real estate lending. He argues that the double liability rule faced by bank shareholders and the restrictions on mortgage lending meant that both national and state-chartered banks were well-capitalized relative to the modest risks that they carried on real estate loans.

White argues that although there were some common factors that affected the banks during the building booms of the 1920s and the 2000s—including easy money, a "Greenspan put," and the development of new securitization products —the banking system was not undermined by the real estate boom of the 1920s. To explain why, he examines several factors besides monetary and bank regulation including international capital flows and general decreases in mortgage lending standards. White concludes, however, that the important difference between the two episodes is that banks were induced in the modern period to participate in risky real estate finance by a set of policies that were missing in the 1920s—deposit insurance, the "Too Big to Fail" doctrine, and federal subsidization of risky mortgage lending and securitization.

A Closer Look at the Interwar Housing Crisis

Michael Brocker and Christopher Hanes begin their examination of the 1920s real estate boom by noting that it was national in scope even though some popular accounts give the misleading impression that it was confined to Florida. To investigate the broad geographic character of the episode in their paper, they examine differences in the timing and volume of home building activity across many of the nation's largest cities during the 1920s. The analysis is designed to assess whether high levels of construction during the boom were associated with higher rates of foreclosure, larger declines in home values and greater reductions in homeownership after 1930. Brocker and Hanes argue that finding a pattern like this provides evidence that the 1920s boom actually contributed to the depth and severity of the Depression and was not, primarily, simply one more consequence of it. They employ an empirical cross-city approach that has been exploited in examinations of postwar building booms and real estate bubbles. The analysis begins, in fact, by showing how well the framework performs using modern data.

To conduct the historical analysis, Brocker and Hanes use city-level data drawn from the annual BLS surveys of building permits that lie beneath its annual housing start series; from the 1920, 1930 and 1940 Censuses; foreclosure data from Federal Home Loan Bank Board; and from the *Financial Survey of Urban Housing* (1937). In combining these, the authors touch many of the primary sources that lie behind earlier NBER work, but use them in a new way and for a different purpose. In their analysis contemporaneous and future home values, homeownership rates, and the numbers of households and foreclosures are regressed on the number of new units that were permitted to be built for residential use. Brocker and Hanes measure the number of permitted units within multi-year windows in order to capture cross-city variation in building activity for the early, middle and end of the 1920s. They also use separate measures for single-and multi-family housing permits to investigate the impact of variations in the composition, as well as the timing, of residential building activity.

Brocker and Hanes argue that their results are consistent with a "bubbles" interpretation of the 1920s building boom. More specifically, they conclude that the Depression of 1929 hit just after many local urban real estate markets had seen increases in the number of housing units, in home values, in homeownership and in mortgage indebtedness that had been driven by bubble-like expectations. As a result, housing markets were already in disequilibrium in the late 1920s, and were fragile in ways that made the subsequent depression even worse.

In their essay, Price Fishback and Trevor Kollman provide new measures of the changes in home values over the course of the interwar boom and bust. We have seen above that changes in home values, home prices and housing wealth represent important evidence regarding the fragility of the interwar housing markets and its role in transmitting or amplifying macroeconomic shocks. Fishback and Kollman make clear that there are important flaws in all of the available evidence for the period on home prices and values, and that care must be taken when using and interpreting these series. They focus most attention on a price series reported in the 1956 NBER monograph by Grebler, Blank and Winnick (GBW) that Robert Shiller (2006) used to extend the widely-cited Case-Shiller/S&P repeat sales home price index back to 1890. The original GBW series was constructed from data reported in the *Financial Survey of Urban Housing* for 22 cities. During the mid-1930s homeowners in each of these cities were asked to retrospectively report the value of their home in 1934, 1933, 1930 and in the year they had acquired the home.

From these data GBW constructed a housing price index of advertised housing prices for the period 1890 to 1934 which Shiller linked to a five-city index for the period 1934 to 1953 in order to derive a continuous annual series extending back to 1890.

Fishback and Kollman provide an alternative to the GBW-Shiller index by combining additional data drawn from the *Financial Survey of Housing* with information on housing values and rents drawn from the 1920, 1930 and 1940 Censuses and information on the value of building permits reported annually for the period by the BLS. The authors construct a variety of multi-city indexes of home values from these sources for the years 1920, 1930, 1933, 1934 and 1940. The exercise reveals that all nominal measures of home values, including GBW-Shiller, show declines in home values of between 20 and 30 percent between the late 1920s and 1934. Outside this interval, however, the indexes tell different stories. Only the GBW-Shiller index, for example, shows a mild decrease in home values during the 1920s—all the other indexes show a stronger upward trend in values for the same period. The GBW-Shiller index is also unique in showing that housing prices had almost recovered to 1930 levels by 1940—all of Fishback and Kollman's alternatives show housing values remaining well below 1930 levels a decade later. Fishback and Kollman conclude that GBW-Shiller understates the increase in housing prices during the 1920s and overstates their recovery during the 1930s.

To compare changes in housing prices during the 2000s and the 1920s and 1930s, Fishback and Kollman construct modern housing value estimates using the 2000 and 2010 Census and American Community Survey surveys of housing values among all homeowners. The housing value indexes rose more rapidly between 2000 and 2006/2007 than in the 1920s boom, while nominal housing prices fell rapidly during both the post 2006 bust and the bust from 1930-1933. However, the rapid deflation from 1929-1933 meant that inflation-adjusted housing prices rose to a new peak in 1933, in contrast to the sharp drop in inflation-adjusted housing prices between 2007 and 2010. After 1933, the Fishback and Kollmann estimates adjusted for inflation fall sharply. If by some chance the modern era repeats the pattern in the 1930s, home values may continue to decline over the next several years.

Drawing on a new and highly detailed data set, Jonathan Rose ends the discussion of the interwar housing crisis with an analysis of the resolution of troubled Building & Loan Associations in Newark, New Jersey during the 1930s. The topic is of great interest because we still have a poor understanding of the specific institutional channels through which financial shocks associated with the housing crisis were transmitted to the larger economy. One reason for our lack of knowledge is that we have learned very little about the lending operations and performance of the major mortgage lending groups during the interwar period since the NBER surveys of mortgage lenders described above were conducted in the late 1940s. Rose remedies that situation. Building & Loan Associations represented the largest institutional source of residential mortgage credit in 1930 and were the only lending group at that time active in all regions of the country and in cities of all sizes. As residential mortgage lending specialists, moreover, B&Ls were more adversely affected by the housing crisis than other mortgage lenders. So even though Rose focuses his analysis on B&Ls that were active in Newark, New Jersey, he is providing insight into an industry which would have played a major role in transmitting financial shocks from the housing crisis.

Rose explains that B&Ls are particularly interesting because they did not operate under contractual requirements that forced them to speed up resolution if they became troubled. In 1930 B&Ls were member-owned corporations that could indefinitely delay paying out equity and dividends to their members. As a result, thousands of B&Ls in the U.S. became “frozen” when their mortgage portfolios generated losses and foreclosed real estate became a major asset on their balance sheets. It took years for many of these organizations to liquidate their assets and resolve their liabilities to owners.

Most importantly, Rose shows that an endogenous, market-based resolution mechanism emerged during the 1930s to facilitate the resolution of B&Ls that were contractually frozen. This mechanism took the form of secondary markets in B&L shares that opened up in dozens of major urban markets throughout the nation. Rose also explains how these secondary markets facilitated two elements of the resolution process. First, by selling their shares at discounts in this market, B&L members could liquidate their investments in the association, although at deep discounts. Second, investors who purchased these shares could then use them to buy the foreclosed real estate held by the B&L at similar deep discounts. The secondary market in B&L shares during the 1930s represents an unusual and intriguing example of financial innovation under market distress.

Securitization in Earlier Times

Starting in 1970 securitization transformed the U.S. mortgage market as portfolio lenders who funded and held whole loans were displaced by marketable securities that were issued against the collateral of underlying mortgage loan pools. These securities came to dominate all segments of the market, including sub-prime loans. Since the crisis of 2007, there has been a virtual shut-down of the securitization in the U.S. mortgage market, raising policy concerns about its viability moving forward. When the distinctively American form of securitization was developed in the 1970s there was little attention given to earlier successful forms of securitization that had been implemented in the U.S., and especially in European markets, for more than two centuries. The two papers in this section provide new evidence on alternative forms of securitization that may help inform current debates on how to reform the U.S. system.

Rik Frehen, K. Geert Rouwenhorst and Will Goetzmann (FRG) investigate two forms of mortgage-backed securities that were issued in Dutch securities markets in the 1790s to finance property development in western New York state and Washington, D.C. The emergence of these "*negotiates*" were part of a larger process of experimentation and innovation in eighteenth century Dutch capital markets. FRG explain that these *negotiates* were similarly structured to plantation loans that had been issued starting in the 1750s to finance independently-owned Dutch sugar plantations in South America and the Caribbean. These were fixed-income securities which collateralized not only revenue from sugar production, but also all of the plantation owner's property, including slaves. Plantation loans were themselves variations on earlier asset-based securities in the Dutch market that were secured only by the revenue generated by trade in commodities. The *negotiates* examined in this paper represent an innovation because the Holland Land Company and the consortium in Washington, D.C. issued bonds that were securitized only by mortgages on land and the income from future development of that land—the collateral for these asset-based securities did not include any revenue from commodity trade.

FRG find it puzzling, for example, that these securities did not offer investors any part of the returns associated with income from future land development; the payoff, instead, was restricted to fixed interest. They argue that this feature of the security was curious because earlier Dutch capital markets had used equity contracts to fund projects of similar durations that involved similar levels of risk. In this light, the fixed yield offered to investors was also curiously modest—only 5 percent on the securities of the Holland Land Company. Despite this feature, both issues of that company's *negotiates* were fully subscribed when issued in 1793.

By 1804 cash flows from property sales turned out to be insufficient to support both the Company's investment activities and its interest expense. Under these pressures, the company's debt obligations to investors were reduced in exchange for their participation on the returns from land sales. FRG conclude that this transaction reflected the complexity and sophistication of capital markets at the time and the need to replace the mortgage-backed, fixed income *negotiate* with some form of equity.

This historical episode points to the conditions under which fixed-income, mortgage-backed securities may not be a viable financing vehicle. This became even more apparent when another *negotiate* failed to be fully subscribed after being issued in 1794 to finance land development in Washington, D.C. FRG conclude that the two experiments "pushed the debt-based financial infrastructure of the Netherlands to the limit," because these real estate ventures would have been more efficiently funded with equity-like instruments rather than asset-backed, fixed income securities.

Kirsten Wanschneider tells a very different story about eighteenth-century mortgage securitization. Her focus is on Prussia and on a mortgage-backed security that met with great success for more than a century after being introduced in 1770. The history of the *Pfandbriefe* that were issued by the Prussian *Landschaften* is particularly important because this security was ultimately transformed into the covered mortgage bond that became a major source of real estate finance in European markets and is currently being considered as a replacement for U.S.-style securitization in the wake of our mortgage crisis.

Wandschneider explains that the *Landschaften* were publicly-sponsored, cooperative credit associations that had some unusual and important institutional features. The original institutions were established in five provinces and noble landowners within each province were required to join. Membership meant that a landowner was eligible to apply for a mortgage from the organization, and the mortgage was then used as collateral for the *Landschaft*'s bonds. Whether members borrowed or not, however, they were also jointly liable for the outstanding bonds and participated in appraising and approving all mortgage applications and monitoring indebted fellow members. Wandschneider shows how these, and other institutional features of the *Landschaften*, ameliorated the effects of adverse selection and moral hazards that are inherent in mortgage lending. The success of these organizations is documented by the fact that their bonds sold at some of the lowest yields in the German market until well into the twentieth century. The performance of the bonds was particularly impressive since the *Landschaften* expanded their operations in the 1800s to accommodate smaller landowners and offer mortgages with longer maturities and amortization.

Postwar Housing Policies

The nonfarm homeownership rate in the U.S. increased from 37 to 46 percent between 1890 and 1930, and fell back to 41 percent during the Depression and the housing crisis of the 1930s described earlier. After this half-century of modest change, nonfarm homeownership increased by nearly 20 percentage points between 1940 and 1960 and has stayed above 60 percent ever since. During the 2000s, in fact, home ownership rates in the U.S. approached 70 percent and public policies that support homeownership have been implicated as important source fragility in the crisis that began in 2007. As we debate modifying these policies, we will be well-served by understanding the market forces and policies that broadened homeownership in the U.S. during the mid-20th century. The two papers in this section are devoted to this theme.

Dan Fetter examines the facts lying behind this rise in homeownership between 1940 and 1960 and identifies important questions that remain unanswered about the sources and impacts of the change. He analyzes previously under-utilized data from the 1940s to show that much of the increase was a wartime, rather than a postwar, phenomenon. By 1945, in fact, the home ownership rate had recovered enough to exceed its 1930 level. Fetter also identifies several potential explanations that could account for this poorly-appreciated, but important, phenomenon including rising incomes and savings, the growing importance of tax incentives for homeownership, and unusual conditions in housing markets given war-time demands. Fetter also stresses the importance of studying home ownership at the individual level, which helps to illuminate striking changes in individuals' path to homeownership between the 1920s and the postwar era. During the earlier decade the dominant path was for an individual to first live with relatives, then to rent, and finally to move to an owned home. After the war, as both the period of living with relatives and that of renting were sharply reduced, rental rates rose at the youngest ages while ownership displaced both renting and living with relatives at slightly older ages. He argues that we need to explore the forces that drove this change, as well as its impact on age-specific rates of homeownership and the rental-owned mix of residential construction and the housing stock.

Fetter also provides an extended survey of factors that have been shown or hypothesized to have driven the broad upward movement in homeownership between 1940 and 1960. The existing literature provides compelling evidence that changes in demographic composition, income, tax incentives, and access to affordable mortgage finance all played major roles in the upsurge in homeownership, and that suburbanization and old-age assistance were also supportive. Fetter emphasizes that the discussion must move beyond investigation of the individual sources of the increase and move to assessing the interactions between the factors responsible for the increase in homeownership.

Matthew Chambers, Carlos Garriga and Don Schlagenhauf (CGS) take up the challenge, and close our volume, by asking "Did Housing Policies Cause the Post-War Boom in

Homeownership?" They explore the issue within a dynamic, general equilibrium model of tenure choice that incorporates many of the forces that Fetter enumerates—age, income, taxes and mortgage credit. In the model a household that is renting chooses between continuing to rent or buying a home; a homeowner, on the other hand, must choose whether to stay put, to trade up to a bigger house, or to rent. In the model households use mortgages to finance the purchase of homes, and these contracts are structured to allow for different downpayment requirements, amortization structures, terms to maturity, and interest rates. By modeling mortgages in this way CGS provide a flexible theoretical structure within which to assess the net impact on homeownership of improvements in mortgage terms and in tax deductions for mortgage interest payments. These are the two housing policies they focus upon in simulations of their model.

In order to identify how actual changes in the terms of residential mortgages changed over the period, CGS rely heavily on the results of surveys of mortgage lenders that were conducted in the late 1940s under the NBER's Urban Real Estate Program. These indicate, generally, that post-World War II mortgages had lower interest rates, longer maturities, higher loan-to-value ratios, and more amortization than mortgages in the 1920s and 1930s. Most of these changes, of course, were due to federal loan programs as the Veterans' Administration guarantees and FHA insurance programs for home mortgage loans grew in popularity and volume. CGS also document an increase in marginal income tax rates at all levels of income level so that they could incorporate increases in the benefits associated with mortgage interest deductibility in their simulations. Their simulations, therefore, are used to assess how much of the change in homeownership during the postwar period was due to these two policies. The effects turn out to be substantial; the lengthening of mortgage maturity from 20 to 30 years by itself explains one-quarter of the rise in homeownership, while the change income tax deductibility contributes about half that amount.

Conclusion

Between 1935 and 1960 the National Bureau of Economic Research sponsored a series of programs which 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 most of them rely heavily on these sources, a testament to the enduring importance of this corpus of historical research.

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Appendix

NATIONAL BUREAU OF ECONOMICS
PROGRAMS, MONOGRAPHS AND PAPERS ON HOUSING MARKETS 1935-1964

Below we list the resources discussed in this essay. All except those indicates with (*) are available at http://data.nber.org/booksbyyear/.

1935-1941. The Program on Real Estate Financing and Economic Stability.

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

1945-1955. The Urban Real Estate Finance Project.

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

Mortgage Loan Experience Cards (data on 27,000 mortgage loans from lender surveys: data and documentation) available at http://data.nber.org/nberhistory/

1950-54. Capital Formation in Residential Real Estate: Trends and Prospects.

The Role of Federal Credit Aids in Residential Construction	Leo Grebler	(1953)
The Volume of Residential Construction, 1889-1950	David M. Blank	(1954)
Capital Formation in Residential Real Estate: Trends and Prospects	Leo Grebler, David M. Blank Louis Winnick	(1956)

1955-61. Postwar Residential Mortgage Market

The Volume of Mortgage Debt in the Postwar Decade	Saul B. Klaman	(1958)
The Postwar Rise of Mortgage Companies	Saul B. Klaman	(1959)
The Postwar Residential Mortgage Market	Saul B. Klaman	(1961)

1957-64. Other Housing Monographs

Federal Lending: Its Growth and Impact	Raymond J. Saulnier, Harold G. Halcrow, Neil H. Jacoby	(1957)
Federal Lending and Loan Insurance	Raymond J. Saulnier, Harold G. Halcrow, Neil H. Jacoby	(1958)
Evidences of Long Swings in Aggregate Construction Since the Civil War	Moses Abramovitz	(1964)
Estimates of Residential Building, United States, 1840-1939	Gottlieb, Manuel	(1964)