CHAPTER 14

US Housing Policy

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Contents

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Abstract

Governments throughout the world intervene heavily in housing markets, and most have multiple policies to pursue multiple goals. This chapter deals with two of the largest types of housing policies in the United States, namely, low-income rental assistance and policies to promote homeownership through interventions in mortgage markets. We describe the rationales for the policies, the nature of the largest programs involved, the empirical evidence on their effects, and the data and methods used to obtain them. Because the US government uses such a wide range of policies of these types, this evidence has lessons for housing policy in other countries.

Keywords

Housing policy, Low-income housing programs, Low-income housing assistance, Housing subsidies, Public housing, Housing vouchers, Homeownership rate, Mortgage markets, Foreclosure prevention, Promoting homeownership

JEL Classification Codes

H5, I3, R21, R28, R31, R38

14.1. INTRODUCTION

Governments throughout the world intervene heavily in housing markets. All pursue multiple goals, and most use multiple programs to pursue each goal.[1] Because there is much more evidence on the effects of these interventions in the United States, this chapter focuses on US housing policies. Specifically, it deals with two of the largest areas of government activity, namely, low-income rental assistance and policies to promote homeownership through interventions in mortgage markets. Government involvement in both areas began during the Great Depression, and the housing crisis that led to the recent recession resulted in many new programs in the latter category.

[1] The UN-Habitat's Adequate Housing Series, vols. 1–4 (http://unhabitat.org/series/adequate-housing-series/), describe housing policies throughout the world. Whitehead and Scanlon (2007) provided a more detailed account for European countries.

US governments also promote homeownership by many other means, most notably the preferential treatment of homeownership in the federal individual income tax, and they pursue other goals with policies such as fair housing laws, land use regulations, impact fees, rent control, and building and occupancy codes. Fischel (2000), Glaeser and Gyourko (2008), Gyourko and Molloy (2015), Gyourko and Sinai (2003), Hilber and Turner (2014), Olsen (1998), Poterba and Sinai (2011), Rosen (1979, 1985), Schill (2005), and Yinger (1995) provided good introductions to the evidence on these interventions.

Recent research has confirmed the primary deficiencies of the system of low-income housing assistance in the United States that have been known for decades, namely, its inequities and the substantial cost-ineffectiveness of project-based housing assistance that still dominates the system. However, the focus of research on low-income housing policies has changed markedly over the past 15 years. As a result, we have much better information on certain aspects of program performance such as the effect of the largest low-income housing programs on labor earnings and a wide range of effects of several important proposed reforms of the current system.

Nevertheless, important gaps in our knowledge remain. We have no high-quality evidence on the cost-effectiveness and most other outcomes of the largest new low-income housing programs, and we have no recent evidence on the performance of older programs that still account for a substantial minority of assisted households. For example, no attempt has been made in several decades to determine how much better or worse housing public housing tenants occupy than they would have occupied in the absence of housing assistance. Almost all evidence is based on data from the 1960s and 1970s, and the aging of the public housing stock raises serious doubts about the applicability of these results to the current situation.

A consistent message from the federal government since the 1920s is that homeownership is the "American Dream." This has been the motivation behind many federal policies to promote homeownership. We will show in this chapter that, other than interventions during the significant economic crises defined as the Great Depression and Great Recession, state and federal policies aimed at increasing homeownership have generally been ineffective. In fact, one thing we have learned from the recent financial crisis is that pushing into homeownership households who should not be homeowners can lead to disastrous results; the American Dream can end up being the American Nightmare.

Analyses of the impact of state and federal interventions in the mortgage market have benefited greatly from access to increasingly larger and more detailed data on mortgage market activity including loan-level data on mortgage originations and performance. Furthermore, the latest research uses the recent advances in quasi-experimental methodology to identify exogenous variation in government policies to estimate of their causal impacts. We focus on these studies in our evaluation of the effectiveness of government policies in increasing the homeownership rate.

Section 14.2 discusses the advances in data and methods that have characterized the recent literature on evaluating US housing policies. Sections 14.2 and 14.3 cover low-income rental housing policies and government involvement in the mortgage market. In each case, we describe the justifications for the policies, the nature of the largest programs involved, the empirical evidence on their effects, and the data and methods used to obtain them. These areas differ markedly in the justifications for government action, the intended beneficiaries, the nature of the programs, and the outcomes studied.

14.2. METHODS AND DATA

Major advances in the literature on US housing policy have come through access to the vast data resources that have become available in recent years. Most studies that we survey use multiple data sources. For example, studies on the mortgage market often use large loan-level data sets that involve merging multiple data sources to link information on loan originations with loan-type, loan performance, and borrower characteristics. These samples often exceed 1 million observations.

The literature has also benefited from the application of a variety of excellent econometric methods.[2] It is well known that the gold standard for estimating the causal impact of policies on outcomes of interest is randomized controlled trials (RCTs). RCT involves a treatment (or policy) that is applied to a randomly drawn treatment group. Then, the comparison of outcomes between the treatment and the control groups can be attributed to the treatment or policy. In the 1970s, the Experimental Housing Allowance Program's (EHAP) Housing Assistance Demand Experiment conducted one of the oldest random assignment social experiments in order to study differences in the effects of alternative types of tenant-based rental housing assistance, and the recent Moving to Opportunity (MTO) for Fair Housing Demonstration Program and Welfare to Work Voucher evaluation have used this method to study a wide range of outcomes of rental housing policies. Some of the best other studies of these policies rely on data generated by random assignment for reasons of program administration rather than research.

Typically, though, there are no RCTs to evaluate the causal impacts of most government policies and programs. Fortunately, an important recent advance in empirical methodology in economics is the development and application of the quasi-experimental approach to causal inference (see Angrist and Pischke, 2009). This approach is based on the use of exogenous variation in key variables as a means for identifying causal impacts of treatments (or policies) on outcome variables of interest. Techniques that fall under the quasi-experimental umbrella include regression discontinuity (RD) design, the difference-in-difference framework, natural experiments, and matching techniques.

[2] See Baum-Snow and Ferreira (2015) for a more detailed review of using these methods to obtain causal inference in urban and regional economics.

RD is based on a treatment that is determined by the value of a predictor or forcing variable X being on either side of a threshold, c. Assume a unit receives the treatment if $X > c$. Then, units with values of X "near" the threshold c can be considered to be randomly assigned; those with values greater than c are in the treatment group, and those with values less than c are in the control group. This approach is used by a number of researchers to evaluate the affordable housing goals under the Community Reinvestment Act (CRA) and the Government-Sponsored Enterprises (GSEs) Act. These goals involve minimum percentage purchases or originations of mortgages in census tracts with median household income at or below a given threshold as compared to area median income (e.g., 80% or 90%). Then, it is possible to design an RD analysis based on census tracts just above or below this threshold.

The difference-in-difference framework uses within unit variation in explanatory variables to identify causal impacts on outcome variables. This is obtained by including unit fixed effects in the model. The framework mimics that of the RCT whereby the treatment effect is the difference in the difference in the outcome variable for the treatment and control groups before and after the treatment is administered. One way to identify the impact of a policy variable is to collect data from before and after the policy is implemented. This is often not possible with many housing policies that have been in existence for many years prior to the initial year of most housing data sets. If there is no change in the policy variable over time, then it is still possible to identify the policy impact using a border fixed effects approach. For example, when evaluating state-level policies, one can use as the unit of observation Metropolitan Statistical Areas (MSAs) that cross borders of states with different values of the policy variable. For example, this approach is used to identify the impact of the state-level law that requires judicial involvement in foreclosure proceedings.

Closely related to these procedures is the instrumental variables (IV) estimator that uses exogenous variation in the instrument to identify the causal impact of an endogenous regressor on the outcome variable. One source of instruments is natural experiments that arise when external circumstances result in something that is similar to a randomized experiment. This can occur when a policy or law is enacted over different periods of time, for different geographic areas, or applies to one group and not to another. For example, if a law is passed in one state and not in another and it can reasonably be assumed that one's state of residence is a random event, then the law can be treated as a randomized experiment where the treatment/control group is the population in the state where the law was/was not passed.

One of the recent advances in IV is the interpretation of estimated impacts as local average treatment effects (LATEs). An instrument, Z, only captures a subset of the variation in the endogenous variable, X, that affects the outcome of interest; the variation in X covaries with Z, that is, the part of X that is related to Z. This is the subset of units or individuals that are incentivized by the treatment (or instrument). For example, when

using a census tract indicator of affordable housing goal eligibility just around the cutoff as an instrument for loan volume, the treatment effect only applies to census tracts that just meet the goal criteria (e.g., median household income no more than 90% of AMI). If there is heterogeneity in the treatment effect, it may not be possible to generalize from the LATE to the full population (in this case, all census tracts with median household income below 90% of AMI). This also applies to RD that uses a nonlinear change in the policy variable around a threshold value to identify the treatment effect. The key is that the change is only plausibly exogenous just around the threshold and so the treatment effect is only identified at the threshold value.

Another technique that is frequently used to obtain causal estimates is matching. This involves pairing treatment and control group members based on similar observable characteristics. Then, treatment effects are just the differences in mean outcomes for the matched treatment and control groups. Causal inference is predicated on treatment/control group assignment being independent of the outcome value. Given a large number of observable covariates, a common matching technique is the propensity score. This is a way of combining the covariates into a single index that makes it easier to match on.

Typically, housing policies are not exogenous, so these techniques are necessary to estimate the causal impacts of these policies. Many recent studies rely on one of these techniques as a means for identifying and estimating the causal impact of US housing policies on housing market and other outcomes. Our evaluation of the literature will put more weight on the studies that use one of these techniques as they are more likely to produce reliable results.

14.3. US LOW-INCOME RENTAL HOUSING POLICY

This section provides evidence on the performance of low-income rental housing programs in the United States. Evidence on the performance of US programs is much more abundant than evidence on the performance of programs in other countries, and most low-income housing assistance in the United States is tied to renting a unit. Because the US government uses such a wide range of methods to deliver housing assistance, this evidence has lessons for housing policy in other countries.

The most useful information for housing policy would be evidence on the differences in the effects of spending the same amount of money to assist the same people by different means. No study comes close to this ideal. Most studies focus on a small subset of outcomes of a single program. The few that compare programs focus on a few outcomes or don't account for differences in their cost. Putting together the information needed to design good housing policies from the existing literature resembles an archaeological dig. The dig reveals many gaps in our knowledge. Nevertheless, due to its importance for policy, we attempt to characterize the differences in the performance of the three broad types of low-income housing assistance in the United States—public housing,

privately owned subsidized projects, and housing vouchers. High-quality evidence on important issues available at the right time has arguably resulted in better policies (National Research Council, 2008, chapter 9).

Because the desired outcomes of any program depend on its rationales, we begin with a discussion of the justifications for low-income housing assistance, and since their actual outcomes depend importantly upon the program's structure, we then provide a brief description of the programs involved.[3] After that, we describe three major studies that have provided high-quality information on many outcomes of important housing programs or proposed housing policy reforms, namely, the Welfare to Work Voucher evaluation, the MTO for Fair Housing Demonstration Program, and the EHAP, and summarize their most important findings. Finally, we describe and assess the evidence on the main aspects of the performance of low-income housing programs that have been studied. These include their cost-effectiveness in providing housing, their effects on the types of housing and neighborhoods occupied by recipients, their consumption of other goods, the labor earnings and employment of adult recipients, participation in other welfare programs, educational outcomes for children and their later adult earnings, recipient health and household composition, the magnitude of recipient benefit relative to the subsidy provided, the effects of assisted households on their new neighbors, the effects of the programs on rents of unsubsidized units, and the extent to which the programs increase the number of housing units available.

The focus of research on low-income housing policy has changed markedly over the past 15 years. As a result, we have much better information on certain aspects of program performance such as the effect of the largest low-income housing programs on labor earnings and a wide range of effects of several important proposed reforms of the current system. However, important gaps in our knowledge remain. We have no high-quality evidence on the cost-effectiveness and most other outcomes of the largest new low-income housing programs, and we have no recent evidence on the performance of older programs that still account for a substantial minority of assisted households. For example, no attempt has been made in several decades to determine how much better or worse housing public housing tenants occupy than they would have occupied in the absence of housing assistance. Almost all evidence is based on data from the 1960s and 1970s, and the aging of the public housing stock raises serious doubts about the applicability of these results to the current situation.

14.3.1 Justifications for low-income housing assistance

Because recipients of assistance prefer an unrestricted cash grant to any in-kind subsidy with the same cost to donors, the justification for subsidizing housing consumption hinges on the preferences of others. The reasons for their preference might be altruistic

[3] Olsen (2003) and Weicher (2012) provided more details.

or more narrowly self-interested. Unless nonrecipients prefer the outcomes of housing subsidies to the outcomes of cash grants, housing assistance cannot be justified.

The traditional argument for low-income housing assistance has been that people with higher incomes want to help low-income families and believe that the decision makers in some of these families undervalue housing for themselves or their children. This is an external effect that argues for providing assistance that induces its recipients to occupy better housing than they would choose if they were given equally costly unrestricted cash grants. The existence of minimum housing standards in all low-income housing programs reflects this sentiment. Another important argument is that people with higher incomes care about the children in these households and think that their parents devote too little of the family's resources to their children. Providing housing assistance rather than unrestricted cash grants directs more of the assistance to the children. To the best of our knowledge, the extent to which nonrecipients hold these views has not been studied.

It is sometimes argued that better housing confers tangible external benefits on people who don't live in it. There is little doubt that some external benefits of this type exist. For example, a house whose exterior is better kept confers a positive benefit on people who see it. However, the available evidence does not indicate substantial external effects of this sort, and hence, it seems unlikely that substantial public expenditures for low-income housing assistance can be justified based on these externalities alone, especially assistance that is not focused on the exteriors of houses and apartments. The subsection on the effects of low-income housing projects and families with housing vouchers on the neighbors of assisted households provides some evidence about tangible external effects.

The failure to think seriously about rationales for government action has led many to accept incoherent arguments for housing assistance (that is, a program that induces all recipients to consume more housing services than they would choose if given an equally costly unrestricted cash grant). For example, the most common argument for providing housing assistance among noneconomists in recent years has been that low-income households spend excessive fractions of their incomes on housing rather than that they live in inadequate housing. Some who offer this argument for housing assistance seem to believe that these households are forced to spend such a high fraction of their income on housing. They fail to realize how many vacant units of an appropriate size renting for less than the household's current expenditure are available in the same locality. They also fail to consider the possibility that these people would rather spend less on other goods than to live in worse housing or neighborhoods or at less convenient locations. Since the only negative consequence of spending a high fraction of income on housing is low consumption of other goods, some people who make this argument might be saying that these low-income households undervalue other goods relative to housing. If taxpayers want to help these households and feel this way about their choices, attaining an efficient allocation of resources that is preferred by everyone to the allocation in the absence of government action requires subsidies for all goods except housing to this group.

Although the preceding is an incoherent argument for housing assistance, it is not an incoherent argument for programs that are commonly called housing programs. Among families in the same economic circumstances, some spend small fractions of their income on housing and others spend large fractions. There is nothing inconsistent about believing that some people undervalue and others overvalue housing. These beliefs argue for a government program or combination of programs that induces some recipients to consume more housing services than they would choose if they were given equally costly cash grants and others to consume less housing services. Real housing programs in the United States change budget frontiers in ways that could have this effect. For example, some programs offer families an all-or-nothing choice of a particular dwelling unit at a below-market rent. This unit might be better or worse than the recipient would have chosen if offered an equally costly unrestricted cash grant. Therefore, real housing programs might provide housing subsidies to some recipients and nonhousing subsidies to others. Based on the rationale in this paragraph, such a program would be successful if it provided housing subsidies to people with the weakest taste for housing relative to other goods and nonhousing subsidies to people with the strongest taste for housing.

The rationales for government action are highly relevant for the design and assessment of government programs. Researchers who begin with a clear view about this matter are more likely to study issues that are important for developing good public policies.

14.3.2 US housing programs

The bulk of low-income housing assistance in the United States is funded by the federal government through a substantial number of programs that in total cost over $50 billion a year.[4] Unlike other major means-tested transfer programs in the United States, the system of low-income housing programs doesn't offer assistance to many of the poorest families who are eligible for them. Eligible families that want assistance must get on a waiting list when it is open for new applicants. Each local public housing authority and private entity that operates a subsidized project establishes its own system for deciding the order in which families on the waiting list are offered assistance within broad federal guidelines.

Most low-income housing assistance in the United States is for renting a unit, and all rental programs have minimum housing standards.[5] The most important distinction between rental housing programs is whether the subsidy is attached to the dwelling unit (project-based assistance) or the assisted household (tenant-based assistance). If the

[4] Olsen (2003, pp. 370–376) provided a short history of the development of the system.

[5] The US government also provides housing assistance to low-income homeowners. Olsen (2007a) documented the bias of the current system of low-income housing assistance toward renting, provided a brief description of the major homeownership programs, and summarized the evidence on one aspect of their performance. Olsen and Ludwig (2013, pp. 218–221) assembled additional information about the performance of two of the largest homeownership programs. However, little is known about most effects of any of these programs.

subsidy is attached to a rental dwelling unit, each family must accept the particular unit offered in order to receive assistance and loses its subsidy if it moves to another unit unless it is able to obtain alternative housing assistance before moving. Each family offered tenant-based assistance is free to occupy any unit that meets the program's minimum housing standards, rents for less than the program's applicable ceiling (if any), and is affordable with the help of the subsidy and whose owner is willing to participate in the program. The family retains its subsidy if it moves to another unit meeting these conditions. Olsen (2003, pp. 399–404) described how these programs change the budget frontiers of families offered assistance.

The US Department of Housing and Urban Development (HUD)'s housing choice voucher program is the only significant program of tenant-based assistance. It is the second-largest low-income program, serving about 2 million households and accounting for about 30% of all households that receive low-income rental assistance.

There are two broad types of project-based rental assistance, namely, public housing and privately owned subsidized projects. Both types have usually involved new construction. In almost all other cases, they have required substantial rehabilitation of existing buildings. Many of these programs no longer subsidize the construction of new projects, but most projects built under them still house low-income households with the help of subsidies for their operation and renovation. Overall, project-based assistance accounts for about 70% of all households that receive low-income rental assistance.

Public housing projects are developed and operated by local public housing authorities established by local governments, albeit with substantial federal subsidies and regulations that restrict their choices. In the public housing program, government employees make most of the decisions made by unsubsidized for-profit firms in the private market—what to build, how to maintain it, and when to tear it down. Decisions about where to build projects have been heavily influenced by local political bodies. The public housing stock has declined by about 300,000 units since its peak in 1991. About 1 million households live in public housing projects.

Government agencies also contract with private parties to provide housing in subsidized projects. Most are for-profit firms, but not-for-profits have a significant presence. This is the largest part of the system, involving a number of different programs. The largest are the Low-Income Housing Tax Credit (LIHTC) funded through the federal tax system, HUD's Section 8 New Construction and Substantial Rehabilitation Programs and Section 236 Rental and Cooperative Housing Program, and US Department of Agriculture's Section 515/521 Program. Under these programs, in exchange for certain subsidies, private parties agree to provide rental housing meeting certain standards at restricted rents to eligible households for a specified number of years. The subsidy formulas are different for the different programs and lead to differences across programs in the input mix used to provide housing services. None of these programs provide subsidies to all suppliers who would like to participate. This is highly relevant for their

performance. In general, subsidies to selected sellers of a good have very different effects than subsidies to all sellers. About 4 million households live in projects of this type.

The subsidy received by the tenant is not necessarily the same as the subsidy paid to his or her landlord. From the perspective of the tenant, the subsidy is the difference between the market rent of the unit occupied and the tenant's rent.[6] Occupants of subsidized housing projects are offered a particular unit with a particular market rent. Voucher recipients have some choice concerning the market rent of the unit occupied, and this affects their subsidy over a certain range of choices. Most recipients of housing assistance in the United States contribute 30% of their adjusted income toward the cost of their housing, and their subsidy is reduced by 30 cents for each additional dollar earned. The major exception is families living in newly built LIHTC projects. These families pay a rent that does not depend on their income and is always at least 30% of their income. Some tax credits are used to rehabilitate existing subsidized housing projects, and most occupants of these projects continue to pay 30% of their adjusted income in rent.

14.3.3 Three major social experiments

Three major social experiments have produced enormous amounts of evidence relevant for low-income housing policy. The Welfare to Work Voucher evaluation provides high-quality evidence on an unusually wide range of effects of HUD's largest low-income housing program compared with no housing assistance. Evidence from this experiment will be cited throughout the chapter. MTO provides reliable estimates of a similarly wide range of effects of an important potential reform of public housing, HUD's oldest low-income housing program. The older and much larger EHAP studied important effects of fundamental reforms of the current system, most importantly, implementing an entitlement housing voucher program. In real terms, this is the largest social experiment in the history of the US government. We describe and summarize the main results of MTO and EHAP in this section.

14.3.3.1 Welfare to work voucher evaluation

The Welfare to Work Voucher evaluation presents results from a random assignment experiment designed to estimate the effects of HUD's housing voucher program on a wide range of outcomes—adult earnings, employment rates, other employment outcomes, receipt of other public assistance, household size and composition, housing conditions, neighborhood characteristics, travel time to work, food expenditure, adult physical and mental health, and children's school performance, educational progress, behavioral problems, time use, delinquency, and risky behavior. In all, more than 100 outcomes were

[6] The benefit to the tenant cannot exceed this amount, and the taxpayer cost always exceeds the subsidy to the tenant by at least the cost of administering the program.

studied, and impacts for many subgroups are reported (Abt Associates Inc. et al., 2006).[7] Results are presented for periods up to 4.5 years after random assignment.

The experiment collected voluminous information about the 8731 eligible families who agreed to participate. These families were on the housing voucher waiting lists of housing authorities in Atlanta, Augusta (Georgia), Fresno, Houston, Los Angeles, and Spokane who had received aid from the Temporary Assistance for Needy Families (TANF) program or were eligible for it. TANF serves the poorest families with children, and almost half of voucher recipients nationally participate in this program. The data were collected from baseline and follow-up surveys, the administrative records of multiple programs, address tracking methods, public use data from the Census Bureau and Bureau of Labor Statistics, and qualitative interviews.

Randomly chosen families were assigned to a treatment group that would be offered a housing voucher immediately. Additional vouchers were allocated to the housing authorities for this purpose. Other families that agreed to participate prior to random selection formed the control group. Members of the control group were not without housing assistance over the course of the experiment. All remained on the housing voucher waiting list initially, and over the course of the experiment, about 41% of the households in the control group had used housing vouchers compared with 67% in the treatment group. At the time of the follow-up survey, about 37% of the households in the control group still had housing vouchers compared with 51% in the treatment group. Others in the control group lived in a subsidized housing project at baseline or moved into one before the follow-up survey. Therefore, the study's intent-to-treat (ITT) estimates are estimates of the average impact on the target population of the immediate offer of a housing voucher compared with a continuation of the current system of low-income housing assistance.

The immediate offer of a housing voucher to all families on the voucher waiting list would be a significant reform of the housing voucher program, and the voucher evaluation provides considerable information needed to assess it. A comprehensive assessment would require information on the extra cost incurred by taxpayers to provide housing vouchers sooner rather than later. It is important to realize that this reform falls well short of creating an entitlement housing voucher program for all eligible families. Because housing voucher waiting lists are not open for new applicants most of the time, they do not contain many eligible families who would use vouchers. Furthermore, the experiment was limited to families that had received aid from the TANF program or were eligible for it.

Generally speaking, the ITT estimates about 4 years after enrollment in the experiment indicated small positive effects in most respects. The negative effects were also

[7] In 2011, the authors discovered that the subgroup impacts for two baseline housing status groups were incorrectly reversed in the appendix tables and text discussion of them. The electronic version of the report on HUD's Web site contains the correct results.

small, and most effects were not statistically significant. The primary exceptions were substantial reductions in the fraction of families homeless during the past year (33% reduction) and living with a friend or relative (31% reduction). About 14% fewer lived in crowded conditions and the treatment group's rent was 10% lower on average. The reason for the small ITT effects is that by the time of data collection for most outcomes, the difference in the nature of the housing assistance received by the control and treatment groups had narrowed considerably. The ITT effects were almost surely greater in the earlier years of the experiment.

The analysts developed a methodology for estimating the treatment-on-treated (TOT) effects for voucher recipients in the treatment group who would not have received vouchers with a continuation of the current system by the time of the follow-up survey. About 26% of all families are in this group. The methodology does not require strong assumptions because the differences in average outcomes between the treatment and the control groups are entirely due to this subgroup.

The reported TOT estimates are usually interpreted as estimates of the average effects of receipt of a housing voucher compared with no housing assistance. Strictly speaking, this is not correct even for the specified subgroup. Some control families in this subgroup surely lived in subsidized projects at the time of final data collection. About 13% of all families in the control group lived in such projects at baseline and some surely continued to live there at the time of the follow-up survey. Others moved to subsidized projects prior to final data collection. However, because it seems likely that relatively few control families in the specified group received housing assistance at the time of the follow-up survey and there is no better evidence on the effect of housing vouchers compared with no housing assistance, we have interpreted the study's TOT estimates in the usual manner in this chapter.

14.3.3.2 MTO for fair housing demonstration program

The primary purpose of MTO was to learn about the effects of living in a better neighborhood rather than the effects of a specific reform of low-income housing policy. However, the experiment was ideally designed to estimate the effects of two important potential reforms, and this chapter will focus on the results of the reform that has been studied with MTO data.

Like the voucher evaluation, MTO collected data on a wide range of outcomes. It has already spawned a substantial volume of high-quality research, and its rich data will undoubtedly be used for many more studies.[8] MTO is very unusual in its duration. It collected data in Baltimore, Boston, Chicago, Los Angeles, and New York beginning

[8] Sanbonmatsu et al. (2011, pp. 16–18) summarized the MTO research prior to the final evaluation with references to the leading studies. Kling et al. (2007) provided an authoritative analysis of the data collected for interim evaluation.

in 1994 and continuing through 2010. The experiment involved offering housing vouchers to occupants of public or private subsidized projects located in central city census tracts with a poverty rate greater than 40%.[9] Specifically, eligible participants were randomly assigned to one of three groups: (1) those who were offered a Section 8 housing voucher on the condition that they occupy a unit in a census tract with a poverty rate of less than 10% for at least a year and adhere to the other voucher program requirements, (2) those who were offered regular Section 8 vouchers, and (3) those who initially remained in their current housing project but were entitled to pursue other forms of housing assistance. Households in the first group received substantial counseling and assistance in finding a private unit (costing about $4500 per voucher used in 2014 prices). The experiment was not designed to estimate the effect of this aspect of the treatment separately from other aspects, but several studies have found that search assistance substantially increased voucher usage (Shroder, 2002a; Galiani et al., 2012).

The results of the experiment do not show the effect of a voucher offer or using a voucher compared with continuing to live in the initial housing project. Instead, they show their effects compared with a continuation of the current system. Members of the control and treatment groups were free to pursue other types of housing assistance and were sometimes forced to do it. By the end of the experiment, most members of the control group had left their public housing units. Indeed, about 42% of public housing units in MTO housing projects were demolished prior to data collection for the Final Impacts Evaluation. Their occupants were offered the option of a housing voucher or a vacant unit in another public housing project.

Table 14.1 indicates the type of housing assistance received by members of the control group and the regular voucher group at the times of the main data collection for the interim and final evaluations. Clearly, the experiment led to substantial differences in the type of housing assistance received, but by the time of final data collection, about a fourth of the members of the control group had housing vouchers and many in the treatment group no longer received them. About 62% of the families in the regular voucher treatment group used the vouchers offered initially and others in it got them later through regularly channels, but by the time of the final evaluation, less than 45% still used them.

MTO produced an interim report based on outcomes 4–7 years after families entered the program and a final evaluation based on outcomes 10–15 years after entry (Orr et al., 2003; Sanbonmatsu et al., 2011). Each has great value. The results in the last year of MTO are particularly valuable for the adult outcomes of children who were very young in the early years of the experiment. These are more important than early outcomes for children such as test scores whose importance is what they foretell about future outcomes. The

[9] In 2000, only 11% of poor people and 3% of all people in the United States lived in census tracts with poverty rates this high. However, in the mid-1990s, 36% of public housing tenants lived in such census tracts (Newman and Schnare, 1997, table 3).

Table 14.1 Fraction of MTO households with different types of housing assistance

	Control group	Standard vouchers
Baseline		
Public housing	1.000	1.000
Interim evaluation (4–7 years after enrollment)		
Public housing	0.435	0.211
Housing vouchers	0.124	0.484
Privately owned subsidized project	0.099	0.062
No recorded assistance*	0.342	0.243
Final evaluation (10–15 years after enrollment)		
Public housing	0.296	0.186
Housing vouchers	0.252	0.446
Privately owned subsidized project	0.072	0.033
No recorded assistance*	0.380	0.335

*Some households with no recorded assistance almost surely received assistance from housing programs that are not required to report recipient addresses to HUD.

results of the final evaluation are also important for outcomes that depend on the cumulative effect of the treatment. They are far less important for other outcomes. For these outcomes, the entire time path of the results since the initial offer of housing vouchers is relevant. Due to attrition and crossovers, the differences between many outcomes for the two groups have gradually converged over time. However, if one alternative produces real benefits such as better housing in the early years of the experiment, that is highly relevant for judging its success even if this benefit eventually declines to zero over time. Better housing is valued for its own sake.

The simple difference in mean outcomes for the three groups is directly informative about the effect of an immediate voucher offer to residents of housing projects of the type studied compared with continuation of the current system. MTO research has been primarily concerned with the general issue of the effects of living in a better neighborhood, and most studies have focused on comparisons between the control group and the low-poverty voucher group. However, the two comparisons that are most directly relevant for housing policy are between the control group and the regular Section 8 voucher group and between the two treatment groups. If a reform along these lines is pursued, it will almost surely be to offer regular vouchers to public housing tenants. The second comparison is relevant for a reform of the current voucher program, namely, adding an additional restriction on voucher use. The MTO reports do not contain the information necessary to test hypotheses about the second reform. Therefore, this section will focus on the comparison between the control group and the regular Section 8 voucher group. We focus on ITT estimates because they are more relevant for policy analysis. They are estimates of the average effect of the intervention across the population that it is intended to help.

Orr et al. (2003) reported the results of the interim evaluation. Four to seven years after enrollment, the offer of a regular voucher led the treatment group to live in substantially better and safer neighborhoods and occupy somewhat better housing. The effects on all measures of adult physical heath were small and statistically insignificant at the 5% level. The same was true for children with one exception. Boys between the ages of 12 and 19 in the treatment group were 50% more likely to have an injury requiring medical attention.[10] The effects on all measures of adult mental health were small and statistically insignificant at the 5% level. Mental health outcomes were substantially better for girls and statistically significant at the 5% level in most cases. Mental health outcomes for boys were mixed and never statistically significant. Girls had better and boys had worse delinquency outcomes, but these effects were usually small and rarely statistically significant. The same was true for risky behaviors. The schools attended by the children were slightly better on a number of dimensions. However, the effects on educational outcomes were trivial. The same was true for adult earnings, employment, and participation in other welfare programs.

Although the mix of housing assistance received by the control and treatment groups differed greatly at the times of the interim and final data collection, MTO's final report paints a picture similar to the interim report (Sanbonmatsu et al., 2011). The regular voucher offer led members of the treatment group to live in better and safer neighborhoods and somewhat better housing. Girls and their mothers experienced better mental health and less obesity on some measures. These outcomes almost surely resulted from a reduction in stress from living in a safer neighborhood.

The official reports of the interim and final evaluations contain results for an enormous number of outcomes. Even if the true effects were zero, random sampling would almost surely generate statistically significant results for some outcomes. To avoid this problem, Kling et al. (2007) analyzed the results for five aggregates of 15 outcomes studied in the interim evaluation, namely, economic self-sufficiency, physical health, mental health, risky behavior, and education. Outcomes in the first category were for adults and those in the last two for youth. For adults, all of the estimated effects of the regular voucher offer were positive, but none were statistically significant at the 5% level. For female youth, all of the results were positive and the results for mental health and risky behavior were large and statistically significant. For male youth, most results were negative, and the negative effects on risky behavior and an aggregate of all outcomes were large and statistically significant. The specific reasons for gender differences in treatment effects are not well understood but seem to reflect differences in how male and female youths from disadvantaged backgrounds adapt and respond to similar new neighborhood environments (Kling et al., 2007, pp. 105–107).

[10] Due to the large number of outcomes and subgroups studied, some outcomes of this type will result from random sampling even when the true effect is zero.

14.3.3.3 Experimental housing allowance program

No discussion of housing policy research would be complete without some mention of the EHAP. The major goals of EHAP were to determine the market effects of an entitlement program of household-based housing assistance and the effects of different types of such assistance on individual consumption choices. Congress authorized this program in 1970, planning for the experiment occurred in the early 1970s, data were collected during the mid-1970s, and the final reports were completed in the late 1970s and early 1980s. The experiment costs almost $200 million (more than $700 million in 2014 prices). Research and data collection accounted for almost half of this amount. The research firms that ran the experiments issued more than 300 reports, technical notes, and professional papers, and many others contributed to EHAP analysis.[11]

The two largest and most important components of EHAP were the supply experiment and the demand experiment. The primary purpose of the supply experiment was to determine the market effects of an entitlement program of household-based assistance such as its effects on the market rents of units with specified characteristics and how suppliers alter their units in response to the program.[12] The experiment involved operating entitlement housing allowance programs in the Green Bay and the South Bend metropolitan areas. Eligible families (roughly the poorest 20%) were offered a cash grant on the condition that they occupy housing meeting certain standards. The poorest families were offered the largest grants. The demand experiment conducted in the Pittsburgh and Phoenix metropolitan areas was primarily intended to see how recipients would respond to different types of tenant-based housing assistance and, for a given type, to different program parameters. The most influential demand experiment research went beyond a comparison of different types of tenant-based assistance. It compared several outcomes of the minimum-standards housing allowance program with outcomes of the major established housing programs in existence at the time.

EHAP produced many results that have been influential in housing policy debates, though memory of these results has faded over time. One of the most important results of the supply experiment was that the entitlement housing voucher program tested had a minimal effect on the market rents and prices of housing units with unchanging

[11] The best introductions to this vast literature are the final reports of the supply experiment, the demand experiment, and the integrated analysis (Kennedy, 1980; Struyk and Bendick, 1981; Lowry, 1983); an edited volume containing summaries of the findings by the major contributors to EHAP research (Friedman and Weinberg, 1983); an edited volume containing evaluations of this research by outside scholars (Bradbury and Downs, 1981); a monograph containing some of the more technical results on consumer behavior from the demand experiment (Friedman and Weinberg, 1982); and U.S. Department of Housing and Urban Development's (1980) summary report.

[12] We refer to the assistance as household-based rather than tenant-based because homeowners were offered the same subsidy on the same terms as otherwise identical renters. About 40% of participants were homeowners.

characteristics. This allayed concerns that expanding the smaller nonentitlement Section 8 housing voucher program established in the early years of the experiment would have significant effects on the rents of unsubsidized units.

Another important finding of the supply experiment was that the program induced a substantial increase in the supply of units meeting the program's minimum standards. Despite the modest subsidies provided (about half of the taxpayer cost per recipient household of the Section 8 housing choice voucher program after accounting for inflation), the entitlement housing allowance program led to a 9% increase in the supply of apartments meeting minimum housing standards over its first 5 years. This resulted from upgrading the existing stock of housing (rather than the production of new rental housing) entirely in response to tenant-based assistance that required families to live in apartments meeting the program's standards in order to receive the subsidy.

Another influential finding of the demand experiment was that tenant-based assistance is more cost-effective than the types of project-based assistance that existed at the time. This result played an important role in persuading Congress to rely more heavily on tenant-based housing assistance to deliver housing subsidies.

14.3.4 Evidence on the performance of low-income housing programs

This section deals primarily with the evidence on the effect of each program or type of program compared with a counterfactual of no housing assistance, but it also covers some papers that explicitly compare the performance of different programs. Olsen (2003) surveyed the evidence on program performance through about 2000. The current chapter briefly summarizes this evidence and covers the more recent research in more detail.

14.3.4.1 Cost-effectiveness in providing housing

The largest and most consequential difference between housing programs is in their cost of providing equally good housing in equally desirable neighborhoods. The best evidence indicates that project-based assistance has a much greater cost than tenant-based assistance when it provides equally good housing broadly conceived.[13] These studies define equally good housing to be housing that would rent for the same amount in the unsubsidized market in the same locality. This measure accounts for the desirability of the neighborhood as well as the housing itself. In the best studies, the estimated magnitude of the excess cost is enormous.

The best study of HUD's largest program that subsidized the construction of privately owned projects (Section 8 New Construction and Substantial Rehabilitation) found an

[13] Olsen (2008, pp. 9–15) provided a detailed summary of the evidence on the cost-effectiveness of low-income housing programs. Olsen (2009) provided a detailed description and critical appraisal of the data and methods used.

excess total cost of at least 44% (Wallace et al., 1981). That is, the total cost of providing housing under this program was at least 44% greater than the total cost of providing equally good housing under the housing voucher program. This translates into excessive taxpayer cost for the same outcome of at least 72%. It implies that it would have been possible using housing vouchers to serve all of the people served by this program equally well and serve at least 72% more people with the same characteristics without any increase in public spending. The best study indicates even larger excess costs for public housing (Mayo et al., 1980). More recent evidence has confirmed the large excess cost of the Section 8 New Construction and Substantial Rehabilitation Program (Finkel et al., 1999, exhibit 5–1; Shroder and Reiger, 2000), and recent US Government Accountability Office (GAO, 2001, 2002) studies have produced similar results for the major active construction programs—LIHTC, HOPE VI, Section 202, Section 515, and Section 811. Burge (2011) found that tax credit developers capture most of the subsidy that the government provides on behalf of their tenants, indicating some combination of excess profits, rent-seeking expenditures, and distortions in input usage. Eriksen (2009) provided some evidence about the latter.

The preceding evidence on the cost-effectiveness of project-based assistance applies to units built or substantially rehabilitated under a subsidized construction program and still under their initial use agreement. Evidence from the Mark-to-Market program indicates the excessive cost of renewing use agreements for privately owned subsidized projects (Hilton et al., 2004), and the EHAP provides clear evidence on the superior cost-effectiveness of tenant-based versus project-based housing vouchers (Mayo et al., 1980, pp. 134–139).

In contrast, a succession of studies over the years have found that the total cost of various types of tenant-based housing assistance has exceeded the market rent of the units involved by no more than the cost of administering the program (Mayo et al., 1980; Wallace et al., 1981; Leger and Kennedy, 1990; ORC/Macro, 2001, chapter V). That is, landlords receive market rents for their units.

There is no good evidence on the importance of various reasons for the large differences in the total cost of providing equally good housing under programs of tenant-based and project-based assistance. Among the plausible explanations are the absence of a financial incentive for good decisions and monitoring employee performance on the part of civil servants who operate public housing, the excessive profits that inevitably result from allocating subsidies to selected developers of private subsidized projects, the resources that developers devote to securing the limited subsidies available, and the distortions in usage of inputs resulting from the subsidy formulas. A special case of the latter is that project-based assistance is usually tied to the construction of new units. The least-expensive approach to improving the housing conditions of low-income households involves heavy reliance on upgrading the existing housing stock, the primary mechanism through which tenant-based assistance achieves this goal.

The results concerning the cost-effectiveness of different housing programs illustrate the virtue of forcing sellers to compete for the business of buyers. Under a program of tenant-based assistance, only suppliers who provide housing at the lowest cost given its features can remain in the program. If the property owner attempts to charge a voucher recipient a rent in excess of the market rent, the tenant will not remain in the unit indefinitely because he or she can move to a better unit without paying more for it. Under programs of project-based assistance, suppliers who receive payments in excess of market rents for their housing can remain in the program indefinitely because their tenants would lose their subsidies if they moved. These suppliers have a captive audience.

Although the weight of the evidence is substantial, all of the studies have some methodological problems, and none make highly accurate estimates of all of the magnitudes required to implement their methodology. The evidence is most deficient for some of the largest and fastest growing programs. In light of the results of existing studies and the consequences of using highly inefficient programs to deliver housing subsidies, cost-effectiveness studies of all of the major discretionary expenditures on project-based housing assistance such as incremental commitments under the LIHTC and HOME programs, renewals of use agreements with owners of privately owned subsidized projects, public housing operating and modernization subsidies, and project-based Section 8 vouchers should be the highest priority for housing policy research.

14.3.4.2 Housing consumption

The primary purpose of low-income housing assistance is to induce recipients to occupy better housing than they would choose if given an equally costly unrestricted cash grant. The literature is deficient in showing whether this goal has been achieved. Few studies compare the effects of housing programs with the effects of cash grants, and no recent study estimates the effect of any housing program on a comprehensive measure of housing consumption.

Many older studies estimated a program's effect on a comprehensive measure of housing consumption. When dealing with data for a single housing market, they used the market rent of the subsidized unit as an index of its overall desirability. When dealing with data from many housing markets, market rent was divided by an index of the rent of identical units across markets. This measure accounts for differences in the size, amenities, condition, and neighborhood of the units as well as their convenience to jobs, shopping, and recreation.

These studies require estimates of the market rent of each subsidized unit and the market rent of the unit that its recipient would have occupied in the absence of housing assistance. The estimated market rent of a subsidized unit was almost always based on a hedonic regression model estimated with data on unsubsidized rental units. The hedonics differed greatly with respect to the list of housing and neighborhood characteristics included. Most

were based on detailed information about the characteristics of the housing itself similar to the information in the American Housing Survey. However, the modest information about neighborhood amenities and convenience to jobs, shopping, and recreation in these hedonics might well have led to significantly biased predictions of the market rents of subsidized units, especially in public housing projects that tend to be located in the worst neighborhoods. In the older studies, estimates of the market rent of the unit that a recipient would have occupied in the absence of housing assistance were almost always based on the average housing expenditure of unsubsidized households with the same observed characteristics. Self-selection and administrative selection in program participation were ignored in most studies.

Olsen (2003, table 6.8) summarized the results of 8 studies that produced 18 estimates for 4 different housing programs. Almost all are based on data from the 1970s. The nine estimated percentage increases in mean housing consumption for public housing tenants ranged from 22% to 82% for different times and places, the four estimates for occupants of HUD's privately owned subsidized projects ranged from 26% to 58%, and four for voucher recipients ranged from 16% to 63%. These results could be far from the mark today, especially for subsidized projects because they are much older. However, Walters (2009) presented evidence suggesting that later subsidies for modernizing these projects have offset their deterioration to a considerable extent.

More directly relevant for assessing the performance of low-income housing programs are the results of four studies that estimate how much (if at all) they increased housing consumption beyond what would result from unrestricted cash grants in amounts equal to each recipient's housing subsidy (that is, the difference between the market rent of its unit and the tenant's rent). The four estimates for public housing based on data from 1965 to 1984 indicate that this program increased mean recipient housing consumption from 40% to 53% beyond what would have resulted from cash grants in these amounts. The one estimate for the voucher program based on data for 1976 indicated only a 10% increase beyond cash grants. The only estimate for the entire system of low-income housing assistance showed a 39% increase beyond cash grants based on 1977 data. These results indicate that at these times, housing programs changed consumption patterns in ways consistent with their traditional rationales.

Updated results for current programs are long overdue. There have been few studies of the effects of low-income housing programs on housing consumption in the past three decades, and these studies are limited to a few housing characteristics or recipient ratings of their housing. They do not attempt to determine whether the programs induce recipients to occupy better housing than they would choose if they were given unrestricted cash grants in the amounts of their housing subsidies. Furthermore, an alternative calculation for programs of project-based housing assistance would be of considerable interest. The cost incurred by taxpayers on behalf of occupants of subsidized housing projects exceeds the tenant subsidy by much more than the administrative cost of the programs involved due to their

cost-ineffectiveness. If these tenants had been given cash grants in amounts equal to the taxpayer cost minus the program's administrative cost, their housing consumption with cash grants would have been much larger, and it is entirely possible recipients would have consumed more housing services and other goods than under the housing program. The effect of this alternative to project-based housing assistance has not been estimated.

Using data from the 1990–1995 Current Population Survey (CPS) and the 1990 decennial census and two-stage IV estimation to account for the endogeneity of program participation, Currie and Yelowitz (2000) found that living in a subsidized housing project reduces overcrowding, one aspect of the housing bundle. This is not surprising because programs that subsidize housing projects have rules to ensure that families have adequate space. Larger families are assigned to units with more bedrooms. Because CPS respondents said that they lived in a public housing project, the authors assume that their results apply to the public housing program. However, data from the 2011 American Housing Survey that identifies the type of HUD assistance received by each household from administrative records as well as the respondent's answer to the CPS question reveal that about 56% of the people who say that they live in public housing projects live in privately owned subsidized projects. Almost all of the rest live in public housing. Therefore, Currie and Yelowitz's results apply to subsidized housing projects as a group.

The random assignment voucher evaluation provides the only recent evidence on the effects of HUD's rental housing programs on housing consumption. As explained in the section that describes the experiment in detail, its TOT estimates are reasonably viewed as evidence of the effect of voucher usage compared with no assistance. The study found that voucher usage decreased its measure of crowding by 44%, increased the fraction of recipients who rated the condition of their housing as good or excellent by 8 percentage points, and decreased the fraction of recipients who reported at least two of seven specific problems with their units by 7 percentage points (Abt Associates Inc. et al., 2006, exhibit 5.3). The latter two impacts were not statistically significant at the usual levels. No recent evidence is available for HUD's programs of project-based assistance.

Buron et al. (2000, table 8) provided the only evidence on the effect of the tax credit program on housing consumption. It is based on the opinions of 839 occupants of 39 tax credit projects. Overall, 54% considered their tax credit apartment better than their previous unit, 24% considered it about the same, and 22% considered it to be worse. The respondents who considered the apartment itself to be worse presumably benefited in other respects such as lower rent, better neighborhood, or more convenient location. Unfortunately, the study does not provide a quantitative index of the extent of the increases and decreases in the overall housing consumption of these families. So it is not known how the average magnitude of the improvement among families who moved to better housing compared with the average magnitude of the reduction in the desirability of the housing among those who moved to worse housing. In assessing this evidence on the effect of the tax credit program on housing consumption, it is important to

realize that none of the units involved were more than 7 years old. Over time, the condition of these units will surely deteriorate. What is relevant for assessing the effect of the tax credit program on housing consumption is a comparison of the housing provided by the tax credit units over the entire period that their use is restricted to low-income families with the housing that their occupants would have occupied in the absence of this program. Since the use agreements extend for at least 30 years, it seems likely that these results from the early years of the projects overstate the average effect of the program on housing consumption over the period that their rents are limited by the agreement.

One aspect of housing consumption of particular policy interest is homelessness. If anyone should receive housing assistance as opposed to an unrestricted cash grant, it is homeless people. Some have serious mental illnesses that impair their judgment. Others impose tangible external costs on others.

Abt Associates Inc. et al. (2006, exhibit 5.3) estimated that receipt of housing vouchers reduced the number of families that would have been on the streets or in a shelter at some point during the year prior to final data collection by about 9 percentage points. Since receipt of housing assistance precludes homelessness, this is also their estimate of the number of recipients that would have been on the streets or in a shelter at some point during the prior year. Because participants were single women with children, most surely would have been in shelters. Data on this matter were collected but not presented. Other types of housing assistance would surely have a similar effect on the same types of households. Presumably, the programs that serve the poorest have the largest effect. However, this has not been studied for other programs.

Abt's study deals with the effect of a particular housing program on homelessness sometime during the past year for a subset of families eligible for housing assistance. Other studies estimate the effects of the entire system of low-income housing assistance on homeless at a point in time for all recipients. Several studies estimate the fraction of households receiving low-income housing assistance that would have been homeless in its absence and the effect on homelessness of reforms of existing programs and implementation of new programs. Using separate data sets on housed and homeless individuals and choice-based sampling methods, Early (1998, 2004) found that at most, 3.8–5.0% of assisted households would have been homeless in the absence of housing assistance.[14] Early (2004, table 1) also reported that the mean *per capita* household income of the homeless is less than a half of the mean for households that receive housing assistance. Using data from a systematic count of the homeless throughout the United States, Early and Olsen (2002) found that a sufficiently large increase in the targeting of existing housing assistance on the poorest people would eliminate homelessness among those who

[14] It is important to realize that most of the counted homeless have roofs over their heads each night. They live in a special type of subsidized housing called homeless shelters, and the best shelters provide good housing. It is also important to realize that the street homeless are undercounted.

apply for assistance. The main residual problem would be persuading mentally ill people living on the streets to accept the help available.

In a paper that calibrates the Anas and Arnott general equilibrium model of the housing market with data from Los Angeles, San Diego, San Francisco, and Sacramento, Mansur et al. (2002) found that an entitlement program that provides a cash subsidy to all renters in the lowest income quintile would reduce homelessness by between 25% and 33% across the four areas.[15] This is obviously a less targeted approach to preventing homelessness than housing assistance to the very poorest households, and it would cost five times as much as current spending on housing assistance (Early, 2004, p. 199).

14.3.4.3 Neighborhood occupied

Neighborhood amenities are important parts of the housing bundle broadly conceived, and many recipients of housing assistance move to different neighborhoods. Older studies of this effect usually compared the neighborhoods of participants immediately before and after entering the program (Olsen, 2003, pp. 407–411). Generally speaking, this evidence indicates that most low-income housing programs have a modest effect on the types of neighborhoods occupied. Public housing is the exception. Its neighborhoods were noticeably poorer than those previously occupied.

More recent studies use different methods but reach similar conclusions. For example, Susin (2005, p. 207) found that public housing tenants live in census tracts with poverty rates 8.8 percentage points higher than in the absence of assistance, tenants in HUD-subsidized privately owned projects live in tracts with poverty rates 2.6 percentage points higher, and voucher recipients live in tracts with poverty rates 2.3 percentage points lower. Using excellent data and methods described later, Carlson et al. (2012a) and Jacob and Ludwig (2012) found that housing vouchers lead their recipients to occupy neighborhoods that are only slightly better in a variety of dimensions. Eriksen and Ross (2013) produced similar results based in part on data from the voucher evaluation and IV estimation using assignment to its voucher treatment group as an instrument for voucher usage. Their results suggest that many voucher recipients initially use their voucher in their current unit or immediate neighborhood in order to secure the voucher and then move to a better neighborhood later.[16] The secondary moves are typically to better neighborhoods, though not markedly better. The final report of the voucher

[15] Because the model divides all housing units into quartiles based on market rent and assumes that units within a quartile are identical in their rent and desirability, a household must occupy a unit better than the worst in order to receive a subsidy. The mean subsidy ranged from $2708 per household (in 2014 prices) in Sacramento to $4914 in San Francisco. The poorest received much greater subsidies because the subsidy was equal to a payment standard −30% of household income. Unlike experience with actual entitlement programs, all eligible households were assumed to receive assistance.

[16] Voucher recipients have between 60 and 120 days to move into a unit meeting the program's minimum housing standards, and many already live in units meeting these standards.

evaluation paints a similar picture based on different self-reported measures of neighborhood desirability, namely, five measures of criminal victimization, one measure of visible drug use or sales, and five other measures (Abt Associates Inc. et al., 2006, exhibit 3.8).

Buron et al. (2000, exhibit 3–17) provided evidence for the tax credit program based on recipient opinions. About 19% of respondents who moved into a tax credit project were from the same neighborhood. Almost equal numbers of respondents who came from another neighborhood considered the project's neighborhood to be better, about the same, and worse overall than their previous neighborhood. Respondents were also asked about 10 specific aspects of their neighborhoods. In 8 of the 10 aspects, a plurality said that their previous and new neighborhoods were about the same. In 9 of 10, more said that the neighborhood was better than said it was worse. The percentage of households who considered their tax credit neighborhood better than their previous neighborhood varied from 40% for access to public transportation to 26% for access to good schools. Strikingly, slightly more respondents thought that the neighborhood of their tax credit project was a worse rather than a better place for children than their previous neighborhood.

Lens et al. (2011) shed new light on the differences in the neighborhoods occupied by voucher recipients, public housing tenants, and occupants of tax credit projects. Like Newman and Schnare (1997), they found that public housing tenants live in census tracts with markedly higher poverty rates than participants in the other two programs and that the difference between voucher recipients and occupants of tax credit projects in this regard is modest. The picture is very different for neighborhood crime rates. Occupants of tax credit projects live in neighborhoods with crime rates about 30% greater than voucher recipients and only slightly less than the crime rates of the neighborhoods of public housing tenants. Since voucher recipients have much more choice concerning the location of their housing, this suggests that housing projects are poorly located from the viewpoint of recipient preferences. In MTO, getting away from crime was by far the most important reason offered by participants for wanting to move from their public housing project (Orr et al., 2003, exhibit C1.3). In about 43% of enrolled households, some member had been a crime victim in the previous 6 months (Sanbonmatsu et al., 2011, exhibit 1.2).

To understand the pattern of the results, it is important to recognize the ability of local political bodies to influence the location of housing projects. For public housing, they had a veto over location. Due to neighborhood opposition, public housing projects, especially for families with children, were usually built in the poorest neighborhoods. For privately owned subsidized projects, local political bodies can exert considerable influence through land use regulations, for example, through denying or granting variances from zoning ordinances. Furthermore, these programs often provide incentives for developers to choose particular locations. Their proposed location can affect the probability that they will be selected to receive a subsidy (Gustafson and Walker, 2002). It can

also affect the magnitude of the subsidy received. For example, the tax credit program offers subsidies that are almost 30% greater for projects located in qualified census tracts. These are areas with unusually large numbers of the poorest families. Using RD methods, Baum-Snow and Marion (2009) showed that this feature has a large effect on the location of tax credit projects. Other program features have important, but less obvious, effects on project locations. For example, the rent ceiling in tax credit projects is the same at all locations in a metropolitan area and the tax credit subsidy does not depend on land cost. This gives developers an incentive to avoid neighborhoods with high land prices (Lang, 2012). In short, local political bodies and private developers decide where subsidized housing projects are built. Due to their below-market rents, recipient preferences have less impact than in the private market.

14.3.4.4 Racial and economic integration

The moves that result from housing assistance lead to a different degree of economic and racial integration in the broader housing market. Many people care deeply about these outcomes.

The usual approach to determining whether a program contributes to racial or economic integration has been to compare the characteristics of the preprogram neighbors of recipients with their neighbors under the program. For example, if 20% of the people in a metropolitan area are black, the mean percentage black in the preprogram neighborhood of black recipients is 60%, and the mean percentage in the neighborhood occupied under the program is 30%, the conclusion of this approach is that the program has reduced racial segregation.

This approach fails to account for the chain of moves that result from the initial moves of recipients. A simple example illustrates the problem. Suppose that an existing apartment building is demolished to build a new subsidized project with the same number of dwelling units. Assume that this neighborhood had the metropolitan mean percentage black households, say, 20%. Suppose that the new building has the same fraction black households as the old building. Assume that the blacks moving into the neighborhood came from neighborhoods with more than 20% black and the whites came from neighborhoods more than 80% white. The usual approach would conclude that the housing program promoted racial integration. However, this is not necessarily the case. For example, if the whites displaced by the demolition of their building moved into the units vacated by whites moving into the project and the displaced blacks moved into the units vacated by blacks moving into it, there would be no effect on the degree of racial segregation.

Recent studies have begun to address the deficiencies of the standard approach. Baum-Snow and Marion (2009) showed that tax credit projects induce some initial homeowners in their neighborhoods to move and attract households with lower

incomes. Horn and O'Regan (2011) explored various mechanisms through which tax credit projects might affect racial segregation and found that the tax credit program has reduced racial segregation at the metropolitan level.

Recent advances in the specification and estimation of equilibrium models of housing demand and neighborhood choice (Epple and Sieg, 1999; Bajari and Kahn, 2005; Bayer et al., 2007, 2011; Bayer and McMillan, 2012) together with the increasing availability of data on the addresses of recipients of housing assistance will make it possible to learn more about the effects of low-income housing programs on economic and racial segregation.

In one of the first applications, Galiani et al. (2012) used MTO data to estimate such a model and used the estimated model to analyze the effect of alternative restrictions on where voucher recipients must use vouchers in the first year. They found that limiting the initial use of the voucher to a census tract with a poverty rate less than 5% rather than 10% would reduce voucher take-up so much that it would increase the poverty rate of the neighborhoods occupied by families offered vouchers. A larger number of families would remain in their initial high-poverty neighborhoods. Loosening the restriction to neighborhoods with poverty rates less than 20% rather than 10% would *reduce* the mean poverty rate among households offered vouchers slightly but increase voucher usage greatly (from 39% to 58%) and increase the value of the program to households offered vouchers. They also found that adding specific constraints concerning the racial composition of the neighborhoods that could be occupied during the first year would reduce take-up but have little effect on economic or racial segregation.

14.3.4.5 Consumption of other goods

Neither recipients nor taxpayers care only about recipient housing consumption. The creation of large programs to subsidize the consumption of other goods for low-income households indicates taxpayer interest in recipient consumption of these goods, and most US housing programs have been designed to increase overall consumption of other goods (usually described as increasing the affordability of housing). Many early studies of the effects of low-income housing programs estimated their effect on overall consumption of nonhousing goods and services, that is, expenditure on these goods divided a price index. Olsen (2003, table 6.8) summarized the results of four studies that produced eight estimates for three programs prior to 2000. Almost all are based on data from the 1970s. The six estimated percentage increases for public housing ranged from 5% to 19% for different times and places. The only study of HUD's privately owned subsidized projects indicated that it had no effect on consumption of other goods. However, at the time, this program had an unusual feature, namely, a substantial minimum rent, that surely makes this result unrepresentative of HUD's programs of this type. These programs almost surely have increased overall recipient consumption of nonhousing goods and services in most time periods. The only study of the housing voucher program indicated that it increased consumption of other goods and services by 50%. As in the case of older

studies of the effects on overall housing consumption, almost all of these studies ignore self-selection and administrative selection in program participation.

Almost all studies of the effects of low-income housing programs on consumption patterns have assumed that they had no effect on earnings. That is, they have assumed that observed earnings under the program are the same as what earnings would have been in its absence. Because these programs reduced earnings, these studies have understated recipient consumption of housing services and other goods in the absence of the program and hence overstated the program's effect on consumption of both composite commodities.

Recent evidence on the effect of housing programs on nonhousing consumption is meager. The voucher evaluation found that receipt of vouchers reduced housing expenditure by 40% (Abt Associates Inc. et al., 2006, exhibit 5.3). The resulting percentage increase in consumption of other goods is not reported. However, based on the information provided, it was roughly 50%. Given the similarity of the economic circumstances of their participants and their formulas for determining tenant rent, public housing and HUD's programs that subsidize privately owned projects are likely to have had roughly similar effects. However, there are no recent estimates.

Unlike almost all other low-income housing programs, the tax credit program appears to have had little effect on the housing expenditure of tenants and hence their consumption of other goods. Buron et al. (2000, exhibit 3–9) indicated that 47% of the occupants of tax credit projects paid lower rents for their tax credit apartments than their previous apartments, 13% paid about the same amount, and 40% paid more. Since few of these households had just moved into their tax credit units and rents of identical units increased continuously over the period, these results almost surely overstate the extent to which these households paid lower rents than in the absence of the tax credit program.

14.3.4.6 Mean tenant benefit and subsidy

Since many economists are interested in the extent to which housing subsidies differ from lump-sum grants, many studies compare the recipient benefit with the subsidy. The most common measure of recipient benefit used in studies of housing programs is the equivalent variation, that is, the lump-sum grant that is just as satisfactory to the recipient as the housing program.[17] As mentioned earlier, the tenant's subsidy is the excess of the market rent of the unit occupied over the rent paid by the tenant.[18] Since most housing programs change budget spaces in ways very different from lump-sum grants, we certainly expect any satisfactory measure of benefit to be less than the subsidy for almost all participants. In

[17] Hammond (1987, chapter 2) provided a detailed account of the evolution of benefit estimation for low-income housing programs.

[18] The subsidy is less than the taxpayer cost for all programs due to their administrative costs. It is much smaller for programs of project-based assistance due to their cost-ineffectiveness.

other words, we expect almost every household to consume a different bundle of goods than it would choose if it were given a cash grant equal to its subsidy. Therefore, the mean benefit should be less than the mean subsidy.

Olsen (2003, table 6.17) summarized the results of the seven studies that estimate both the mean benefit and subsidy for one program or for the entire system of low-income housing assistance. Estimated benefits are based on estimated indifference maps or equivalently estimated demand functions. There are few estimates for programs other than public housing, and there are no recent estimates for any program or for the system as a whole. The median of the estimated ratios of mean benefit to mean subsidy for public housing is 0.76, and 70% of the estimated ratios are between 0.71 and 0.81. Based on one study apiece, the ratio is between 0.63 and 0.77 for HUD's largest program that subsidized privately owned projects (Section 8 New Construction and Substantial Rehabilitation), 0.83 for the housing voucher program, and 0.61 for the system as a whole.

All of these studies almost surely overstate tenant benefits. They are based on the implicit assumption that each recipient of housing assistance occupies his or her most preferred dwelling unit among all units with the same market rent as the unit occupied under the program. Due to the minimum housing standards, this isn't true even for voucher recipients. It is surely much further from the truth for families living in subsidized projects. They were given an all-or-nothing offer of a particular dwelling in a particular location. No published study of US low-income housing programs has addressed this important distortion. Glaeser and Luttmer (2003) analyzed a similar distortion in several elements of the housing bundle for rent control in New York City. Lui and Suen (2011) did it for one element for public housing in Hong Kong.

In assessing the significance of these results for public policy, it is important to realize that mean recipient benefit will be less than the mean subsidy for any successful housing program. To account for the views of nonrecipients who pay for them, housing programs are intended to achieve outcomes different from unrestricted cash grants.

14.3.4.7 Distribution of benefits

Many nonrecipients care about how benefits are distributed across recipients of housing assistance—both how mean benefit varies with household characteristics and the variance in benefit among households with the same characteristics. Most of the older studies that estimated tenant benefits also explored these matters.

The design of housing programs does not ensure that mean benefit will vary with household income within a locality in a particular manner. Most recipients of low-income housing assistance in the United States (except those in tax credit projects) pay 30% of their adjusted income in rent. Therefore, if all households of a particular size served by a program lived in apartments with the same market rent, the subsidy would be larger for the poorest households of that size. Under all variants of tenant-based housing vouchers, the maximum subsidy has varied inversely with income among households of

the same size. However, it is far from the truth that all households served by a mature construction program (that is, a construction program that has been in existence for many years) occupy housing with the same real market rent. Furthermore, a larger subsidy does not imply a larger benefit. If poorer households experience a larger consumption distortion than richer households, they could receive a smaller benefit even though they receive a larger subsidy.

Olsen (2003, table 6.18) summarized the results of regressions of estimated benefit on household characteristics in which a linear relationship between mean benefit and income, family size, age, race, and other characteristics is assumed. Some results are consistent across the studies. For public housing, housing vouchers, and the system as a whole, the mean benefit is larger for poorer households that are the same with respect to other characteristics. Similarly, mean benefit is larger for larger households. These results continue to hold when the authors allow for the possibility of a nonmonotonic relationship by including income and family size squared. The results are less consistent for race and age of the head of the household. The coefficients have different signs in different studies, they are often statistically insignificant, and the magnitudes of the coefficients indicate small differences in mean benefit among otherwise similar households who differ in these respects.

Several other noteworthy results emerged from these analyses. First, several studies have found substantial differences across geographic areas in the real mean benefit of public housing, housing vouchers, and the entire system of housing subsidies among families with the same real income and other demographic characteristics (Murray, 1975; Reeder, 1985; Hammond, 1987). Second, when Reeder included in the regression equation a measure of the household's taste for housing based on information on its preprogram consumption pattern and budget constraint, he found that households with the strongest taste for housing received the largest benefit from the voucher program. Unlike simple subsidies that reduce the price of a good and allow recipients to choose its quantity, this result is not inevitable. It results from the program's parameters and the joint distribution of recipient tastes and incomes.

14.3.4.8 Labor earnings and employment

The perennial desire to help the poorest people has always been combined with a desire to avoid their prolonged dependence on others. For people expected to work, the ideal has been to help them help themselves by increasing their productivity. Increasing the future productivity of children in low-income households has been a particular interest. President Lyndon Johnson promoted the War on Poverty with the phrase "a hand up, not a hand out." President Clinton proposed and implemented major welfare reforms "to make work pay."

Despite the welfare reforms that occurred during the 1990s such as increasing the generosity of the earned income tax credit and replacing the Aid to Families with Dependent

Children (AFDC) program with the TANF program that imposed time limits and other strong incentives to promote market labor supply, many programs that provide assistance to low-income households reduce the amount of assistance as labor earnings increase, and many low-income households have participated in multiple programs of this sort and faced extremely high reductions in their benefits with increases in their earnings.

Most low-income housing programs in the United States reduce their subsidy by 30 cents for each additional dollar of countable income. Economists have focused on this feature of the subsidy formula in thinking about the likely effects of these programs on the labor earnings of adults in assisted households. The standard model of consumer choice implies that a program of cash assistance of this type will induce its recipient to earn less. Standard economic theory does not, however, have an unambiguous implication about this effect for housing programs with the same subsidy formula. When account is taken of the restrictions on housing consumption in low-income housing programs, it is consistent with general theory that an individual would increase labor supply in response to these programs (Schone, 1992).

Furthermore, some have suggested other mechanisms through which housing assistance might increase labor earnings of adult recipients over the long run (Abt Associates Inc. et al., 2006, pp. 82–84). For example, housing assistance may induce recipients to live in safer neighborhoods where they would enjoy better mental and physical health. Similar arguments apply with greater force to the future earnings of children in recipient households. Housing assistance might lead them to become more productive adults. The disincentives resulting from the subsidy schedule are only relevant to children in recipient households to the extent that they think ahead and expect to receive low-income housing assistance later in life. In this case, the subsidy schedule reduces their incentive to devote efforts to increasing their potential earnings.

The effects of cash assistance programs on labor earnings and employment have been heavily studied for quite some time. Research on the effects of in-kind transfers has been much slower to develop. However, in the late 1990s and early 2000s, research on these effects of low-income housing programs expanded rapidly. Shroder (2002b) cited 18 papers on the short-term effect of housing assistance on employment and earnings that were completed during this period. The results of these studies are mixed. The majority of studies found that housing assistance decreased earnings and employment. However, some indicated the opposite effect. Most estimated effects were relatively small, and hypothesis tests often failed to reject the hypothesis of no effect at standard levels of significance. Generally speaking, the data used in these studies were poorly suited to studying labor supply effects. Strong assumptions were required to justify the interpretation of the results as causal effects. As a result, they left considerable uncertainty about the magnitude and even the direction of the effect.

This situation has improved markedly in the past decade. Three studies of HUD's largest low-income housing program (the housing voucher program) have assembled

data well suited to studying its labor supply effects on adult recipients and used excellent statistical methods to analyze it. Other good studies have produced estimates of these effects for programs of project-based housing assistance as well as housing vouchers. Although the results of the studies don't agree in every detail, the big picture is clear. US low-income housing programs induce adult recipients to earn 10–15% less on average. The evidence indicates that the reduction in the magnitude of the subsidy that results from higher labor earnings is an important reason for this effect. For example, the evidence indicates that the three broad types of housing assistance have similar effects on labor earnings and employment. These programs differ in respects that some believed would significantly affect labor earnings. What they have in common is their subsidy formula.

Jacob and Ludwig (2012) provide the best evidence on the effects of housing vouchers on labor supply. It is based on the choices of 11,696 households offered housing vouchers in Chicago between 1997 and 2003 and 30,662 households who applied for vouchers but were told that they would not receive them. In 1997, the organization that administered the voucher program opened its waiting list for enough time to allow over 82,000 eligible households to get on it. This greatly exceeded the number of vouchers that would be available anytime soon. To ration the available vouchers, the organization randomly assigned each household a position on the list. About 18,000 households were offered vouchers by this organization between 1997 and 2003. Over 47,000 were so far down the list that they were told that they would not receive vouchers. The households in these two groups that were headed by working-age, able-bodied adults who did not receive housing assistance at baseline formed the control and treatment group for the analysis. Jacob and Ludwig assembled information about many baseline characteristics of these households, their quarterly labor earnings and receipt of public assistance (AFDC/TANF, food stamps, and Medicaid), and their addresses from 6 years prior to receipt of assistance through 8 years after receipt.

Their analysis of this impressive data set indicated that receipt of a housing voucher reduced labor force participation by 6% and labor earnings by 10% on average. These are TOT effects where treatment is defined as usage of the voucher offered in at least the first year after it was offered. A household was viewed as treated even after it relinquished its voucher.

Jacob and Ludwig also studied how the ITT effect varied over time since the initial offer. Their results indicated that the negative effects on earnings and employment increase over time. This result was surprising because some initial voucher recipients relinquished their vouchers each year and there are some reasons to expect that housing assistance would have positive long-run effects on labor earnings and employment. One possible explanation is that the reduction in hours worked and the acceptance of a less challenging job during the period of receipt of housing assistance reduces a person's future wage rate. Working itself increases skills through repetition and on-the-job training. Reduced labor force

engagement during the time that a person receives low-income housing assistance might also send a signal to future employers about the person's energy and enthusiasm for a steady job. These factors may more than offset the effects of attrition and other factors.

Finally, Jacob and Ludwig explored two mechanisms that have led others to believe that housing assistance would increase recipient earnings and employment, at least after an initial adjustment period, namely, that it would promote residential stability and induce recipients to move to neighborhoods closer to jobs appropriate for their skills and with neighbors who would be helpful in finding them. Jacob and Ludwig found that vouchers have very small effects on neighborhood choices and residential stability. This leads them to attribute their estimated work disincentive effects to the subsidy formula.

Two other excellent studies produced similar results concerning the immediate effect of vouchers on earnings and employment. The evaluation of the Welfare to Work Voucher program found that receipt of housing vouchers reduced labor supply about 12% in the first 6 months (Abt Associates Inc. et al., 2006, exhibit 4.9). Carlson et al. (2012b) produced the same result for the first year of voucher receipt based on another excellent data set. Their sample consisted of all households in Wisconsin in 2001, 2002, and 2003 that did not live in public housing but received TANF or food stamp benefits. Each year, some households were new voucher recipients and others did not receive vouchers. The authors match each voucher recipient with five nonrecipients with the closest propensity scores based on many characteristics, including earnings and employment in the previous 5 years. Difference-in-difference estimators are used to produce the results from this sample.

Like Jacob and Ludwig, Abt et al. and Carlson et al. rejected a number of mechanisms through which voucher receipt has been hypothesized to affect earnings and employment. Abt et al. found little effect of voucher receipt on travel time to work or changed transportation mode (p. 107), finding a job through a neighbor (p. 110), or increased education and training (p. 117). Carlson et al. (pp. 136–137) found that voucher receipt has little effect on the type of neighborhood occupied. This leads Carlson et al. (p. 143) to attribute its negative effect on labor earnings and employment to the subsidy formula. Abt et al. (p. 128) attributed it mainly to the temporary disruption caused by searching for housing.

Several differences between the three studies should be mentioned. First, because the policy interest in work disincentive effects pertains to working-age, nondisabled adults, Jacob and Ludwig and Abt et al. restricted their main analysis to this group, and the preceding results refer to it. Carlson et al.'s main results are based on a sample that includes elderly and disabled adults, and the housing voucher program serves many such people. Their estimated work disincentive effects would have been larger if their analysis had been limited to working-age, nondisabled adults. This is clear from their own subgroup effects for different ages and Jacob and Ludwig's supplementary analyses for elderly and disabled (table 4).

Second, the samples used by Abt et al. and Carlson et al. are likely to understate the average work disincentive effects of the housing voucher program across all recipients. About 80% of Abt et al.'s sample received TANF benefits at baseline (p. 24), and these benefits are included in the voucher program's countable income. The voucher subsidy is reduced by 30 cents for each additional dollar of countable income. For households without cash assistance, the program reduces the subsidy by 30 cents for each additional dollar of earnings. This is not the case for TANF recipients. TANF reduces its benefits with increases in the family's earnings. As a result, an increase in earnings does not lead to a reduction of 30 cents in the voucher subsidy for each additional dollar of earnings. In the extreme where the benefit reduction rate in TANF is 100%, increased earnings would have no effect on the housing program's countable income and hence its subsidy. If the benefit reduction rate in the cash assistance program were 50%, participation in the housing program would add 15 rather than 30% to the overall benefit reduction rate because a dollar increase in earnings would add only 50 cents to a housing program's countable income. Nominal benefit reduction rates in US cash assistance programs have typically ranged between 50% and 100%.[19] In short, housing assistance adds less to the overall benefit reduction rate of TANF recipients than other voucher recipients. Not surprisingly, Jacob and Ludwig (2012, table 4) found that voucher receipt has a much smaller effect on labor force participation of households that received TANF benefits at baseline.

This is much less of a problem for Carlson et al.'s analysis because their sample is based on receipt of TANF or food stamp benefits, and less than a 10th of this group participated in TANF. Unlike cash assistance, food stamp benefits are not included in the countable income that determines the generosity of the housing voucher subsidy. For households that receive food stamps and other in-kind assistance but not cash assistance, housing assistance adds 30 percentage points to their benefit reduction rate.

Unlike Jacob and Ludwig, Carlson et al. and Abt et al. found that the work disincentive effects fade over time, albeit at different rates. Carlson et al.'s results suggest that the fade-out takes more than 5 years; the Abt et al. results suggest 3 years. One obvious reason for the estimated fade-out of the effect of low-income housing assistance in these studies is that some households with housing assistance give it up each year. The fraction of these households that continue to receive housing assistance declines each year. Since the housing program's benefit reduction rate is no longer relevant to the households that have left the program, a fade-out in the estimated effect should not be surprising. The effect of the program on a person eventually fades out because the person does not remain in the program forever. Only the presence of other forces working in the opposite direction would prevent it.

[19] Abt Associates Inc. et al. (2006, p. 83) reported TANF benefit reduction rates in this range at their sites.

Since the treatment groups in all three studies experience departures from the voucher program, the puzzle is why Jacob and Ludwig's estimated reduction in earnings and other effects get larger with the passage of time from initial receipt of assistance. One possible reconciliation is that the reduction in hours worked and the acceptance of a less challenging job that results from receipt of housing assistance and reduces a person's future wage rate are more important for people who don't participate in TANF. Whatever the explanation, Jacob and Ludwig argued that their more precise estimates give a better picture of the time path of the work disincentive effects.

HUD's programs of project-based rental assistance, namely, public housing and privately owned subsidized projects, have essentially the same subsidy formula as its housing voucher program. From the tenant's perspective, the subsidy is the difference between the market rent of its unit and 30% of its countable income.[20] Some arguments have been offered as to why different types of assistance with the same subsidy formula would have different effects on labor supply. However, the evidence indicates that they have very similar effects.

Jacob and Ludwig and Carlson et al. estimated differences between the work disincentive effects of housing vouchers and public housing and found these differences to be very small. Susin (2005) reached a similar conclusion for the three broad types of assistance using HUD's administrative records to identify the type of assistance received by SIPP households and propensity score matching of assisted with unassisted households to create a sample for analysis. He found that public housing tenants reduce their labor earnings about 17%, tenants in privately owned subsidized projects about 15%, and voucher recipients 14%. Although his sample size is modest (670 assisted households) and his data are not as well suited for the analysis as the data underlying the three preceding studies, the similarity of his results for the voucher program lends credence to his results for the other types of assistance. Olsen et al. (2005) also found small differences in the work disincentive effects of the different types of assistance based on a large random sample of recipients throughout the country (about 150,000 households) from HUD's administrative records for 1995 through 2002 and difference-in-difference estimation. These records contain information on the earnings of each household before it enters the program.

Newman et al. (2009) used methods similar to Susin's methods to match unassisted female-headed households with children in the Panel Study of Income Dynamics (PSID) to similar households living in subsidized housing projects (116 families in public housing and 207 in privately owned subsidized projects). Their point estimates indicate a consistent pattern of work disincentive effects for both types of projects (18 out of 21 for public housing and 17 out of 21 for private projects). They cannot reject the null hypothesis of

[20] Although the benefit reduction rate is the same for all, the formula is different for different households because they live in units with different market rents.

no effect at the usual levels of significance in most cases, but the point estimates for the reduction in labor earnings for public housing range from 12% to 29%. The high numbers refer to the early years before much attrition occurs. In those years, the hypothesis of no difference is rejected at the 5% level of significance. For private projects, the effects are much smaller.

Anil et al. (2010) estimated the effect on employment of demolishing public housing projects and offering each occupant a housing voucher or a vacant unit in another public housing project. The projects demolished are usually large projects in poor condition located in neighborhoods with high poverty rates. Unlike MTO, remaining in the current project is not an option. They found that this reform leads to higher employment rates for the former residents of these projects.

Despite being the largest and fastest growing US housing program, there is no evidence on the effects of the LIHTC on labor earnings and employment. Some households served receive subsidies from other programs that limit their rent to 30% of their adjusted income. Presumably, the work disincentive effects for these households would be similar to those in HUD programs with this feature. Other occupants pay a rent that does not depend on their income. The tax credit program almost surely has a much smaller effect on their labor earnings and employment.

The previous studies provide a clear picture of the effects of housing programs on the labor earnings and employment of adults in recipient households. Good evidence on the effects of low-income housing programs on the adult earnings and employment of children in recipient households is scarce. Given the motivations for welfare assistance, this is a serious gap in knowledge.

Based on information in the PSID-Assisted Housing Database about children who were 10–16 years old between 1968 and 1982 and young adults between 1978 and 1993, Newman and Harkness (2002) found that additional years spent in public housing as a child (as opposed to receiving no housing assistance) increased their labor earnings and employment as adults. This evidence does not necessarily argue for public housing or housing assistance in any form. The same amount of money devoted to cash assistance might have had the same effect on earnings and employment. Assistance more targeted on these outcomes would surely have still larger effects (Jacob et al., 2014).

Many people have believed that different housing programs would result in different adult earnings for children in recipient households because they induced recipients to live in different neighborhoods. Indeed, this belief was an important motivation for MTO. Oreopoulos (2003) used data on the random assignment of families to different public housing projects in Toronto to study the effects of neighborhoods on the adult labor market outcomes of the children in these households. He found that neighborhood characteristics have little effect on the adult earnings, unemployment likelihood, or welfare participation of these children.

14.3.4.9 Participation in other welfare programs

Most households eligible for low-income housing assistance in the United States are eligible for other welfare programs such as food stamps and TANF that reduce their benefits with increases in household income. Because they are closely related, many who study the effects of housing programs on labor earnings also study their effect on participation in other welfare programs. The simplest standard model of labor supply helps explain why an offer of housing assistance will make it attractive for some who would otherwise choose not to participate in other welfare programs to reduce their earnings sufficiently to participate in these programs. The offer of housing assistance will also overcome any fixed stigma cost of accepting welfare for some households. The best studies find that low-income housing assistance does induce its recipients to participate in other welfare programs at higher rates. For example, Jacob and Ludwig found that voucher usage increases the TANF participation rate by 15%. Abt Associates Inc. et al. (2006) also found large effects.

A separate question is the effect of housing assistance as a child on welfare program participation as an adult. Standard theory does not have an unambiguous implication about this matter. Based on information in the PSID-Assisted Housing Database on children who were 10–16 years old between 1968 and 1982 and young adults between 1978 and 1993, Newman and Harkness (2002) found that additional years spent in public housing as a child (as opposed to receiving no housing assistance) decreased their participation in welfare programs as an adult.

14.3.4.10 Children's educational outcomes

Older research on low-income housing programs focused primarily on their effects on consumption bundles broadly conceived and the dollar benefit to recipients of changes in them. Recent research has paid increasing attention to consequences of the changed consumption patterns such as educational outcomes of children in assisted households.

Arguably, the primary mechanism through which housing assistance would affect the future labor earnings of the children in recipient households is through its effects on their education. Despite the reduced earnings of adults in the household, housing assistance typically provides their children with better housing and greater consumption of other goods. Both should improve school performance. Housing assistance also provides a better neighborhood for some and a worse one for others with mixed effects on educational outcomes.

The best evidence on the effect of an individual program on educational performance comes from the voucher evaluation. Abt Associates Inc. et al. (2006, exhibit 6.5) found little effect of receipt of a housing voucher (compared with no housing assistance) on education outcomes. The estimated coefficients indicated a mix of small positive and negative effects for its 11 measures. Only one was statistically significant. The results

indicated that children in voucher households were 12 percentage points more likely to have repeated a grade. This might have resulted from transferring to a school with higher standards.

The evidence for subsidized housing projects is not as compelling. Based on information in the PSID-Assisted Housing Database on children who were 10–16 years old between 1968 and 1982 and young adults between 1978 and 1993 and two-stage IV estimation, Newman and Harkness (2000) could not reject the hypothesis that residence in public housing as a child had no affect on the educational attainment at age 20. They found similar results for duration of residence in public housing and the stage of childhood when the child lived there. The results were slightly more positive for occupants of privately owned subsidized projects. Using the data and methods described in discussing their results for housing consumption, Currie and Yelowitz (2000) got somewhat more positive results for public housing. They found that occupancy of public housing in 1992–1993 leads to lower probability of being held back in school, especially for boys and blacks. The Johns Hopkins Longitudinal Study of the Effects of Housing on Health and Social Adjustment (described in more detail in Section 14.3.4.11) found that a large improvement in housing conditions combined with a modest increase in expenditure on other goods resulting from moving into a new public housing project in the same neighborhood had a tiny effect on the academic achievement of children in the household (Wilner et al., 1962). Since the improvement in housing was from a base of bad housing by the standards of the 1950s, this strongly suggests that the better housing resulting from housing assistance today would have little effect on educational outcomes for most current recipients.

Finally, Jacob (2004) produced unusually credible estimates of the difference in the effect of public housing and housing vouchers on children's educational outcomes based on data from a natural experiment in Chicago. During the period of the analysis, the Chicago Housing Authority closed some, but not all, buildings in a number of large housing projects in preparation for their redevelopment. Displaced families were offered the option of a housing voucher or a vacant unit in another public housing project. Although some families in other buildings received vouchers through the normal process of reaching the top of the voucher waiting list, displaced families were much more likely to get them. Jacob used occupancy of a building slated for closure as an explanatory variable in regression models explaining the ITT effects on seven educational outcomes of the closures (with their associated alternative subsidies) compared with continuation of the current system, and he used it as an IV in estimating the TOT effect of public housing relative to housing vouchers. The results are based on data from the administrative records of the housing authority and city school system for 10,556 students living in 73 buildings in 9 projects. It includes information for the years before and after the closures were announced. The analysis focuses on children less than 14 years old at the time of the closure announcement. Jacob found that neither the closures nor living in public

housing had much effect on education outcomes. A supplementary analysis suggests why. Neither had much effect on the quality of schools attended as judged by student performance on a standardized math test.

14.3.4.11 Recipient health

The argument that better housing would lead to better health for its occupants and others who come into contact with them was influential in debates over the establishment of low-income housing programs and is still heard today in the United States despite the large improvements in the condition of the unsubsidized housing stock. However, high-quality evidence about the effect of particular low-income housing programs on the health of occupants is rare; good evidence about its effect on others is nonexistent.

A forgotten classic called the Johns Hopkins Longitudinal Study of the Effects of Housing on Health and Social Adjustment provides the best evidence on this matter (Wilner et al., 1962). This study collected many health outcomes for two groups of about 1300 people apiece every 2 months for several years in the mid-1950s. Initially, all were on the waiting list for public housing in Baltimore and lived in the same neighborhood. The control group remained in unsubsidized housing over the period covered. The treatment group moved to a newly built public housing project in the same neighborhood. Each family in the treatment group was matched with a family on the public housing waiting list based on many characteristics including previous health. The public housing project provided substantially better housing (Wilner et al., 1962, pp. 24–26). For example, about 30% of the units occupied by members of the control group did not have bathing facilities in the unit and 25% had rats. The public housing units had neither problem. Beyond an initial period when the children who moved to public housing experienced worse health outcomes, the broad pattern of the results suggests that the substantial improvement in housing conditions led to better health. However, the estimated magnitudes of these effects were usually small, and few were statistically at the 5% level. Since the improvement in housing was from a base of bad housing by the standards of the 1950s, this strongly suggests better housing from current bad housing in developed countries today would have even smaller effects on health outcomes. Few studies have the internal validity of this study. However, it applies to the households that moved into a single low-income housing project in Baltimore.

The best recent study of health effects of programs that subsidize the operation of housing projects is based on data from the Fragile Families and Child Wellbeing Study that collected information between 1998 and 2000 for a random sample of mothers with newly born children. Some, but not all, lived in a subsidized housing project. Using a variety of recalcitrant IV for living in a housing project, Fertig and Reingold (2007) were unable to detect a pattern of significant health effects for this type of housing assistance. For the reasons mentioned in the discussion of Currie and Yelowitz's study, these results surely refer to a mix of public housing and privately owned subsidized projects.

Information about the type of housing assistance received was obtained by asking recipients, and evidence indicates that many are unable to distinguish between the two broad types of project-based assistance.

Abt Associates Inc. et al. (2006, exhibit 5.5) found mixed results for the effect of housing vouchers on its limited self-reported health measures. However, none of the estimated effects are statistically significant at the usual levels.

14.3.4.12 Household composition

The effect of housing assistance on household composition has played little role in housing policy research or debates in the United States. The voucher evaluation produced striking results that might increase interest in this matter. Abt Associates Inc. et al. (2006, exhibit 5.3) discovered that about 18% of the people on the waiting lists for housing vouchers lived with others at some point in the prior year, usually young mothers with children living with their parents or other relatives. When offered assistance, they chose to live independently. Voucher receipt reduced the number of families that shared housing with others by about 22 percentage points. It also reduced the mean size of the household by almost three quarters of a person and the number of intergenerational households by 20 percentage points (Abt Associates Inc. et al., 2006, exhibit 3.10). Ellen and O'Flaherty (2007) produced similar results for public housing as well as the housing voucher program.

14.3.4.13 Effects on neighbors of assisted households

The impact of low-income housing projects and families with housing vouchers on neighborhoods has been a perennial issue in popular debates over housing policy. The popular view is that they make their neighborhoods worse places to live, primarily because they bring less desirable people into the neighborhood. However, there are other reasons to expect subsidized projects or housing vouchers to improve neighborhoods in certain circumstances (Ellen et al., 2007, pp. 263–264). A new subsidized project built at low-density in a neighborhood with the worst housing and poorest families would almost surely make that neighborhood a more attractive place to live for many years after its construction.

If a housing project makes its neighborhood a better or worse place to live, this would be reflected in neighborhood property values. Early studies of this matter were limited to a small number of projects in a single city or based on crude methods and data.[21] With one major exception, recent studies have also been limited to a single city or metro area. However, the best have assembled impressive data sets and used superior methodologies to analyze them. As a result, we have much better information about the effects of different housing programs on the neighborhoods of their participants.

[21] Galster et al. (1999a, chapter 4) provided a review of this literature.

In a precursor to the recent studies, Lee et al. (1999) studied the effects of all major urban rental housing programs in Philadelphia. Regressing the sales price of single-family units on the number of assisted rental units of each type within a fourth and an eighth of a mile and demographic, housing, and amenity variables, they found small positive effects on neighboring property values on average for some programs and small negative effects for others.[22]

Galster et al. (1999b) refined Lee, Culhane, and Wachter's methodology in a study of the effect of housing voucher recipients on neighborhood property values. The voucher program serves primarily the very poorest households (more than 75% have incomes less than 30% of the local median), and it creates strong incentives to occupy a dwelling unit with about median rent. Therefore, voucher recipients could move into neighborhoods populated largely by families with much higher incomes. However, the evidence indicates that they don't typically do that. Because most voucher recipients move to neighborhoods that are only slightly better than their initial neighborhoods, their effect on neighborhood property values is likely to be modest in most cases.

Galster, Tatian, and Smith's study uses panel data from Baltimore in the mid-1990s on the sales prices of single-family units, their characteristics, and the number of rental buildings and units within certain distances of them that house voucher recipients. To account for the difference between the unobserved characteristics of the neighborhoods of single-family units that affect both sales prices of houses and the number of voucher recipients who end up in the neighborhood, the regression model distinguishes between neighborhoods that do and do not attract voucher recipients at some time during the period studied. They found statistically significant effects of the occupancy of units by recipients of housing vouchers on neighborhood property values. However, the direction of the effect depends on the nature of the neighborhood and the concentration of program participants in it, and the magnitudes are relatively small in most cases. Because they used sample selection criteria that ruled out more than 98% of the buildings with voucher recipients, it is not clear whether these results generalize to the entire voucher program in Baltimore at that time. The regression models also involved restrictive assumptions about the changes in property values over time that have been relaxed by others in later work.

Using the same methodology, Santiago et al. (2001) found a modest positive effect on neighborhood property values of Denver's dispersed public housing program in most cases. Under this program, the Denver Housing Authority purchased single-family houses, duplexes, and small multifamily buildings throughout the city and rented them to people on the public housing waiting list. In assessing the results, it is important to

[22] They incorrectly assumed that the Federal Housing Administration (FHA)-assisted units in their data are owner-occupied units. In fact, these are units in privately owned subsidized rental projects under programs such as Section 221(d)(3) and 236 whose mortgages are insured by the FHA. Therefore, their results don't pertain to homeownership programs.

recognize the program's unique features. These sites were required to be highly dispersed, their occupants were selected for their good behavior, and the housing authority followed a strict inspection and maintenance policy for these units.

In a well-designed study that contains important refinements of Galster, Tatian, and Smith's methodology and is based on an impressive data set for New York City, Schwartz et al. (2006) found substantial positive effects on neighborhood property values of a collection of subsidized construction and rehabilitation programs that constituted the city's ambitious 10-Year Plan for neighborhood revitalization of its most distressed areas. This result arguably illustrates the importance of the location of subsidized projects. In a similar study with New York City data, Ellen et al. (2007) found that the major federal housing construction programs have not typically led to reductions in neighborhood property values and in some cases increased them. Using the same data set, Ellen and Voicu (2006) found that projects developed by nonprofit organizations have a more positive effect on neighborhoods than those developed by for-profits.

One concern about these results is that they apply only to New York City. This city has one of the country's most regulated housing markets. For example, it has a moderate form of rent control. Baum-Snow and Marion (2009) provided some evidence that the results apply to other parts of the country. They used RD methods and national data to study a variety of effects of LIHTC projects on neighborhoods. Like Ellen et al. (2007), they found that the construction of subsidized housing projects increases neighborhood property values in declining neighborhoods. In stable and gentrifying areas, they found no effect.

To understand why subsidized housing projects have not usually reduced neighborhood property values, it is important to recognize the ability of local political bodies to influence their location. For public housing, they have had veto over location. For privately owned subsidized projects, they could exert considerable influence through local land use regulations, for example, through granting variances from zoning ordinances. Due to neighborhood opposition, projects are rarely built in the best neighborhoods or indeed in any neighborhood with more attractive housing. It is also important to recognize the incentives facing developers of privately owned subsidized projects. For example, the largest program (LIHTC) provides a much larger subsidy to projects in census tracts where more than half of the households have incomes less than 60% of the local median.

Rossi-Hansberg et al. (2010) recently developed a novel approach for estimating the effects of housing improvements on nearby land prices and applied it to a unique program in Richmond, Virginia, that provided concentrated housing assistance in a few small areas. The funds to support this program came primarily from HUD block grants to state and local governments, namely, the Community Development Block Grant and the HOME Program. These programs permit a wide variety of different types of housing assistance, for example, loans at below-market interest rates to owner-occupants to

rehabilitate their houses and subsidies to selected developers to build new units to rent or sell to low-income households. The authors did not attempt to estimate the effects of different types of assistance. Indeed, they didn't report the mix of types used in the program studied. Although the paper combines high-quality theoretical and empirical analysis, the estimated effects of the program seem implausibly large. In three of the four sites, the estimated increase in land prices within 3500 feet of the heavily subsidized areas was five to seven times larger than the amount of the housing subsidies. In the other site, it was twice as large. The authors recognize several possible culprits and explore them to the extent possible with the readily available data. The leading candidate is that nearby structures were improved in ways that could not be detected with their data and that this might have led to the large estimated effects on land prices. The improved appearance of the neighborhood resulting from the concentrated housing subsidies might have induced families with higher incomes to move into the areas and these people might have demanded better housing.

The methodology used in all studies is based on the assumption that subsidized housing projects have no effect on property values in other neighborhoods. In essence, the authors obtain their results by comparing changes in property values in the neighborhoods of subsidized projects with the changes that occur in other initially similar neighborhoods. A positive estimated coefficient of the variable in the hedonic equation indicating that the property sold is in the neighborhood of a subsidized housing project leads the authors to conclude that housing projects have made their neighborhoods better places to live. The problem with this conclusion is that the authors would have gotten the same estimated coefficient if these housing projects had no effect on neighboring property values and reduced property values in other neighborhoods by the magnitude of this coefficient. In this case, the usual interpretation of the results would be completely reversed. Obviously, there are infinitely many other combinations of changes in property values in the neighborhoods of subsidized projects and other neighborhoods that would yield the same coefficient in the hedonic regression equation. What this coefficient really identifies is the difference between the effects of subsidized housing projects on property values in the two types of neighborhoods. To get their conclusion from their evidence, the authors implicitly assume that subsidized housing projects have no effect on property values in neighborhoods without these projects.

There are several reasons to object to this assumption. First, some households that moved into the subsidized housing projects previously lived in other neighborhoods, and their moves decreased the demand for housing in these neighborhoods. Second, some households that lived in the neighborhoods of the subsidized housing projects right before they were built would be forced to move because their units were torn down in order to build a new project. Others from the neighborhood that didn't move into the subsidized project would want to move to another neighborhood if the subsidized housing project makes their initial neighborhood a sufficiently better or worse place to live. In

equilibrium before the construction of a subsidized housing project in their neighborhood, each household has chosen a dwelling unit and neighborhood with the utility maximizing combination of characteristics given the household's preferences, income, and the equilibrium prices of housing units with each combination of characteristics. If subsidized housing projects change the desirability of neighborhoods, initial residents will no longer be in equilibrium at the initial prices. The movement of these households will lead to changes in property values in other neighborhoods. Baum-Snow and Marion (2009) produced results consistent with this reasoning. They found that LIHTC projects increase neighborhood turnover among homeowners.

One important issue that hasn't been studied is who gains and who loses if a subsidized housing project improves a neighborhood. A popular view is that it is the people living in the neighborhood when the project is built. However, economic theory suggests that the primary beneficiaries of neighborhood upgrading are the owners of nearby properties. As a result of zoning laws, much of the housing surrounding subsidized housing projects is surely rental. If a newly built subsidized project makes the neighborhood a more attractive place to live, the owners of this rental housing will charge higher rents and the value of their property will be greater. Since the occupants of this rental housing could have lived in a nicer neighborhood prior to the project by paying a higher rent, they are hurt by its construction. The poor in the project's neighborhood will benefit from the neighborhood upgrading only to the extent that they own the property surrounding the project or move into the project.

Low-income housing programs affect the desirability of neighborhoods in part by changing the people who live in them. One of the most contentious issues in popular debates over housing policy is the extent to which the movement of subsidized households into a neighborhood increases crimes against its initial residents. This is one mechanism through which housing programs could affect neighborhood property values. Several recent articles shed light on this matter.

Using a panel of annual data from 1996 to 2008 at the census tract level for 10 large cities, Ellen et al. (2012) found a negligible effect of an additional voucher recipient in a neighborhood on the total number of crimes as well as property and violent crimes separately. Because most voucher recipients move to neighborhoods that are only slightly better than their initial neighborhoods, this is not surprising. The results also indicate that an additional unit in a public housing project has a similar effect as an additional voucher recipient. Because the mean number of households in a public housing project is about four times the mean number of voucher recipients in a census tract, a single public housing project in a census tract would typically have a much larger effect on the crime rate in that census tract than the housing voucher program. In the 10 cities involved in this study, the census tract with the most public housing units served about 6500 families in public housing projects. The census tract with the most voucher recipients served about 350 recipients.

Stimulated by a magazine article that received considerable attention in the popular press, Popkin et al. (2012) focused on the effects of voucher recipients who were displaced from public housing on violent and property crime rates in their destination neighborhoods. When their buildings were demolished or substantially rehabilitated, public housing tenants are offered the option of a housing voucher or a vacant unit in another public housing project. The authors also consider the effects of other voucher recipients on crime rates. This study used quarterly census tract data over 8–10 years in Atlanta and Chicago, the two cities with the largest public housing transformation efforts. Both demolished most of their public housing units. With a lag, the land was typically used to build new, often mixed-income, housing at lower density. Popkin et al. used separate methods for estimating the effects on crime in the census tracts of the demolished public housing units and other census tracts. Like Ellen, Lens, and O'Regan, they found that regular voucher recipients have negligible effects on crime rates in their destination neighborhoods. Voucher recipients who are forced to relocate from public housing projects have positive effects on neighborhood crime rates that are an order of magnitude larger. Their evidence indicates that the crime rate increases at an increasing rate with the number of relocated voucher recipients moving into the census tract. In the census tracts where public housing projects were redeveloped, crime rates fell markedly. The net effect was a small overall reduction in crime rates.

Freedman and Owens (2011) studied the effect of LIHTC projects built in qualified census tracts on the major types of violent and property crimes in their counties.[23] As mentioned earlier, qualified census tracts are areas with unusually large numbers of the poorest families where tax credit developers receive substantially greater subsidies. Using a panel of national data from 2000 to 2007 and two-stage least squares estimation with the fraction of the county population in a qualified census tract as an instrument for the number of tax credit units in qualified census tracts, they found that additional tax credit units in these areas reduce robberies and increase motor vehicle thefts. The effects on other types of crime are statistically insignificant at the 5% level. Since they found that tax credit development in these census tracts is largely at the expense of tax credit development elsewhere in the county, these are mainly the effects of the location of the projects. The magnitudes of the effects are substantial. For example, an additional tax credit project of mean size (about 75 units) located in a qualified census tract rather than elsewhere in its county is estimated to reduce the county robbery rate by 10.5% and increase motor vehicle thefts by 4.7%.[24] However, based on their results and estimates of the effect of police spending on crime from other studies, they concluded that the same reduction in robberies could be achieved by spending on police a small fraction of the additional subsidy provided to tax credit developments in qualified census tracts.

[23] In the United States, the average county has 24 census tracts.
[24] Our thanks to the authors for providing these additional results.

To understand the effects of tax credit projects on their neighborhoods, it is important to keep two things in mind. First, tax credit projects often involve tearing down residential structures of very low quality occupied by families with very low incomes. Some of the displaced families surely move to another county. Second, tax credit projects that are not renovations of subsidized projects built under other low-income housing programs serve families with incomes about twice as high as the families served by the other programs (GAO, 1997, p. 146). Therefore, many tax credit projects surely increase neighborhood income.

14.3.4.14 Market prices

The belief that housing vouchers would lead to higher rents for unsubsidized low-income households has been influential in housing policy debates since the debate over the creation of the public housing program in the 1930s. To resolve disagreements about this matter, the US Congress authorized the largest social experiment in the country's history. EHAP's Housing Assistance Supply Experiment (HASE) operated entitlement housing allowance programs in the Green Bay and South Bend metropolitan areas. This study found little effect of housing allowances on the market rents of units of any type (Rydell et al., 1982; Lowry, 1983). For units that were significantly below standards prior to the experiment, rents fell slightly. For modest units meeting the standards or falling slightly below them, rents rose slightly. A careful reassessment of the HASE evidence reached the same conclusion (Mills and Sullivan, 1981). In a paper that calibrates the Anas and Arnott general equilibrium model of the housing market with data from Los Angeles, San Diego, San Francisco, and Sacramento, Mansur et al. (2002, table 4) got similar results for the effects of an entitlement program that would provide a cash subsidy to all renters in the lowest income quintile.

If an entitlement housing allowance program for which 20% of households were eligible had no discernible effect on housing prices, it is reasonable to conclude that existing tenant-based programs have little effect. A more recent study concludes that the housing voucher program has increased rents of low-quality housing by an average of 16% (Susin, 2002). This conclusion is inconsistent with the HASE results and the clear implications of standard economic theory.[25] In the absence of vouchers, their recipients would occupy the least desirable housing. Vouchers enable these households to occupy rental units of average quality. Hence, additional vouchers will decrease the demand for low-quality housing and increase the demand for average quality rental housing. If vouchers affect the price of rental housing, their introduction should, in the short run, decrease the price of low-quality housing and increase the price of average quality units. Using data from the same source as Susin (the American Housing Survey) but a different methodology, Eriksen and Ross (forthcoming) got results that accord with these theoretical

[25] Olsen (2003, pp. 421–422) offered a possible explanation for Susin's results.

expectations. In the short run, additional housing vouchers drive down market rents of the least desirable units and increase the rents of units of about average desirability by modest amounts. These price effects are somewhat greater in markets with the least elastic housing supply.

The belief that subsidized construction programs would lead to lower rents for unsubsidized low-income households has also been influential in US housing policy debates. Olsen (2007b, p. 622) explains why this belief is inconsistent with the standard assumptions of economic theory in the long run and not an implication of these assumptions in the short run. In the simplest economic model of competitive markets, all firms that supply a good are identical in the long run and the long-run equilibrium market price is equal to the minimum long-run average cost of production. If subsidized construction programs increase housing output and decrease output of other goods when account is taken of both the subsidies and taxes needed to fund them, they lead to increases in the prices of inputs that are used most heavily in the production of housing relative to other goods and decreases of the prices of inputs used least heavily in the production of housing. The net effect of these changes in input prices is to increase the minimum long-run average cost of production of housing services and hence its long-run equilibrium market price. This is the standard explanation for an upward sloping long-run supply curve for a good. So subsidized construction programs lead to an increase in the long-run equilibrium price of housing services facing unsubsidized households. In the short run, subsidized construction programs decrease both demand and supply in the unsubsidized housing market. This gives us no reason to believe that these programs decrease the market price of housing services. However, no one has attempted to produce evidence about this matter.

A comprehensive analysis of the effects of the voucher program on market prices would consider not only housing prices but also the prices of other goods. If a housing voucher program (or indeed any housing program) does increase the consumption of housing services by recipients more than it decreases housing consumption by taxpayers thereby increasing total housing consumption, it must reduce the demand for nonhousing goods and hence their market prices unless the supply curves for all other goods are perfectly elastic. Taxing some people to provide housing assistance to others does not enable the economy to produce more of all goods. The changes in market prices of housing and other goods will benefit some consumers and hurt others. The change in the pattern of output will also lead to increased demand for some inputs and decreased demand for other inputs with resulting changes in input prices and hence gains to some and losses to others. To the best of our knowledge, these effects of housing programs have never been studied.

14.3.4.15 Crowding out of private provision

Many people with great influence on housing policy hold the simplistic view that subsidized construction programs add one unit to the housing stock for each unit built and

housing vouchers have no effect on the size of the housing stock, and these views are influential in leading them to support a very cost-ineffective approach to providing housing assistance. Murray (1983, 1999), Malpezzi and Vandell (2002), Sinai and Waldfogel (2005), and Eriksen and Rosenthal (2010) showed how far this simplistic view is from reality. They found very substantial crowding out of private provision by construction of subsidized projects, well above 50% in almost all studies and close to 100% in others. The results differ somewhat across studies in part because some deal only with the crowd out of unsubsidized new construction and others account for withdrawals of existing units from the housing stock.

A more sophisticated view is that new construction programs will increase the number of housing units, albeit not one for one, and that tenant-based housing vouchers will have little effect on the housing stock. However, as Murray (1999) had pointed out, all subsidized housing programs lead to an increase in the number of dwelling units by increasing the demand for distinct units. The offer of housing assistance of any type induces individuals and families living with others to live in their own units. Abt Associates Inc. et al. (2006, pp. 23, 76) indicated that about 26% of the families on the housing voucher waiting list were living with friends or relatives and 2% were living in a homeless shelter or transitional housing, and voucher usage resulted in corresponding decreases in these numbers. Since doubling up and homelessness are more common among the poorest households, the programs that serve the poorest households will have the greatest net effect on the number of housing units. The voucher program serves somewhat poorer households than public housing and much poorer households than privately owned subsidized projects as judged by *per capita* household income (Olsen, 2003, p. 393). Consistent with this explanation, Sinai and Waldfogel (2005) found that tenant-based vouchers lead to a larger increase in the housing stock than construction programs. This same phenomenon could explain the difference that Murray (1983, 1999) found in the extent to which public housing and privately owned projects crowd out unsubsidized construction. At the time of his data, public housing served much poorer households than private projects (Olsen and Ludwig, 2013, table 8.2). It also explains Eriksen and Rosenthal's finding of almost complete crowd out for the LIHTC. This program serves families with much higher incomes than the other programs.

14.3.4.16 Miscellaneous

Other research that does not deal directly with the performance of particular low-income housing programs provides important insights for housing policy development. The MTO research that focuses generally on the effects of living in a low-poverty neighborhood is in this category. It is relevant for decisions about the extent to which housing policies should promote economic integration. Another recent example is research confirming that the filtering process works well to supply housing to low-income households

(Rosenthal, 2014). This is relevant for decisions about the extent to which housing policies should rely on housing vouchers versus subsidized construction. A few studies such as Early and Olsen (2012, section 4) have estimated important effects of fundamental reforms of the current system designed to eliminate its substantial inefficiencies, inequities, and bias against homeownership.

14.3.5 Conclusion

The existing evidence on the performance of low-income rental housing programs in the United States suggests a number of conclusions. All major housing programs have increased substantially aggregate housing consumption by recipients and almost all have increased significantly their consumption of other goods. Voucher recipients have lived in slightly better neighborhoods as a result of the program, occupants of privately owned subsidized projects in slightly worse neighborhoods, and occupants of public housing projects in noticeably worse neighborhoods. All programs have increased aggregate housing consumption more than would have occurred if each participant had been given an unrestricted cash grant equal to his or her housing subsidy. The net effect of these changes in consumption patterns is that housing programs have typically provided large benefits to their recipients. Although mean benefit has been large compared with mean recipient income, it has been small compared with the cost to taxpayers. The mean benefit has been less than 75% of the mean subsidy for programs that have subsidized the construction of housing projects and about 80% for vouchers. For vouchers, the cost to taxpayers has exceeded the subsidy by the modest administrative cost. For housing projects, the cost to taxpayers has been much larger than the sum of the subsidy and administrative cost. The mean benefit of each program studied varies inversely with income and directly with family size, but the variance in real benefits among similar households is large under most programs.

US low-income rental housing programs have induced adult recipients to earn 10–15% less on average, and they have induced recipients to participate in other welfare programs at higher rates. They have had little effect on the health of recipients or the educational outcomes of the children in these households. They have induced many families that would have lived with others in the absence of housing assistance to live independently.

Most existing studies find small positive effects on neighbor property values of some housing programs and small negative effects for others. The magnitude and direction of these effects depend on the type of neighborhood involved. Housing programs have had small effects on the rents of unsubsidized units that are not located near subsidized units.

The most important finding of the empirical literature from the viewpoint of housing policy is that tenant-based housing vouchers have provided equally good housing at a much lower cost than any type of project-based assistance that has been studied. This

finding implies that a shift of all discretionary resources from programs of project-based assistance to tenant-based vouchers would enable us to provide several million additional households with adequate housing at an affordable rent without any increase in government expenditure.

Although important progress has been made over the past 15 years in understanding certain aspects of the performance of low-income housing programs, this review of the literature reveals many gaps and weaknesses in our knowledge.

For several large programs, there is little or no evidence on most aspects of performance. Evidence on the programs that have accounted for the bulk of additional housing assistance over the past 15 years is especially meager. There is no credible evidence about the performance of the HOME Investment Partnerships Program, a housing block grant to state and local governments that has existed for more than two decades and spends almost $2 billion a year. Due to the dearth of easily accessible data on the characteristics of the occupants of tax credit units and the nature of their housing and the abundance of data on the number of units built and their location, the limited research on the tax credit program has focused on a few aspects of its performance, primarily on its effects on the neighborhoods in which the projects are located and the extent to which it has crowded out private construction.

This survey also reveals a dearth of recent evidence on the performance of programs that no longer subsidize the construction of housing projects but continue to subsidize their operation. These programs account for about 40% of the budget for low-income rental housing assistance and serve a similar fraction of all recipients of this assistance. Evidence on their performance is important for making good decisions about discretionary expenditures on these programs.

There is no evidence about some potentially important effects of housing programs such as the consumption distortions that result from the method used to ration dwelling units in housing projects, namely, offering the family that reaches the top of the waiting list an all-or-nothing choice of a particular unit. Evidence on many other outcomes such as the health of recipients and the educational achievements of children in these households is sparse. Evidence on still other important outcomes is old and suffers from selection bias. As a result, we don't have good answers to key questions such as whether current housing programs lead to greater overall consumption of housing services than would result from unrestricted cash grants in amounts equal to the housing subsidy or taxpayer cost.

There is no recent high-quality evidence of the cost-effectiveness of different methods of delivering housing assistance such as discretionary expenditures on the LIHTC and HOME programs, renewals of use agreements with owners of privately owned subsidized projects, and public housing operating and modernization subsidies to guide the allocation of funds across programs. Evidence on this matter is particularly important because previous research suggests that cost-effectiveness in providing housing is the largest and most consequential difference in the performance of different housing programs.

Because no studies in the past two decades and few studies before then compare the consumption patterns of recipients of housing assistance with what their consumption patterns would have been had they been given equally costly unrestricted cash grants, it is impossible to say whether current housing programs are consistent with their rationales. Do they induce recipients with the weakest taste for housing relative to other goods to occupy better units than would result from cash grants? Do they induce recipients with the strongest taste for housing relative to other goods to occupy worse units? Housing programs must have these outcomes in order to be consistent with their primary rationales. Our knowledge of the tangible external effects of low-income housing programs also leaves much to be desired. For example, what housing features generate the tangible external benefits? Without the answer to this question, it is impossible to design a cost-effective housing subsidy to address the external effect.

Although governments in many other countries play a much larger role in providing housing assistance to low-income households, the English-language literature about the performance of housing programs outside the United States is extremely modest.[26] It is possible that there is a plethora of excellent studies in the native languages of these countries, but we are skeptical. One problem that has dogged scholars studying the effects of low-income housing programs outside the United States is a dearth of data on detailed characteristics of housing units and their neighborhoods. It appears that other countries do not have a data set nearly as detailed as the American Housing Survey in these regards. This has made it difficult to disentangle the effects of the programs on the price as opposed to the quantity of housing services. Since different programs in the same broad category such as public housing can have very different structures in different countries, they might have very different outcomes. Indeed, due to differences in regulations of private markets across different countries, it is reasonable to expect some differences in the effects of identical programs across countries. For these reasons, research on the performance of the large housing programs outside the United States would contribute greatly to housing policy development in these countries.

The available empirical evidence has much to contribute to the design of housing policy reforms. However, the magnitude of the public expenditures involved argues for producing better information on which to base these decisions. Evidence based on recent data on the full range of major housing programs for low-income households is badly needed.

[26] The UN-Habitat's Adequate Housing Series (http://unhabitat.org/series/adequate-housing-series/) describes housing policies throughout the world. Whitehead and Scanlon (2007) provided a more detailed account for European countries. Bingley and Walker (2001), Gibbons and Manning (2006), Hills (1991), Laferrere and Le Blanc (2004), Le Blanc and Laferrere (2001), Lui and Suen (2011), and Wong and Liu (1988) analyzed some effects of a few of these programs.

14.4. US HOMEOWNERSHIP POLICY

US housing policy can affect the homeownership rate directly through the tax system and indirectly though the mortgage market. The former includes the tax exemption for mortgage interest and local property taxes, the nontaxation of homeowners' imputed rental income, and tax-exempt bond financing (such as mortgage revenue bonds). Given that these topics have been covered extensively in the literature, we will focus on the impact US policy has had on the mortgage market and how this translates into changes in the homeownership rate.[27]

Many political leaders have argued for government policies to promote homeownership on the grounds that homeownership is the "American Dream." As Shaun Donovan, Secretary of HUD, recently put it in a White House blog, "owning a home was a symbol of responsibility and a source of security for millions of middle-class families across the country."[28] As such, homeownership has been actively promoted by the federal government, first by Presidents Hoover and FDR but most recently by Presidents Reagan, Carter, Clinton, George W. Bush, and Obama.[29] HUD's goal was to reach a 70% homeownership rate by 2006 (in fact it reached 69% in 2004).[30] Federal housing policy is based on the premise that the homeownership rate that results from market forces alone is suboptimal. We discuss justifications for promoting homeownership in Section 14.4.1.

US housing policy that is related to the mortgage market began as a direct response to the severe problems in the housing market brought on by the Great Depression. This is where our analysis begins and continues up to the recent financial and housing crisis. To provide context for our analysis, we present data on the US homeownership rate starting in 1890 in Section 14.4.2 and then a brief history of the role of the federal government in the mortgage market in Section 14.4.3.

We next address the issue of whether there is any causal evidence linking federal intervention in the mortgage market to homeownership rates in Section 14.4.4. This includes an analysis of whether the affordable housing goals as established in the CRA in 1977 and

[27] Hilber and Turner (2014) concluded that the existing literature finds little impact of the mortgage interest rate deduction on the homeownership rate, though they show that a positive impact occurs for higher-income households in MSAs with low levels of land use restrictions. Durning and Quigley (1985) and Benjamin and Sirmans (1987) showed that the subsidies provided to homebuyers through mortgage revenue bonds are capitalized into house prices and hence are not likely to have a significant impact on the homeownership rate.

[28] http://www.whitehouse.gov/blog/2013/08/06/promoting-american-dream-homeownership.

[29] Hardaway (2009, p. 46) says, "Although there appears to be a common perception that it was President Roosevelt's New Deal that first fostered the notion of home ownership as a national ideal, it was, in fact, Herbert Hoover who in 1932 pushed through the Federal Home Loan Bank Act of 1932, with the purpose of providing liquidity to mortgage lenders, creating a secondary market, and 'promoting home ownership.'"

[30] See Gabriel (2001).

in the GSE Act of 1992 had any role in the recent financial crisis. One can think of a foreclosure as a loss of homeownership so we look at the role of federal and state policies that relate to foreclosure rates. We then analyze the effectiveness of the policies that the federal government enacted to ease the severity of the recent housing market/foreclosure crisis in Section 14.4.5. We end this section with a summary of our assessment of the empirical literature that evaluates state and federal interventions in the mortgage market (Section 14.4.6).

14.4.1 Justifications for promoting homeownership

Relatively speaking, US homeownership policy has not targeted low-income households so its justifications are different from those for low-income rental assistance. We now describe five rationales for homeownership that have appeared in the literature. First, positive externalities can justify policies that promote homeownership. These externalities include increased exterior maintenance, household and neighborhood stability, becoming more "vested" in maintaining local public goods, more civic engagement, and general increases in social capital (Green and White, 1997; DiPasquale and Glaeser, 1999; Coulson et al., 2003; Dietz and Haurin, 2003; Hilber and Mayer, 2009; Coulson and Li, 2013). It has been argued that neighborhood improvement that results from homeownership is particularly valuable in low-income areas (Shlay, 2006). There is also some evidence that homeownership also benefits children and these benefits are typically not fully internalized into homeownership decisions (Green and White, 1997; Boehm and Schlottmann, 1999; Harkness and Newman, 2003).

Second, another externality relates to the lack of information in thin markets. The argument is that originators base their decision to accept or reject a mortgage application based on the appraisal value of the home. Since appraisal values are based on comparables, the more transactions that occur nearby, the more accurate will be the appraisal. If the local market is thin, as it can be for low-income neighborhoods, appraisals will be measured with more error and this increased risk can lead originators to reject some marginal loans. By promoting transactions in the underserved areas, government action can help to overcome this lack of information (Harrison et al., 2002; Voicu et al., 2014).

Third, imperfections in the mortgage market can motivate government involvement. In particular, information asymmetries between borrowers and lenders can result in the classic lemons problem where only risky borrowers buy loans at interest rates that are too high for low-risk borrowers to participate in the market. This can justify the existence of government agencies that promote liquidity in the primary mortgage market. This seems to be particularly relevant during economic crises such as the Great Depression and the Great Recession. A second source of information asymmetry exists between mortgage originators and purchasers in the secondary market where originators have more knowledge about the quality of loans and have an incentive to sell the riskier loans. Again, this

can result in illiquidity in the secondary market. Government involvement can promote liquidity in the secondary market, particularly during times of great financial distress (Glaeser, 2010).

Fourth, discrimination in the mortgage market can exist. This can result in credit not being extended to creditworthy borrowers because of unrelated characteristics such as race. As noted by Avery et al. (2005), extending credit to these underserved groups should result in an increase in profitable lending.

Fifth, for homeowners, housing is their largest asset. So house price appreciation is an important means for increasing household asset holdings, particularly for low-income households (Belsky and Duda, 2002; Boehm and Schlottmann, 2008; Herbert et al., 2014). Furthermore, paying down the mortgage principal can be seen as a savings mechanism that adds to home equity. Generally, this asset accumulation and savings are viewed as a positive outcome for the economy. Given that households do not fully internalize the value of homeownership as a means for asset accumulation, there is a role for government involvement.

For the most part, the net benefits of addressing these market imperfections have not been accurately measured, so whether federal involvement in the housing market has improved the situation from an economic standpoint is largely an open question. As previously mentioned, a primary and longstanding federal justification for promotion of homeownership is that it is the "American Dream." Based on this discussion, it is not clear that the federal interventions motivated by this belief have been welfare improving. Bearing this in mind, we focus on a thorough investigation of the empirical work examining the impact of federal intervention in the mortgage market on homeownership rates and the government response to the housing crisis in Sections 14.4.4 and 14.4.5.

14.4.2 The homeownership rate in the United States

The homeownership rate starting in 1890 is plotted in Figure 14.1. Figure 14.2 plots the annual rate starting in 1965 when information is available on a yearly basis. The homeownership rate was fairly steady (46–49%) between 1890 and 1930. It then fell by 5 percentage points as a result of the Great Depression and bottomed out at 43.6% in 1940. It then grew by an astronomical 11.4 percentage points over the next decade and by 6.9 percentage points between 1950 and 1960 to a rate of 61.9%. A fact that has gone unrecognized in much of the recent economics literature is that more than half of the overall increase over these two decades took place by the end of 1945 (Fetter, 2013b). The homeownership rate increased by only 1 percentage point between 1965 (63.0%) and 1994 (64.0%). It then steadily increased and peaked in 2004 at a rate of 69.0%. The ensuing housing crisis has resulted in a slow and steady decline to a rate of 65.1% in 2013, which erased most of the gain made in the previous 10 years.

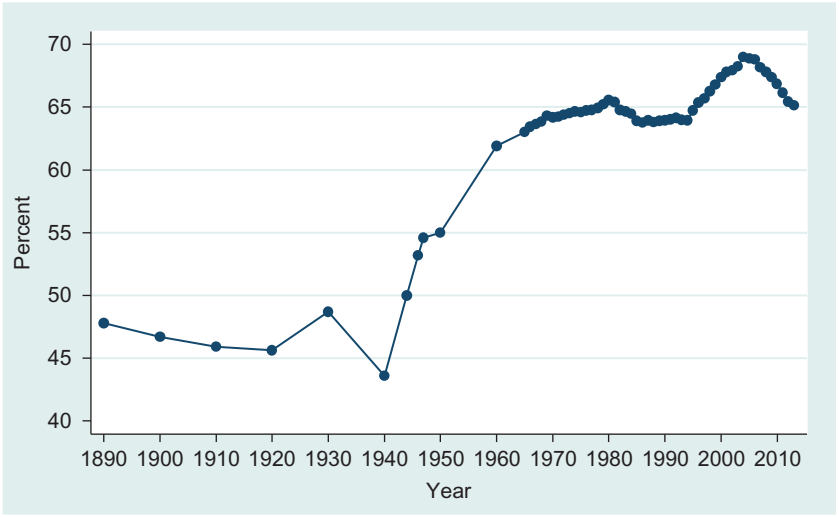

Figure 14.1 US homeownership rate: 1890–2012. *Source: National Historical Geographic Information System, US Census Bureau, and Fetter (2013a,b).*

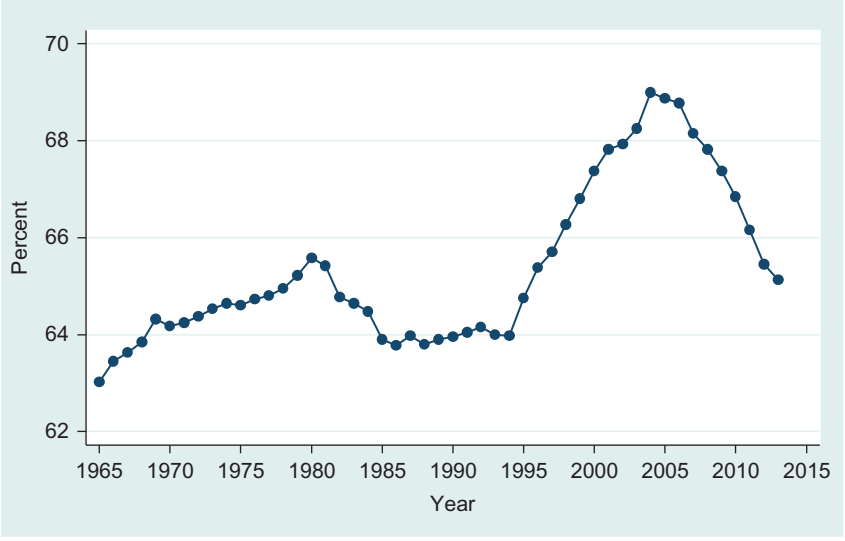

Figure 14.2 US homeownership rate: 1965–2013. *Source: US Census Bureau Housing Vacancy Survey.*

The black homeownership rate is estimated to be 24.6% in 1930 and 22.8% in 1940. The homeownership rate by race and ethnicity is given in Figure 14.3 for 1994–2013. There was actually a decline in the black homeownership rate between 1980 and 1995 before it rose by about 7 percentage points over the next 9 years, ending at its highest level

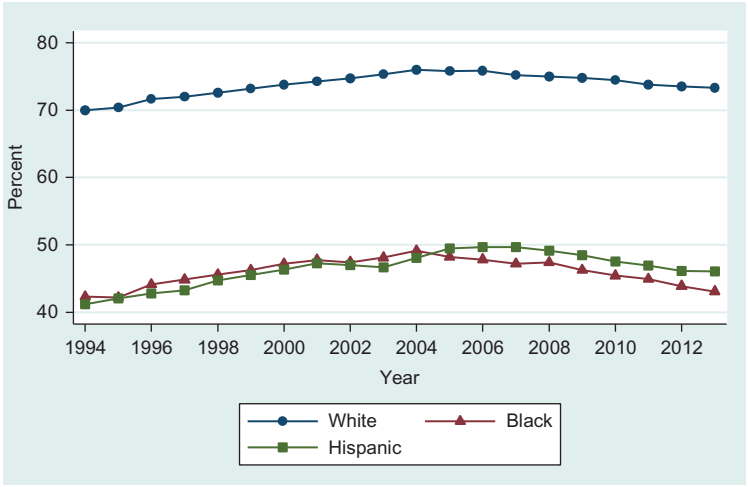

Figure 14.3 US homeownership rate by race/ethnicity: 1994–2013. *Source: US Census Bureau Housing Vacancy Survey.*

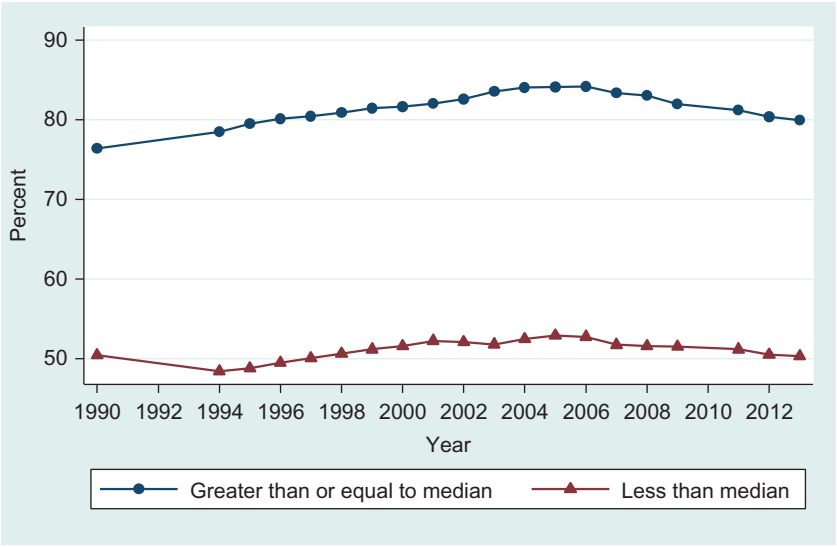

Figure 14.4 US homeownership rate by income: 1990–2013. *Source: US Census Bureau Housing Vacancy Survey and NHGIS.*

ever at 49.1% in 2004. It then declined by 6 percentage points to a level similar to what it was in 1990 but lower by about 1 percentage point than the level in 1980.

Figure 14.4 plots the homeownership rate by two income groups: those with family incomes below the median and those with family incomes greater than or equal to the

median for 1990–2013. What is clear is that any attempt to increase homeownership for the lower half of the population in terms of family income has not been successful. First, note that the rate actually decreased from 50.4% in 1990 to 48.4% in 1994. Second, while the homeownership rate for the lower half did increase to 52.9% in 2005, it has fallen back to 50.3% in 2013—almost identical to the rate in 1990.

The question to answer is what role did the federal government play in determining the US homeownership rate? There are two means through which the federal government has promoted homeownership: the tax (and subsidy) system and the regulation, support, and participation in the mortgage market. We will focus on the latter, particularly as it relates to the recent financial crisis.

14.4.3 The history of the federal role in the mortgage market

The federal government involvement in the mortgage market has been a complex story that involves a dizzying array of agencies, programs, laws, and policies (and acronyms!). It has witnessed the evolution of the mortgage instrument from a short-term, nonamortizing, balloon payment product with low loan-to-value (LTV) ratios to the very complicated array of choices that exist today. This occurred during and potentially affected wide swings in the housing market including the recent financial/housing crisis. And as just discussed, this has all happened when there have been large changes in the homeownership rate in the United States. In order to fully understand the causal link between policies that are related to the mortgage market and the homeownership rate, it is crucial to provide a brief history of the federal role in the mortgage market. For example, to understand what part the GSEs may have had in the recent financial crisis and how this may have affected the homeownership rate, it is useful to have knowledge of their genesis and evolving role in the mortgage market.

This brief summary of the history of the federal involvement in the mortgage market starts in the early 1930s and covers through the recent financial crisis. We will then take up the government response to the financial crisis and its effectiveness in curtailing the resulting foreclosure problem later in this section. As just mentioned, the structure of the mortgage instrument has changed dramatically, and we provide a brief summary of its evolution in Section 14.4.3.1. Two facets of the mortgage market that have been viewed as important factors in the recent financial crisis are the efforts of the federal government to promote homeownership among low-income and minority households and the evolution of the mortgage market securitization process. We finish this section with a short discussion of their roles in the mortgage market before turning to an analysis of the causal impact of state and federal policies on the homeownership rate in the next section.

The federal government was compelled to intervene as a result of the devastating impact that the Great Depression had on the housing market. The Federal Home Loan Bank Act of 1932 and the Home Owners' Loan Corporation (HOLC) Act of 1933 were

the first responses to the problems brought on by the Great Depression. The former created the Federal Home Loan Bank Board (FHLBB) that oversaw the system of 12 Federal Home Loan Banks (FHLBanks). The FHLBanks were owned by the savings and loan associations that joined the system. One purpose of the FHLBanks was to provide liquidity to the mortgage market; members of each FHLBank could borrow from the FHLBank at low rates. To become a member, individual savings and loan associations had to purchase stock in the FHLBank. In return, they gained access to the loans and received dividends based on the amount of stock they owned.[31] The Home Owners Loan Corporation Act established the HOLC to purchase and refinance distressed mortgages. This was in response to the high foreclosure rates that resulted from high real interest rates (due, in part, to deflation) and falling house prices during the Great Depression (Immergluck, 2009).

The bellwether policy was the National Housing Act (NHA) of 1934.[32] The NHA authorized the FHA insurance program that provided a government guarantee to home mortgages. Carliner (1998) pointed out that while this did bring support to the mortgage market, the original intention of FHA was to jump-start the housing construction industry.[33] One way the FHA could do this was to make it possible for more households to purchase homes by lowering the down payment requirement; typically, it was 50–60% and FHA lowered it to 25%. To get lenders to make these loans, the FHA insured them by charging borrowers an insurance premium that went into a fund to cover default losses (Green, 2014).

After a failed attempt to establish a private secondary mortgage market that would increase the willingness of lenders to make the FHA-insured loans for this relatively novel mortgage product, the federal government created the Federal National Mortgage Association (aka Fannie Mae) in 1938 to purchase these mortgages from banks (Jaffee and Quigley, 2013). Fannie Mae could borrow money in the capital markets at reduced rates since it had the backing of the federal government. Despite Fannie Mae's recent prominence, it was not initially a big holder of FHA-insured loans (which were held primarily by insurance companies; Carliner, 1998).

Government intervention in the mortgage market was expanded in the 1944 GI Bill of Rights. This created the Veterans Administration (VA) loan guarantee program for veterans and active duty servicemen as a benefit for military service, though the VA program was also seen as a way of stimulating the housing market (Green and Wachter, 2005). VA loans were capped (as were FHA loans) though the cap did increase over time

[31] See http://en.wikipedia.org/wiki/Federal_Home_Loan_Banks.

[32] The NHA also created the Federal Savings and Loan Insurance Corporation.

[33] von Hoffman (2012) pointed out that much of the federal housing policy was strongly influenced by two competing ideological groups: the "public housers" who believed in government-funded housing and the private housing industry who believed that the government's role should be to aid private business.

($4000 in 1945 and $7500 in 1950). The big impact of the VA mortgage program was to lower the down payment needed for a loan. It substantially increased the presence of government programs in the mortgage market.

In 1940, FHA mortgages made up 13.5% of the mortgage market (in $ amount) and this increased to 24.7% in 1945, the year the VA loans were first offered. By 1951, the two programs accounted for 44.1% of the market with VA loans accounting for 59% of the dollar value of the loans of the two programs.[34] Starting at the end of this decade, there was a steady decline in the share of the market attributable to the FHA and VA such that by the end of the 1990s, they accounted for less than 15% of the total dollar value of mortgages (see Figure 14.5). Part of this decline was due to gradual concentration of FHA loans in the lower income segment of the population. This arose because of the federal push in the 1960s to better serve low-income families and minorities, because of the lowering of down payment requirements, and because the FHA loan limit did not keep pace with rise in house prices to the point that it only covered households with incomes below the area median income. The decline in FHA influence was also fueled by political opposition in the 1970s to the redistributional motives of the program. Furthermore, the FHA became a part of HUD in 1965, and reorganization of HUD in 1969 and 1970 had an adverse impact on the structure and organization of FHA (Vandell, 1995). Increased competition from private mortgage insurers and the GSEs also contributed to FHA's decline.

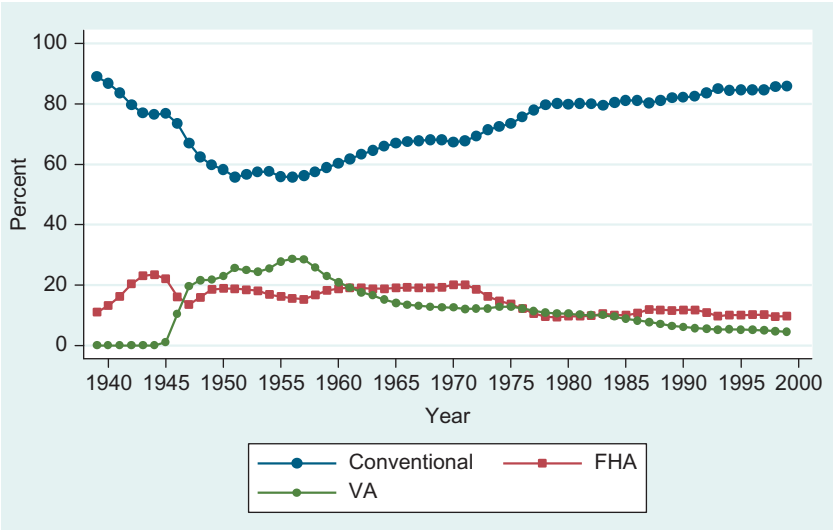

Figure 14.5 Total mortgage debt by type of mortgage written one-to-four nonfarm family homes: 1939–1999. *Source: Snowden (2006), Series Dc929–949.*

[34] This information comes from Chambers et al. (2013) who cited Grebler et al. (1956) as the source of the data.

Historically, the FHA has been self-financing by charging enough for its mortgage insurance to cover costs. But it faced two periods of financial troubles that also added to its demise. In 1989, an independent review by Price Waterhouse found that FHA had been underpricing its mortgage insurance for a decade, and this led to a significant decline in the FHA's Mutual Mortgage Insurance Fund. A number of government actions, including the Cranston-Gonzalez National Affordable Housing Act, led to FHA regaining actuarial soundness by 1995 (Szymanoski et al., 2012). Seller funding of down payment "gifts" from nonprofit or charitable organizations to loans with inflated house prices that allowed the sellers to recoup their money was made to households with weak credit histories who ended up defaulting at high rates. This type of loan made up 30% of FHA loans in 2005–2007 (Szymanoski et al., 2012).

Low and steady interest rates in the late 1940s through the early 1960s was a perfect scenario for commercial banks and particularly the savings and loan industry to provide mortgages. Individuals could get a better return than T-bills with little risk by depositing their money in banks, and the banks, in turn, could use these funds to purchase mortgages. The increase in the inflation rate in the second half of the 1960s led to T-bills having a higher return than what banks could pay since, under Regulation Q, the banks' interest rates were capped at a rate below the prevailing T-bill rate. This led to an exodus from banks. Furthermore, a slump in residential construction in the mid-1960s and an expected increase in housing demand spurred by baby boomers led to the HUD Act of 1968. This act made Fannie Mae a private company with stock listed on the New York Stock Exchange (NYSE). Fannie Mae could now purchase and sell conventional nongovernment-insured mortgages. An additional motivation for making Fannie Mae a private corporation was that the government was able to remove Fannie Mae's debt from its balance sheet. At the same time, a new agency, the Government National Mortgage Association (Ginnie Mae), was created to continue purchasing and securitizing loans insured by the FHA and the VA.

Fannie Mae still retained ties to the federal government due to the federal government's implicit guarantee of loans that it purchased. It also has other privileges such as exemption from state and local taxes. In return for having these benefits, Fannie Mae was obliged to assist mortgage funding for low- and moderate- income families and underserved parts of urban areas.

Two years later, at the behest of the thrifts who wanted similar status as the commercial banks, the Emergency Home Finance Act (EHFA) of 1970 was passed. EHFA created the Federal Home Loan Mortgage Corporation (aka Freddie Mac) under the control of the FHLBB. Originally, Freddie Mac was owned by the 12 FHLBanks and by S&Ls that were members of the FHLB system. It was privatized in 1989 with stock listed on the NYSE but with the same special privileges as Fannie Mae. Together, Fannie Mae and Freddie Mac are referred to as GSEs.

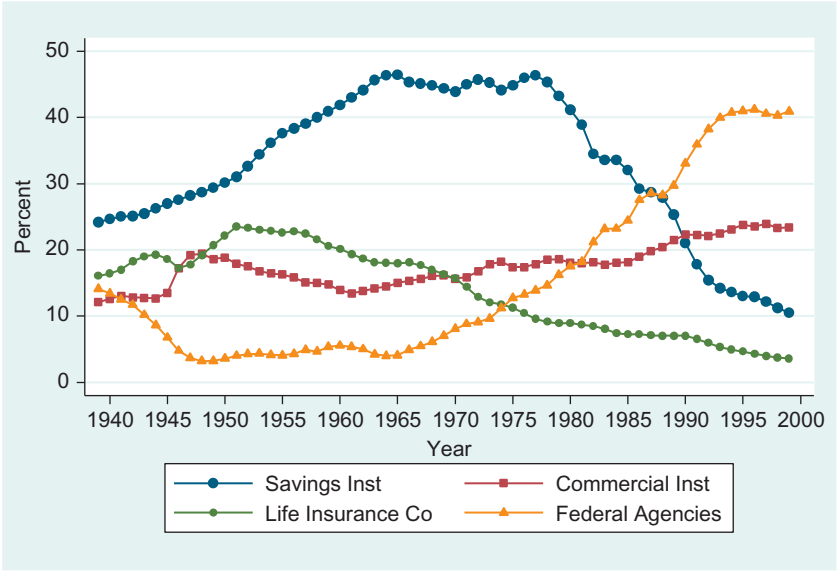

Figure 14.6 Percent of total mortgage debt by holder: 1939–1999. *Source: Snowden (2006), Series Dc929–949.*

Figure 14.6 plots the market shares of total outstanding mortgage debt held or securitized by savings institutions, commercial banks, life insurance companies, and federal and federally related agencies. The latter include FHA, VA, and the GSEs. One can see that the federal and federally related agencies had the smallest holdings of these four groups until 1975. Over the next 20 years, there was a dramatic rise in the market share held or securitized by federal agencies from around 10% to 40%. As of 1999, they held 41% of total outstanding mortgage debt and commercial banks held the next largest share of 23%. The combined GSE share of outstanding mortgage debt was around 25% in 1990 and grew to more than 46% in 2003. Over the next 3 years, its share declined to less than 39% due to the increased activity by private entities (see Figure 14.7).

14.4.3.1 The evolving structure of mortgages

The structure of mortgages has changed dramatically since HOLC was established in 1933 and the FHA was first formed in 1934. Table 14.2 provides information on the structure of mortgages for one-unit, owner-occupied properties starting in 1920. Prior to FHA, mortgages were typically short term (5–10 years), with no amortization and with a balloon payment at the end. The typical LTV was 50–60%. These loans were usually refinanced on a regular basis so as to avoid the balloon payment. But the Great Depression resulted in falling house prices (for example, see figure 3 in Rose, 2011) and lenders were unwilling to refinance loans, which led to a dramatic rise in foreclosures and a huge contraction in the mortgage market.

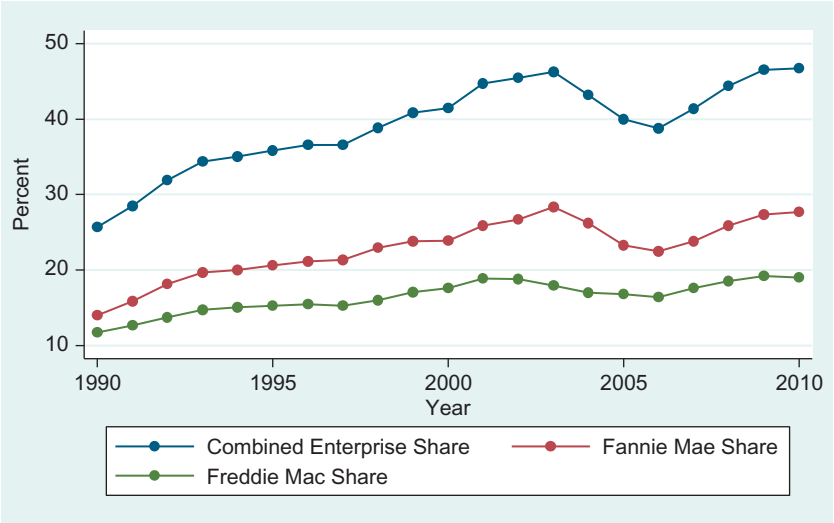

Figure 14.7 Fannie Mae and Freddie Mac's share of outstanding mortgage debt: 1990–2010. *Source: FHFA.*

Table 14.2 Loan terms on one-unit, owner-occupied properties

	1920	1950	1960	1970	1990	2000
Median LTV (%)	50–60	75	79	84	85	91
VA		91	91	95	100	100+
FHA		79	83	93	100	99
Conventional		66	68	77	77	94
Percent with LTV ≥ 100		12	9	14	29	29.5
VA		32	20	34	40	64
FHA		1	3	12	32	42
Conventional		9	6	10	27	12
Median loan term (years)	5–11	13	20	25	30	30+
VA		20	25	29	30	30+
FHA		20	24	29	30	30+
Conventional		11	15	21	25	30+
Median interest rate	6–7	5	5.1	6	9.5–9.9	7.1
VA		4	4.5	5.4	9.1–9.4	7.9
FHA		4.5	4.6	5.8	9.5–9.9	8.0
Conventional		5	5.6	6	9.5–9.9	7.2

Notes: Data for 1920–1970 are from Fetter (2013a). Data for 1990 and 2000 are from the US Census Bureau's Residential Finance Survey and represent the stock of first mortgages. Loan-to-value (LTV) is defined as the amount of the first mortgage loan as a percent of purchase price, for properties acquired by purchase with first mortgage made or assumed at time of purchase. Conventional loans are mortgages without government insurance.

One of FHA's largest influences was the popularization of a standardized mortgage instrument—a 20-year, fully amortizing loan with a 20% down payment requirement. But as Carliner (1998) noted, the initial features of the FHA such as strict appraisals, new standards of construction and design, and escrow of tax and insurance payments were implemented to reduce risk rather than increase the homeownership rate.

As Rose and Snowden (2013) documented, though, the FHA did not create the fully amortizing loan. It was first introduced to the United States through the buildings and loan (B&L) industry in general and specifically through the B&L institutions in Dayton, Ohio, in the 1870s and 1880s. The gradual adoption of the amortizing loan was due to innovations that made it beneficial from a cost–benefit standpoint. But it was not until the 1930s when the more common loan structure known as the share accumulation contract resulted in high failure rates that the amortizing loan became significantly more popular in the B&L industry. Rose and Snowden pointed out that this transformation was not directly due to FHA and the HOLC since the B&Ls did not make much use of the FHA insurance program. It is likely that FHA provided indirect pressure in the form of competition for loans with the B&Ls.

As of 1950, VA and FHA loans tended to be longer term (e.g., 20 or 25 years) and to have lower down payments and interest rates (VA loans often had no down payment) than conventional mortgages. The median LTV for VA mortgages was 91; for FHA, it was around 80; and for conventional mortgages, it was 66. The median loan term was 20 years for VA and FHA mortgages and 11 years for conventional mortgages. There was a slow upward trajectory in LTV over the next 40 years, particularly in FHA mortgages, so that by 1990, the median LTV was 100 for both VA and FHA mortgages and was 77 for conventional mortgages. By 1990, the median loan term increased to 30 years for VA and FHA mortgages and to 25 for conventional mortgages.

Prior to 1980, a very large percentage of mortgages were fixed-rate mortgages. The high inflation rates of the early 1980s led to major problems for the savings and loan industry that was saddled with interest rate ceilings. In order to provide relief, the federal government deregulated the S&Ls by abolishing interest rate ceilings on first-lien residential mortgages (Depository Institutions Deregulation and Monetary Control Act (DIDMCA) of 1980) and allowing for adjustable rate mortgages (ARMs) (Garn–St. Germain Depository Institutions Act of 1982). ARMs typically have a lower initial "teaser rate" that adjusts to a higher rate at a prespecified point in the life of the loan. One version that dates back to this period is called the payment-option ARM with one of multiple options that allows for a monthly payment that is less than the interest due on the loan. This leads to an increase in the principal of the mortgage. This became a popular product in parts of the country. For example, one-third of all loans in California in 1996 were payment-option ARMs (Foote et al., 2012). The obvious advantage to the borrower was the lower initial payments that made it more affordable in the short run. The impact of this deregulation on the structure of mortgages was focused on the

conventional loan market where the median LTV increased from 77 in 1990 to 94 in 2000 (Table 14.2). While the intention was aimed at revitalizing the savings and loan industry, many see these deregulations as setting the stage for the subprime mortgage crisis in the 2000s (Office of Policy Development and Research of the US Department of Housing and Urban Development, 2010).

The evolution of the mortgage market after the deregulation in the early 1980s was a slow and gradual process. To a large extent, it is characterized by the evolution of the subprime market that did not experience significant growth until the mid-1990s when there was a surge in refinance loans (subprime purchase loans also increased but at a slower rate). These loans were typically used to cash out on home equity rather than to lower interest rates. They tended to be 30-year fixed-rate mortgages with higher rates, fees, and prepayment penalties than prime mortgages (Immergluck, 2009). In response to the increase in the origination of subprime loans, Congress passed the Home Ownership and Equity Protection Act (HOEPA) in 1994. HOEPA imposed significant restrictions on the lending terms and practices of "high-cost" loans though it only covered approximately 5% of subprime loans (Bostic et al., 2008). Surprisingly, Ho and Pennington-Cross (2007) and Bostic et al. (2008) found evidence that such restrictions can actually increase subprime lending since they reduce borrowers' fears of predation and hence increase the likelihood of subprime originations.

Starting in 2001, there was a large increase in subprime purchase loans; the number almost doubled from 1.1 million in 2003 to 1.9 million in 2005. Furthermore, Alt-A loan originations more than tripled over this period such that, in dollar terms, nonprime loans made up 32% of all mortgage originations in 2005 (Mayer et al., 2009).[35] These subprime loans tended to be ARMs with low down payments, much higher debt-to-income ratios, and features such as no- or low-documentation, interest-only, and negative amortization. Another new type of mortgage was known as the piggyback loan that was used to avoid paying private mortgage insurance. Buyers would take out a first mortgage with an LTV of 80 and then finance the down payment with a second loan. So, effectively, the LTV was 100.

Mayer et al. (2009) analyzed loan performance data for the 2003–2007 period. They found that 75% of the subprime mortgages in their sample were ARMs with lower "teaser" rates for the first 2 years. Alt-A loans consisted of a substantially higher percentage of fixed-rate mortgages. The share of subprime piggyback loans increased from 7% in 2003 to 28% in 2006, whereas this share for Alt-A loans increased from 12% in 2003 to 42% in 2006. About a third of subprime loans were no- or low-documentation loans, whereas more than two-thirds of Alt-A loans had this property.

[35] Subprime mortgages are typically made to individuals with poor credit ratings (FICO score below 640) though the working definition of subprime mortgages has changed over time. Alt-A mortgages are considered to be riskier than conforming mortgages that are purchased by the GSEs. A typical reason is that there is no borrower income documentation.

Mayer et al. (2009) found little evidence that the significant rise in delinquencies and defaults starting around the beginning of 2007 was linked to the proliferation of new and novel mortgages such as ARMs with initial teaser rates, mortgages with prepayment penalties, negative amortization, and interest-only mortgages. Rather, the authors attribute the higher defaults to the deterioration in lending standards. First, there was a large increase in subprime mortgages that defaulted soon after origination. Between 2000 and 2004, 1.5% of subprime mortgages defaulted within a year of origination, whereas 12% of 2007 originations did so. That is, underwriting standards fell so dramatically that borrowers were essentially unable to make payments right from the start. Second, the higher LTV ratios in conjunction with falling house prices meant that borrowers were quickly underwater and this increased their motivation to default. These risky borrowers were unlikely to have been approved for more standard fixed-rate, prime mortgages with larger down payments. As we discuss below, the rise in defaults and ultimately foreclosures likely led to the significant drop in the homeownership rate starting in 2009.

14.4.3.2 Low-income and minority homeownership policy

The homeownership rate for low-income households has always been significantly lower than that for higher-income households (see Figure 14.4). The federal government has tailored some of its housing policies toward reducing this gap by promoting homeownership among low-income households. The rationale for this can be explained by the general belief in homeownership as the American Dream. It was also felt that promoting homeownership for low-income households that meets a minimum housing standard can improve on behavioral, social, economic, and neighborhood conditions that are particularly bad for this group (Shlay, 2006).

Starting in 1938, the FHA began to insure 25-year loans with a maximum LTV of 90% to low-income households as a way of expanding homeownership opportunities to this segment of society. The cap on these loans was set at $5400, whereas the initial cap for FHA-insured loans was set at $16,000, which was well above the average house value at the time. The number of FHA-insured loans that went to low-income households was minimal until the 1960s. This can be explained, in part, by the FHA underwriting standards that limited loans in minority areas. These racially biased standards were overturned by President Kennedy in 1962 (Carliner, 1998).

As of the early 1960s, the federal government had done little to promote homeownership among low-income households. This changed with Section 235 of the HUD Act of 1968 that subsidized the construction of new housing to be sold to low-income households and also subsidized loans to low-income households for existing properties. There was a negligible down payment and annual payments were limited to a maximum of 20% of income or 1% annual interest.

With a large goal of building 26 million units over 10 years, construction was expedited and FHA oversight was corrupt as substandard units were built and sold at inflated

prices. This resulted in high foreclosure rates (Olsen and Ludwig, 2013). Despite the accelerated process, Section 235 only financed around 400,000 homes for low- and moderate-income families by the beginning of 1973. One reason for the low uptake was that the main source of information about the program was the real estate industry and not the local offices of the FHA (Olsen, 2007a). Furthermore, Section 235 was criticized for not serving the truly needy. Section 235 was shutdown in 1973 due to the scandals surrounding its implementation. It was reinstated in 1976 with a higher interest rate and larger down payment and resulted in about 125,000 loans before it was permanently ended in 1987.

A more successful though less well-known federal program that subsidized low-income homeownership was a provision of the Farmers Home Administration Section 502 program that helped provide mortgages in rural areas. This provision was also enacted in 1968 and provided subsidies to rural households with incomes below 80% of local area median family income. More than 1 million loans were originated under this program between 1969 and 1993 (Carliner, 1998). This was almost twice as many as under Section 235.

A federal block grant program that focuses on providing funding for low- and moderate-income housing is the HOME Investment Partnership Program. It was authorized as Title II of the Cranston-Gonzalez National Affordable Housing Act of 1990 and allocates about $2 billion a year in federal funds to state and local governments. In 2002, state and local governments devoted about 48% of their HOME budget to homeownership assistance in the form of subsidized loans for home rehabilitation and homebuyer assistance. Through 2002, HOME subsidized more than a quarter-million homebuyers (Turnham et al., 2004).

Racial discrimination and redlining (purposely limiting financing in areas based on their racial characteristics) has had a long history in the US housing market. If anything, the FHA promoted discriminatory lending practices through the use of an underwriting standard of neighborhood (racial) homogeneity that was typically enforced through restrictive covenants. Despite being outlawed by the Fair Housing Act of 1968 (Section VIII of the Civil Rights Act of 1968), evidence emerged in the early 1970s that banks were still redlining and that minorities were being denied credit (e.g., Munnell et al., 1996). Access to credit was limited in low-income and high-minority areas as banks were taking deposits in branches in these areas and then originating loans elsewhere. All this motivated the Home Mortgage Disclosure Act (HMDA) that was enacted in 1975 and the CRA that was passed in 1977 under President Carter. The CRA stipulated that commercial banks and thrifts with branches in moderate- and low-income areas meet the needs of borrowers in these areas. These institutions are periodically (every 2 or 5 years) audited to see if they are meeting the CRA goals. The outcome of the evaluation is a rating of "outstanding," "satisfactory," "needs to improve," or "substantial noncompliance." The motivation for banks to show reasonable

performance is that this rating is considered when banks apply for mergers, charters, deposit insurance, or office relocation.

In the late 1980s and early 1990s, Fannie Mae and Freddie Mac were also seen to be encouraging lending in higher-income areas while making it more difficult for loans to be originated in low-income neighborhoods through its underwriting practices (Immergluck, 2009). This led to the Federal Housing Enterprises Financial Safety and Soundness Act of 1992 (the 1992 GSE Act) that mandated the GSEs to purchase a certain percentage of loans originated in low- to moderate-income tracts or to low- to moderate-income borrowers. The GSE Act also set up a new entity within HUD, the Office of Federal Housing Enterprise Oversight (OFHEO), to provide regulatory oversight of the GSEs.

How effective was the CRA and the 1992 GSE Act in promoting minority and low-income lending? Recall that the homeownership rate for blacks increased by around 7 percentage points between 1995 and 2004 but then declined by 6 percentage points to a level that was actually lower than the rate in 1980. The homeownership rate for households with family income below the median decreased by 2 percentage points between 1990 and 1994 before increasing by 4.5 percentage points by 2005 but then falling back by 2013 to the same level as in 1990. Can any of the increases in the minority and low-income homeownership rates be attributed to the CRA and GSE affordable housing goals?

Initially, the CRA was fairly ineffective (very few banks received a grade below "satisfactory"). In light of this, the 1989 Financial Institutions Reform, Recovery, and Enforcement Act required the public disclosure of the CRA exam and the CRA evaluation process was changed in 1995 to make it more performance-oriented and less subjective. Bhutta (2011) did find that CRA resulted in a 7% increase in loan volume for large banks in large MSAs between 1997 and 2002. The rationale is that large banks are more likely to merge or to open new branches and the CRA rating is important for doing so. Bhutta also found that there was an increase in lending by bank subsidiary mortgage companies and independent mortgage companies not covered by CRA. His explanation is that the CRA lending resulted in information externalities in historically thin markets (see Section 14.4.1) that allowed these banks to reduce their costs and hence increase lending.

One characteristic of CRA that limited its impact is that it only applies to depository institutions. The dramatic decline in the S&Ls after the S&L crisis in the late 1980s and the large increase in nondepository mortgage companies that took their place meant that CRA applied to a percentage of the mortgage market that got smaller over time. The share of originations made by CRA-covered institutions was around 80% in 1977 and approximately 65% in 1990 and 45% in 1996 (Immergluck, 2009). This was followed by a large increase in subprime loans that were mostly originated by nondepository institutions. In 2005 and 2006, only 6% of subprime mortgage originations qualified under CRA (Bhutta and Canner, 2009).

After the GSE Act, the GSEs did show improvement in lending to low-income and minority census tracts (Immergluck, 2009). But as will be discussed later, there is little evidence to support the increased supply of mortgages in census tracts that qualify under the GSE affordable housing goals. This is explained, in part, by the high levels of GSE crowd out (Gabriel and Rosenthal, 2010).

14.4.3.3 Securitization

In 1970, Ginnie Mae issued the first mortgage-backed security (MBS) and Freddie Mac was not far behind in 1971. The owners received the payment of principal and interest from the mortgages that made up the MBSs. These MBSs had the backing of Ginnie Mae and Freddie Mac and hence government guarantees which the owners paid for with a small premium. The creation of the MBSs allowed Ginnie Mae and Freddie Mac and ultimately Fannie Mae to pass on the interest rate risk though they kept the credit risk by guaranteeing the MBSs.

Private firms, typically nonbank mortgage companies, first entered the secondary market in 1977. Their MBSs tended to be made up of "nonconforming" mortgages such as jumbo mortgages with values above the conforming loan limit that were not purchased by Fannie Mae or Freddie Mac. These were referred to as private-label mortgage-backed securities (PLMBSs). The PLMBS market really took off in the beginning of the 2000s through securities made up of subprime and Alt-A mortgages. Given that PLMBSs did not have the same implicit government backing of MBSs sold by the GSEs, they were structured to handle credit risk through the generation of varying risk levels or tranches with associated bonds with different credit ratings. These PLMBSs were generally not regulated since they were issued by nonbank mortgage companies (Ellen et al., 2011).

The evolution of the MBS market was initially quite slow. But momentum was provided by a number of federal policies. These included the aforementioned DIDMCA of 1980 and the Garn–St. Germain Depository Institutions Act of 1982. Along with lifting the caps on interest rates, DIDMCA allowed national banks to only be subject to the interest rate rules of their home state and, in essence, apply rules from low-regulation states. This gave them an advantage over local banks that were subject to local (and potentially stricter) regulations. The Garn–St. Germain Depository Institutions Act overrode state laws in allowing for ARMs and other alternative mortgage types. It also allowed formerly state-regulated mortgage companies to choose to be overseen by the federal S&L regulator. Finally, in the wake of the S&L crisis in the late 1980s, the 1989 Financial Institutions Reform, Recovery, and Enforcement Act dramatically changed the savings and loan industry and its federal regulation. All these new rules fostered the growth of national banks and mortgage companies (at the expense of S&Ls) that tended to rely on securitization as a source of funding (as opposed to deposits) (Immergluck, 2009).

The total value of MBSs issued in 1985 was $100 billion; in 1995, it was a little more than $250 billion with almost all issued by the GSEs. This increase in securitization by the

GSEs helps to explain their increasing share of the mortgage market in the 1990s. The MBS market then started to grow rapidly in the 2000s; it peaked in 2003 with more than $2.5 trillion in issuances, the vast majority by the GSEs, but in 2005, there was a little more than $2 trillion in issuances and less than half was by the GSEs. Of course, by 2008, PLMBS issuances were practically zero.[36]

The GSEs started purchasing PLMBS in the early 2000s. They held around $100 billion ($2009) of PLMBS in 2002 and increased their holdings to more than $350 billion ($2009) of PLMBS in 2005 (CBO, 2010). The GSEs could meet their goals by purchasing PLMBSs that included mortgages that met the GSE affordable housing goals. In fact, mortgages can satisfy more than one goal and PLMBSs with such mortgages were desirable.

14.4.4 The impact of federal intervention in the mortgage market on homeownership rates

We first focus on two episodes of significant changes in the homeownership rate, 1940–1960 and 1994–2009, and to what extent government housing policies played a role in the change in the homeownership rate during these periods. Next, we discuss government policies to promote low-income homeownership and consider to what extent they played a role in the recent financial and housing crisis. This is followed by an analysis of research that estimates the pass-through of the GSE subsidy to lower mortgage interest rates and the subsequent impact on homeownership. Finally we evaluate the impact of federal policies and state laws on mortgage default and foreclosure rates.

14.4.4.1 Explaining the postwar surge in homeownership

The large increase in the homeownership rate between 1940 and 1960 has been linked to a number of underlying factors such as changes in demographics, the rise in real income, and changes in the mortgage market. But Fetter (2013b) argued that the very large increase in the subperiod of 1940–1945 that amounted to half the total increase over the 1940–1960 period was due primarily to a government policy that was not intended to promote homeownership, namely, the imposition of rent control. The motivation for rent control was the increase in rents that resulted from the huge inflows of workers in some areas of the country that were involved in the ramping up of military production for World War II (WWII). The federal government felt it was necessary to cap rents; otherwise, the large increases could lead to rises in wages and other prices that could dampen the war effort. This regulation was pervasive since, as Fetter says, it was eventually imposed on 80% of the rental stock in the United States. This cap on rents along with increases in house prices (that were not regulated) provided incentives for landlords to convert rental units to owner-occupied housing. Furthermore, one source of the increase

[36] The source of this information is the Securities Industry and Financial Markets Association's statistics on structured finance.

in homeownership, the building of new homes, was not a factor during this time since new construction was limited.

Rent control capped prices based on the existing rents prior to the start of the war buildup. Since the buildup started at different times in different places, there was variation in the date that determined the rent limit (the base date). Rent control was imposed 60 days after an area was designated as a "defense rental area." After an initial period in which surveys of rents were used to determine the areas where increasing rents threatened the buildup effort, there was a blanket imposition of rent control on most of the rest of the country in October 1942.

Data used are rent indexes for 51 cities starting in March 1940 that come from the National Industrial Conference Board along with housing surveys from the Census Bureau and BLS for 1944–1947. Fetter regressed the change in the homeownership rate between April 1940 and the date of the BLS housing survey (sites were surveyed once during the 1944–1947 period) on the severity of the rent control and the percent decline in rents between the maximum precontrol value and the initial value at the base date. Identification arises from the variation in the severity of the rent control that comes from the variation in the base date, the subsequent rise in rents prior to the imposition of rent control, and the ultimate fall in rents after control. An important control is the maximum precontrol rent appreciation (from March 1940 to the precontrol maximum rent) so that the source of identification is between cities with similar precontrol rent appreciation but differing levels of rent control severity based on the actual decline in rents. Through the addition of other controls and numerous robustness checks, Fetter showed that the rent control severity variable is uncorrelated with other unobservables that could affect the homeownership rate. The results indicate that rent control can explain 65% of the increase in homeownership over the early 1940s.

Three recent papers look at the impact of the VA Mortgage program on the large increase in the homeownership rate between 1945 and 1960 (Vigdor, 2006; Chambers et al., 2013; Fetter, 2013a).

Vigdor (2006) pointed out that the main benefit that the VA Mortgage program provided for eligible veterans was to lower their down payment requirement (possibly to zero). This can be seen as a relaxation of credit constraints, which makes it easier to get a mortgage and hence increase homeownership. Using Integrated Public Use Microdata Series (IPUMS) data for 1940, 1970, 1980, 1990, and 2000, Vigdor showed that being an eligible veteran increases the likelihood of being a homeowner in 1970 by 0.07—a semielasticity of 12.2%. He concludes that since 38% of households were eligible for VA Program benefits, this impact accounts for about 20% of the increase in homeownership between 1940 and 1970.

To see if this easier access to credit affected house prices, Vigdor ran a regression of owner's house valuation (single-family detached) on the median MSA rent, the share of veterans in the MSA, and median rent interacted with the share of veterans using the

IPUMS data from the 1970 decennial census. The result is that a one standard deviation increase in the percentage of veterans increases the value-rent multiplier by 40. Vigdor pointed out that the national increase in the value-rent multiplier between 1940 and 1970 was approximately 60 so this is a large impact.

Given that this result is based on a cross-sectional regression, it is not clear that the variation in the share of veterans interacted with median rent is truly exogenous; it is likely that there are unobservables that are correlated with house prices, median rents, and the interaction of median rents and share of veterans that would bias the results.

Fetter's (2013a) approach is similar to Vigdor's, but he used a RD framework as a means for providing exogenous variation in veteran's status to estimate the causal impact of VA Mortgage program eligibility on homeownership. The VA program is eligible to veterans and Fetter used the wind down in WWII in 1945 and in the Korean War in 1953 as an exogenous change in military service at the initial draft eligibility age to obtain causal estimates. One issue is there is not an official end to the draft for either war (so this is really a fuzzy RD), and so Fetter had to estimate the discontinuity using a structural break procedure: date of birth (DOB) 1 January 1928, for WWII and DOB 1 October 1933, for the Korean War. Similar to Vigdor, Fetter used IPUMS data from 1960, 1970, and 1980. The IV estimates of the impact on homeownership in 1960 are 0.129 and 0.177 for WWII and Korean War veterans, respectively. The corresponding semielasticities are large: 30% and 80%.[37]

What is interesting is that the impacts on homeownership in 1970 and 1980 are not significantly different from zero. Given that the age at the break point in 1960 is 32 for WWII veterans and 26 for Korean War veterans, this supports the result that VA eligibility caused a shift in homeownership to an earlier age. The reasoning for the age shift is that VA mortgages relaxed the down payment requirements and younger households are more income-/wealth-constrained and hence are more responsive to the lowering of the down payment requirement.[38] Note that the nonsignificance in 1970 is in contrast to Vigdor who found that eligible veterans were significantly more likely to own a home. This is evidence that the variation in the share of veterans used in Vigdor's study is probably not exogenous.

To determine the overall impact on homeownership, Fetter extrapolated the estimated impacts at ages 26 and 32 obtained from the RD analysis to the full age distribution. He found that the VA program accounts for 7.4% of the increase in the homeownership rate between 1940 and 1960. Fetter noted that one of the broad changes

[37] Fetter ruled out other factors related to military service that might affect homeownership such as differences in education, income, and military service itself (using WWI veterans).

[38] Using data from the PSID and NLSY from 1984 to 1990, Goodman and Nichols (1997) also provided evidence that the lower qualifying standards for FHA-insured mortgages just shifted the age at which households became homeowners rather than increasing the number of homeowners.

in the mortgage market over the midcentury period was the reduction in the down payment from around 40–50% to 20% or less (see Table 14.2). Using the results from the VA analysis, Fetter estimated that if all homeowners in 1960 had been required to make a 50% down payment, the homeownership rate would have been 11 percentage points lower or 40% of the increase in homeownership between 1940 and 1960.

Chambers et al. (2013) noted that the Case–Shiller house price index increased by 41.4% between 1935 and 1960 (this was actually less than the increase in real income over the same period). Their goal is to explain the comovement between the home ownership rate and house prices in the postwar housing boom. The authors develop a general equilibrium three-sector model with housing, mortgage markets, and consumptions goods that includes both ownership and rental options. They calibrate the model using data from 1935 to 1940.

Chambers et al. showed that demographics, income risk, and government housing finance are key determinants of the increase in the homeownership rate between 1940 and 1960. In particular, the latter is due to the change from a balloon payment contract to a longer-term mortgage with a lower down payment. Hence, all three papers provide evidence that federal programs contributed to the large increase in homeownership during the 1945–1960 period.

On the other hand, Chambers et al. found that it was the rise in construction costs and not government housing policy that led to the increase in house prices. This is in contrast to Vigdor who found that the VA Mortgage program had a large impact on house prices. This brings into question the exogenous variation in veteran's status that Vigdor used to identify the price effect.

14.4.4.2 The recent rise in homeownership

After several decades of stability, the US homeownership rate increased from 64% in 1994 to 69% in 2005. To explain this increase, Chambers et al. (2009; CGS hereafter) first showed that a large part of the overall increase in the homeownership rate during this period was due to the increase from 37% to 43% for households of age 35 years and under. There were also significant increases in the homeownership rate for the second and third income quintiles. This motivated the authors to look at factors that reduce the financial burden of becoming a homeowner as a potential source of these increasing participation rates.

To do so, CGS developed a general equilibrium overlapping generations model for housing and mortgage markets that includes both ownership and rental options. They calibrated the model using data from 1994. CGS used the model to decompose the gain in the homeownership rate over the next decade into components that are due to demographic changes and innovations in the mortgage market. First, they showed that reductions in the transaction costs of buying property and decreases in down payment requirements had little impact on the homeownership rate. What appears to have had

a significant impact was the introduction of piggyback loans where the second loan covers the down payment (in conjunction with the standard fixed-rate mortgage with a 20% down payment). In the model that allows for the combined effects of demographics and mortgage innovation in accounting for the observed change in homeownership, the introduction of the piggyback loan accounts for between 56% and 70% of the increase, whereas demographics account for the remainder. The new product is particularly attractive to the 20–34 age group, which explains their large increase in homeownership over the 1994–2005 period.

Gabriel and Rosenthal (2015) investigate the factors that determine the rise and fall of the homeownership rate in the 2000s. They use household-level IPUMS data from the 2000 decennial census and the 2005 and 2009 American Community Surveys. The authors run a reduced-form regression of tenure status on a host of demographic, labor/employment, and geographic controls and three measures of local housing conditions. The latter include the median owner-assessed value of owner-occupied homes for the public use micro area of residence, the 1-year-ahead forecast of house prices in the MSA, and a measure of house price volatility in the MSA. Separate regressions are run for each year and age between 21 and 89 using the full sample and for those households that moved within the previous 12 months.

The authors use a shift-share methodology to decompose differences in homeownership rates across years into changes in sociodemographic factors and market conditions. They show that the latter were the key factors in the increase in homeownership rates between 2000 and 2005 and in the decline between 2005 and 2009. They note that there is indirect evidence that changes in underwriting standards played an important role in these changes. That is, the loosening of standards helped push up homeownership rates in the beginning of the decade and the subsequent tightening of mortgage supply helped push down the rate in the latter half of the decade.

In summary, both CGS and Gabriel and Rosenthal provide evidence that easier access to mortgage credit was an important contribution to the rise in the homeownership rate between 1994 and 2004.

14.4.4.3 The impact of the affordable housing goals

Continued evidence of redlining in the 1960s and 1970s led the federal government to pass laws aimed at increasing lending to low-income households. The most important of these laws were the CRA in 1977 and the GSE Act of 1992. These laws mandated qualifying banks and the GSEs to meet minimum purchase requirements of mortgages held by low-income and minority households. These are referred to as the *affordable housing goals*.

For qualifying banks, the most common way of meeting the CRA goals was by originating or buying residential mortgages for properties in low- to moderate-income census tracts, those where median family income is less than 80% of area median income in their assessment areas (usually counties in which they have deposit-taking offices/branches).

Loans to low-to-moderate-income borrowers also qualify for meeting the CRA goals. Low-to-moderate-income status is determined using the decennial census. Independent mortgage banks and credit unions are not covered under CRA. Plus, more than half of loans made or purchased by CRA-covered institutions were made outside of their assessment areas, further limiting the number of loans covered under CRA (Avery and Brevoort, 2011).

HUD sets the affordable housing goals for the GSEs related to (1) low- and moderate-income families, (2) purchasers of properties located in historically underserved areas (underserved area goal), and (3) low-income families living in low-income areas and very low-income families (the "special affordable" goal). The low- and moderate-income goal defines a low- or moderate-income household as one whose income is less than or equal to the area median household income. For metropolitan areas, "underserved areas" are defined as census tracts with either (1) at least 30% minority population and with a median family income at or below 120% of the area median family income or (2) a median family income at or below 90% of the area median family income. The "special affordable goal" defines a very-low-income household as a household whose income is less than or equal to 60% of the area median income. For a list of the targets for these three affordable housing mandates, see An et al. (2007).

In this subsection, we look at the effectiveness of the CRA and GSE affordable housing goals in increasing the homeownership rate of low-income households. We also consider indirect evidence about how the affordable housing goals affected loan volume since this is a necessary condition for there to be an effect on the overall homeownership rate. The issue of loan quality is also discussed since this has received so much attention in relation to the financial crisis and because it is tied in so closely with credit supply.

Some studies blame the CRA and the GSEs for their role in perpetrating the financial crisis by motivating originators to lower their standards and extend credit to risky borrowers to meet the affordable housing goals.[39] To put this issue in context, as reported by Bhutta and Canner (2009) using HMDA data for 2005 and 2006, only 6% of subprime mortgage originations qualified under CRA and the performance of CRA-related subprime loans was similar to other subprime loans. For the most part, subprime mortgages were not conforming loans so they were not eligible to be directly purchased by the GSEs whether or not they could be used to meet their affordable housing goals. So the task is to show how CRA and the GSEs could have had such a large impact on the financial crisis given that they were involved in such a small percentage of subprime originations. The GSEs did purchase PLMBS tranches that included subprime mortgages that could be used

[39] Studies that claim to provide evidence that CRA and the GSEs helped cause the financial crisis include Liebowitz (2009), Wallison (2009), and Nichols et al. (2011). But Liebowitz (2009) and Wallison (2009) only provided circumstantial evidence and the analysis in Nichols et al. (2011) clearly suffers from endogeneity problems.

to meet their affordable housing goals. We will also look at this avenue as a potential way that the GSEs could have contributed to the financial crisis.

Credible investigations into the impact of the affordable housing goals on the homeownership rate and their role in the financial crisis require controlling for the numerous sources of omitted variable bias that can contaminate the results. Hence, the evidence on the impact of the affordable housing goals on homeownership, loan supply, and loan quality to which we give the most weight is based on some application of the quasi-experimental methodology.[40]

A common approach to coming up with plausible causal estimates of the affordable housing goals on the homeownership rate, loan volume, and loan performance is to use their cutoffs in terms of census tract median household income relative to area median income or individual household income relative to area median income as the basis for a RD analysis or as a source of exogenous variation to construct valid instruments for GSE or CRA activity. In the rest of this subsection, we discuss such estimates of the impact of the affordable housing goals on the homeownership rate, loan volume, and loan quality.

Papers that estimate the impact of the affordable housing goals on the homeownership rate include Bostic and Gabriel (2006), An et al. (2007; henceforth ABDG), and Gabriel and Rosenthal (2009). All three papers use 1990 and 2000 decennial census data at the census tract level and the latter two use tract-level HMDA data (ABDG from 1995 to 2000 and Gabriel and Rosenthal from 2000). All three use an informal RD approach to compare CRA and/or GSE activity in census tracts just on either side of the affordable housing goal cutoffs (e.g., census tracts with median family income that is 80% and 90% of area median income for CRA and the GSEs, respectively). For the CRA target, Gabriel and Rosenthal found that there is a positive and significant impact on the supply of nonconforming loans and limited evidence of a positive impact on the homeownership rate. They claimed that this is evidence of the effectiveness of CRA in increasing mortgage supply in targeted areas. Otherwise, the results show little evidence that GSE eligibility had any effect on changes in homeownership rates.

ABDG looked more directly at the GSE effect by using the percent of mortgages in a census tract that were purchased by GSEs and the change in this variable as explanatory variables. They instrumented for these two variables using the GSE target indicators and the total number of conforming loans in 1995. They found that GSE intensity has a significantly positive impact on the change in the homeownership rate and the percent

[40] There are numerous studies that do not use such techniques to identify the causal effects of the Affordable Housing Goals on relevant outcomes and hence are likely to suffer from omitted variable bias. These include Quercia et al. (2003), Ambrose and Thibodeau (2004), Demyanyk and Van Hemert (2011), and Reid and Laderman (2011).

change in GSE intensity had a significantly negative impact on vacancy rates and a significantly positive impact on house prices. This is evidence that GSE intensity is related to neighborhood improvements.

Gabriel and Rosenthal (2010), Avery and Brevoort (2011), Bhutta (2011, 2012), Ghent et al. (2013), Moulton (2014), and Bolotnyy (2014) are the best studies that attempt to show a causal impact of the affordable housing goals on loan volume (subprime or prime). The central theme of these papers is to use the affordable housing goals in a RD framework to estimate their causal impact on the quantity and quality of loans. The main takeaway from these studies is that, for the period from the mid-1990s to 2007, there is little evidence that the affordable housing goals had a significant impact on any of these factors. Agarwal et al. (2012b) estimated that CRA led to a decline in loan quality using plausibly exogenous variation in banks' incentives to meet CRA goals around regulatory exams. But Reid et al. (2013) and Foote et al. (2013) criticized the exogeneity assumption used by these authors to obtain their estimates.

One reason for the lack of an impact of the affordable housing goals on the mortgage market is crowd out. That is, the activities of the GSEs just displace mortgage supply that would have occurred in their absence. Gabriel and Rosenthal (2010) showed that crowd out in the home purchase market (most relevant for the homeownership rate) is positively related to the level of market activity; it was most prevalent during the 2003–2006 period when it reached the 50% level. Little crowd out existed in periods prior to and subsequent to this market boom, particularly during the 2007–2008 period when private intermediaries essentially pulled out of the market. Gabriel and Rosenthal concluded that the government takeover of the GSEs was effective in providing liquidity to the mortgage market during the financial crisis.

Ghent et al. (2013; henceforth GH-MO) estimated the impact of the affordable housing goals on subprime mortgage volume, pricing, and performance. The focus on subprime loans is key to answering the question "did GSE or CRA affordable lending goals contribute to the financial crisis?" since it was the subprime market and not the prime market that imploded. Subprime loans typically cannot be directly purchased by the GSEs since they are nonconforming loans and the majority of subprime loans are not purchased by CRA-eligible entities, so GH-MO focused on the holdings of PLMBS by the GSEs and CRA-eligible depository institutions that are made up of subprime loans.

GH-MO found that while 70% of mortgages in their sample satisfy the affordable housing goals, none of the PLMBS pools that they examined were CRA-qualified. This is because there are very strict guidelines for MBSs to satisfy CRA goals (only loans from a CRA-eligible institution's assessment area count toward the goal). On the other hand, if a GSE purchases a PLMBS and only 20% of the loans in this security satisfy GSE goals, the GSE can count this 20% toward its affordable housing goals. But it is also questionable that the GSEs were primarily buying the PLMBS to satisfy the borrower-related affordable housing goals since the average borrower income to

area median income ratio was 1.73. It appears that the CRA-eligible institutions and the GSEs were buying PLMBSs only for investment purposes.

GH-MO found no significant impact of affordable housing goals (via either CRA or the GSEs) on subprime mortgage volume, pricing, or performance (90 + days delinquent or foreclosures within 2 years of origination). They concluded that it is still possible that the GSEs affected the subprime market by purchasing large numbers of PLMBS since this may have increased credit supply that was used to buy even riskier mortgages.

In summary, a few studies find significant effects of the affordable housing goals on the homeownership rate (An et al., 2007; Gabriel and Rosentha, 2009). But generally, there is little evidence of a significant impact of the GSE and CRA affordable housing goals on the homeownership rate, loan volume, or loan performance. This is the case for both prime and subprime loans. The latter result found by Ghent et al. (2013) is the strongest evidence that the affordable housing goals had no impact on the financial crisis since this was fueled by the poor performance of subprime loans.

14.4.4.4 The GSE impact on mortgage rates

The implicit guarantee of GSE-securitized loans amounts to a subsidy to the GSEs. A question to be answered is "what portion, if any, of this subsidy is passed on to borrowers in terms of lower interest rates?" The GSEs only purchase loans below a specific loan amount and with specific characteristics related to LTV ratio, debt-to-income ratio, credit history, and level of documentation. These are referred to as conforming loans. Loans for amounts above this threshold are referred to as jumbo loans. A reasonably large literature has developed that attempts to estimate the jumbo-conforming spread as a means for measuring the benefits of the GSEs in terms of lower interest rates. The link, then, to homeownership rates is the impact that the lower interest rate has on the likelihood of owning a home.

In an analysis of the literature to date and from his own results based on the commonly used Federal Housing Finance Board's Mortgage Interest Rate Survey (MIRS), McKenzie (2002) found that the range of estimates of the jumbo-conforming interest rate differential is 20–25 basis points. As Kaufman (2014) notes, though, these studies are subject to selection and sorting bias. Hence, we focus on more recent studies that have attempted to control for these biases.

Ambrose et al. (2004) used a data set that makes up for some of the disadvantages of the MIRS. The data include 26,179 conventional fixed-rate mortgages made between January 1995 and December 1997 by a national lender that includes FICO credit scores that can be used along with loan size to separate loans into conforming and nonconforming loans and into jumbo and nonjumbo loans. They estimated that the interest rate differential between conforming GSE loans and jumbo loans is 24 basis points; 9 basis points are due to the conforming–nonconforming differential and 15 basis

points are due to the conforming loan limit. Ambrose et al. interpreted the former as the pass-through from the GSE subsidy.

In an effort to measure the GSE funding advantage, Passmore et al. (2005) developed a model of interest rate determination for jumbo and conforming spreads that is a function of the differential costs of funding these types of mortgages. They showed that this is not only a function of the GSE funding advantage but also the level of mortgage demand and core deposits. The authors use loan-level data from April 1997 to May 2003 from the MIRS, limiting the sample to about 1 million loans between $50,000 and twice the conforming loan limit yields. The results show that the jumbo-conforming spread is 15–18 basis points of which 7 basis points can be attributed to the GSE subsidy.

Sherlund (2008) augmented the MIRS data from January 1993 to June 2007 with zip code-level demographic information from the 2000 census. He then used a semiparametric approach based on loan size, LTV, and zip code to control for unobserved differences in borrower and market characteristics and expected house volatility. Sherlund obtained estimates of the jumbo-conforming spread of 13–24 basis points. The lower bound comes from controlling for the endogeneity of loan-type choice by including a sample selection bias correction term.

Kaufman (2014) estimates the impact of GSE purchase eligibility on mortgage interest rates, loan delinquency rates, and mortgage contract features. To control for selection bias and pecuniary market externalities, the author develops an RD design based on the GSE conforming mortgage amount limit. Furthermore, he controls for borrower sorting around the limit using appraisal values as an instrument for mortgage values. The idea is that while mortgage values can be manipulated to meet the conforming limit, appraisal values are not manipulated in this manner.

The sample consists of 14.9 million first-lien, non-FHA, non-VA-insured loans for owner-occupied single-family homes for 2003–2007 from Lender Processing Services Applied Analytics, Inc. Results indicate that GSE purchase eligibility lowers mortgage interest rates by 8–12 basis points. GSE purchase eligibility does not impact default or foreclosure rates or the likelihood of prepayment penalties, negative amortization, interest-only loans, balloon loans, or debt-to-income ratios. Kaufman points out that the fact that default and foreclosure rates are unaffected means that the interest rate impact is fully attributable to the GSE discount and not to less risky borrowers receiving a lower interest rate. The limitation of this approach is that these impacts apply only to borrowers with loan amounts near the conforming loan limit. These tend to be more affluent households and hence the results do not apply to households with moderate or low incomes and/or wealth.

The results from these studies indicate that the GSE subsidy has led to a reduction in interest rates of around 10–20 basis points. The next step is to determine if this has affected the homeownership rate. Note that changes in the homeownership rate are primarily due to first-time homeowners. So the focus needs to be on the interest rate

sensitivity of potential first-time homeowners. Existing homeowners' reaction to interest rates will be on the intensive, not the extensive, margin. That is, lower interest rates can result in cash-out refinancing that is used for home improvements.

Painter and Redfern (2002) investigated the impact of interest rates on both short-run and long-run homeownership rates. Their results confirm the previous findings in the literature that there is little evidence of a significant impact of mortgage rates on short-run or long-run homeownership rates. Hence, it is not likely that the GSE mortgage interest rate subsidy had a significant impact on the homeownership rate.

14.4.4.5 The government role in the mortgage default and foreclosure process

Mortgage default and foreclosure can be seen as the antithesis of homeownership. That is, it typically results in the movement from a state of homeownership to one of nonhomeownership. The drop in the homeownership rate could be due to the fact that the foreclosed properties either were vacant for sustained periods of time, were rented, or were demolished. Furthermore, because of the negative impact on credit scores, households in foreclosed properties are effectively barred from buying another house for many years.[41]

To set the stage for the analysis of the government role in the mortgage default and foreclosure process, we first provide information on historical foreclosure rates dating back to 1925 and compare them to the homeownership rate. We then detail a very successful early mortgage modification program, the HOLC. We then focus on the role that borrower-friendly state foreclosure laws have had on foreclosure rates.

14.4.4.5.1 History of foreclosures and the homeownership rate

Historical data are sparse since the federal government does not keep official statistics on foreclosures. Figure 14.8 plots foreclosure rates for 1925–1979. This is based on two series from Snowden (2006): nonfarm foreclosures for 1925–1969 and foreclosures on VA loans for 1950–1979. The foreclosure rate rose steadily during the latter half of the 1920s and reached historical highs of more than 13 per 1000 mortgages in the early 1930s before exhibiting an equally strong decline in the rest of the 1930s. One reason for this strong decline was the implementation of the HOLC (see below). The two series shown in Figure 14.8 line up quite well and both show another spike around 1965 of at least 5 foreclosures per 1000 mortgages.

There was a 5 percentage point drop in the homeownership rate between 1930 and 1940, whereas the foreclosure rate peaked in 1932 and declined steadily until 1940. In fact, the correlation between the nonfarm foreclosure series and the homeownership rate is -0.28. But given that the homeownership rate is only reported once every 10 years through 1940, it might well be that the decline started prior to 1930, and hence, the actual

[41] Molloy and Shan (2013) found that most households are renters 2 years after a foreclosure start.

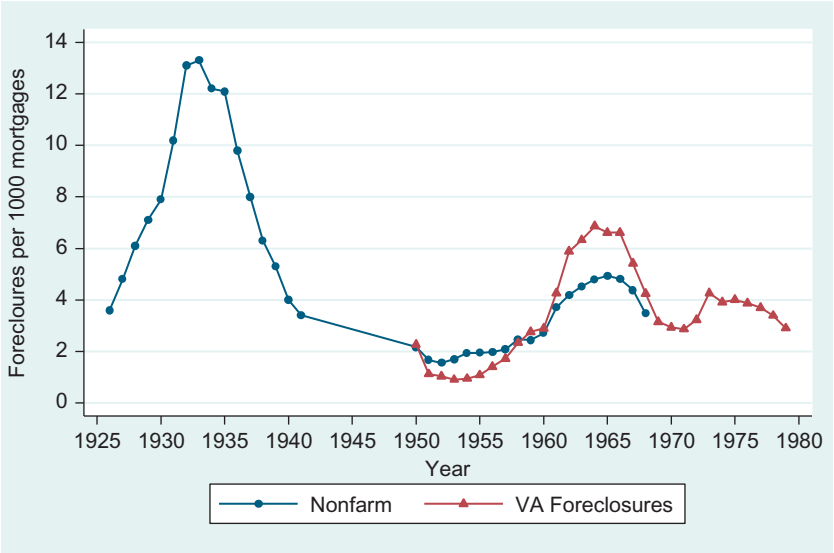

Figure 14.8 Annual US foreclosure rates: 1925–1979. *Source: Snowden (2006), Series Dc1255–1270.*

correlation between the homeownership and foreclosure rates might well be even stronger than this estimate value based on limited data.

Figure 14.9 plots quarterly foreclosure rates starting in 2003 based on data from Equifax. While this series may not be completely compatible with the earlier data, what is interesting is that the national rate peaked in the second quarter of 2009 at 2.4 foreclosures per 1000 mortgages, which is significantly lower than what was experienced in the Great Depression. Of course, what made this a crisis was the significant heterogeneity across states; for example, the rate peaked at close to 9 foreclosures per 1000 mortgages in the second quarter of 2009 in Nevada.

There was a decline in the US homeownership rate from a high of 69.0% in 2004 to 65.1%. This coincides with the rise in foreclosures during this period. Hartley (2010), Mian et al. (2011), and Anenberg and Kung (2014) show that the increase in foreclosures during this period led to an increase in unsold housing inventory, which is consistent with this drop in homeownership.[42]

14.4.4.5.2 Home Owners' Loan Corporation

In 1933, the Home Owners' Loan Corporation Act established HOLC to refinance distressed mortgages. The goal of HOLC was to keep homeowners in their homes and stabilize the homeownership rate. Applications were accepted between June 1933

[42] To get a causal impact of foreclosure on homeownership, one could do the same analysis as in Mian et al. (2011) using the homeownership rate instead of unsold housing inventory as the dependent variable.

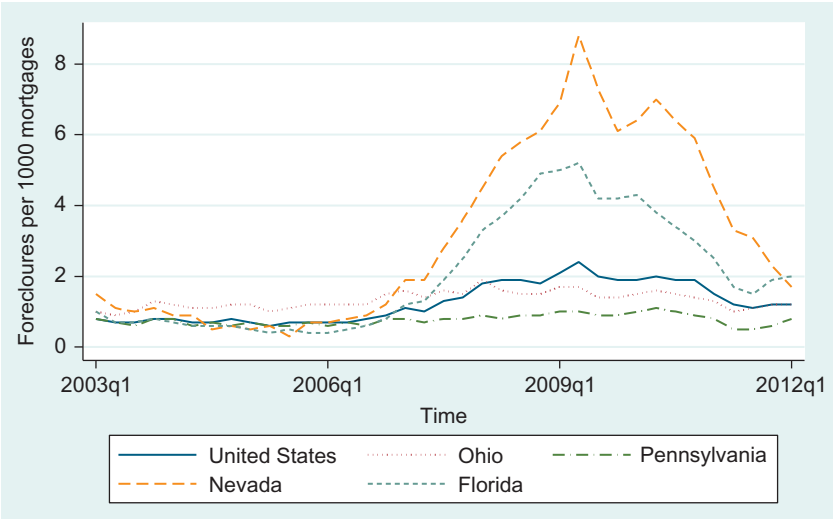

Figure 14.9 Quarterly US foreclosure rate: 2003q1–2012q1. *Source: FRBNY Consumer Credit Panel/Equifax. Note: Based on the population with a credit report.*

and November 1934 and in May and June 1935. After that, the loan portfolio gradually declined until the program was ultimately ended in 1951 and existing loans were sold to private lenders.

Rose (2011) noted that refinancing was requested for 40% of all mortgaged 1–4 family nonfarm units in the United States and approximately 1 million loans for more than $3 billion were made. HOLC purchased loans from the lender using bonds that were essentially the same as US T-bills and then made new 15-year self-amortizing loans to the borrowers at a 5% interest rate. These loans had no prepayment fee and borrowers could make only interest payments for the first 3 years (Rose, 2011). This represented an important shift in loan structure, as existing mortgages tended to be of short duration, were not self-amortizing, and required balloon payments upon maturity, which tended to be refinanced. This process was essentially halted by the Great Depression and foreclosure rates skyrocketed (see Figure 14.8).

HOLC loans did not exceed 80% of the property appraisal. If the value of the initial loan was greater than 80%, HOLC only accepted the loan if the lender agreed to be paid the 80% figure, hence taking a loss on the loan. Of course, this "loss" is mitigated since the lender does not have to incur the costs associated with foreclosure. Rose reported that approximately 18% of loan applications were rejected because the lender refused to take the principal reduction needed to make the 80% threshold. Using data from actual HOLC loans from New York, New Jersey, and Connecticut, Rose found that the appraisals were inflated as a motivation to get lenders to participate in the HOLC program. This means that the reductions provided to borrowers were lower. Rose estimated

that principal reductions would have been 16% on average versus 8% if appraisal values had been set to actual market values. Rose argued that HOLC was more concerned about stabilizing the housing market versus getting the best deal for each homeowner with the rationale that a stabilized market and the general economic recovery would lead to lower overall foreclosure rates.

The high participation rate under HOLC can be attributed to a number of factors. First was the generous terms given to the lenders. Second, the new structure of the mortgages provided by HOLC was a real benefit to borrowers, and third, underwriting standards were higher in the 1920s and 1930s such that LTVs were significantly lower then, making the average write-down that a lender had to accept to participate in HOLC much less than under current loan modification programs (Rose, 2011).

14.4.4.5.3 Borrower-friendly foreclosure laws

There was substantial variation in foreclosure rates across states as displayed in Figure 14.9. Part of this was due to differences in the population characteristics and incomes across states, but part was due to the differences in foreclosure laws. Three important distinctions in foreclosure laws pertain to whether recourse is allowed, whether the foreclosure process is judicial (vs. nonjudicial), and whether a redemption period is allowed. All of these can be seen as borrower-friendly characteristics. So the question is to what extent do these borrower-friendly laws affect homeownership rates? That is, do borrower-friendly laws help homeowners to stay in their homes and avoid foreclosure or do they facilitate foreclosure and actually reduce homeownership rates? Furthermore, to the extent that these laws increase the cost to lenders of going through the foreclosure process, will lenders be less likely to originate loans for the marginal borrower?

Typically, after the third month of delinquent payments, the lender will begin the foreclosure process. All states allow for a judicial foreclosure process, while 29 states also allow for a nonjudicial process known as "power of sale." In the former case, the foreclosure process occurs through the courts. This is initiated with the lender filing suit in court that details the debt owed by the homeowner and the reason for foreclosure. A notice or "lis pendens" is sent to the owner that demands payment of the debt owed. Typically, the owner has 30 days to pay off the debt. If not, the lender can request a sale of the property by auction.

In the case of a nonjudicial foreclosure process, the lender sends a "notice of default" to the owner and to the local jurisdictional authority. If the borrower does not respond by repaying what he owes from delinquency, this will result in the initiation of the auction process with the filing of a "notice of sale" by the lender. In either a judicial or a nonjudicial foreclosure process, the auction can take place as soon at 2–3 months after a request to do so is made by the lender. The actual time from the beginning of the foreclosure process to the date of sale will vary from state to state and also depends on the type

of foreclosure process. Typically, this is significantly longer for judicial versus nonjudicial states (Pence, 2006; Pennington-Cross, 2010). For example, this process typically takes 18 months in New York, a judicial state (Schuetz et al., 2008). During this time, the occupant can live in the house without any payments to its owner.

The actual foreclosure of the property occurs when the property is sold at auction (about 20% of the time) or, if unsold, is transferred to the lender. In the latter case, the property is said to be "real estate-owned" (REO) since it is transferred to the lender's REO department. Once ownership is transferred to a third party via a successful auction or to the lender, the previous owner becomes a tenant of the property. The new owner must follow state procedures to evict the previous owner from the unit.

Some states allow the borrower an opportunity to regain the rights to the property even after the sale date during what is known at the redemption period.[43] To do so, the borrower must repay the auction price and foreclosure expenses during this period, which can last up to 18 months. Typically, a redemption period is only available under a judicial foreclosure. Of course, the ability of the borrower to repay these costs is very unlikely unless she "wins the lottery."

Another factor that affects foreclosure is whether mortgages are considered to be recourse debt. If so, upon default, the lender can lay claim to the debtor's assets to cover the difference between the value of the mortgage and the fair market value of the foreclosed property. This process is known as a deficiency judgment. The process of filing a deficiency judgment and actually collecting from the borrower differs across states. Furthermore, the borrower can file for Chapter 7 bankruptcy to protect her assets. Table 1 in Ghent and Kudlyak (2011) provides information on the extent of recourse in each state and classifies each state as a recourse or nonrecourse state (11 are classified as nonrecourse).

Occupants can avoid a foreclosure by paying back the delinquent debt or by negotiating with the lender to allow for what is known as a short sale. This is a purchase of the property by a third party for a price that is less than the outstanding principal on the mortgage. Lenders will often agree to a short sale to avoid the costs of holding a property as REO and then having to sell it themselves on the open market. This negotiation process can also result in the owner having to pay the back all or part of the difference between what is owed on the mortgage and the sales price. A successful short sale also results in lower legal costs for the lender.

A necessary condition for foreclosure is that the property is worth less than the mortgage balance plus selling costs (otherwise, the owner can sell the property and payback the mortgage debt). The "double-trigger theory of default" posits that this is not sufficient for foreclosure. What is also required is that the household experiences a major adverse life

[43] As of January 2011, foreclosure redemption is only possible in 25 states http://www.ehow.com/info_7867003_redemption-foreclosure.html#ixzz2wnAL21Ev.

event such as death, the onset of a severe health condition, job loss, or divorce that reduces desired housing consumption (Foote et al., 2008). Another factor that plays a role in the foreclosure decision is future price expectations. If prices are expected to rise, a homeowner will be less likely to default.

Using 1994 and 1995 HMDA data and applying a border fixed effects approach to MSAs that cross state lines, Pence (2006) found that the size of loans is lower in judicial states; that is, borrower-friendly laws can reduce the supply of mortgage credit as this increases costs to lenders. This has the potential for adversely affecting homeownership. Collins et al. (2011) used a similar border fixed effects approach to loans that were 60+ days delinquent as of January 2007 and their status 15 months later (cured, foreclosed, or still delinquent). Their results show that none of the three state foreclosure policies they evaluated (judicial foreclosure proceedings, statutory rights of redemption, and statewide foreclosure prevention initiatives) had a significant impact on the loan status after 15 months. Using 2005 and 2006 HMDA data, Curtis (2014) used the same border fixed effects approach to provide evidence that borrower-friendly laws result in a smaller subprime market share.

Gerardi et al. (2013) found that while foreclosure rates were lower in judicial states in the short run, this was not the case in the long run. The result is that being in a judicial state just lengthened the foreclosure process. They found that this was also the case for a "right-to-cure" law that was enacted in Massachusetts in 2008.

Using monthly data from the Lender Processing Services Applied Analytics database on nearly 3 million prime and nonprime private securitized loans, portfolio loans, and GSE loans that were originated between August 1997 and December 2008, Ghent and Kudlyak (2011) found that while both unconditional and conditional default rates do not differ across recourse and nonrecourse states, default rates are higher in the latter states for underwater borrowers. This implies that when housing markets are in decline and borrowers are more likely to be underwater, the borrower-friendly law that prohibits recourse can increase default rates. Furthermore, when borrowers do default in recourse states, they are more likely to cure and more likely to end up in a friendly foreclosure. These results point to higher foreclosure rates in nonrecourse states. When looking at the type of loan, Ghent and Kudlyak found that the impact of recourse on default only holds for privately held mortgages and not those held by the GSEs.

The Bankruptcy Abuse Prevention and Consumer Protection Act (BAR) was an attempt to reduce bankruptcy abuse by introducing means testing for Chapter 7 filing and hence can be seen as a consumer-hostile law. Prior to this, individuals could file for Chapter 7 bankruptcy and clear their unsecured debts (such as credit card debts) to allow them to pay their mortgages. Morgan et al. (2012) tested to see if BAR led to increased foreclosures in states with higher homestead exemptions. This is because prior to BAR, higher home equity exemptions meant that filers had more funds to pay their mortgages. They also hypothesized that this would impact foreclosures of

subprime mortgages and not prime mortgages since holders of prime mortgages are unlikely to need to file for Chapter 7 bankruptcy. Using a panel of quarterly state-level data from 1998:1 to 2007:3, the authors showed that BAR did increase foreclosure rates for borrowers with subprime mortgages in states with higher homestead exemptions. There was no impact on foreclosure rates for borrowers with prime mortgages. This is evidence that borrower-unfriendly laws can have adverse effects on foreclosure rates.

Overall, these studies do not provide consistently strong evidence that borrower-friendly laws help borrowers in reducing foreclosure and ultimately homeownership rates. At best, these results are inconclusive. More research is needed to clarify this relationship.

14.4.5 The government response to the housing crisis

In response to the recent financial and housing crisis, the federal government enacted a number of policies. The first response that potentially affected the homeownership rate was the Housing and Economic Recovery Act (HERA) of 2008 that was enacted on 30 July 2008.[44] Among other things, this act merged the Federal Housing Finance Board and OFHEO into the Federal Housing Finance Agency (FHFA). One of its first significant moves was to put Fannie Mae and Freddie Mac under the conservatorship of the FHFA. HERA also includes the FHA Modernization Act, the Housing Assistance Tax Act (HATA), and the HOPE for Homeowners (H4H) Act.

The FHA Modernization Act (1) increased the FHA loan limit from 95% to 110% of area median home prices up to 150% of the GSE conforming loan limit, effective 1 January 2009; (2) required a down payment of at least 3.5% for any FHA loan; (3) placed a 12-month moratorium on HUD's implementation of risk-based premiums; (4) prohibited seller-financed down payments; and (5) allowed down payment assistance from family members.

Due to the more than doubling of the loan limit under the FHA Modernization Act, FHA's market share of single-family home purchase loans jumped from a low of 4% in 2007, to almost 25% in the third quarter of 2008, to a high of 32% in the second quarter of 2010 and remained around 25% in 2011 and 2012 (HUD data). While the FHA was able to help fill the gap left by the exit of private institutions from the mortgage market, the large increase in volume, particularly of high LTV loans in 2008 and 2009, led to high delinquency rates and loses that may (still) require a taxpayer bailout. Despite these problems, Van Order and Yezer (2014) stated that "The Federal Housing Administration (FHA) deserves considerable credit for helping support the housing market during the recent financial crisis by increasing its own market share."

HATA established a first-time home buyer tax credit for purchases between 9 April 2008, and 1 July 2009. The tax credit was 10% of the purchase price up to a credit of

[44] See http://en.wikipedia.org/wiki/Housing_and_Economic_Recovery_Act_of_2008.

$7500. Those receiving the credit had to repay it over 15 years. Also, the credit was phased out for households filing joint returns with incomes over $150,000 and other households with incomes over $75,000. HATA also provided assistance for the redevelopment of abandoned and foreclosed properties. As part of the American Recovery and Reinvestment Act (ARRA) of 2009, the payback of the credit was set at $8000 for homes purchased between 1 January 2009, and 30 November 2009, and there was no repayment if the house was not sold within 3 years. Finally, the Worker, Homeownership, and Business Assistance Act (Assistance Act) of 2009 extended the time frame in which homebuyers could claim the ARRA version of the credit to 30 April 2010. The GAO reported that as of July 2010, approximately 1 million first-time homebuyers claimed $7.3 billion in interest-free loans under HATA, whereas 16 million first-time homebuyers claimed approximately $23 billion in tax credits under the ARRA and Assistance Act provisions.

Baker (2012) claimed that the initiation of the first-time homebuyer credit led to an increase in sales and prices and was followed by a drop in sales and prices once it ended. Hence, the initial increase in price means that much of the credit was passed on to buyers. But the evidence in the paper for a causal impact is tenuous as it does not rely on a quasi-experimental framework. Still, Baker was likely correct in pointing out that the credit only shifted home purchases forward since the credit recipients would likely have ended up buying at a later point and hence had little impact on the homeownership rate.

The H4H Act authorized the FHA to insure up to $300 billion of 30-year fixed-rate refinance loans up to 96.5% of LTV for delinquent borrowers and to 90% for borrowers with a low credit score for mortgages that were made on or before 1 January 2008. The federal government was to receive 50% of any appreciation in value of the house. In return, lenders received insurance under FHA. The goal was to modify 400,000 loans, but only 64 were actually completed by August 2010. The lack of response is attributed to the minimal incentives for lenders (Rose, 2011).

The second federal response to the housing crisis was the Emergency Economic Stabilization Act (EESA) of 2008 that was passed on 3 October 2008. EESA authorized the Treasury to establish the Troubled Assets Relief Program (TARP) to purchase troubled assets. As part of TARP, the Treasury established Making Home Affordable (MHA). The purpose of MHA was to modify loans of distressed homeowners and to prevent some foreclosures. MHA established the Home Affordable Modification Program (HAMP) and the Home Affordable Refinance Program (HARP). Both will continue until 31 December 2015.

HAMP set a target of modifying the loans of 3–4 million distressed homeowners (US GAO Month in Review July 2009). To be eligible, the owner had to occupy the unit as his or her primary residence. The unit had to be single family with an unpaid mortgage balance no greater than $729,750 that was originated on or before 1 January 2009.

HAMP was based on the monthly first-lien mortgage payment (principal, interest, property taxes, and homeowner's insurance payments) to gross monthly income ratio (PI) rather than on LTV. The goal was to reduce PI to 31%, so only homeowners with a PI of greater than 31% were eligible under HAMP. The lender first offers a trial modification that becomes permanent if the borrower makes the new payments for approximately 6 months.

A key component of HAMP is the net present value (NPV) calculation that determines if the loan modification is beneficial as compared to foreclosure. A positive NPV requires the lender to curtail the foreclosure process and offer a HAMP modification. A negative NPV leaves it up to the lender's discretion to continue the foreclosure process or offer a HAMP modification.

Note that homeowners do not have to be delinquent to be eligible for HAMP. It is stated that borrowers are eligible if they are 60 days or more delinquent or are facing economic hardship and are determined to be in imminent default.[45] In fact, there are additional monetary incentives to lenders and investors to modify loans where the borrower is current on mortgage payments.

Under HAMP, lenders first reduce the interest rate, then extend the term of the loan to a maximum of 40 years, and finally set up a balloon payment at the end of the loan term as a means for reducing PI to 31%—no principal write-down is required. As compensation, the lender receives a one-time payment of $1000. The loan servicer could receive up to $1000 a year for three years based on the payment history of the borrower.

HARP was established to help nondistressed homeowners (current in mortgage payments) who experienced negative equity (or close to negative equity) to refinance their loans. In particular, HARP allowed homeowners with mortgages owned or guaranteed by Freddie Mac or Fannie Mae that were purchased before 31 May 2009, and with an LTV greater than 80% and up to 125% to refinance without having to purchase private mortgage insurance if they did not already have it. The refinance must result in lower monthly payments or be a more stable product (i.e., moving from an ARM to a 30-year fixed-rate mortgage). The so-called HARP 2.0 was a modification of HARP that allowed for refinancing regardless of the LTV. Plus lenders that refinanced under HARP were not held responsible for fraud committed on the original loan.[46]

Agarwal et al. (2012a) evaluated the impact of HAMP on the number of loan modifications, the characteristics of these modifications, and the likelihood of default. They constructed one control group from loans that are investor-owned (not owner-occupied) since these are not eligible for HAMP. Using pre-HAMP data, they showed that investors and owner-occupiers have similar LTVs, interest rates, modification rates, and delinquency rates though investors have slightly higher FICO scores and higher foreclosure

[45] For example, see http://www.freddiemac.com/singlefamily/service/hmp_eligibility.html.
[46] See http://en.wikipedia.org/wiki/Home_Affordable_Refinance_Program.

rates than owner-occupiers.[47] A second control group is based on an RD design that focuses on the maximum loan balance that is HAMP-eligible, $729,750. The drawback is that there are few owners in financial distress with mortgage balances just below $729,750 that receive loan modifications under HAMP, and hence, the results might not be generalizable.

Based on the first control group of investors, the authors estimate the short-term impact of HAMP led to an additional 1.2 million modifications and reduced the number of foreclosures by 800,000 as of December 2012, both of which are well below the program goals. Using the second control group produces results that are consistent with the first identification strategy.

Finally, Agrawal et al. found that the participation rate in HAMP of a few large loan servicers (accounting for 75% of the loans) was half that of other servicers. Across all servicers, these participation rates were similar to pre-HAMP mortgage renegotiation rates and can be explained by an organizational design that was conducive (or not) for undertaking loan modifications. Hence, one reason for the low take-up of HAMP was that a large majority of the loans were serviced by firms that were not structured to make loan modifications. The authors estimate that if the loan modification rate of the low-participation rate servicers was doubled so as to be the same as that of the high-participation-rate servicers, the number of modifications under HAMP would increase by 70%.

Hembre (2014) used a computable GE model of the mortgage default decision to calculate the benefits of HAMP. Identification of the model parameters comes from matching to sample moments of the data. Hembre used the parameter estimates to simulate counterfactual scenarios such as the absence of HAMP. He used data on the 1.1 million households that received a permanent HAMP mortgage modification. The average reduction in annual mortgage payment was $9900 that was brought about by a nearly 4% drop in the interest rate, by an extension of the mortgage term by 4.5 years, and by a 6% reduction in principal balance. The average difference between the loan and the house value is $54,000 or 39% for current HAMP participants as of June 2013. Matching to a second data set with information on second mortgages (20% of the sample holds a second mortgage) and to Zillow real estate data reduces the sample size to 5629 (this huge reduction in sample size is a drawback of the paper).

Hembre found that HAMP prevented 515,354 defaults as of June 2013 and a 5-year projection shows HAMP preventing 505,803 defaults. Current HAMP costs are calculated to be $9.5 billion and expected 5-year costs are $20.8 billion or $41,600 per prevented foreclosure. Based on estimates of foreclosure externalities from Campbell et al.

[47] Despite what seems like a reasonable matching on observables, this is a questionable choice of control group given that investors as generally riskier borrowers than owner-occupants (Mayer et al., 2009). The key here might be limiting loans to those originated by main banking institutions.

(2011) and Harding et al. (2012), Hembre estimated the benefit of one less foreclosure to be $16,000. This amounts to a total social benefit of $8 billion and hence a net loss of $12.7 billion. Hembre then simulated the impact when HAMP modifies the loan so that payments are 25% and 38% of income. The former raises program costs and cost per prevented foreclosure by 29% and 52%, respectively. The latter lowers program costs and cost per prevented foreclosure by 45% and 23%, respectively. The breakeven level is the reduction of payment level to 52% of income for which only 25% of the existing HAMP participants would be eligible.

In a theoretical analysis, Mulligan (2010) found that one reason why HAMP has been ineffective is its incentive structure that targets the PI ratio and the uncertainty it has created for borrowers have made it "impossible to both write down principal and offer modification to a wide range of borrowers."

The federal government implemented numerous policies to curtail the financial and housing crisis. In the housing market, many policies focused on reducing the foreclosure rate. These included the H4H, the HAMP, and the HARP. Overall, the evidence shows that the government effort at curtailing the foreclosure crisis was generally ineffective. The lone exception may be policies that led to a large increase in the FHA's market share at the time that private institutions exited the market.

One reason that has been made for why programs such as HAMP and HARP were unsuccessful is that securitization, because of its complexity, has made modification of loans more difficult.[48] Adelino et al. (2009) use an IV approach to provide evidence that securitization actually increases the likelihood that mortgages will be modified and decreases the chance they will be foreclosed on by mortgage servicers. The authors argue, instead, that owners of mortgage-backed securities are deterred from loan renegotiations because they are concerned that borrowers will still default after costly modifications and because delinquent borrowers will self-cure even without the modifications.

14.4.6 Conclusion

Governments in the United States have attempted to affect the homeownership rate through a wide range of policies. We have focused on federal and state policies that are related to the mortgage market, particularly the structure, volume, and quality of mortgages. We began in the 1930s with the federal response to the depressed economic and housing conditions that characterized the Great Depression and continued through the federal response to the recent financial crisis. One takeaway is that despite the continued focus on homeownership as the "American Dream," most of the government policies pursued have had little effect on the homeownership rate, particularly in the long run. In fact, some of the largest federal government involvements in the mortgage market

[48] For example, see http://www.jdsupra.com/legalnews/securitization-and-loan-modification-88901/.

such as the NHA of 1934 and the VA Mortgage program were primarily intended as economic stimulus policies.

The homeownership rate was pretty stable between 1880 and 1930, and despite the large government involvement in the mortgage market in the 1930s, the homeownership rate fell by 5 percentage points. Despite this drop, the implementation of the FHA, Fannie Mae, and programs such as HOLC likely prevented the homeownership rate from falling even further.

The following 20 years saw a significant increase in the homeownership rate, and it is during this time when federal and state policies had a large impact. Fetter (2013b) made a strong case that the imposition of rent control during WWII led to a significant increase in the homeownership rate, and Fetter (2013a) and Chambers et al. (2013) provided evidence that the introduction of the GI Bill and the VA Mortgage program significantly impacted the structure of mortgage finance and the homeownership rate. Along with the FHA mortgage insurance program, the VA program offered longer loan terms with higher LTVs. The latter characteristic allowed otherwise wealth-constrained households to purchase homes with small down payments.

Chambers et al. (2009) found some evidence that changes in mortgage finance such as piggyback loans, first introduced by the GSEs in the late 1990s, affected the increase in the homeownership rate between 1994 and 2005. But this was a short-term effect as this financing just shifted forward the age at which some households first purchased a home. Furthermore, it led to many households purchasing homes who were unable to make mortgage payments and who soon defaulted and then lost their homes to foreclosure. The federal role in this short-term increase in the homeownership rate likely traces back to the deregulation of the mortgage market that began in the early 1980s that laid the groundwork for the dramatic rise in subprime loans made by large and national in scope nondepository institutions.

A significant indirect government presence in the mortgage market is captured by the GSEs Fannie Mae and Freddie Mac. While, historically, they had a small role in the mortgage market, their share of outstanding mortgage debt started to increase dramatically in the 1980s. Concurrent with this increased GSE activity, and together with the passing of CRA in 1977, the 1992 GSE Act mandated steps to increase loans to low-income households and in low-income areas. Many viewed these affordable housing goals as leading to a lowering of mortgage standards and a primary reason for the recent housing crisis. But there is little evidence of a significant impact of the affordable housing goals on the homeownership rate (as well as loan volume and performance), and it points to the conclusion that, in this respect, the GSEs and CRA probably played a minor role in the recent mortgage crisis.

Part of the reason that the GSEs had little role in the housing crisis is that there is strong evidence of considerable GSE crowd out during the market boom of 2003–2006. Furthermore, given that there was very little crowd out in 2007–2008,

Gabriel and Rosenthal (2010) concluded that the government takeover of the GSEs was effective in providing liquidity to the mortgage market during the financial crisis. This is further evidence that the federal role in the housing market is best justified during significantly down markets (as during the Great Depression and Great Recession).

This countercyclical role of federal intervention in the mortgage market also extends to the FHA. Its market share of single-family mortgage originations was around 3% between 2004 and 2007 when the market was booming and was around 25% starting in 2009 when it was in a major downturn. Van Order and Yezer (2014) stated that this is consistent with the purpose of FHA when it was founded in 1934 to spur the housing market during the Great Depression. Now that the housing market is on more firm footing, Van Order and Yezer advocated that the FHA loan limits should be reduced to historic levels so that it can focus, again, on insuring mortgages to first-time low-income and minority households.

Another reason for the minimal role of the GSEs in the financial crisis was that it was not directly linked to problems in the subprime market. Since subprime mortgages are, for the most part, not conforming, they cannot be directly purchased by the GSEs. The GSEs did purchase subprime PLMBS, but Ghent et al. (2013) showed that the primary reason for doing so was not to meet the affordable housing goals. That said, the GSEs had a large stake in the subprime PLMBS market, and while they only purchased AAA tranches, they tended to invest in riskier securities (Adelino et al., 2014). This may have increased credit supply that was used to buy even riskier mortgages. However, it could be that there was substantial GSE crowd out in the PLMBS market and the lowering of mortgage quality would have happened even without GSE involvement.

States have enacted borrower-friendly foreclosure laws in the form of requiring a judicial process for foreclosures, redemption periods, and nonrecourse upon foreclosure. The literature provides little evidence that these laws significantly reduced foreclosures or ultimately homeownership rates. That said, one of the more successful federal housing policies was the HOLC that was established in 1933 to refinance distressed mortgages. The popularity of HOLC (40% of all mortgaged 1–4 family nonfarm units requested refinancing under HOLC) was attributed to the generous terms given to the lenders and the fact that the new structure of the mortgages provided by HOLC was a real benefit to borrowers. This success is in stark contrast to the government response to the recent housing crisis, particularly policies aimed at curtailing the foreclosure crisis, which have been shown to be ineffective. Policymakers would have benefited from taking a closer look at HOLC when designing these recent programs.

14.5. CONCLUSION

This chapter illustrates the great diversity of government housing policies even within a single country. It describes the rationales for two of the largest types of housing policies in

the United States, namely, low-income rental assistance and policies to promote homeownership through interventions in mortgage markets, and the nature of the largest programs of each type, the empirical evidence on their effects, and the data and methods used to obtain them. Our review of the evidence finds large differences in the performance of different programs that have been used to pursue the same goals. It also reveals many important gaps in knowledge. Both are surely true for housing policies in other countries. However, much less is known about them.

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