LOW-INCOME HOUSING POLICY

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I. INTRODUCTION

The United States federal government devotes around $40 billion each year to means-tested housing programs, plus another $6 billion or so each year in tax expenditures on the Low Income Housing Tax Credit (LIHTC). This is well over twice the level of federal spending on either cash welfare or the Title I compensatory program in education, four times what is spent on the children's health insurance fund (Falk 2012), and five times what is spent on Head Start.[1] What exactly do we spend this money on, why, and what does it accomplish? Those are the over-arching questions at the heart of our chapter.

Public concern about housing conditions among the poor dates back at least to the "muckraking" of Jacob Riis and the publication in 1890 of his book, *How the Other Half Lives,* which described living conditions in the Lower East Side tenements of New York City. However as we note in Section II of our chapter, the federal government did not get involved with low-income housing in earnest until the passage of the Housing Act of 1937. Economic stimulus played a large role in motivating the government's initial move into housing. Also important were the concerns of advocates about "market failure" and inadequate supply of low-income housing (see for example Hunt, 2009, p. 9), and by the desire to promote "slum clearance." Given these rationales, for the first several decades, the government was mostly involved in directly supplying housing in the form of federal subsidies to local public housing authorities (PHAs) for the construction of public housing developments.

Over time the number of separate means-tested housing programs in the U.S. has proliferated, due more to political forces than any coherent overall plan or policy motivation. Perhaps the most striking change has been the decline in the share of total low-income housing assistance provided by the U.S. Department of Housing and Urban Development (HUD) that is delivered in the form of government built-and-operated housing. HUD has increasingly relied on subsidies both to private developers to build and operate housing developments for low-income families and to low-income households to rent in the private market (housing choice vouchers). The growth in the Low Income Housing Tax Credit (LIHTC) program has reinforced this change within HUD's program portfolio. The long-term effect of this shift is that the government now plays more of a role in just subsidizing housing for low-income families rather than also directly supplying it.

Section III summarizes what is currently known about the number of people participating in different means-tested housing programs in the U.S., their characteristics, and how these figures have changed over time. Compared to most of the other means-tested programs run by the U.S. government that are considered in this volume, means-tested housing programs are unusually generous on a per-participant basis. Indeed average benefit levels per participant are high enough that even with $40 billion in annual spending, only around 23 percent of low-income renters receive assistance from any of these programs (Fischer and Sard 2013).

1 https://eclkc.ohs.acf.hhs.gov/hslc/standards/pdf/PDF_PIs/PI2013/ACF-PI-HS-13-03.pdf

While all of these programs focus on serving low-income people, the rules governing tenant selection have cycled back and forth over time, sometimes favoring the poorest of the poor and other times prioritizing instead working poor households or those believed to be temporarily poor. This policy cycling reflects a key tension in the design of low-income housing programs. On the one hand, the usual assumption of declining marginal utility of consumption motivates the desire to prioritize helping the most disadvantaged families. On the other hand, many policymakers wish to avoid creating housing developments with high concentrations of very poor households. Changes over time in housing policies and/or program rules reflect changes in the emphasis that policymakers place on the different aspects of this tradeoff.

Section IV discusses the different conceptual issues related to means-tested housing programs in the US. One set of issues has to do with the changing rationales for these programs over time. During the 1930s when the Housing Act was passed the desire to use means-tested housing programs as a tool for macro-economic policy (stimulus) was much stronger than it is today. The belief that government-supported housing programs are needed to stimulate housing supply has also waned over time. To the extent that economists today worry about the supply of private housing in the U.S., they more often focus on the role that local land use and building restrictions play in restricting supply (Glaeser and Gyourko, 2002, Quigley and Raphael, 2004, 2005).

Perhaps the most important motivation for means-tested government housing programs today in the U.S. is concern about housing affordability and the desire to subsidize poor households to help them meet their housing needs. This motivation raises standard questions about the tradeoff between transferring resources to the poor versus reducing work effort, which we consider in Section IV. The challenge in balancing this tradeoff can be seen in some of the different design choices that have been made with different means-tested housing programs. For example the rules of HUD programs like public housing or housing vouchers require participants to contribute 30 percent of income to rent, while the program rules for the LIHTC charges a flat rent to residents. The flat-rent model has the advantage of avoiding the large increase in effective marginal tax rates on earnings that faces participants in HUD programs, which all else equal will reduce labor supply through standard substitution effects. But the use of flat rents in practice makes LIHTC units unaffordable to the lowest-income households.

The goal of addressing problems of housing affordability also raises the question of why government should help poor families meet their housing needs by providing in-kind housing assistance rather than simply cash transfers. One obvious answer is donor preferences – that is, paternalism. Another candidate answer is the belief that housing consumption has either "internalities" that program participants may not fully understand, such as beneficial effects on the ability of people to get and keep a job, or externalities, for example in the form of improved health or schooling. Implicit here is the idea that in-kind housing programs generate higher levels of housing consumption than would similarly costly cash transfers, although this need not be true as a conceptual matter given the complicated budget constraints created by these programs.

A different type of motivation for having in-kind housing programs instead of cash transfers is to help reduce the disparities in neighborhood conditions experienced by households of different races and incomes in the U.S. While there is mixed evidence on whether government-supported housing developments improve neighborhood conditions, the evidence is clearer in indicating that neither project-based housing programs (like public housing) nor tenant-based programs (like housing vouchers) lead families to live in more integrated or less disadvantaged neighborhoods. Families renting in the private housing market who receive housing vouchers do not seem to move into different types of neighborhoods; the degree to which this is due to discrimination by landlords versus other factors is currently not well understood. Historically, public housing appears to have lead families to live in neighborhoods that are even more racially isolated and disadvantaged than they would have otherwise, due in large part to the local politics that influenced site selection of public housing projects. Understanding more about the relative risks of "market failure" versus "government failure" in this area would be of great value to inform policy debates about what the mix of project-based versus tenant-based subsidies should be in the future.[2]

A final conceptual issue that we consider in section IV is the rationale for providing such large subsidies to just a small subset of all eligible households. The goal of many housing advocates is to increase the budgets of means-tested housing programs to a level where such generous subsidies can be provided to *all* income-eligible households. We have no special expertise or insight to make any judgments about the plausibility of achieving that political outcome. But in the meantime policymakers must grapple with the tradeoff between providing large subsidies for a few, versus providing smaller subsidies to many more households.

One argument that is sometimes made by housing advocates against "spreading out" available low-income housing resources across a larger share of poor families is that some minimum level of housing quality is necessary to achieve a real change in the well-being of poor families.[3] It is worth noting that this view runs counter to the commonly-held belief by researchers in other areas of social policy of declining marginal benefits from providing additional income to poor households. In addition, because families are able to receive housing subsidies for as long as they continue to meet income and other program eligibility criteria, most means-tested housing programs are implicitly addressing the problem of low permanent income rather than income variability or

2 For example, from the beginning the federal government subsidized the construction costs associated with public housing, but none of the ongoing operating costs, which were intended to be covered by the revenues that come from tenant rent payments. As Rosen (1985) notes, this may in principle have led to some distortions in the way that public housing projects were built. Starting in 1970 the federal government began to reimburse PHAs for the difference between the operating costs of public housing projects and tenant revenues, which led to a (perhaps inefficient) large increase in operating expenditures by PHAs. Another example of potential government failure was in how local politics were involved in decisions about where to locate public housing projects initially (see for example Hunt, 2009).

3 Since housing regulations try to establish a floor on the minimum quality of housing in the private market, a more accurate description of the argument would be to say – within the range of variation in housing quality seen in the private housing market, many housing advocates seem to believe that there are increasing returns to housing quality in terms of outcomes like well-being or child development, and that voucher amounts must be sufficient to allow households to afford the minimum quality of housing allowed.

helping cushion families against negative income "shocks." In principle, U.S. housing policy could shift towards a system of providing either more modest subsidies or time-limited subsidies to a larger share of eligible people.

The empirical evidence reviewed in Section V of our chapter (which is limited in important ways, as we discuss in detail below) suggests that while housing programs do indeed increase housing consumption and quality for poor families and improve affordability relative to not receiving a subsidy, surprisingly little is currently known about the effects on these outcomes of housing programs relative to cash transfers. There is also not overwhelming evidence to date to support the idea of large externalities from housing consumption to the poor. For example, the means-tested housing programs that HUD operates seem to on net reduce labor supply and earnings for program participants, which suggests that whatever beneficial effects extra housing consumption might have on work may be outweighed by the standard income and substitution effects induced by these programs.

Another sort of externality argument that has often been made is the possibility that inadequate housing or neighborhood conditions adversely affect productivity, health, well-being, and behavioral outcomes, or what Rosen (1985) refers to as the "social cost of slums."[4] While there is little evidence that housing conditions within the range that we currently see in the U.S. generate major externalities, there does seem to be some indication of neighborhood externalities on outcomes like health and overall well-being. However housing subsidies do not necessarily move families to better neighborhoods. The public housing program appears, if anything, to lead families to live in more economically and racially isolated neighborhoods than they would otherwise, and families receiving tenant-based subsidies like housing vouchers do not seem to use them to move to neighborhoods that are substantially different from the ones they were living in previously without a subsidy. It is possible that modifications to the design of the housing voucher program could induce or assist families in moving to less segregated areas; HUD is currently experimenting with such modifications, as we discuss below.[5]

While most of the research has focused on how housing programs affect participants, which is relevant to questions about expanding or contracting these programs, the question of how changing the mix of subsidies affects families is also relevant. Most of the research in this area has been focused on comparing HUD project-based versus tenant-based programs. Because the rent rules are mostly the same for HUD's public housing program and its voucher program, shifting from one program to another within

4 For example one of the initial motivations for housing programs in the 1930s was the potential effect of slum conditions on delinquency by children (Hunt, 2009). And in announcing the War on Poverty in 1964, President Lyndon B. Johnson argued: "Very often a lack of jobs and money is not the cause of poverty, but the symptom. The cause may lie deeper in our failure to give fellow citizens a fair chance to develop their own capacities, in a lack of education and training, in a lack of medical care and housing…"

5 As we discuss below, the current housing voucher program sets the fair market rent (FMR) – which speaking loosely could be thought of as something like a rent "cap" for voucher-holders – at the 40th percentile of the metropolitan statistical area. Using smaller geographic areas to define the FMR essentially reduces the amount of housing unit quality poor families with vouchers need to give up for an improvement in neighborhood amenities.

HUD's budget does not deliver the same direct financial benefits to households as does giving a subsidy to a previously unsubsidized household. However by breaking the link between a government subsidy and a specific unit located in a given place, vouchers enable families to live in less distressed neighborhoods. While moving to lower poverty neighborhoods does not seem to have the sweeping effects on people's behavior and life chances as much of the non-experimental literature on "neighborhood effects" would have predicted, it does change several important outcomes, particularly health, and improve overall well-being.

The final section concludes with some thoughts about the most pressing questions that might be addressed in future research in this area.

II. HISTORY OF THE PROGRAMS AND CURRENT RULES

Federal low-income housing programs can be broadly divided into three categories of programs: (1) public housing; (2) privately-owned, subsidized housing; and (3) tenant-based vouchers.[6] In this section we begin with a history of means-tested housing programs in the U.S., which started with public housing. Over the years, the government rhetoric surrounding housing has shifted away from publicly-owned housing towards privately-owned housing, and more recently from place-based subsidies towards tenant-based support. In practice the flow of dollars has changed less than the rhetoric, largely due to the growth in the LIHTC program, but there is no question that the private housing market has come to play a much more central role in federal housing assistance. After describing the history of these programs we then turn to a discussion of their key features and program rules.

A. Program History

1. Public Housing

Public housing, the federal government's first major low-income housing program, was established by the Housing Act of 1937. Although largely funded by the federal government, public housing developments are owned and operated by housing authorities established by local governments, which have control over siting, design and tenant selection. The federal government paid for the initial construction costs (through covering debt service on bonds issued to finance development costs), and the original hope was that rental revenues would largely cover the operating costs. Over time, buildings aged, utility costs rose, and rental revenues fell fall short of what was needed to cover the costs of operations and maintenance. In response, the federal government started to provide

6 The federal government also provides block grants to states and localities to use for a wide range of housing-related activities. The HOME program awards funds annually to jurisdictions to support the creation and rehabilitation of affordable housing or the provision of direct rental assistance to low-income households. HOME funds are most often used to support creation of new affordable housing, in conjunction with other subsidies. The Community Development Block Grant program provides block grants to support community development goals, including housing rehabilitation.

more substantial subsidies for operations and improvements beginning in the early 1970s (HUD 1974).

The enactment of public housing was highly contested, as the private real estate industry feared competition, and conservatives resisted public ownership as well as long-term subsidies (Mitchell 1985). The program arguably emerged only because of the crisis in the national economy. In the middle of the 1930s, the country was still reeling from the Great Depression, with a national unemployment rate of 25 percent. Public housing was sold partly as a way to increase construction employment and stimulate the economy. As Robert Wagner, the co-sponsor of the bill, poetically put it, "The whole country awaits the time when the sound of the rivet and the saw are joined more loudly in the chorus of economic recovery" (Mitchell 1985, p. 245).

Wagner's testimony reveals a second motivation for public housing as well: slum clearance. Wagner and many housing reformers were convinced that poor quality housing generated social and economic externalities. As Wagner declared: "It is not necessary to prove here that millions of people in America live in homes that are injurious to their health and not conducive to their safety… Nor do I need to elaborate on the fact that bad housing leaves its permanent scars upon the minds and bodies of the young, and thus is transmitted as a social liability from generation to generation" (Mitchell 1985, p. 245). Neighborhood externalities were raised as a concern as well. The U.S. Conference of Mayors, key supporters of the bill, passed a resolution at their 1935 annual meeting stating that "the disgraceful conditions in the city slums … have a directly detrimental effect on the social well-being of these areas and the surrounding communities" (Mitchell 1985, p. 248).

Notably, there is less in the official congressional debate suggesting a motivation to simply help the poor. While members of Congress did make the case that the program would increase the supply of low-rent housing for low-income households, the targeting of the program to low income households seems to have been justified more as a way to restrict government investment to a segment of the market that private developers would not serve in order to protect private owners from competition (Meehan 1979; Schill 1993). Further, the program was set up in a way that had housing authorities screen tenants carefully, favoring those viewed to be temporarily poor (Friedman 1968; Vale, 2000).

After its contested enactment, the public housing program never grew to become very popular. At a national level, it has always faced loud opposition from the real estate industry and market advocates who have questioned the efficiency of public ownership. On a local level, residents have often fiercely opposed the construction of developments within their communities, charging that they would undermine the architectural character of their community, increase crime, and reduce property values.

Of course many liberal housing advocates originally supported the program, and tenants, at least initially, were quite happy with the program. Most residents found their housing units to be far superior to their previous homes (Wright 1981). Even the notorious Pruitt-

Igoe and Robert Taylor Homes developments were initially popular among residents (Vale 2013).

But by the late 1950s, even those sympathetic to the need for direct housing subsidies were starting to question the success of the public housing model. One issue was design. Housing officials tended to build large developments that were architecturally distinct from the surrounding neighborhoods. They felt such developments would help not only to reduce costs but also to create order and "discourage regression" to the slums that they had replaced (Wright 1981, p. 235). Liberal critics soon charged that this design approach had been a mistake, and that the institutionalized, high-rise buildings that made up public housing developments, together with their placement on "super blocks" set apart from the regular street grid, both stigmatized tenants and isolated them from their neighbors (Bauer 1957).

A second concern with the public housing program as it was implemented concerned siting. While there are many good arguments for local control, it allowed local jurisdictions, especially those located in the suburbs, to opt out of participating in the program, ensuring the concentration of public housing in central cities. Further, it permitted city governments to build developments in areas already occupied by poor, and typically minority, residents, further concentrating poverty and deepening racial segregation (Schill and Wachter 1995). The extreme case, perhaps, was Chicago, where of the 33 projects constructed in the 1950s and early 1960s, all but one was built in a neighborhood that was at least 85 percent black (Hirsch, 1983).

In part due to the lack of popularity of public housing, the pace of construction never matched the goals set out in the various housing acts. At its peak in the early 1990s, the program reached 1.4 million units. Today, the number of public housing units has fallen to 1.1 million as new public housing is no longer being created and many projects have been demolished.

Most of the demolitions have occurred through the HOPE VI program, which aimed to replace distressed public housing developments with lower-density, mixed-income developments (Schwartz 2014). Between 1993 and 2007, HOPE VI supported the demolition of more than 150,000 units of public housing, or equal to 11% of the nation's total public housing stock at its height. These demolished units have been fairly geographically concentrated; 60% of them are located in just 33 cities. To the chagrin of housing advocates, the program did not include a one-for-one replacement rule (that is, a guarantee that each public housing unit that was demolished would be replaced), and only about 55 percent of the demolished units will be replaced with public housing. (To be fair, many of the original units were vacant and uninhabitable at the time of demolition (Schwartz 2014).)

2. Privately-Owned Subsidized Housing

While there is just one public housing program, the federal government has created numerous programs to subsidize the creation of privately-owned, low-income housing.

The programs emerged in the 1960s and 1970s, as both criticism of the public housing program and interest in the potential of public-private partnerships to solve social problems mounted. Policy makers were also motivated by a desire to create a program that would serve households with incomes too high to qualify for public housing but too low to find stable, sound housing through the private market (Hays 1995). In the typical model, the private organization would agree to provide housing with reduced rents for a specified number of years in return for a below market interest rate loan. Initially only nonprofits were allowed to participate, but soon for-profits were invited as well.

The initial programs were not means-tested; instead they attempted to insure that low- and moderate-income households would occupy the developments by limiting construction costs. But the newly constructed developments were expensive, and the initial subsidies were not sufficient to write down the rents to a level affordable to low-income households. Thus, occupants tended to be moderate-income households. The rent supplement program was later developed to write down rents of low-income tenants who lived in these developments to 25 percent of adjusted income (Olsen 2003). Annual commitments grew considerably, and research showed that much of the subsidy was going to cover administrative expenses as well as tax benefits to investors (Frieden 1980).

In 1974, the federal government introduced a new, and more generous, approach to subsidizing low-income housing in the private market. In addition to providing subsidies for construction or rehabilitation, the Section 8 New Construction and Substantial Rehabilitation programs provided a direct rental subsidy to tenants. Developers were also able to take advantage of accelerated depreciation allowances (allowing owners to claim deductions that are larger than actual economic depreciation, and thereby pay lower taxes, in early years of ownership). As a result of these generous subsidies, the program was expensive. Indeed, these programs turned out to be so expensive that Congress essentially terminated all of HUD's construction programs in 1983.

But just a few years after it ended HUD's production programs, Congress created the Low Income Housing Tax Credit (LIHTC) as part of the Tax Reform Act of 1986, which has now become the largest subsidy for the production of rental housing in the United States. Unlike many other tax credits, low-income housing tax credits are limited in supply and allocated annually to states based on their population. Initially, each state was given a per capita allocation of $1.25. This amount increased to $1.75 in 2002 and has been adjusted for inflation since, reaching $2.25 in 2013. (The justification for these per capita allocation formulas from the perspective of economic theory is not clear). Each annual allocation authorizes a ten-year stream of tax credits, which is estimated to reach nearly $7 billion in 2014.[7] By the end of 2012, the program had supported the creation of nearly 2.5 million housing units, surpassing both the public housing program and other

7 According to the Joint Committee on Taxation, the LIHTC will cost $6.7 billion in foregone revenue in 2014. http://crfb.org/blogs/tax-break-down-low-income-housing-tax-credit

HUD-supported, subsidized housing.[8]

Under the LIHTC states issue tax credits to developers to support the construction and rehabilitation of low-income, rental housing developments. Projects are eligible for tax credits if at least 20 percent of their tenants have incomes below 50 percent of the area median income (AMI) or at least 40 percent have incomes below 60 percent of AMI. (Since many readers may find the poverty rate a more intuitive benchmark than AMI, it may be helpful to note that in 2014 for a family of four, the annual poverty level is 39% of the average area median income).[9]

In practice, the vast majority of LIHTC projects contain only low-income units, or units affordable to households earning under 60 percent of area median income or lower, with 95 percent of units in tax credit projects qualified as low-income units. (While the credit sets a minimum share of units within developments that are deemed affordable, the amount of tax credits available for a project increases with the share of units that is affordable.) Projects must meet these requirements for a minimum of 15 years to qualify for the ten-year stream of tax credits.

The LIHTC program is administered by state allocating agencies, which determine the priorities for the LIHTC program, and award credits to developers. Each agency is required to submit a qualified allocation plan (QAP) each year that outline the selection criteria it will use when awarding tax credits. Some criteria are required by the federal government, such as serving the lowest income households, setting aside at least ten percent of credits for nonprofit developers, and using the minimum amount of tax credit financing feasible. But states are also allowed to adopt additional priorities, such as providing set asides for developments in rural areas, or awarding bonus points for locating developments in geographic areas within the state with greatest need (based on low vacancy rates, and/or high rents). As the competition for credits has increased, these criteria may play a greater role in the final distribution of tax credit projects.[10]

Many LIHTC developments also receive other sources of funding to cover construction costs, such as low-interest loans from state and local governments and rental assistance payments for very low-income tenants. A recent analysis of ten states found that half of LIHTC tenants were also receiving some form of government rental assistance as well, either project- or tenant-based (O'Regan and Horn, 2013).

3. Housing Vouchers

Partly motivated by the high costs of construction programs, Congress created the Section 8 Existing Housing Program in 1974, which awarded vouchers to low-income

8 http://www.huduser.org/portal/datasets/lihtc.html
9 http://www.ocpp.org/poverty/2014-median-income/
10 LIHTC projects that are financed through tax-exempt bonds can automatically qualify for LIHTC credits of 4%. While these credits must meet all LIHTC restrictions, they are not allocated through a competitive process and do not count towards the state yearly per capita cap.

households to rent apartments on the private market. While slightly different variants of the program have evolved over the years, the basic structure has remained the same. Tenants generally pay 30 percent of their income towards rent, while the federal government covers the difference between this payment and the rent, up to a specified maximum payment standard (see below). To qualify for the voucher program, housing units must meet certain quality and size standards, and participation by landlords is voluntary, though several states and localities have now passed Source of Income Discrimination laws that prohibit landlords from discriminating against voucher holders. (Owners of LIHTC housing are also prohibited from discriminating against voucher holders.) The voucher program is now HUD's largest housing subsidy program for low-income households.

B. Program Rules

In this section we discuss the rules for the most important housing programs described above. Rather than discuss the rules program-by-program, we contrast how the different program rules operate with respect to income eligibility and rent requirements.

1. Income eligibility

While all of these programs were designed to provide rental housing for low-income households, income eligibility rules vary across programs and have varied over time within programs. These fluctuations reflect changing attitudes over time about how to balance the desire to serve the most disadvantaged families with other program objectives such as generating sufficient resident rent contributions, trying to avoid dis-incentivizing work, and the desire to avoid creating large concentrations of very low-income families.

From the start, the public housing program was designed to target low-income families, but the expectation that rents would largely cover operating costs gave local housing authorities an incentive not to target the very lowest income households. The Housing Act of 1937 simply stated that public housing tenants could earn no more than five times the rent they paid for their homes. Many public housing authorities appear to have used the leeway they had to screen tenants to choose working poor families (Schwartz 2014; Vale 2000).

Over time, perhaps due in part to the aging of the stock or the availability of subsidized homeownership, the median income of public housing tenants fell from 57 percent of the national median in 1950 to just 29 percent in 1970 (Schwartz 2014). Note that 29 percent of the national median in 1970 amounted to just $2,460, or about 80 percent of the poverty threshold for a family of three.

In 1974, due to concern about the concentration of poverty in public housing developments, Congress required PHAs to establish tenant selection criteria that would allow for families with a broad range of incomes to avoid concentrations of low-income and deprived families with serious social problems" (HCD Act 1974). Seven years later, Congress completely changed course and adopted stringent targeting requirements,

mandating that 90 percent of occupants in existing public housing buildings and 95 percent in newly constructed buildings have incomes below 50 percent of the area's median (Schill 1993). Further, Congress introduced requirements that housing authorities give preferences to households that were involuntary displaced, living in substandard housing or shelters, or paying more than 50 percent of their income on rent. The combination of these rules meant that virtually all households entering public housing now had incomes at the very low end of the local distribution. By 1990, the median income of public housing residents fell to less than 20 percent of the national median (Schwartz, 2014), and the proportion of public housing tenants with incomes below 10 percent of the area median had risen to 20 percent (Spence 1993).

In 1998, the pendulum swung back again, and Congress sought to limit concentrations of poor households living in public housing. The Quality Housing and Work Responsibility Act of 1998 mandated that just 40 percent of households admitted into public housing should have incomes below 30 percent of the area median.

Table 1 below shows that public housing tenants can technically earn up to 80 percent of the area median income. But in practice due to preferences and also demand, most tenants fall far below this limit. In 2013, 76 percent of public housing tenants earned incomes below 30 percent of their local area median income (HUD, 2013). Similarly, tenants in Section 8 New Construction and Substantial Rehabilitation developments can also technically earn up to 80 percent of the area median income, again few do so in practice, as shown in Section III.

The official income limits for the LIHTC program are lower than those for public housing and project-based Section 8; LIHTC tenants can technically earn only 60 percent of the area median income upon initially occupancy. In practice, however, LIHTC tenants turn out to have higher average incomes because the program does not provide rental assistance to tenants, and projects are typically underwritten to rents affordable to households earning 60 percent of AMI. So unless tenants have other rent subsidies, like housing vouchers, they typically earn incomes at about this level.

Although vouchers were initially aimed at households earning up to 80 percent of AMI, over time the program has been targeted to lower income households. Today, other than in a few special cases, tenants can earn no more than 50 percent of AMI, and the 1998 Quality Housing and Work Responsibility Act mandated that 75% of new voucher households must earn less than 30 percent of AMI. Despite this deeper targeting, Section III shows that incomes of voucher holders appear to be about the same as those of tenants in public housing and project-based Section 8 housing.

2. Rent requirements

As for rules about rents, rents in the public housing program were not initially tied to tenant income – they were flat rents set at levels that would enable local authorities to cover their operating costs. But costs grew faster than tenant incomes, and Congress responded by passing a series of amendments (the Brooke amendments) between 1969 and 1971 that set rents at 25 percent of a tenant's income to protect tenants (HUD 1974).

This percentage was raised to 30 percent in the early 1980s (Olsen 2004). Housing authorities typically recertify tenants' incomes every year.

The 1998 Housing Act required that housing authorities give families the option of paying a flat rent based on local market rents, though relatively few accept the offer. As for 2005, an estimated 10 percent of public housing tenants were paying a flat rent or a ceiling rent (a capped rent amount on the income-based rent) (Finkel and Lam, 2008).[11]

Tenants generally also pay 30 percent of their income both in the voucher program and the Section 8 New Construction/Substantial Rehabilitation program, just as in the public housing program. In the voucher program, the federal government covers the difference between the tenant payment and the rent, up to a specified maximum payment standard. (Tenants may in fact pay as much as 40 percent of their income on rent if they choose to rent an apartment that rents for above the allowable payment standard.) Housing authorities typically recertify the income of voucher holders every year, though some are now recertifying incomes only every other year or every three years.

Housing authorities can set payment standards between 90 and 110 percent of the fair market rent in the metropolitan area, which is defined as either the 40th or 50th percentile of rents, depending on the cost of housing. HUD uses metropolitan areas to define the local market, as they are believed to capture the full set of housing options available to a household in that area. The drawback of using such large areas to define FMRs is that units that rent below the 40th percentile within a metropolitan area tend to be concentrated in the lowest income neighborhoods within that area. HUD is currently experimenting with letting a few housing authorities set fair market rents at the zip code level, with the aim of providing voucher holders with access to a broader range of neighborhoods.[12]

In contrast to the HUD programs, tax credit rents are flat and not tied to a tenant's income. The flat rents can be no higher than the rent that would be affordable to a household earning the maximum income allowed for the low-income units in a tax credit development (typically 60 percent of the area median income).[13] Developers may charge lower than the maximum allowable rents, but rents charged for the unit are the same regardless of the income of the household who actually lives there. As a result, tenants in tax credit developments can pay considerably more than 30 percent of their income towards rent. Technically, there is no cap on rent burdens, though many owners impose minimum income requirements on applicants to ensure reasonable burdens. Further, LIHTC households are allowed to stay in developments even if their incomes rise, suggesting burdens may be lower than 30 percent for some households. In a study of

11 The New York City Housing Authority accounted for about one third of all flat-rents units nationwide in 2005 (Finkel and Lam, 2008).

12 At this time, six housing authorities are operating "Small Area Fair Market Rents." The Housing Authority of Cook County (IL), Chattanooga Housing Authority (TN), the City of Long Beach Housing Authority (CA), Laredo Housing Authority (TX), and the Town of Mamaroneck Housing Authority (NY) have voluntarily joined the demonstration. Dallas Housing Authority (TX) continues to operate with zip code FMRs resulting from a lawsuit.

13 Rents are considered affordable to a household if they amount to no more than 30 percent of a household's pre-tax income.

LIHTC developments in 18 states, O'Regan and Horn (2013) find that a majority of tenants were rent-burdened according to standard definitions: 41 percent of LIHTC tenants paid between 30 and 50 percent of their incomes for rent and 16 percent paid over half of their incomes for rent.

The fact that the average incomes of LIHTC residents are higher than those for participants in HUD-sponsored programs highlights a tension in the design of means-tested housing programs: Setting tenant rent contributions to equal 30 percent of income has the downside of greatly increasing the effective marginal tax rates on earnings facing households. On the other hand setting flat rents combined with the need for projects to reach revenue targets to be economically viable means that the flat rent in practice can wind up pricing out many of the lowest-income households.

III. PROGRAM STATISTICS

This section considers data on low-income housing assistance over time and the characteristics of families receiving federal low-income housing subsidies. We then review statistics on aggregate housing assistance receipt relative to eligibility and describe trends in federal spending on low-income housing subsidies.

A. Trends in Low-Income Housing Assistance

The largest federal low-income housing assistance programs serve approximately six million households today. Figure 1 displays the number of units or households by program over time. For over 30 years government-managed public housing was the only major form of federal low-income housing assistance. The mid-1970s gave rise to privately-owned and managed properties as an important source of federal low-income housing assistance with the development of the Section-8 tenant-based and new-construction programs. By the early 1990s, the public housing, tenant-based and project-based Section-8 programs were roughly equal in size, with each serving about 1.4 million households. The LIHTC program was introduced as part of the tax reform act of 1986 and has grown rapidly since.

During the past 20 years, the public housing stock has shrunk by about 300,000 units, with about 150,000 of the most distressed public housing units demolished through the HOPE VI program. While the project-based section 8 and public housing stock have declined by nearly 600,000 units in the last twenty years, this has been more than offset by an additional 2.2 million households served through the Housing Choice Voucher program and the LIHTC (Table 2). Today, privately-owned and operated properties house nearly three-quarters of assisted households.

B. Characteristics of Households Served

Table 3 provides a picture of households assisted by HUD rental assistance programs. The roughly 4.5 million households served through the Public housing, Housing Choice

Vouchers, Project-based Section-8 and smaller programs account for roughly 10 million persons. In this section we focus on HUD-assisted households. One challenge describing federally assisted renters is the absence of data on households served by the LIHTC. Until very recently, no federal agencies were responsible for collecting this data. HUD is now beginning to collect this information, but clean nationally representative data is not yet available.

HUD assisted households are on average quite disadvantaged with incomes of $12,000-$14,000 across HUD's major programs. Three quarters of households earn less than 30 percent of their Area Median Income (AMI). Although there is no national database of LIHTC tenants, a recent analysis shows that LIHTC tenants have considerably higher incomes than households participating in HUD programs. Analyzing tenant income data for 18 states, O'Regan and Horn (2013) report that 45 percent of LIHTC tenants earned less than 30 percent of the area median income in 2009, and about a fifth earned over 50 percent of the local AMI. (Indeed a significant minority of LIHTC tenants earn above 60 percent of AMI because there is no requirement for households whose income grows above that income limit to move from LIHTC housing.)

Roughly 40 percent of all HUD-assisted households have children. A large share of HUD-assisted households are headed by an elderly member (33%) or a disabled head or spouse (33%). The majority of HUD-assisted residents are racial or ethnic minorities. Slightly over one-third of households are non-Hispanic White.

There are some important differences across programs. Residents of Project-based section-8 tend to be whiter and older relative to participants in other HUD programs, in part because of the inclusion of rental assistance delivered to Section 202 developments, which house the low-income, elderly. Housing voucher households are on average younger, more likely to include children and larger than households served by public housing or project-based section-8. Single female-headed households make up about 40% of voucher households and roughly one-third of public housing households. When utilities are included, voucher households pay more on average for their housing than either public housing or project-based section 8 residents (not adjusting for quality).

Given that some justification for housing assistance is based on the presence of neighborhood externalities, the average neighborhood characteristics across programs is a relevant statistic. On average, public housing households reside in census tracts where 32 percent of residents are poor. This is considerably higher than the neighborhoods occupied by the average voucher tenant (22 percent poor) or residents of project-based section 8 (23 percent). Of course because the program populations are slightly different, these differences in neighborhood environments could partly reflect differences in the constraints or preferences of the participants in the different programs. Below we review the evidence that is available on the effects on neighborhood environments of changing the type of subsidy that a given family receives.

C. Eligible Households and Housing Affordability

The number of households served by federal rental assistance has increased over time, in absolute terms, and households receiving federal assistance are quite disadvantage by standard measures. Two important lingering questions are: how has the need for low-income housing assistance evolved over time? And what proportion of eligible households receive federal rental assistance?

The concept of "need" for housing assistance depends on the precise justification. As we will discuss in Section VI, the motivation for present day housing programs tends to focus on the issue of affordability- expressed as the share of income spent on rent. Of course, affordability measured in this way can decrease in response to falling income even as housing costs remain constant. By most measures, housing costs have increased in real terms in the post-war era. Indices of housing affordability suggest that housing has become less affordable in the past twenty years with some relief likely stemming from the recent recession (Figures 2 and 3). Table 4 also suggests that low-income households spend more today on rent than they did 50 years ago. The median renter household in 1960 spent about 18 percent of their income on rent; today they spend 29 percent. Renters in the bottom fifth of the income distribution devoted about 47 percent of their income to rent in 1960 compared to 63 percent today. This trend is at least in part due to stagnant real incomes for renters over this period, but there housing expenses seem to have risen in real (inflation-adjusted) terms as well. Given the large improvements in housing conditions over this time, it remains somewhat unclear how much increases in real rents are due to improvements in housing quality.

As noted above, one very striking feature of federal low-income housing assistance is the small share of eligible households that actually receive a subsidy. As discussed in Section II, most federal low-income housing programs allow households to remain eligible up to 80 percent of Area Median Income, but target households with lower incomes. The 2011 AHS shows nearly 19 Million renters with incomes below 50 percent of Area Median Income, with 4.6 Million of them reporting receiving some kind of rental assistance. These figures suggest that slightly fewer than one in four eligible households currently receive a housing subsidy. In just about all parts of the country housing assistance is oversubscribed, and local housing authorities develop idiosyncratic systems of prioritizing households on a waitlists. Low-income housing assistance is the only major federal welfare program rationed in this way, a point to which we return below.

D. Budget

Table 5 shows direct federal spending on housing programs since 1980 in nominal and real (2013) dollars. Expenditures on housing assistance to low-income families rose substantially in real terms through the late 1980s and early 1990, were stable through much of the 2000s, spiked in 2010 and 2011 partly due to investments from the federal stimulus package (ARRA), and then declined recently as a result of cuts triggered by budget sequestration. Budget numbers such as these can be somewhat misleading in that

they reflect the accounting cost of particular housing programs, which may be very different than the annualized cost of providing housing subsidies for any given set of units at one time. This problem is most apparent in the case of new housing construction or rehabilitation where costs may be overstated due to upfront capital costs of providing this housing for future years, in the case of grant subsidies, or understate the true cost depending on the choice of debt financing. These outlays of course also do not capture the opportunity costs of using land for low-income housing, or any spillover costs (positive or negative) of the programs.

Most federal subsidies for low-income housing can be found in HUD's budget, though the USDA operates a few small rural housing programs.[14] Importantly, Table 5 excludes tax expenditures, including subsidies that come through the Low-Income Housing Tax Credit. Table 6 provides estimates of the subsidies for LIHTC for the past ten years. The LIHTC cost over 6 billion in 2013.

While expenditures on housing assistance for low-income households are large in absolute terms and relative to other major social programs, they are dwarfed by federal subsidies for homeownership. Federal homeownership subsidies appear primarily in the tax code with the most well-known being the Mortgage Interest Deduction, but the most economically meaningful being the non-taxation of imputed rent (Sinai and Gyourko, 2004). Sinai and Gyourko (2004) estimate aggregate subsidies for homeownership in 2000 on the order of $420 Billion (1999 dollars), more than four times the aggregate subsidies to low-income renters even on a per-owner /renter basis.

IV. REVIEW OF ISSUES SURROUNDING THE PROGRAMS

In this section we discuss several different conceptual issues that are raised in the design and operation of means-tested housing programs. First, we discuss the justification for these programs. The growing emphasis on affordability as a motivation for the existence of such programs raises questions about why government relies on in-kind housing programs instead of just providing cash transfers. Many of the rationales for in-kind housing programs rest on the assumption that such programs will lead to greater consumption of housing than would a cash transfer of equal cost to the government, which as we note below need not be the case. Then we discuss the potential "internalities" and externalities associated with housing consumption, which are frequently cited as key justifications for such programs. We pay particular attention to potential effects on labor supply, and how housing programs balance the general tension with all poverty programs between supporting poor households and not trying to discourage work. The third issue we discuss is how different housing programs affect the neighborhoods that participants live in as well as how they shape neighborhood environments for others. The final issue addressed here is the logic and potential

14 USDA operates the Section 515 program and a few smaller rental assistance programs, but they are small relative to other housing programs (<$1B/year)

limitations of the current system's approach of providing very generous subsidies to just a small sub-set of income-eligible households.

A. Justifications for Low-Income Housing Subsidies

The justifications for government involvement in housing markets have shifted over the years, and they varied even at their beginning. The development of the nation's public housing program was motivated in part to stimulate the economy after the Depression, but also partly to address perceived failures on the supply side of the private housing market. Early housing reformers maintained that private enterprise only constructed adequate quality homes for households in the top of the income distribution, and that government involvement was critical to rescue low-income households from dangerous slums, which they believed bred social ills (Von Hoffman 1996). This view seems to ignore the important role of filtering in supplying housing to low-income households.

Whatever the initial arguments were in the 1930s around supply problems in the private housing market, the supply of quality housing has clearly changed dramatically since then. Census measures of substandard housing, such as units lacking complete plumbing facilities, have declined dramatically from a little less than half of all housing units (45.3 percent) in 1940 to a tiny share of all housing (2 percent) in 2012. Over-crowding has shown similarly large decreases since 1940 from nearly one-in-five households with more than 1-person per room to one-in-twenty households today. The share of units without a septic or sewer connection has similarly declined. The incidence of housing problems has fallen substantially in nearly every measurable way. Mirroring these declines in problems has been an improvement in the availability of housing amenities. Less than half of all housing units in 1973 had some form of air conditioning (central air or room-units). In 2011, more than 85 percent of housing had either central air or a room-unit air conditioning.[15]

As housing conditions have improved, affordability has worsened, and today's motivation for low-income housing subsidies is much more about affordability and less about quality, though current housing programs still impose some quality restrictions.[16] The median renter household in 1960 was paying approximately 18 percent of his/her total family income in rent; the equivalent figure today is 29 percent.

Implicit in the argument that households are paying too much for housing is that they lack income to cover consumption of other goods. But if the aim of housing subsidies is to reduce under-consumption of non-housing goods, why provide in-kind housing subsidies rather than cash transfers?

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15 A different type of argument noted by Aaron (1972, p. 18) is the possibility that the private supply of housing responds to changes in housing demand with a lag that policymakers view as "too long."

16 The U.S. Department of Housing and Urban Development bi-annually tracks a measure called "worst-case housing needs" which are unsubsidized low-income households16 paying more than 50 percent of their income towards rent or occupying "severely inadequate" housing as measured by the American Housing Survey. In 2011, there were 8.45 Million of these households of which just 3 percent resided in substandard housing (HUD 2013).

There are a few arguments to justify such in-kind support, many of them generic to the whole issue of in-kind programs rather than specific to housing *per se*. The first potential justification is donor preferences. In-kind transfers typically are only preferred on paternalistic grounds. Currie (2008) provides a thorough review of the theory justifying in-kind transfers (see also Aaron, 1972). Probably the most realistic model of this paternalism for low-income housing policy is to allow for an interdependence of preferences among donors (taxpayers) and recipients whereby donors derive some utility from the seeing the recipients consume a particular good, in this case housing. Another related possibility is that donors have preferences to restrict the consumption choice set of low-income households to rule out consumption of particular goods such alcohol, cigarettes or luxury goods.

Whether it is a preference for consumption of housing or against other goods, in-kind housing transfers seem to have more political support than cash transfers. For example a 2003 survey found that just 39 percent of Americans support cash payments to the poor when there is no barrier to employment, while 89 percent of Americans support low-income housing assistance (Lennen et al 2003). On the other hand 90 percent of Americans do not necessarily support the specific programs administered by the federal government. This may or may not be related to the federal government's decision to continue to administer a bewildering variety of housing programs, even though most of them are no longer producing new units. Forty years ago the authors of *Housing in the Seventies*, the 1974 HUD report summarizing the findings of the National Housing Policy Review, identified 20 different subsidized housing programs and called the nation's housing laws "a hodge podge of accumulated authorizations" which "contain internal inconsistencies, numerous duplications, cross-purposes, and overlaps as well as outright conflicts and gimmickry" (HUD 1974, p. 22).

The authors of the report attribute the proliferation to the multiplicity of goals that housing programs are designed to achieve, ranging from stimulating the economy to removing slums, assisting the poor, and furthering economic and racial integration. It may also be that the fragility of the political support for low-income housing contributes to the proliferation too. It is far from certain that voters would support a simple, broad-based housing entitlement program. Voters are probably far more willing to swallow piecemeal efforts. It is no coincidence that the Low Income Housing Tax Credit Program is a tax expenditure program that does not require annual appropriations.

A second argument for having means-tested housing programs is that providing in-kind subsidies rather than cash payments reduces the risk of fraud as households will be less motivated to try to secure housing rather than cash (Nichols and Zeckhauser 1981).

A third argument is that housing is a "merit good" – that we believe that all residents of the United States, as stated in the Housing Act of 1949, deserve a "decent home and suitable living environment." However if housing is a normal good, a cash transfer should similarly increase housing consumption. This raises a critical question for low-income housing programs: do housing subsidies increase housing consumption *more than* an equivalently sized cash transfer?

Given the possibilities of under consumption externalities of the sort discussed above, it is instructive to consider briefly how an in-kind housing subsidy could conceivably increase housing consumption. The federal low-income housing programs produce complex budget sets for participating households with varying rules determining income deductions and exemptions. We will limit our focus here to general cases corresponding to the larger unit-based assistance programs: public housing and the Low-Income Housing Tax Credit (LIHTC), and tenant-based rental assistance (Housing Vouchers). For a more detailed theoretical analysis of federal low-income housing programs, see Olsen (2003, 2008). First we consider the simple unit-based assistance case. For the public housing program, a participating household is simply offered a fixed quality of housing Q_{PH} at a rent equal to 30 percent of their income (Y) after adjustments. Ignoring the distortions of the transfer on labor supply, the static budget set is represented in Figure 4. The vertical axis is the quantity of all other goods consumed (Q_x), and the horizontal axis is a scalar index of housing quality consumed (Q_H).

As noted by Olsen (2003), economic theory is somewhat ambiguous as to whether a household offered public housing will increase its housing consumption. Public housing admission produces a take-it or leave-it offer of a fixed quality of housing. Very likely public housing offers a better housing alternative for families applying for assistance – however it may be that households would consume better housing in absence of subsidy and instead increase consumption of other goods by accepting the public housing unit. Like public housing, the LIHTC program provides a take-it or leave-it offer of a fixed quality of housing. Unlike public housing, which often increases consumption of other goods by fixing the tenant's rent contribution at 30 percent of income (less than most unsubsidized poor households' pay), the LIHTC program may have less of an impact on the consumption of other goods (absent additional subsidies) because rents are *not* tied to a given tenant's income. Instead, rents are set to 30 percent of 60 percent of the Area Median Income (roughly twice the poverty line in most parts of the country). Thus, it is possible that the LIHTC program mostly provides residents with an improvement in housing quality.

Housing vouchers are more flexible than project-based subsidies. Recipients get a capped rent subsidy to lease any unit on the private market – conditional on the owner accepting the voucher. Recipients pay 30 percent of their income, and the voucher pays the difference in rent, up to a locally-defined rent ceiling. The structure of the voucher subsidy produces a complex budget set for voucher households (illustrated in figure 5 with cases). The rules of the voucher program are such that it doesn't guarantee increased housing consumption. Families receiving a voucher can occupy the same unit as they resided in prior to voucher receipt; this is particularly common for newly admitted families because voucher holders have a finite amount of time to find housing (typically around 90 days) when first issued a voucher, before it is recaptured by the housing authority. Approximately 20 percent of newly issued voucher holders "lease in place" (Finkel and Buron 2001). Presumably a large number of these families will then gradually re-optimize with future moves.

As noted by Olsen (2003), an earlier design of the voucher subsidy theoretically ruled out the possibility of consuming less housing by providing a cash transfer conditional on occupying housing above a minimum quality standard. Housing is presumably a normal-good for most households, so we would generally expect housing subsidies to increase housing consumption. What is less clear is whether under-consumption of housing is a significant policy problem or whether the current system of housing subsidies increases housing consumption more than equivalently-sized cash transfers.

Unfortunately, to our knowledge, no experiment has been run to answer this particular question. Hanushek (1986) reviews results on housing expenditures from the Negative Income Tax Experiment and the Housing Allowance Demand Experiment and concludes that they are quite similar. If simple cash transfers produce similar impacts on housing consumption, it is difficult to argue that in-kind housing subsidies are efficient. This is an important unresolved question that should be a priority for future research.

A final justification for in-kind housing programs is if housing consumption generates externalities. We turn to this issue next.

B. Externalities from housing consumption

The Progressive era reformers argued that slums caused disease and social pathologies, and that these maladies could spread to the larger population (Von Hoffman 2012). This early motivation, which focused on externalities resulting from poor-quality housing and neighborhood conditions, identified poor housing as a cause rather than a simple consequence of poverty and social problems. If poor housing conditions imposed some external costs to society, then efficiency gains could be realized by increasing housing consumption to the socially optimal level. Little rigorous research has explored how inadequate housing might generate negative externalities. Some of the major potential channels that have been discussed include physical housing quality, over-crowding, and residential mobility (Leventhal and Newman 2010).

Housing quality could influence outcomes – particularly health - through the presence of toxins or hazards such as lead paint or asbestos. If information about the presence of these hazards is asymmetric or imperfect, then landlords may not know about or choose to report the presence of potential toxins, and households won't fully internalize the cost of locating in housing units that contain these hazardous materials.

As for crowding, the limited personal space in crowded apartments might facilitate the transmission of disease (Goux and Maurin, 2008), create stress and induce physiological distress (Evans, 2003). Over-crowding could in principle also hinder children's academic performance or other schooling outcomes by restricting opportunities for concentrated study (Goux and Maurin, 2008).

Housing subsidies might also help to increase residential stability. Involuntary moves theoretically could have damaging collateral effects on individuals. These moves could induce acute stress on parents from events such as eviction, which could in turn affect

parenting and children's outcomes (Desmond 2012). Residential moves might also force children to change schools, which could potentially lower achievement for moving students as well as students at receiving schools (Hanushek et al 2004). Involuntary moves could disrupt social networks, which could be important to adult labor market attachment. If housing instability carries large social costs and results principally from an inability to meet rental payments, then housing subsidies could be efficient if they reduce these external costs substantially. Whether these externalities exist and are economically meaningful is an empirical matter, which we discuss in Section V.

Of particular interest to economists has been the question of whether and how housing consumption and means-tested housing programs affect productivity and labor supply. Simple static models suggest housing assistance should reduce labor supply through income and substitution effects. The majority of current federal housing subsidies require that 30 percent of recipient income is devoted to rent (the LIHTC being one notable exception in charging a flat rent instead). This means that the size of the subsidy declines linearly with income, or that income is effectively "taxed" at a rate of 30 percent.

In a simple static labor supply model, the impact of housing assistance can be understood as a basic income and substitution effect, which is illustrated in Figure 6. In the absence of a subsidy, the household faces budget constraint AZ, and optimizes at U, where the wage rate equals the marginal rate of substitution between consumption and leisure. The housing subsidy modifies the budget constraint to ABC. Due to the program rules, the subsidy lowers the relative price of leisure and induces a substitution effects equal to SE in figure 6. The additional income from the subsidy has an income effect denoted IE as the household shifts to U'. In this simple model, the housing subsidy reduces labor supply and the effective value of the subsidy shrinks from G to S.

This static model is useful, but in reality labor supply decisions play out over multiple periods and households wait months or years to receive a subsidy, which complicates the picture considerably. For example a family that is on the wait-list for a program may realize that their effective marginal tax rate may be much higher in the future and so decide to shift work effort towards current periods when effective rates are lower. Some suggestive evidence that at least some people do indeed respond this way is presented in Jacob and Ludwig (2012).

Other complications to the standard static model raise the possibility that housing programs could actually increase labor supply in a more persistent way. For example housing subsidies could increase labor supply if they cause households to increase housing consumption and additional work is needed to maintain a given level of non-housing consumption. The residential stability created by housing assistance could also increase labor supply in the long-run by stabilizing families' housing circumstances and allowing them to invest more time and attention to job search and training.

C. Neighborhood Access and Neighborhood Externalities

One possible contributor to the proliferation of low-income housing programs is the close connection between these programs and the policy goals of reducing racial/ethnic segregation, and more generally promoting access to "better neighborhoods." The link between housing unit and neighborhood conditions was referenced in the landmark Housing Act of 1949, which established as a national goal a decent home and "a suitable living environment for every American."

Economists have long understood that the rent of price of a housing unit is directly linked to the neighborhood conditions around it. If neighborhoods affect life chances, and housing subsidies change the neighborhood conditions of the poor, then housing subsidies could be justified on the grounds that they improve outcomes for low-income families through their effect on neighborhood. Of course policymakers may care about the level of racial or income segregation of American neighborhoods for its own sake, even if neighborhood conditions do not change people's behavior or long-term outcomes.

The design of low-income housing programs may have a large bearing on the degree to which they deliver "better neighborhoods." One critical distinction is between place-based subsidies, like public housing and the LIHTC program, versus tenant-based subsidies like housing vouchers.

If place-based subsidies such as public housing change where subsidized households would live in absence of the subsidy, then they will affect the neighborhoods conditions experienced by subsidized families by changing both the site they live in and the composition of the other tenants around them. For public housing, the immediate tenants in the same building or development are likely to be very disadvantaged – and may be more disadvantaged than their immediate neighbors had they not been admitted to public housing. This problem was compounded historically by the political decisions made by local housing authorities to locate public housing developments in some of the most racially and economically isolated areas of their cities as noted in section II above.

While housing vouchers are not a panacea for promoting access to less disadvantaged neighborhoods, as discussed below, there is an important question underneath the debate about project-based vs. tenant-based subsidies in terms of the relative risks of "government failure" versus "market failure." In practice these relative risks may vary according to local conditions, such as the tightness of the local housing market, and given that developers propose sites for LIHTC housing, the risk of government failure may be lesser for that program. Understanding more about the relative performance of project-based vs. tenant-based programs under different situations (and for different types of program participants) would be very useful in informing future policy debates.

Concern about the possible effects of project-based subsidies in geographically concentrating poor families has led to growing policy interest in public housing or LIHTC developments that are designed as "mixed-income" developments (Joseph, 2013). These are projects in which local authorities include "market-rate" units in redeveloped or new public or LIHTC housing. Casual empiricism about where people choose to live in the U.S. context would suggest that most non-poor households all else equal would

prefer to live among other non-poor households. If this is indeed true that would mean that mixed-income developments need to offer non-poor households some sort of subsidy to choose units in these developments instead of somewhere else, which seems to be true of most mixed-income projects. So "market rate" may be something of a misnomer.

Of course the resources that go towards implicitly or explicitly subsidizing non-poor households to live near poor households in principle could have gone towards providing additional subsidies to poor families. How to view this tradeoff depends partly on the size of the spillover benefits to poor families from living near non-poor households, and how the social value of those spillovers compares to the opportunity cost of directly subsidizing fewer poor households. Little is currently known about the relative magnitudes of the different effects at play here with this tradeoff.

Tenant-based subsidies such as housing vouchers have long been thought to be a better policy mechanism to improve the neighborhood quality of poor households, since individual voucher-holders can choose where to live rather than face a take-it-or-leave-it offer of a public housing unit in a development that houses larger numbers of other poor families (Olsen 2008). However landlord discrimination against voucher holders – while outlawed in some states – is routinely found in audit studies (Lawyers Committee for Better Housing, 2002). Further, finding rental units in better neighborhoods may entail substantial search costs for tenants who are issued a voucher, who may have limited transportation, child-care or information to access less disadvantaged neighborhood (Rosen 2014). Housing vouchers also only pay up to a rent ceiling set at the 40^{th} or 50^{th} percentile of a metropolitan area rent distribution, so if rental units in better neighborhoods are considerably more expensive, then the voucher may not be generous enough to allow tenants to find units in better neighborhoods.

Household preferences could also play a role above and beyond external constraints. For example social ties also likely play a role in potentially limiting the neighborhoods considered by voucher recipients (Desmond 2012). If people choose to locate near family and friends, and disadvantaged individuals tend to have disadvantaged social networks located in higher poverty neighborhoods, then this may restrict where voucher families look for housing. Section V reviews the empirical evidence.

Housing programs could also change the neighborhood environments that low-income families experience by directly changing the neighborhoods, as opposed to changing what neighborhoods poor families live in. The effect of place-based subsidies on the conditions of surrounding neighborhoods is more theoretically ambiguous. If high-income households view subsidized housing as a disamenity, then they may choose to avoid living near to them, which could result in lower-quality public services. Low-income housing programs could also reduce property values if subsidized housing is perceived as introducing crime or disorder to a neighborhood.

On the other hand housing programs could improve neighborhood conditions and property values if they help remove disamenities such as blighted structures and vacant lots. A second mechanism through which such programs could change property values is

by increasing population in an area, which can support more commercial activity and potentially promote safety (Ellen et al 2001). A large literature has investigated empirically the relationship between investments in subsidized housing and neighboring property values, which we consider in the next section.

The myriad housing assistance programs in place today likely reflect in no small part the desire of policymakers to improve the neighborhood conditions of low-income households and thereby encourage upward mobility. Existing theories for the role of neighborhood conditions in influencing individual behavior offer different predictions about the nature and direction of these effects. Thus it is particularly important to consider the empirical evidence, which we review in Section V. What remains unclear is whether housing assistance improves neighborhood conditions any more than an equivalent cash-transfer.

C. Concentrating vs. Dispersing Subsidy Resources

As noted above, the current system of means-tested housing programs is unusual among current U.S. social programs in its narrow distribution of resources: fewer than one-quarter of income-eligible households receive benefits from HUD programs, but those who do can receive subsidies worth $10,000 per year or even more. In principle one could imagine making our housing programs more like our other social programs, and increasing the share of income-eligible people who benefit by reducing the per-participant subsidy value. Here we consider the tradeoffs associated with such a change.

For starters it is worth considering why we are in this current situation. As noted in Section II, when housing programs began in earnest in the 1930s for many years these subsidies were delivered by just one program – public housing. In many ways the government backed into large per-participant subsidies by building developments that were of higher quality than most of the slum buildings from which families were originally drawn (which set the cost per housing unit), then setting subsidy amounts with an eye towards keeping units affordable to low-income households. The only way to reduce the subsidy amount would have been to either reduce the quality of the housing themselves, which would be problematic, or increase the rent contributions required by residents, which would undermine the goal of helping the poorest families.

Over time the shift towards other subsidy programs has created more options for how the $40 billion per year in housing programs are allocated across households. In particular, the housing voucher program rules could be set in any number of ways that would reduce the subsidy amount per household. One reason this has not happened is because of the political agenda of housing advocates who seek to grow the budgets of housing programs over time to a level where all income-eligible households can receive the large subsidy amounts that current housing-program participants receive. Since fewer than one-quarter of eligible households currently participate in such programs, this would require something like a quadrupling of the annual budget outlays for such programs.

In the meantime, what are the tradeoffs of the current approach versus spreading available resources out across more households? Some advocates argue that any level of housing subsidy below some threshold is insufficient to help poor families. One version of this argument is that shallower subsidies will not enable poor families to rent decent homes in many housing markets. A different version of the argument is that anything short of middle-class housing quality still leaves poor families living in poor housing and so does not improve their well-being. It is worth noting that this assumption stands in contrast to the usual assumption of diminishing marginal utility of consumption. It also stands in contrast to findings elsewhere in the social policy literature that marginal benefits to children's life outcomes decline, rather than increase, in family income (Loken, Mogstad and Wiswall, 2012).

A different way to subsidize a larger share of all low-income families at some point over their lifetimes is to provide time-limited subsidies. At present families can keep their subsidies indefinitely so long as their incomes remain low enough and they do not violate any of the program's behavioral rules (such as prohibition on drug offenses). This stands in contrast to the original conception of the public housing program, which was intended to serve households who were temporarily suffering as a result of the Depression (Vale 2013). The idea was not to provide long-term, permanent subsidies to the poor. But as public housing and vouchers have shifted to serve the very poorest households, tenants have stayed for far longer tenures than the original framers of the programs envisioned.

The change over time of the program towards providing longer-term subsidies should in retrospect not be surprising. The original design of the program failed to take into account how difficult it is to take assistance away from households who are receiving it. In the political arena, the plight of subsidized tenants who have lost their assistance is far more salient and visible than the plight of low-income households who have never received assistance at all.

Moving to more time-limited subsidies would make the program less effective from the perspective of addressing problems related to low levels of permanent income, but would make the program more effective in helping address the problem of income volatility (see for example O'Flaherty, 2011). Part of the problem is that when families experience negative income shocks, they can reduce their spending on expenses like food, clothing or transportation, but housing is an expensive durable good that is not easily divisible and so spending on housing may be hard to adjust. Most renters sign annual lease agreements, which stipulate monthly payments of a fixed amount. Failure to meet agreed upon rental payments may lead to eviction, which in turn can lead to a spell of homelessness that in turn carries significant social cost (Desmond 2012).

The current structure of housing assistance programs makes them ill-suited to address the problem of income volatility. Vouchers do little to mitigate contemporaneous risk of homelessness because they are such a scarce subsidy - rationed to a small number of households from waitlists numbering in the tens of thousands in many large cities. Reliable estimates of average waitlist times are difficult to find, but it is not uncommon for housing voucher waitlists to exceed two years. Anecdotal evidence also points to

similarly lengthy admission waitlists for public housing and other project-based programs such as the LIHTC. This means that households experiencing sudden income loss rarely receive timely federal housing assistance that might prevent eviction.

One way that liquidity-constrained households might try to adjust housing expenses in response to sudden loss of income is to sublet a portion of their housing – that is, to rent out a room. But for households that are already over-crowded this might be a difficult proposition. And the circumstances of sudden poverty might impede the cognitive functioning necessary to find sublets (Mani et al., 2013). Moreover well-intended rules for federal assistance programs that restrict adjustments to household composition may make it more difficult for some low-income households to weather economic shocks by subletting or having other relatives or significant others co-habit. Ellen and O'Flaherty (2007) examine the programmatic rules and regulations that govern a variety of transfer programs serving low-income household (SNAP, SSI, and cash welfare) and find that many of these programs are structured with strong disincentives for multiple adult households. They also note that subsidized housing is among the most restrictive programs by establishing minimum unit sizes for occupancy (as measured by persons per room). This means that many low-income households are unable to optimize household size the way that more affluent households often do in response to changing economic conditions – as evidenced by the large number of college graduates returning to live with their parents during the recent recession (Painter and Lee 2013).

V. REVIEW OF RESULTS OF RESEARCH ON PROGRAMS

In this section we review the available empirical research about the different means-tested housing programs described above. The available empirical research is limited, particularly high-quality empirical evidence that is capable of isolating causal relationships between housing programs and different outcomes of policy interest. For some programs there is essentially no available evidence whatsoever.

In what follows we focus on the highest-quality evidence and in any case try to be clear about the strength of the empirical evidence we do have on these questions. We consider what is known about the effects of means-tested housing programs on housing quality, affordability, access to different neighborhoods, residential mobility, and what one might call "indirect" outcomes of housing programs related to labor supply, health, children's outcomes, and overall well-being. Within each outcome domain we consider what is known about the effects of different programs relative to not participating in any program at all. We also where available discuss research about the relative effectiveness of different programs compared to one another, and in particular given the trend over time from project-based to tenant-based subsidies. Since there is so little research right now on the LIHTC, we focus on studies of the relative effects of public housing vs. vouchers.

A. Effects of housing programs on housing consumption (quality and quantity)

Means-tested housing programs for many people probably conjure up high-rise public housing projects of the sort that were built during the 1950s and 1960s, which have

become synonymous with terrible living conditions and high rates of crime and racial segregation: Pruitt-Igoe in St. Louis, Jordan Downs in the Watts neighborhood of Los Angeles, Magnolia Projects in New Orleans, and of course the Robert Taylor Homes and Cabrini-Green in Chicago. But the focus on the very difficult living conditions in these projects overlooks the fact that most public housing projects are not so distressed, and the worst of them have been torn down in recent years through HUDs' HOPE VI program.

Perhaps even more importantly, it is easy to forget exactly how bad the slum conditions were that for many families were the alternative to living in public housing, particularly as the developments were initially built. For example in 1940, fully 45% of *all* housing units in the U.S. lacked complete plumbing facilities (defined as having a flush toilet, sink, and hot water).[17] This figure is under 1% today, even for housing units rented by households in the bottom quintile of the income distribution (Quigley and Raphael, 2004). Crowding and many other measures of housing quality have also improved.

Most of the available research suggests that public housing improved the housing conditions of low-income residents. The challenge for empirical work on this question is carrying out an appropriately apples-to-apples comparison of housing conditions, since the type of family that winds up participating in the public housing program may be systematically different from other low-income families in a variety of ways – including along dimensions that are difficult to adequately measure in social science datasets.

A number of studies using data from the 1960s and 1970s show that relative to unsubsidized households, people living in public housing increased their housing consumption by about 20 to 80 percent (Olsen, 2003, Table 6.8). For example the most recent of these is by Olsen and Barton (1983), who use Census Bureau survey data of the housing market in New York City in the 1960s to estimate what are essentially hedonic regressions that try to price public housing units. They estimate that families in public housing consume 10-70 percent more housing, with a dollar value equal to 20-25 percent of the average income for these families. Their study suggests that it cost the New York City Housing Authority $1.14 to produce each extra $1 in housing consumption for families. Whether other types of means-tested housing subsidies could provide such services more efficiently is a topic to which we will return at the end of this sub-section.

One of the best studies comparing the housing conditions of families in and outside of public housing is by Currie and Yelowitz (2000), whose research design takes advantage of the fact that the number of bedrooms to which a family would be entitled within a housing project depends on the gender mix of children in the family. Specifically, children of the same gender have to share a bedroom but those of opposite genders do not, so that a family with one adult and two children will be eligible for a three bedroom apartment if the household has a boy and a girl but just a two bedroom if the children are of the same sex. Using child gender composition as an instrument for the likelihood of being in public housing (families eligible for larger apartments are 24 percent more likely to live in housing projects), they find participation in public housing reduces the

17 https://www.census.gov/hhes/www/housing/census/historic/plumbing.html

likelihood a family is over-crowded by 16 percentage points. This finding holds for both blacks and whites.[18]

The same general finding seems to hold for the housing voucher program as well. What is very clear is that the rent of the housing units in which people reside is dramatically higher for people with vouchers compared to similar people without them. For example Jacob and Ludwig's (2012) study of housing vouchers in Chicago is able to compare similar types of families who do and do not receive vouchers because the city randomly assigned applicants to the voucher program wait-list. That lottery study shows that vouchers enable recipients to live in units with rents that are about 50% higher than the rents for the units in which they would be otherwise live (this change in unit rent is equal to 25-30% of average income for these households). If the housing market is working at all well this should be expected to translate into improved unit quality, although some observers have noted that landlords are aware of the rent limits in the voucher program and may artificially raise the rent of a unit to meet the tenant's new ability to pay (Mallach 2007; Collinson and Ganong 2013). Some evidence that vouchers also improve direct measures of housing conditions, not just a total measure of housing consumption like rent, comes from the randomized welfare-to-work voucher study by Mills et al. (2006) that finds voucher receipt increases housing unit quality and size.[19]

If both public housing and housing vouchers improve housing conditions for poor families, a natural follow-up question for public policy is which program is more effective in achieving this goal. Some of the best available evidence on this question comes from HUD's Moving to Opportunity (MTO) experiment. Between 1994 and 1998 MTO enrolled 4600 low-income families with children living in very distressed public housing projects in five US cities (Baltimore, Boston, Chicago, Los Angeles and New York City). It is important to keep in mind that families in the MTO study were coming from some of the most distressed public housing projects in the country, such as the Robert Taylor Homes on the south side of Chicago.

Families were randomly assigned to one of three groups – a low poverty voucher (LPV) group, which received extra mobility counseling assistance and a housing voucher that could only be redeemed in a census tract with a 1990 poverty rate below 10%; a traditional voucher (TRV) group that received a standard housing voucher (which was at the time the Section 8 program); and a control group that did not receive any extra help

18 The sample mean for the Census over-crowding measure they use in their paper is about 1 percent for whites and 10 percent for blacks (Currie and Yelowitz, 2000, Table 6), but these sample means are not quite the right benchmark for judging the size of the public housing effects, since the relevant mean would be the one for the set of families who would have been in public housing had the gender mix of children in the home been different (or in the language of Angrist, Imbens and Rubin, 1996, the "compliers").

19 For example, the share of families in the control group that live in crowded housing conditions (more than one person per bedroom) at the time of their follow-up survey is about 39 percent, while the effect of voucher use (the treatment on the treated effect) is minus 22 percentage points ($p<.05$); see Table 5.3 of Mills et al. 2006, p. 139. Similarly, the share of control group families reporting two or more housing problems is 13.5 percent, and the TOT is again about one-half that (minus 7 percentage points), although is not quite significant.

moving out of public housing. For present purposes what is most relevant is the contrast between the TRV and control groups in MTO.[20]

Data from the MTO 5-year ("interim") follow-up showed that relative to the control group, moving with a housing voucher increased the share of respondents rating their housing unit as good or excellent by 7 percentage points (the treatment on the treated or "TOT" effect), compared to a control mean of 52 percent (Orr et al., 2003, Exhibit 3.5, p. 66). By the time of the long-term follow-up, which measured outcomes 10-15 years after random assignment, the control mean had risen to 57 percent although the TOT effect on this measure had declined to 5 percentage points and was no longer statistically significant (Sanbonmatsu et al., 2011, Exhibit 2.5, p. 56). At the time of the long-term follow up, however, MTO did reduce the rate of self-reported specific housing problems related to things like vermin (TOT effect of minus 14 percentage points, compared to a control mean of 52 percent, $p<.05$), heating or plumbing (TOT of minus 8 percentage points, control mean 37 percent, $p<.10$), and peeling paint or plaster (TOT of minus 19 percentage points, control mean of 47 percent, $p<.05$).

The question of how project-based vs. tenant-based subsidies change housing quality is closely related to, but slightly different, from the question of which program costs less to deliver a given level of housing quality, because the former question ignores the possibility that the programs differ in their costs per participant. The answer to the question of which program is more cost-effective is not obvious as a conceptual matter. As noted above, many housing advocates are concerned that landlords over-charge voucher holders in the private market, capitalizing partly on the fact that some landlords reportedly refuse to take housing vouchers. There has also been long-standing concern about the possibility that many families are in disequilibrium in the housing market because of the large transaction costs associated with changing housing units (see for example Rosen, 1985). On the other hand, the fact that federal subsidies to local PHAs and private builders artificially distort the relative price of initial construction and operating costs suggests the possibility of inefficiency in that program. And the fact that unit rents in public housing are far below market levels will mean there may be excess demand for such units even if they are not well maintained.

While theory is ambiguous, the empirical research is fairly consistent in suggesting that tenant-based programs are able to deliver a given level of housing-unit quality at lower cost compared to project-based programs, or at least compared to HUD-sponsored project-based programs such as public housing. Deriving reliable empirical evidence on this question is not entirely straightforward because it requires, among other things, some attempt to estimate the market rent of project-based housing units.[21] Nor is it entirely

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20 Put differently, the LPV treatment in MTO adds the constraint to the normal voucher program that families could only redeem the vouchers initially in low-poverty census tracts, and so the findings for the LPV vs. control contrast (recall all MTO families were living in public housing at baseline) are not directly relevant for the larger question of the relative effects of public housing versus the regular voucher program without the additional mobility constraints or supports. For this reason we also do not emphasize in the test discussion of the Gautreaux mobility program in Chicago; see Rubinowitz and Rosenbaum (2000).

21 Most analyses ignore other potential spillover effects, like on the surrounding communities. For an excellent discussion of these issues see Olsen (2009).

straightforward to even estimate program costs, which are particularly challenging to calculate in the context of housing projects that receive subsidies from multiple sources (free land, or favorable tax treatment or loan terms) and have large fixed costs.

With these caveats in mind perhaps the best evidence on this question comes from the Pittsburgh and Phoenix sites of the Experimental Housing Allowance Program (EHAP), which was a large demonstration project carried out in the 1970s. Mayo et al. (1980) estimate that the ratio of total costs to market rent equaled from 1.8 to 2.2 for public housing, from 1.5 to 2.0 for Section 236 (the new construction and rehabilitation program in effect at the time), and from 1.09 to 1.15 for EHAP housing allowances (like housing vouchers). Put differently, the tenant-based subsidy appears to be far more cost-effective in producing housing units of a given quality. Similarly Wallace et al. (1981) estimate that the Section 8 new construction program cost 44-78% more than the Section 8 tenant-based subsidy (see also Shroder and Reiger, 2000, GAO 2001, 2002).

Unfortunately, despite the fact that it has become the largest federal place-based housing program, there is no research of which we are aware that examines the effects of the LIHTC on the housing conditions of low-income families.

There is unfortunately also very little evidence on the question of whether in-kind housing programs increase consumption more than cash transfers. As noted above, this question is relevant for judging the efficiency of using in-kind housing programs to address problems of housing affordability rather than other types of transfers. The one finding we know of is Hanushek's (1986) examination of changes in housing consumption in both the Negative Income Tax experiment (a cash transfer) versus the Experimental Housing Allowance Program. While he concluded the change in housing consumption was similar, this is too important an issue on which to rely on just a single data point.

B. Effects on housing affordability

Housing assistance could advance well-being through reducing the share of family income used to pay for housing, and freeing up additional resources for other critical needs, such as high-quality day care, healthy food, and preventative health care. Both public housing and housing vouchers also appear to greatly increase housing affordability, defined as the share of family income devoted towards housing. Unfortunately the excellent paper by Currie and Yelowitz (2000) on public housing relies on Census data on rental payments that respondents seem to interpret as the rental value of their unit rather than what they actually pay out of pocket, and so that study with its strong research design is not able to address the effects of public housing on affordability. But other studies like Olsen and Burton's (1983) using New York City data finds that public housing enables families to enjoy higher levels of non-housing consumption by 14-18% compared to observably similar families outside of public housing, because the rent contribution for those living in public housing is equal to 30% of adjusted income and that is much less than the share of total income that unsubsidized families on average pay. This gain in non-housing consumption from Olsen and Burton (1983) expressed as a

share of total income (or put differently, the reduction in the share of income families have to pay as rent) is equal to about 12 percent.[22]

The available evidence about how the voucher program affects affordability is stronger, as we now have several randomized lottery studies on the question. In the voucher study in Chicago carried out by Jacob and Ludwig (2012), the average family at baseline (without a subsidy) was paying about 58% of their reported income towards rent. Voucher receipt enables families to reduce their out-of-pocket spending on rent to about 27% of reported income.[23] Similarly in the HUD Welfare to Work (WtW) experiment the average control group family is spending about $529 on rent per month (including utilities), equal to roughly one-quarter of reported monthly income.[24] Welfare receipt reduces out-of-pocket spending on rent by $211 per month, or about 40% (Mills et al., 2006, Exhibit 5.3, p. 139).

While the public housing and voucher programs have similar rules about required rent contributions from participants, the two programs do have some differences that could affect housing affordability for households. For example, utilities are handled differently in the two programs, with many public housing projects just including utilities in rent rather than billing families separately. In the 5 year MTO follow-up, while overall housing costs were not different across randomized groups, families that received regular housing vouchers were 12 percentage points more likely than controls to report having problems paying their utilities (control mean 27%, $p<.05$) (Orr et al., 2003, Exhibit 3.3, p. 61). A similar pattern was found in the 10-15 year MTO follow-up, with families who used a traditional housing voucher being 8 percentage points more likely than controls (24%) to have received a shut-off notice of some utility due to non-payment the past 12 months ($p<.05$) (Sanbonmatsu et al., 2011, Exhibit 2.4, p. 55).

Relatively little is currently known about the effects of the LIHTC on housing affordability. The LIHTC rent limits mean that the program tends to reach low-income households, but not the very poorest households (Desai et al., 2009). There is research documenting the number of units produced under the program (see for example Cummings and DiPasquale, 1999, Desai, Dharmapala and Singhal, 2009), and research showing that the LIHTC increases the total number of rental units in an area (Baum-

22 Olsen and Burton (1983), Table 5 show that in 1968 families had average incomes of about $5,000 absent the housing program, and were able to increase consumption of non-housing goods by about $600.

23 It is possible that some, or perhaps even many, families have unreported income – see for example Edin and Lein (1997). Because the same income denominator is used to calculate the share of spending on housing for families both with and without vouchers, this means the Jacob and Ludwig study should still be getting the sign of the effect of vouchers on housing affordability correct. But because the denominator will be too small under both the voucher and no-voucher conditions, the "levels" (share of income spent on housing) will be too low in both cases and the percentage point change in share of income spent on housing will be too large.

24 Exhibit 4.16 of Mills et al. (2006) reports monthly TANF cash benefits during the first period after random assignment of $1,325 for the control group, while Exhibit 4.10 reports quarterly earnings of $1,863, or about $621 per month.

Snow and Marion, 2009).[25] All else equal we would expect an outward shift in rental housing in these areas to reduce rents but the magnitude of this effect is, as far as we are aware, not currently known. O'Regan and Horn (2013) report that tenants in LIHTC housing who earn less than 30 percent of the area median income face lower rent burdens than unassisted renters, but far higher burdens than households with similar incomes who are participating in HUD programs.

C. Effects of housing programs on residential mobility

Conceptually the effects of means-tested housing programs on residential mobility are ambiguous, at least in the short run. Programs could reduce residential instability by cushioning subsidized families against having to move as a result of income shocks. On the other hand to get a public housing subsidy families need to move into public housing, and because most housing voucher applicants are living in housing units with rents far below the FMR (see for example Jacob and Ludwig, 2012), families offered vouchers will also have a strong incentive to use the voucher to move into a new unit. Low-income renters in the US are also a fairly mobile population in general; it could be that subsidy receipt simply changes the timing of when families would have made a move that would have happened anyway.

Unfortunately there is no experimental evidence that we know of about on the effects of public housing on residential mobility.[26] However, the evidence we have suggests that public housing tenants tend to remain in their units for longer than other renters. Lubell, Shroder and Stefan (2003) find that the average public housing resident stays in their unit for 8.5 years and the median stays for 4.9 years. As a comparison, the median renter in the United States had lived in their home for 2.2 years in 1998 (Hansen 1998).[27] Of course at least part of this difference in average rates of residential stability between public housing residents and unsubsidized households could be due to differences in the types of families who are in public housing – that is, selection bias.

For the housing voucher program we have experimental evidence, which suggests that voucher holders, in contrast to public housing residents, move more frequently than other similar households. The welfare-to-work voucher experiment by Mills et al. (2006), found that the average control group family in their study moved roughly twice over the 5

25 Baum-Snow and Marion (2009) find more crowd-out of new LIHTC units (that is, LIHTC units displace some private-market housing that would have been built anyway) in gentrifying areas.Malpezzi and Vandell (2002) do not find a detectable effect of the LIHTC on the supply of rental housing but their research design is not nearly as convincing as that of Baum-Snow and Marion (2009).

26 The data used by Currie and Yelowitz (2000) does not allow them to apply their natural-experiment (IV) research design to measures of residential mobility. However they do present some OLS results that show that residence in public housing is correlated with a higher rate of changing schools by children in public housing families relative to their non-public-housing counterparts. (We recognize that changing schools mixes together the effects of residential moves with other reasons why children might change schools over time). In any case Currie and Yelowitz argue that OLS results are likely to be biased in the direction of overstating any negative effects of public housing, so as the authors note, it is not clear what to make of that correlation.

27 Note that these tenure patterns are fairly consistent over time. Mateyka and Marlay report a median stay of 2.2 years for U.S. renters in 2008.

year follow-up period; voucher receipt increased the total number of moves by about 0.9 (the TOT effect). About 53% of the control group had moved out of their baseline census tract in the Mills et al. study; voucher receipt increased that by 11 percentage points. In the Chicago voucher study by Jacob and Ludwig (2012), the average number of moves over the follow-up period was about 2.7 for the control group; the effect of moving with a voucher (TOT) was to increase the number of moves by just 0.12.

What about the relative effects on residential mobility from participation in the public housing program vs. housing voucher program? The 10-15 year MTO follow-up found that the average control group family moved 2.2 times over the follow-up period; families that used a housing voucher to move into public housing wound up moving an extra 1 time over the study period (Sanbonmatsu et al., 2011, Exhibit 2.2, p. 53). Relative to the MTO control group, voucher recipients also experienced an increased likelihood of ever having been "doubled up," equal to 7 percentage points versus a control mean of 19%.

D. Effects of housing programs on access to different neighborhoods

Historically America's public housing program reinforced residential segregation by race and income, in part through reserving some housing developments for blacks and some for whites. Data from the 1960s showed that 72 percent of public housing projects at the time were inhabited by people of a single race (Bonastia 2006, 74). Part of the issue also stemmed from the role that local politicians played in deciding where housing developments would be built.[28] Opposition to new public housing was weakest in those communities where initial housing conditions were most distressed, and so projects were disproportionately likely to be built in predominantly low-income and minority neighborhoods (see for example Hunt, 2009).

Additional evidence comes from the EHAP Housing Assistance Demand Experiment in the 1970s (Mayo et al. 1980A, Chapter 5). For example, families moving into public housing in the Pittsburgh EHAP site moved from neighborhoods with poverty rates of 37% to neighborhoods with poverty rates of 50%. Black participants in the public housing program experienced changes in tract share minority from 52% to 69%. Newman and Schnare (1997 Table 3) show that in the mid-1990s public housing units were much more concentrated in extreme-poverty areas than were the units occupied by other low-income people (defined in their study as other welfare recipients). Fully 36% of public housing tenants lived in census tracts with poverty rates over 40%, versus just 12% of other low-income households. In addition 38% of public housing residents were in census tracts with minority shares over 80%, compared to 18% percent of other low-income households. More recent evidence suggests that households in place-based, assisted housing live in neighborhoods with low-performing public elementary schools (Horn, Ellen, and Schwartz, 2013).

28 Hunt (2009, Chapter 4) provides an excellent account for the city of Chicago. More generally, in order for a public housing project to be built in a political jurisdiction, it must establish a public housing authority (PHA). Many jurisdictions chose not to create one. Furthermore, because the PHA had to obtain the local government's cooperation, the local government had veto power over the location of the projects.

The expected effects of tenant-based subsidies on the neighborhood characteristics of residents are not clear as a conceptual matter. To the extent that neighborhood disadvantage is a "dis-amenity" that is capitalized into housing prices, subsidies that enable families to rent more expensive units should expand their choice set to include more units in more advantaged neighborhoods. On the other hand racial discrimination may constrain the choices that families have about where they can use their housing voucher, and some families may choose to stay in poor, racially isolated areas even after receiving a generous tenant-based subsidy because of proximity to family, friends, jobs, religious organizations and so on.

Data from the 1970s EHAP programs showed that housing allowances similar to the current housing voucher program, as well as the Section 236 rental housing program and the Section 23 leased housing program had very small effects on the neighborhood conditions experienced by families. Similar findings come from more recent randomized-lottery studies of the current-day housing voucher program. For example Jacob and Ludwig (2012) find that the average unsubsidized family who applied for a housing voucher in the late 1990s in Chicago was living in a tract with a poverty rate of 26%; those families randomly assigned good positions on the voucher program wait list who moved with a voucher were in tracts with poverty rates that were just 1 percentage point lower (the "control mean" for share black was 78%, with a TOT effect also of about 1 ppt.) Similarly, the control group in the Mills et al. (2006) study of HUD's welfare to work voucher experiment were in tracts with an average poverty rate of 27%; the TOT effect was 2 percentage points (Exhibit 3.6).[29] In a re-analysis of data from HUD's welfare to work study, Ellen, Horn, and Schwartz (2014) find that the families randomly assigned vouchers reached neighborhoods with schools that had the same proficiency rates as the schools near to control group families.

To what degree does the shift from project-based to tenant-based subsidies increase access to more advantaged neighborhoods? The MTO experiment found that relative to control group families that did not receive help moving out of public housing, those who used a regular Section 8 housing voucher experienced declines in neighborhood poverty but more modest declines in percentage minority. Moving out of public housing with a regular Section 8 voucher reduced average census tract poverty rates one year after the voucher offer by about 45 percent (about 22 percentage points compared to the average for the MTO control group of 50 percent), and reduced the average tract poverty rate families experienced over a 10-15 year period by about 25 percent (11 percentage points compared to a control mean of 40 percent). The effect on average tract minority share was much smaller – treatment households ended up in neighborhoods with a percentage non-white that was about 3 percentage points lower than the 88 percent non-white neighborhoods where the MTO control families resided.

As for the LIHTC program, it includes a rule under which tax credits are higher in census tracts in which at least half of households are LIHTC-eligible, which increases the desire

29 Carlson, Haveman, Kaplan and Wolfe (2012) use a propensity-score matching design and find that housing voucher recipients are not living in significantly different neighborhoods from non-recipients in the short term; the effect is only about one-half a percentage point in tract poverty 4 years post-receipt.

of developers to produce units in such areas (Baum-Snow and Marion, 2009). But states adopt other siting priorities as well. Non-experimental evidence shows that LIHTC tenants on average live in neighborhoods that have nearly identical poverty rates, slightly higher minority concentrations, and higher average crime rates as those lived in by poor households as a whole (Lens et al 2011). But we do not know what the neighborhood conditions would have otherwise been for the type of families served by the program.

E. Indirect effects of housing programs (labor supply, health, child outcomes)

As noted above, one of the key rationales for providing assistance to low-income families in the form of in-kind housing benefits instead of cash is the possibility that housing consumption has positive externalities on labor supply. While one of the major reviews of the empirical literature written a dozen years ago argued that "housing assistance is not persuasively associated with any effect on employment" (Shroder, 2002, p. 381, 410), a growing body of evidence since that time provides a stronger basis for concluding there is some decline in work effort at least as a result of HUD programs. Perhaps the best available empirical evidence on the effects of public housing on labor supply is the study by Susin (2005), who uses data from the Survey of Income and Program Participation (SIPP) to compare public housing residents with unsubsidized SIPP respondents who are matched on observable characteristics. While this research design may be susceptible to bias from omitted variables, the estimates suggest public housing reduces earnings of adult participants by 19% (see also Olsen et al., 2005).

There is stronger evidence for the effects on work effort from the voucher program. The study of the HUD welfare-to-work voucher experiment by Mills et al. (2006) found sizable reductions in quarterly employment rates (3 or 4 percentage points, or 6-8% of the control mean of 53 percent) but these were only statistically significant during the first year following random assignment. The Mills et al. study also found persistent increases in TANF receipt rate, equal to 4 percentage points during the first year (about 7 percent of the control mean of 56%) and equal to about 7 percentage points three years out (nearly 20% of the control mean). Jacob and Ludwig's (2012) study of housing vouchers in Chicago found that voucher receipt reduces quarterly employment rates by 4 percentage points (6 percent of the control mean), quarterly earnings by $330 (10 percent decline), and increased TANF receipt by 2 percentage points (15 percent). All of these effects appear to persist through 8 years after random assignment (so more persistent than in Mills et al.), although updated data for this sample suggest the effects eventually do fade out after 14 years (Jacob, Kapustin and Ludwig, 2014).

Little is currently known about the effects of the LIHTC on labor supply. Unlike HUD programs like public housing or housing vouchers, the LIHTC uses a system of flat rents that should not generate a substitution effect on labor supply. However to the degree to which the LIHTC subsidizes low-income households we would expect there to still be an income effect that depresses work effort, potentially countervailed to some unknown degree by whatever the effects are of improved and more stable housing conditions on labor market success.

Advocates also sometimes point to positive effects of housing on children's outcomes as another type of externality and justification for in-kind housing programs. However, there is not very strong evidence in the literature for important externalities along these lines.

For the public housing program, the best available evidence comes from the study by Currie and Yelowitz (2000), discussed above. Their study has a strong research design for overcoming the possibility of selection bias and comparing public housing families to truly comparable non-participants. They find that public housing residence has no detectable effects for whites on schooling outcomes (as measured by grade retention in their Census data), but reduces grade retention by 19 percentage points for blacks. The one important potential limitation with this finding is the reliance on grade retention as a measure of schooling outcomes, since schools in relatively higher-poverty areas may (all else equal) be less likely to hold children back.[30]

For the housing voucher program, Jacob, Kapustin and Ludwig (2014) use administrative data on a large sample of children in Chicago combined with a random lottery design and find no statistically significant effects on various measures of children's schooling outcomes, criminal involvement (as measured by arrest records), or health (as measured by Medicaid claims data). With statistically insignificant findings, a key issue always is the precision of the estimates, since null findings can often come with 95% confidence intervals that are so wide that they cannot rule out medium-size or even large effects. But in the Chicago voucher lottery the estimates can rule out effects of voucher receipt on children's test scores that are any larger than about 0.06 to 0.09 standard deviations. Another concern is that if children's outcomes are the result of accumulated exposure to developmentally productive environments, the effects of social programs may only reveal themselves over long periods of time while most studies often follow families over only short periods. Yet the Chicago voucher study follows families for 14 years and finds little evidence that impacts grow over time. These findings are similar to those found by the welfare-to-work experiment study by Mills et al. (2006), which relied on a smaller sample and parent-reports of child outcomes.

While we have little evidence that children are affected when their families move into public housing or receive a voucher, we do have evidence showing that children benefit from moving into the voucher program from very distressed public housing projects in high-poverty neighborhoods. In the interim (5-year) MTO follow-up, relative to the control group (that did not receive help moving out of public housing) girls experienced improvements in mental health (0.19 standard deviations), declines in risky behavior (0.13 SD) and a decline of about 40% in lifetime arrest prevalence (Kling, Ludwig and

30 For example Jacob and Lefgren (2009) find that in the Chicago Public School system in the early 1990s, retention rates for students in grades 3, 6 and 8 were on the order of 1 or 2 percent. In 1996-7 CPS enacted a policy to end "social promotion" and tie promotion to performance on a standardized achievement test. The performance standard was set to equal about the 15th to 20th percentile of the national achievement distribution, with about 30-40% of students failing to meet the standard after the policy and about 10-20% each year retained in grade. A different observational study, Newman and Harkness (2002), uses data from the 1997 National Survey of America's Families to estimate that children who lived in public housing for more years between 1968 and 1982 had somewhat higher employment rates and labor earnings as young adults.

Katz, 2005, Kling, Liebman and Katz, 2007; see also Orr et al., 2003). However voucher receipt relative to distressed public housing may have if anything led to worse outcomes for boys with respect to outcomes like risky behavior (by .21 SD). We see a similar pattern although somewhat more muted in the long-term MTO follow-up that followed families for 10-15 years after the time of random assignment with respect to risky or anti-social behaviors (Sanbonmatsu et al., 2011), but sizable effects on mental health outcomes that – as at the 5 year follow-up – go in opposite directions for boys versus girls (Kessler et al., 2014).[31]

Another version of the externality argument is that investments in subsidized housing improve neighborhoods through removing blight, creating attractive new buildings, and repopulating neighborhoods. There is some evidence that LIHTC developments increase the value of surrounding properties, at least in low-income areas. For example, Baum-Snow and Marion (2009) find that the construction of LIHTC units increase the median value of nearby homes in low-income areas. Similarly, Schwartz et al (2006) examine the property value impact of city-assisted subsidized housing investments on distressed parcels in New York City, much of which used tax credits. Using geocoded, administrative data to estimate a difference-in-difference specification, they find that the value of properties surrounding the housing investment rose more after the completion of a new unit than the value of comparable properties in the same neighborhood but further away. The magnitudes of these effects are substantial, suggesting the city government could recoup its subsidies through resulting increases in property tax revenues. Of course these results come from one city and focus on subsidized housing investments that were explicitly targeted to fix up the 100,000 blighted housing units and vacant lots that the city had taken over for tax foreclosure during the 1970s.

Other recent studies have suggested that subsidized housing investments fail to deliver any significant effect on neighboring properties (Briggs, Darden, and Aidala 1999), while (2007) suggest that effects differ across programs. And of course place-based investments are extremely expensive. Thus, the neighborhood externality argument should be made cautiously, as it may apply only in limited circumstances, perhaps when investments are made deliberately to target neighborhood blight in a city with an otherwise strong economy.

VI. SUMMARY AND CONCLUSIONS

In this chapter we set out to answer the questions: How does the U.S. spend its means-tested housing assistance dollars? Why has it made those choices? And what does this spending accomplish?

Unfortunately only the first of these questions lends itself to a good answer at this point. Federal housing programs began in the 1930s with the public housing program, which

31 Compared to the control group girls in families assigned to the traditional voucher group in MTO had lower rates of major depression (6.5% vs. 10.9%) and conduct disorder (0.3% versus 2.9%), while for boys there were higher rates of post-traumatic stress disorder from the traditional voucher treatment (4.9% versus 1.9%).

over time has been joined by a large number of other programs that subsidize privately-built and operated housing developments as well as subsidies for tenants to live in private units of their own choosing (housing vouchers).

What the intellectual (as opposed to political) justification is for these programs is less clear – as Henry Aaron argued in over 40 years ago in his book *Shelter and Subsidies* (1972). Much of the support for means-tested housing programs today seems to be motivated by concerns about housing affordability for low-income households. The rationale for providing in-kind housing support rather than cash transfers should hinge at least partly on the assumption that in-kind programs will lead to more housing consumption than would cash transfers of equal cost. Yet there is remarkably little evidence available to date on this first-order question.

A different justification for housing programs (which in principle could also apply to cash transfers, since these would also stimulate housing consumption) is that housing consumption generates externalities. But there is surprisingly little good evidence about the effects of existing programs on the behavior and well-being of participating families. We say "surprisingly" both because these programs consume large amounts of government resources each year (and so are important), and because the excess demand for these program services (fewer than one out of four income-eligible families in the U.S. participates in such a program) would seem to offer numerous opportunities to carry out studies with truly comparable comparison groups.

Another surprise with existing research on means-tested housing programs is the limited range of innovation. The reasons we have our current set of housing programs, and the reasons why they are structured as they are structured, remain unclear – or at least incompletely articulated by their supporters. For example, why are housing benefits so generous that existing budgets can only support under one-quarter of the families who are income eligible? Why is the current system more desirable than one that provides lower levels of subsidies to a larger share of income-eligible families? Why are housing subsidies essentially permanent for recipients (so long as their incomes remain low enough) rather than focused on helping to cushion families against short-term income shocks? Given that there are no good answers to these questions at present, one might have expected there to be more policy innovation at the local, state or federal level to try to learn more about whether different configurations of housing programs might generate more social good per dollar spent for low-income families. This would seem to be an area that is ripe for additional research.

Finally, most of the research that has been carried out on low-income housing programs to date has focused on effects on the program participants themselves. But programs that seek to change the supply side of the private housing market or change how low-income families are distributed across neighborhoods have the potential to have impacts on non-participants as well through channels other than just the tax burden associated with financing the programs. For example, housing policies and programs may change the distribution of rents or house prices in the private market overall, or change the nature of "peer effects" that people experience within their neighborhoods or school settings.

Unfortunately remarkably little is currently known about what economists would call the "general equilibrium" effects of most housing programs. While studying general equilibrium effects is far more challenging than examining impacts on just the program participants, it nonetheless should be a high priority for future research in this area.

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Figure 1: Assisted Housing Units and Households

1940-2012

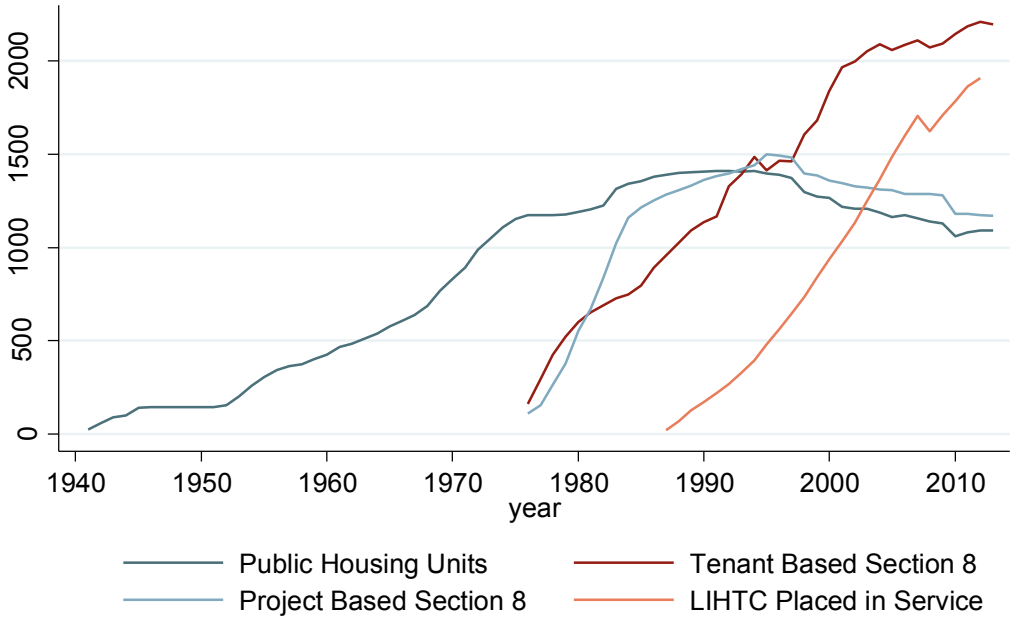


Figure 2: Real Rent Index

1980-2013

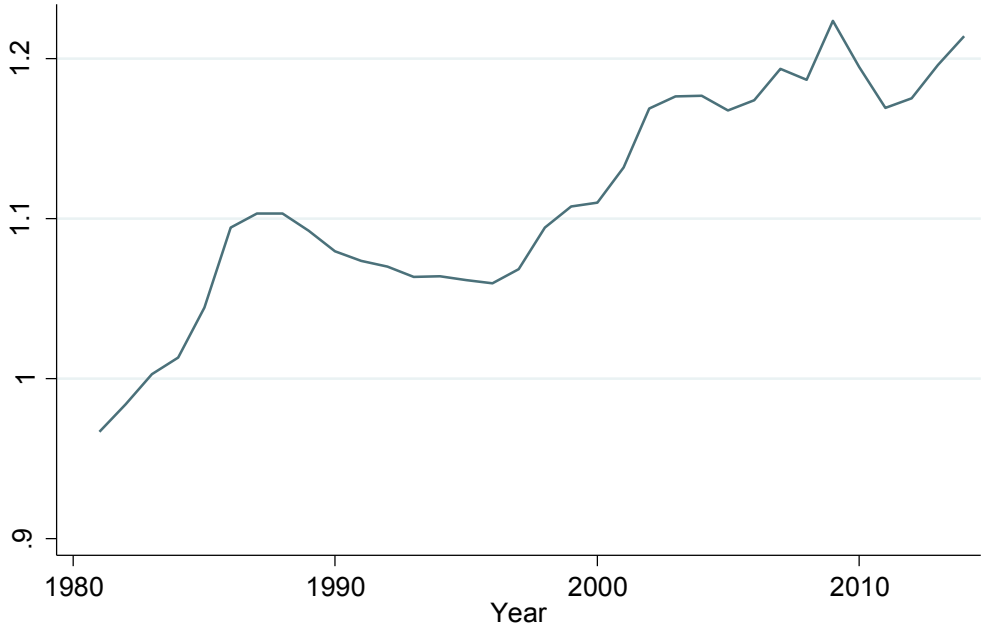
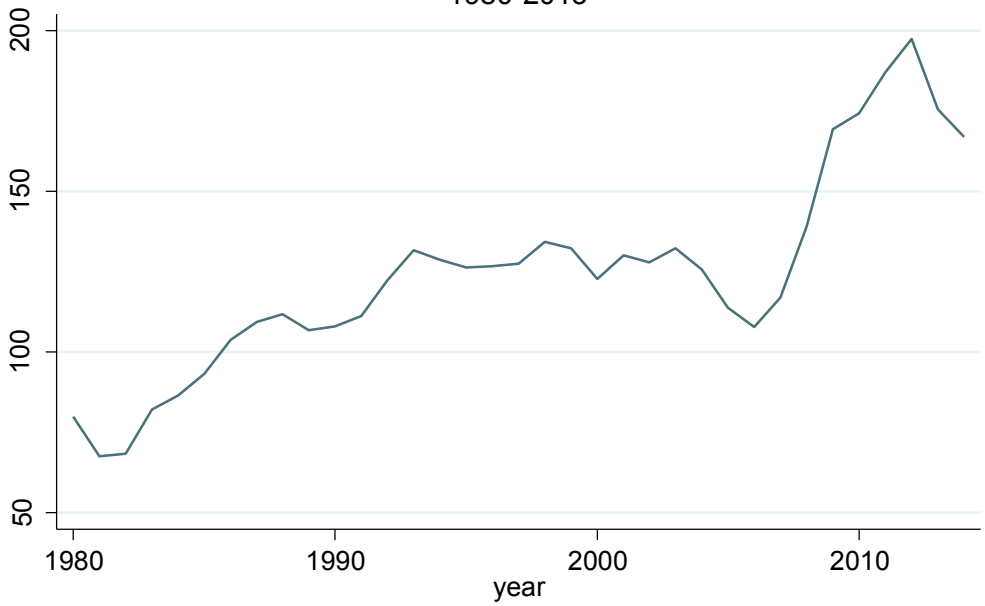


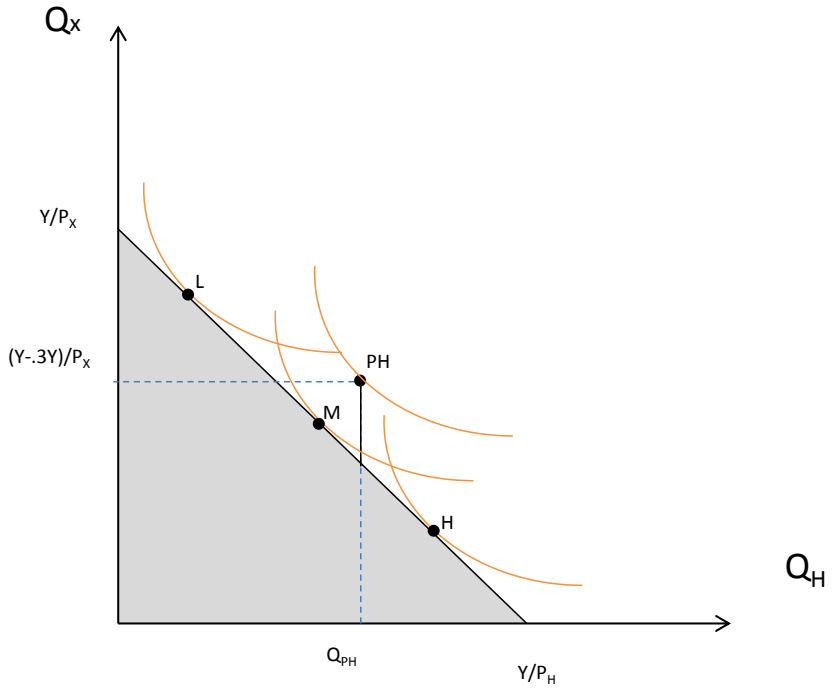
Figure 3: Composite Affordability Index

1980-2013



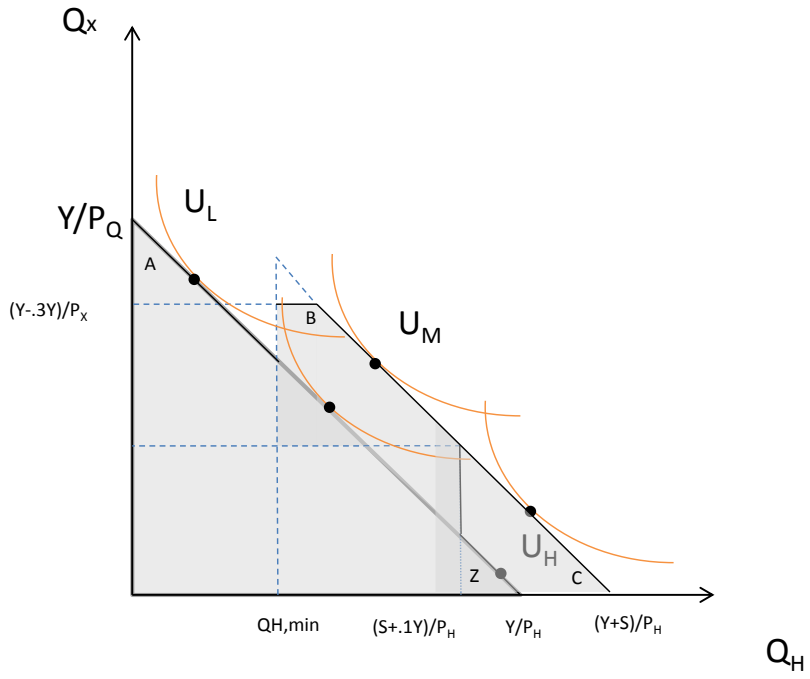
Source: Federal Reserve of St. Louis Affordability Index

Figure 4: Budget set under Public Housing



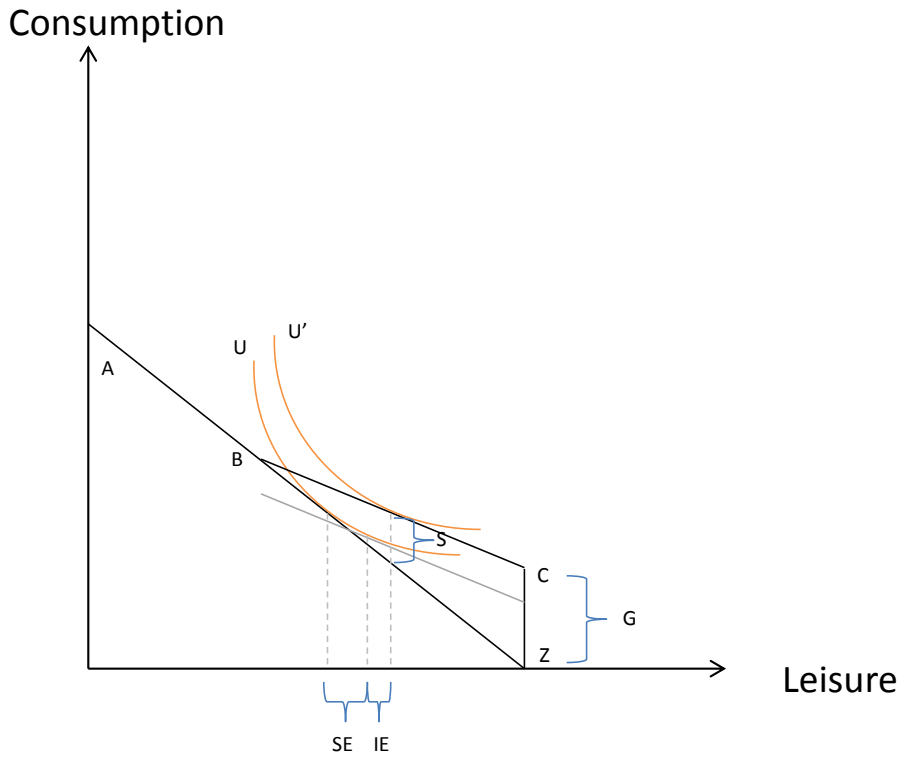
Notes: The figure above illustrates a static view of public housing assistance on the budget set of participants, ignoring labor supply effect. Public housing amounts to an offer of a fixed quality of housing, accepting this offer could result in lower housing consumption with more of other goods consumed, more of both housing and other goods, or only more housing. For example, a household could be optimizing with indifference curve U_L in absence of the public housing offer – and thus would consume more housing but less of other goods if they were to accept the public housing unit due to their increased rent contribution. A household selecting point M would consume more housing if she were to accept the public housing unit *and* more of other goods, while a household consuming at point H would consume less housing and more of other goods were she to accept the public housing unit.

Figure 5: Budget set under Housing Vouchers



Notes: The figure above illustrates the complex budget set created by receipt of a housing voucher. Without a voucher, a low-income household faces budget constraint AZ. The provision of voucher changes the budget set, such that recipients face the new constraint ABC. Without more assumptions about preferences it is difficult to assess the impact on housing consumption. In absence of a voucher, households may consume less housing and more of other goods, more housing and less of other goods or more of both goods depending on their preferences. A reduction in housing consumption can occur if households move to the flat portion of the voucher budget constraint from below it, or in the first year of the program when restrictions are placed on the maximum tenant contribution (capped at 30 percent of income).

Figure 6: Federal Housing Assistance Income and Substitution Effects



Notes: The figure above provide illustrates the impact of housing assistance on labor supply through a simple static, one period model. In the absence of a subsidy, the household faces budget constraint AZ, and optimizes at U, where the wage rate equals the marginal rate of substitution between consumption and leisure. The housing subsidy modifies the budget constraint to ABC. Due to the program rules, the subsidy lowers the relative price of leisure and induces a substitution effects equal to SE in figure 3. The additional income from the subsidy has an income effect denoted IE as the household shifts to U'. In this simple model, the housing subsidy reduces labor supply and the effective value of the subsidy shrinks from G to S

Table 1: Current Program Income Eligibility and Rent Rules

Program	Income Limit Upon Occupancy	Ongoing Income Requirements	Tenant Rent
Public Housing	80% of AMI,32 but 40% must earn < 30% AMI	PHAs have discretion to evict tenants if their incomes rise above eligibility limit.	30% of a tenant's adjusted income. Families can choose a flat rent, based on comparable market rent.
Section 8 New Construction and Substantial Rehabilitation	80% of AMI	Tenants can stay as incomes rise, but rents will rise accordingly	30% of a tenant's adjusted income.
Low-Income Housing Tax Credit Program	60% of AMI	Tenants can stay as incomes rise, but next available unit must be filled by income-eligible household	Flat rent
Housing Choice Voucher Program	50% of AMI, but 75% must earn < 30% AMI	Tenants lose voucher if incomes rise above income limit	30% of a tenant's adjusted income if unit rents below payment standard; but can be as high as 40%

32 Families with incomes up to 80% of the area median income are eligible for vouchers if they have been displaced from subsidized units by public housing demolition or expiring project-based Section 8 developments.

Table 2: Number of Units Eligible for Assistance and Assisted Households

Year	Public Housing Units	LIHTC Placed in Service‡	Tenant Based Section 8	Project Based Section 8
1941	23,783			
1942	58,459			
1943	89,250			
1944	101,951			
1945	141,569			
1946	144,095			
1947	144,095			
1948	144,803			
1949	145,785			
1950	146,549			
1951	145,703			
1952	156,084			
1953	204,815			
1954	259,116			
1955	304,383			
1956	343,907			
1957	365,896			
1958	374,172			
1959	401,467			
1960	425,481			
1961	465,481			
1962	482,714			
1963	511,047			
1964	539,841			
1965	577,347			
1966	608,554			
1967	639,631			
1968	687,336			
1969	767,723			
1970	830,454			
1971	892,651			
1972	989,419			
1973	1,047,000			
1974	1,109,000			
1975	1,151,000			
1976	1,172,000		162,085	111,181
1977	1,174,000		297,256	155,879
1978	1,173,000		427,331	263,583
1979	1,178,000		521,329	377,112
1980	1,192,000		599,122	554,189
1981	1,204,000		650,817	668,110
1982	1,224,000		690,643	836,040
1983	1,313,816		728,406	1,021,498
1984	1,340,575		748,543	1,161,269
1985	1,355,152		797,383	1,212,923
1986	1,379,679		892,863	1,250,476
1987	1,390,098	16,091	956,181	1,283,322
1988	1,397,907	50,889	1,024,689	1,307,773
1989	1,403,816	93,138	1,089,598	1,330,265

1990	1,404,870	135,227	1,137,244	1,363,218
1991	1,410,137	181,085	1,166,257	1,381,738
1992	1,409,191	225,151	1,326,250	1,396,227
1993	1,407,923	282,454	1,391,794	1,420,214
1994	1,409,455	345,581	1,486,533	1,439,426
1995	1,397,205	427,456	1,413,311	1,498,381
1996	1,388,746	514,268	1,464,588	1,493,574
1997	1,372,260	595,896	1,460,899	1,482,735
1998	1,295,437	681,070	1,605,898	1,395,037
1999	1,273,500	790,507	1,681,774	1,386,533
2000	1,266,980	889,211	1,837,428	1,358,797
2001	1,219,238	990,651	1,966,171	1,343,574
2002	1,208,730	1,092,739	1,997,733	1,328,532
2003	1,206,721	1,212,844	2,051,967	1,319,632
2004	1,188,649	1,329,343	2,087,344	1,309,427
2005	1,162,808	1,445,625	2,056,430	1,306,740
2006	1,172,204	1,563,639	2,084,917	1,287,529
2007	1,155,377	1,672,788	2,110,000	1,286,662
2008	1,140,294	1,754,222	2,071,195	1,285,331
2009	1,128,891	1,820,279	2,091,700	1,279,383
2010	1,060,392	1,883,129	2,142,668	1,179,298
2011	1,082,393	1,944,374	2,183,276	1,179,327
2012	1,091,758	1,984,137	2,207,724	1,174,914
2013	1,090,471	na	2,193,545	1,171,092

‡Reports the number of *Low-Income Units* in LIHTC projects reported to be placed in service.

Sources: Public Housing, Tenant-Based Voucher, and Project-Based Section-8 come from HUD's Annual Performance Report 1999-2013. Pre-1998 numbers for HUD programs comes from Olsen (2003). LIHTC counts come from HUD's Low Income Housing Tax Credit Database.

Table 3: Characteristics of HUD-Subsidized Households 2013

Variables	ALL HUD Programs	Housing Choice Vouchers	Public Housing	Project Based Section 8	Other Multifamily Programs	Section 236	Moderate Rehab Program
Subsidized Units Available (000s)	5,256	2,386	1,151	841	656	127	22
Subsidized People (000s)	10,077	5,360	2,335	1,247	946	156	33
% Occupied	94	92	94	96	95	93	89
Subsidized HHs Reported (000s)	4,553	2,113	1,071	785	493	63	28
Average Rent/Month, Inc. Utilities	304	346	275	274	255	211	153
Average Household Income/Year	12890	13138	13724	12172	11135	14347	8899
Average People/Household	2.1	2.4	2.2	1.5	1.8	1.7	1.6
Income as Percent of Area Median	0.23	0.22	0.25	0.24	0.21	0.24	0.18
Neighborhood Poverty Rate	0.25	0.22	0.32	0.23	0.27	0.26	0.31
%62+, Head or Spouse	0.33	0.22	0.31	0.56	0.44	0.47	0.23
% LT62 w/Disability, Head or Spou	0.34	0.36	0.31	0.44	0.26	0.25	0.44
% Single Parent	0.35	0.43	0.35	0.18	0.3	0.25	0.24
% 2+ adults with children	0.04	0.05	0.05	0.03	0.04	0.04	0.02
% With Children Under 18	0.39	0.48	0.4	0.21	0.34	0.29	0.26
% LT 50% Area Median Income	0.95	0.96	0.91	0.96	0.98	0.93	0.99
% LT 30% Area Median Income	0.75	0.76	0.72	0.73	0.78	0.71	0.88
% Minority total	0.64	0.67	0.71	0.45	0.63	0.59	0.62
% Black	0.44	0.48	0.48	0.29	0.45	0.42	0.34
% Hispanic	0.17	0.15	0.23	0.14	0.16	0.15	0.28
Minority as % of Neighborhood	0.56	0.57	0.62	0.45	0.58	0.56	0.59

Source: HUD, A Picture of Subsidized Housing 2013

Table 4: Rent Burdens of Renter Households by Income Quintile and Year

A. Rent as a percentage of household income

	1960	1970	1980	1990	2000	2012
All Renters	0.19	0.2	0.25	0.26	0.26	0.29
Income Quintile						
First	0.47	0.51	0.53	0.53	0.55	0.63
Second	0.23	0.23	0.24	0.28	0.29	0.33
Third	0.17	0.16	0.2	0.21	0.2	0.23
Fourth	0.14	0.13	0.15	0.16	0.15	0.18
Fifth	0.1	0.1	0.11	0.12	0.11	0.13
Poor Renters	0.44	0.57	0.63	0.63	0.64	0.67

B. Percentage of renters devoting more than 30 percent of income in rent

	1960	1970	1980	1990	2000	2012
All Renters	0.23	0.26	0.34	0.37	0.4	0.49
Income Quintile						
First	0.62	0.67	0.69	0.72	0.79	0.83
Second	0.21	0.23	0.37	0.42	0.44	0.59
Third	0.04	0.04	0.09	0.14	0.12	0.24
Fourth	0.01	0.01	0.02	0.05	0.03	0.08
Fifth	0	0	0	0	0.02	0.02
Poor Renters	0.55	0.64	0.68	0.71	0.77	0.82

Data Source: IPUMS Decennial PUMS extracts 1960-2000; ACS PUMS 2012

Table 5: Federal Outlays for Housing Assistance 1980-2013

Year	Outlays	Outlays ($2013 Dollars)
1980	5,480	15,493
1981	6,861	17,583
1982	8,064	19,467
1983	9,449	22,101
1984	10,048	22,529
1985	11,402	24,686
1986	11,441	24,318
1987	11,278	23,128
1988	12,727	25,062
1989	13,979	26,262
1990	15,481	27,593
1991	16,958	29,005
1992	18,776	31,176
1993	21,397	34,495
1994	23,804	37,418
1995	27,438	41,941
1996	26,660	39,583
1997	27,693	40,195
1998	28,686	40,998
1999	27,645	38,656
2000	28,788	38,945
2001	30,067	39,550
2002	33,046	42,792
2003	35,306	44,700
2004	36,574	45,104
2005	37,710	44,981
2006	38,002	43,913
2007	39,436	44,308
2008	40,245	43,545
2009	41,405	44,960
2010	46,628	49,814
2011	47,743	49,445
2012	43,801	44,443
2013	42,376	42,376

Data Source: OMB historical tables, table 8.7: outlays for discretionary programs
http://www.whitehouse.gov/omb/budget/Historicals

Housing Assistance includes the following major programs: Tenant Based Rental Assistance, Project-based Rental Assistance,Public Housing Operating Fund, Public Housing Capital Fund, Home Investment Partnership Program, Homeless Assistance Grants, RHS Rental Assistance Program, Housing for the Elderly, Native American Housing Block Grant, Housing Certificate Fund, Housing Opportunities for Persons with AIDS, Housing for Persons with Disabilities, Revitalization of Severely Distressed Public Housing (HOPE VI), Self-help Homeownership Opportunity Program, Rural Housing Assistance Grants, Choice Neighborhoods,

Table 6: Estimated Budgetary Cost of Low-Income Housing Tax Credit (Billions) 2004-2013

Year	Cost	Cost ($2013)
2004	4.3	5.3
2005	4.7	5.6
2006	4.8	5.5
2007	5.1	5.7
2008	5.2	5.6
2009	8.3	9.0
2010	5.1	5.4
2011	5.4	5.6
2012	6	6.1
2013	6.4	6.4

Source: Joint Committee on Taxation, Estimates of Federal Tax Expenditures