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ABSTRACT

The United States government devotes about \$40 billion each year to means-tested housing programs, plus another \$6 billion or so in tax expenditures on the Low Income Housing Tax Credit (LIHTC). What exactly do we spend this money on, why, and what does it accomplish? We focus on these questions. We begin by reviewing the history of low-income housing programs in the U.S., and then summarize the characteristics of participants in means-tested housing programs and how programs have changed over time. We consider important conceptual issues surrounding the design of and rationale for means-tested housing programs in the U.S. and review existing empirical evidence, which is limited in important ways. Finally, we conclude with thoughts about the most pressing questions that might be addressed in future research in this area.

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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.

We should note these programs are just a modest share of the total subsidies government provides to subsidize housing for American households. Most of the government's spending on housing, or roughly \$195 billion of an estimated \$270 billion, (OMB, Analytical Perspectives, FY2014) goes towards subsidizing homeowners through the tax code (for example the Mortgage Interest Deduction). Sinai and Gyourko (2004) argue that even more economically meaningful may be the non-taxation of imputed rent, which they estimate led to total subsidies for homeownership on the order of \$600 billion.² We do not consider these subsidies in this chapter not because they are economically unimportant, but rather because the focus of this volume is means-tested transfer programs and most of these tax subsidies are not means-tested -- and indeed the vast majority of these subsidy dollars go to non-poor households.³

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. This rationale does not come up much in current housing policy discussions but is perhaps not surprising when one considers what the economic conditions were at the time the Housing Act was passed. Another important motivation was the concern of advocates about the substandard quality 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

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

2 Their estimate was for the year 2000 and reported in 1999 dollars, as \$420 billion.

3 Our chapter also focuses on the largest means-tested housing programs, which tend to be those run by the US Department of Housing and Urban Development and the Low Income Housing Tax Credit. As noted below, the US Department of Agriculture also runs some low-income housing programs but these are fairly small relative to the others.

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. Beginning in the 1960s and 1970s, HUD shifted to rely more 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 quite 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).

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, because housing programs – at least supply-side programs – essentially condition program participation on living in a certain geographic location, 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 address supply-side problems and stimulate housing production has also waned over time, though there is some debate about this point in high-cost, growing cities. 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. The quality of America's housing stock increased dramatically over the 20th century, but at the same time it also

became more expensive both in real terms and relative to the earnings of low-income households. As a result the focus of much current housing-policy discussion is 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 disadvantage of making LIHTC units unaffordable to a large share of the low-income households targeted by HUD programs. On the other hand flat rents have 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. The 30 percent effective marginal tax on earnings in HUD programs is actually moderate compared to the UK Housing Benefit program, which has a taper rate of more than 60 percent (Brewer et al., 2011). Of course, these work dis-incentives are most relevant for non-elderly, non-disabled adults, who at present comprise only about one-third of all participants in HUD's means-tested housing programs.

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, taxpayers prefer to support low-income housing rather than simple cash transfers. 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. Specifically, government-supported housing developments could in principle bring poor families to less disadvantaged neighborhoods, or actually directly improve the economic or social conditions of distressed neighborhoods. Low-income households that are given cash instead could potentially be hindered in their efforts to move to better neighborhoods by information failures and discrimination by landlords. Local politics could also adversely affect the ability of either government programs or cash transfers to help poor families move into less distressed neighborhoods, by either constraining the selection of sites for government-provided housing, or by making it more difficult for private-sector developers to build low-cost housing in higher income areas and so effectively limiting private development to poor and minority areas.

Another key implication of the current subsidy structure is that 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 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. This 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 is some indication that investments in government housing programs can improve the condition and desirability of surrounding neighborhoods under some circumstances. Further, there is some evidence that families and children enjoy better health and overall well-being when living in more advantaged neighborhoods, although 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 typically 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 more advantaged areas; HUD is currently experimenting with such modifications, as we discuss below.⁵

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.

While most of the research has focused on how individual housing programs affect participants, the question of how changing the mix of subsidies would affect families is also relevant for policy. 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 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 at least have the potential to 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.

I. 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 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 original model was that the federal government would pay for construction

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 rehabilitation programs for homeowners, programs to create and rehabilitate affordable rental housing or the tenant-based rental assistance. The Community Development Block Grant program provides block grants to support community development goals, including housing rehabilitation.

costs (through covering debt service on bonds issued to finance development costs), but that local housing authorities would cover the operating costs through rental revenues. Over time, buildings aged, utility costs rose, and rental revenues fell short of what was needed to cover the costs of operations and maintenance. In response, the federal government started to provide substantial subsidies for operations and improvements in the early 1970s (HUD 1974).

The enactment of the public housing program was highly contested, as the private real estate industry feared competition, and conservatives resisted public ownership as well as long-term subsidies (Mitchell 1985). In fact, the program may have never emerged if not for 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 Senator 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 fully 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 their homes and communities. 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 large, standardized 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 developments are no longer being created and many 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, equal to 11% of the nation’s total public housing stock at its high point. 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. The other side of this argument is that 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 criticism of the public housing program and optimism about the potential of public-private partnerships to solve social problems grew. 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 did not provide rent subsidies; instead they attempted to insure that low- and moderate-income households could 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 have moderate incomes. 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 1983.⁷

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.⁸ 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 \$1.25.⁹ 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

7 Notably, Congress did not end the Section 515 program for rural housing, which was administered by the U.S. Department of Agriculture, and provides developers with long-term, low-interest loans and rent subsidies to ensure that low-income tenants pay no more than 30 percent of their adjusted income on rent (Schwartz 2014). The structure of the program was similar to HUD subsidy programs.

8 The program replaced other tax incentives for rental housing that were not means-tested.

9 While 9 percent credits are capped, 4% tax credits are not capped and are available for any low-income housing development financed with tax-exempt bonds.

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 2014.¹⁰ 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 HUD-supported, subsidized housing.¹¹

The LIHTC program is administered by state allocating agencies, which determine the priorities for the LIHTC program, and award credits to developers to support the construction and rehabilitation of low-income, rental housing. 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).¹²

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 30 years to qualify for the ten-year stream of tax credits.¹³

Each state agency is required to issue a qualified allocation plan (QAP) that outlines the selection criteria it will use when awarding tax credits. Some criteria are required by the federal government, such as 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.¹⁴

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

10 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>

11 <http://www.huduser.org/portal/datasets/lihtc.html>

12 <http://www.ocpp.org/poverty/2014-median-income/>

13 The original requirement was 15 years.

14 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.

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 (now the Housing Choice Voucher program), which awarded vouchers to low-income 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 13 states and several localities have now passed source of income discrimination laws that prohibit landlords from discriminating against voucher holders.¹⁵ (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 rental income to support operating and maintenance costs, trying to avoid dis-incentivizing work, and avoiding 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).

¹⁵ For a list of these states and localities and a description of the laws, see Poverty and Race Research Action Council, 2005, updated 2014.

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). (Since most readers of this volume will probably find the poverty rate to be a more intuitive metric than share of area median income we 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” and “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, at least partly, and Congress sought to limit concentrations of poor households living in public housing. The Quality Housing and Work Responsibility Act of 1998 mandated that 40 percent of households admitted into public housing have incomes below 30 percent of the area median and let the threshold fall to 30 percent in some developments in high-poverty areas.

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 (AMI), 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 initial 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).¹⁶

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.¹⁷ In the first year of the program, tenants must pay no more than 40 percent of their income towards rent; after initial lease-up families can pay more than 40 percent for units with rents above the payment standard. Housing authorities recertify the income of voucher holders every year, though housing agencies participating in the Moving to Work (MTW) demonstration program, which exempts them from many of HUD’s standard rules, are permitted to recertify less frequently.

Housing authorities can set payment standards between 90 and 110 percent of the fair market rent (FMR) in the metropolitan area (or non-metro county), which is defined as either the 40th or 50th percentile of rents, depending on the cost of housing¹⁸. 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

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

17 HUD has rent reasonableness rules that prohibit PHAs from paying the FMR in neighborhoods where the market rents are less than the FMR. But it is unclear how well these rules are enforced.

18 PHAs can apply to HUD for “exception payment standards” above or below this range.

market rents at the zip code level, with the aim of providing voucher holders with access to a broader range of neighborhoods.¹⁹

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).²⁰ 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 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 low-income households.

II. 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 then 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

¹⁹ 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.

²⁰ Rents are considered affordable to a household if they amount to no more than 30 percent of a household's pre-tax income.

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).²¹ 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%). Across HUD programs, about 24 percent of HUD assisted households have earned income; this number is slightly higher for public housing and vouchers where there are more working-age adults. The majority of HUD-assisted residents are racial or ethnic minorities. Slightly over one-third of households are non-Hispanic White.

²¹ Of course the number of households in the U.S. has grown by some 24 million over the last twenty years

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 with children 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. Overlap with Other Subsidy programs

How do housing subsidies overlap with other transfer programs? The interaction of other federal and local subsidy programs is in general an under-studied issue and one that is relevant to, among other things, understanding whether participating in multiple programs reduces the benefit amounts families receive from each individual program. The HUD rent calculations exclude certain benefits, but include others in the determination of income and thus rents. Benefits that count towards income and rent calculations include: UI, SSDI, SSI, and TANF. HUD excludes most benefits tied to medical expenses from the calculation of adjusted income used to set rents. Importantly, HUD excludes SNAP benefits, LIHEAP, earnings from or payments from participation in WIA programs, and EITC refunds in the income calculation (HUD Occupancy Handbook, Chapter 5).

As noted earlier, HUD rent calculations implicitly tax earnings at marginal rate of 30 percent. This tax rate interacts in economically meaningful ways with other subsidy program rules. Figure 2 plots the distribution of wage-earning single-earner households (with one-child) against the EITC schedule in 2014. Roughly 94 percent of voucher households in this group of wage-earning households and about 89 percent of public housing fall within the EITC-range. Approximately 30 percent these wage-earners are in the “phase-in” region, another 30 percent are in the flat portion of the EITC schedule, and about a third are in the “phase-out” region. In 2014, the credit rate for the phase-in region was 34 percent in the phase-in region for single-filers with one child (Tax Policy Center, Briefing Book 2014). This means that for earnings gains for households with incomes in

the phase-in region, the EITC more than offsets the increase in rents brought about by the HUD rules. More attention should be given to examining how federal subsidy programs overlap and connect.

D. 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 disadvantaged 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. The relevant question is whether rental prices have outpaced income growth. Figure 2 plots changes in real rental prices against changes in 25th percentile household incomes since 1980 (base year, 1983). Over this period, rents largely tracked income until the Great Recession. Since 2007, incomes have plummeted while rents have rebounded after a brief dip. 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 who were 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 their 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. To be fair, these numbers may not count many low-income households in tax credit developments who do not also receive a rent subsidy, but these households receive a much smaller effective subsidy.

In just about all parts of the country housing assistance is oversubscribed, and local housing authorities have developed a number of different systems to prioritize households on the program waitlists. According to a 2012 survey of about 80 percent of housing authorities, covering about 85 percent of assisted housing, there are more than

4.9 million households on wait-lists for housing vouchers and 1.6 million households on public housing wait-lists. These numbers may slightly overstate the number of unique households on a waitlists, because households could conceivably be on multiple waitlists. Low-income housing assistance is the only major federal welfare program rationed in this way, a point to which we return below.

E. 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. These outlay figures 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 smaller rural housing programs, including project-based rental assistance to 270,000 households through the Section 521 program at a cost of roughly \$1 billion annually.²² 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.

III. 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 the obvious question for economists 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, but as we note below this need not be the case. We also discuss the potential "internalities" as well as externalities associated with housing consumption, which are frequently cited as key justifications for housing programs. We pay particular attention to potential effects on labor supply, and how housing programs balance the general tension that arise 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 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

²² USDA also operates a mortgage subsidy program, Section 515 (<\$1B/year)

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 near 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, where a given housing unit becomes less expensive over time as its condition declines.

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.²³

As housing conditions have improved, affordability has worsened. 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. As with health care, in the area of housing American households are now paying more but getting more as well.

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.²⁴ 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?

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

23 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."

24 The U.S. Department of Housing and Urban Development bi-annually tracks a measure called "worst-case housing needs" which are unsubsidized low-income households²⁴ 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).

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 seeing 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 as alcohol, cigarettes or luxury goods. Whether it is a preference for consumption of housing or against other goods, in-kind housing transfers do indeed 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 low-income housing 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. It is perhaps 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). This argument is also generic to the whole issue of in-kind subsidies, not housing specific.

A third argument is that housing is a "merit good" – that Americans 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, providing low-income households with more cash would increase their 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?

The federal low-income housing programs produce complicated budget sets for participating households, with varying rules determining income deductions and exemptions. We 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 does not yield an unambiguous prediction 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. In practice public housing probably offers a better housing alternative for families applying for assistance – however it may be that some households would consume better housing in the absence of a subsidy, and so enrollment in public housing would lead them mainly to increase consumption of other (non-housing) goods.

Like public housing, the LIHTC program provides a take-it or leave-it offer of a fixed quality of housing. Unlike public housing, which lets program participants increase consumption of other goods by fixing the tenant's rent contribution at 30 percent of income (less than what most unsubsidized households pay towards rent), 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 doesn't offer substantially lower rents in many markets than low-income households would pay in absence of the program, but does deliver higher quality for a given rent level than most housing alternatives for low-income households. In high-cost markets, households in LIHTC units are likely spending less on rent than their unsubsidized counterparts and getting higher-quality units.

Housing vouchers are more flexible than project-based subsidies. Recipients get a capped rent subsidy to lease any decent 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). 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, so long as that unit meets the voucher program's quality standards. While "leasing in place" essentially leaves money on the table for the many poor households living in units with monthly rents below (perhaps far below) what is effectively the voucher's maximum allowable rent (the FMR), around 20 percent of newly issued voucher holders use the voucher to lease their previous unit (Finkel and Buron, 2001). One reason households do this is because they have a limited amount of time to find housing (typically around 90 days) when first issued a voucher, after which the voucher offer is rescinded by the local housing authority so that some other household

can use it. Presumably some of these families who lease in place will “re-optimize” with future moves. If housing is a normal-good, as we would expect for most households, the design of the program should eventually increase housing consumption.

It remains unclear 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.

While little rigorous research has explored how inadequate housing might generate negative externalities in practice, there are some obvious candidate channels such as 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 could 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 could potentially 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. What the available data tell us about the net effect of housing programs on labor supply is discussed in detail below.

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 of promoting access to “better neighborhoods.” The link between housing 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 or price of a housing unit is directly linked to the neighborhood conditions around it; that is, surrounding neighborhood conditions are an amenity that is capitalized into the price of an apartment or house. 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 otherwise live in the absence of a subsidy, then such programs affect the neighborhoods conditions experienced by subsidized families by changing both the site they live in themselves 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 compared to who their neighbors would have been 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.

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 the total population living 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.

Concern about the possible effects of project-based subsidies in geographically concentrating poor families has led to growing policy interest in either 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 seems to 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 might need to offer non-poor households some sort of subsidy to choose units in these developments instead of somewhere else. So “market rate” may be something of a misnomer. A different potential consequence associated with mixed-income buildings is that overall construction costs for low-income units may be higher in a building that is mixed-income (because of higher land costs and amenities needed to attract market-rate tenants) than it would be for a building that would house entirely low-income households.

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). And as noted above what is essentially the housing voucher maximum rent (the FMR) is set at the metropolitan-area level; given that rental units in better neighborhoods tend to be more expensive (holding all else equal), vouchers will either require families to accept some reduction in unit quality in exchange for living in an more affluent neighborhoods or in some cases may even be priced out of more affluent neighborhoods altogether.

Household preferences could also attenuate the degree to which housing voucher receipt translates into changes in neighborhood conditions. 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 on this question.

This discussion highlights two open empirical questions that are critical for low-income housing policy. The first is whether compared to in-kind housing programs, providing low-income families with cash transfers would lead to larger or smaller changes in the

housing and neighborhood environments in which they live. The second has to do with the ongoing debate in the housing policy community 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 could also vary according to what type of place-based program is being considered as an alternative to tenant-based programs.²⁵ 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.

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 roughly \$8,000 per year (HUD, Congressional Justification FY2015),²⁶ and which in more expensive cities can be worth \$12,000 per year or even more (see for example Jacob and Ludwig, 2012). 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 conceptual tradeoffs that would be associated with such a change in policy.

For starters it is worth considering the degree to which path dependence in housing policies has contributed to the current distribution of resources. As noted in Section II, when housing programs began in earnest in the 1930s, these subsidies were delivered by just one program – public housing. In many ways the government essentially 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 afford better units.

Over time the shift towards other subsidy programs has in principle 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 the opposition 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

25 For example in the LIHTC program, developers rather than government officials propose the location of projects, so the risk of government failure in the location of those developments might be lower than with traditional public housing.

26 The average monthly HUD subsidy was \$647 in 2013 (HUD Congressional Justification FY 2015).

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 in many housing markets, landlords would resist renting to poor households with only shallow subsidies, viewing them as too risky. A different version of the argument is that high housing costs combined with local housing codes and HUD quality standards sharply limit the pool of decent, lower rent units. As a result, shallower subsidies would still leave poor families paying unsustainable shares of their rents or living in poor housing and so would not improve their well-being. It is worth noting that this assumption stands in contrast to the usual assumption within economics of diminishing marginal utility of consumption. It also stands in contrast to findings elsewhere in the social policy literature that there are diminishing marginal benefits from additional household resources on other outcomes that policy cares about, such as children's life outcomes (Loken, Mogstad and Wiswall, 2012).

In principle a different way that the government could distribute subsidies more widely would be to provide time-limited subsidies, which could potentially allow a large share of all low-income families receive subsidies at some point in their lifetimes. 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, many tenants have stayed for longer tenures than the original framers of the programs envisioned.

The change over time towards conceptualizing public housing as 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 might make the program less effective from the perspective of addressing problems related to low levels of permanent income (for one thing, landlords might be far less willing to accept poor tenants with a time-limited subsidy), but it 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 only way to substantially reduce spending on housing is to move.

The current structure of housing assistance programs makes them ill-suited to address the problem of income volatility.²⁷ Vouchers are not well designed 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 itself tax poor families of the bandwidth required 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).

D. Targeting of Housing Assistance

In 2012, housing authorities nationwide reported more than 6.5 million households on their waitlists for housing voucher or public housing.²⁸ In light of this enormous demand for housing assistance, an important question is whether these scarce subsidies are targeted to the households most in need?

27 Some localities creatively use different federal funding sources to provide short-term rental assistance to help families stay in their homes. New York City’s Human Resource Administration operates a “One-Shot” emergency assistance program – funded with TANF and local dollars - that is available for individuals or families who are facing eviction, escaping domestic violence, facing utility disconnection and other extreme circumstances.

28 This number may include some duplicate households if households are on multiple housing authorities’ waitlists (HUD, 2012)

Systematic evidence on local targeting policies is limited, but a 2012 HUD survey of housing authorities offers some insights. Housing authorities typically organize their waiting lists for housing assistance in one of three ways (or combination of them): 1) first-come first-served; 2) random lottery; or 3) local subgroup preferences (such as recently homeless, domestic abuse victims, working families, high-rent burden or overcrowding). Approximately 62 percent of PHAs covering roughly 77 percent of all housing vouchers nationwide use some type of preference for their housing voucher waitlist, sometimes in addition to a first-come, first-served rule. The numbers are similar for public housing admissions preferences. About 62 percent of PHAs with public housing use some admission preference and these PHAs account for about 81 percent of public housing units. The most commonly reported preferences are given to homeless families and individuals, households involuntarily displaced (from natural disaster or government activity), victims of domestic violence, residents of the local jurisdiction, applicants living in substandard housing, households who are rent burdened, and veterans. Unfortunately, this survey did not gather data on how many households come in under each of these categories.²⁹

Among the different approaches for organizing and managing a wait list, first-come first-served might be the most problematic in terms of targeting the neediest households. It seems possible that familiarity with waiting list opening periods and ability to arrive at housing authority offices on a timely basis would wind up being negatively correlated with underlying need among income-eligible families. Lottery-based systems have the advantage of being fair the way most people would probably define it (horizontally equitable), but achieve no gains in targeting beyond the initial eligibility criteria. Preferences appear the most appealing of the three methods at targeting to needy households, if households cannot easily manipulate their status for to the stated preferences.

The more general question of how to target scarce low-income housing assistance is an important one that has received little rigorous attention. One possible framework is to ask for which populations might the possible cost-benefit of housing assistance be most favorable. For example, if housing assistance is most beneficial to the homeless or young children in disadvantaged neighborhoods, perhaps housing programs should more explicitly target these groups. An obvious challenge to establishing these types of strong preferences is that it can create perverse incentives for households to change their status in order to receive housing assistance.

Another dimension of targeting is how low income housing programs respond to changes in underlying needs. Historically, the number of housing units constructed or households served in HUD's three major rental assistance programs has not been closely connected to underlying macroeconomic conditions. The need for housing assistance can change as a result of tightening housing market conditions or falling incomes. These two forces tend to pull in opposite directions, but not always. The Great Recession led to sustained falling

²⁹ We know relatively little about the waiting list practices for LIHTC developments. In some cases private developers or property managers may apply their own wait list practices, but they may also coordinate with their relevant city agencies to organize their waitlist.

incomes, but rents rose quickly after an initial downward drop. The size of HUD's programs is a primarily a function of budgetary decisions rather than any direct link to outside economic conditions. PHAs administering the voucher program generally have a budgetary cap meaning that if falling tenant incomes are not sufficiently offset by falling rents, then they have to issue fewer vouchers. As for LIHTC, the credit itself is relatively fixed, but it behaves pro-cyclically as the strength of investor interest in the credit has tended to match general economic forecasts.

For those households already receiving assistance, the federal low-income housing program rules are well designed in times of economic downturn. Falling tenant incomes mean that tenants are required to pay less in rent, thus providing some buffer of support to negative economic shocks. For voucher holders, the size of the voucher depends on the FMR, which is tied to local rent data from the census, which tends to have some lag, but in theory captures some of the effects of increases in rents (or decreases).

IV. 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).³⁰ 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 likelihood a family is over-crowded by 16 percentage points. This finding holds for both blacks and whites.³¹

30 <https://www.census.gov/hhes/www/housing/census/historic/plumbing.html>

31 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”).

The same general finding seems to hold for the housing voucher program as well. What is very clear is that the market rents 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.³² This same study also shows that vouchers increase by over 20 percentage points the rate at which recipients and their children live on their own rather than with other relatives, which may reduce crowding and enable people to get away from difficult or even abusive relationships. Many voucher recipients report in qualitative interviews that they value this new independence for its own sake as well.

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

32 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.³³

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.³⁴ Nor is it entirely

33 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).

34 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). It is worth noting that this study only focused on two metropolitan areas and is now more than 40 years old. So it is reasonable to ask whether the same cost differences would hold in different market conditions.

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.³⁵

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.³⁶ 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.³⁷ 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

35 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.

36 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.

37 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.

showing that the LIHTC increases the total number of rental units in an area (Baum-Snow and Marion, 2009).³⁸ 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 the effects of public housing on residential mobility.³⁹ 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).⁴⁰ 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.

Experimental evidence from the voucher program is mixed. 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 year follow-up period; voucher receipt reduced the

³⁸ 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).

³⁹ 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.

⁴⁰ 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.

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 contrast, the Chicago voucher study by Jacob and Ludwig (2012) finds 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 out of 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.⁴¹ 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).

41 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).⁴² As for the quality of local schools, 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.

The strongest available evidence suggests the voucher program, as it is widely implemented, does not seem to have large effects on the average neighborhood conditions of recipients. However, the design of the voucher appears to influence tenant neighborhood choices. MTO illustrates how restricting vouchers to leases in low-poverty census tracts for a year, coupled with some counseling assistance, affects tenant location decisions. Unsurprisingly households that received the restricted low-poverty voucher initially moved to neighborhoods with much lower poverty than households with a conventional, unconstrained voucher. This difference persists through the 10-15 year follow-up, though it shrinks considerably. This low-poverty restriction also had the effect of substantially reducing voucher take-up rates. Shroder (2001) finds that while counseling intensity was positively related to lease-up rates, the geographic restriction still lowered lease-up rates among the experimental group by 14 percentage points.

A less prescriptive approach to stimulating moves to better neighborhoods, underway as part of HUD demonstration known as “Small Area Fair Market Rents,” entails increasing the maximum voucher subsidy in high-rent neighborhoods and lowering the maximum

42 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.

subsidy in low-rent neighborhoods. Collinson and Ganong (2014) evaluate this policy change from a single metro-wide maximum subsidy to ZIP-code voucher subsidy ceilings in the Dallas metro area. They find that relative voucher holders in neighboring Fort-Worth, Dallas movers are in neighborhoods about 0.23 SD higher on a composite measure of quality three years after the policy change with little net costs to the government.

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 developments receive more tax credits if they are located in census tracts in which at least half of households are LIHTC-eligible, which incentivizes developers to build housing 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 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. (That said, it bears repeating that about two thirds of HUD subsidy recipients are either elderly or disabled.) 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).

Concerns over public housing and the voucher program reducing work effort has prompted some experimentation around policies aimed at encouraging economic self-sufficiency and removing work disincentives. One notable example is the Jobs-Plus demonstration. Jobs-Plus randomized a bundle of varied employment services (which could include vocational training, educational programs, childcare or transportation assistance) along with modified rent policies designed to reduce earnings disincentives to public housing developments across several cities. Residents at treatment developments experienced a 14-20 percent increase in earnings relative to their control peers four- and five- years later with no detectable fade-out (Bloom, Ricco, and Verma 2005). The design of the study was such that it wasn't possible to directly test which element of the intervention was most effective. A research demonstration is currently underway to test whether reducing work disincentives in the current rent calculation through reforming rent rules could attenuate the negative labor supply effects of public housing assistance.

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.⁴³

For the housing voucher program, Jacob, Kapustin and Ludwig (2015) 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 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

⁴³ 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.

outcomes that – as at the 5 year follow-up – go in opposite directions for boys versus girls (Kessler et al., 2014).⁴⁴

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 government 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.

V. 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 public housing, which 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).

The intellectual (as opposed to political) justification is for these programs continues to be contested and somewhat unclear – as was also the case 40 years ago when Henry

44 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%).

Aaron wrote his excellent 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 significant 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.

The best available evidence suggests that increasing housing consumption without improving neighborhood conditions may have little detectable impact on conventional measures of human capital accumulation of children and may reduce labor supply of working-age adults. But these questions are hardly settled; there is considerable room for further evidence on the effects of housing subsidy receipt on families and children. Indeed there is virtually no evidence about the effects of what is currently our largest low-income housing subsidy program, the Low Income Housing Tax Credit program. There is more robust evidence about the importance of neighborhoods, which suggests that exposure to less-distressed neighborhood conditions can improve health outcomes, and, as may be suggested by more recent research, among young children to boost their long-term labor market success as adults.

Another surprise with existing research on means-tested housing programs is our limited understanding of potential innovations to existing or new potential programs. This is particularly surprising given the level of experimentation taking place at the local level by public housing authorities. For example, more than 30 housing authorities have been granted “Moving to Work” (MTW) status in the past decade, which has allowed them to waive a number of HUD regulations to tackle goals of enhancing economic self-sufficiency and improving resident opportunity. The housing policy landscape would seem to be rife with state and local variation in policy that is waiting to be studied.

Some of the most important questions, then, for future research in this area include:

- What are the relative effects of in-kind housing programs versus equivalently-costly cash transfer programs on housing consumption of poor households? Many local housing agencies use lotteries to allocate slots in over-subscribed housing programs, which can help identify the housing consumption effects of those programs. Some work like that has been done to date but only in a few cities, such as Chicago (Jacob and Ludwig, 2012); for external validity purposes there would

be value in having such estimates in more cities. Economists have developed a large parallel literature in trying to understand various behavioral responses of people to cash transfers, exploiting for instance variation over time in the value of the federal Earned Income Tax Credit or variation in the generosity of state-specific EITC programs. That work could also be extended to consider impacts on housing consumption as well.

- What are the externalities associated with both housing and means-tested housing programs? To date there is a small literature that uses housing-voucher lotteries suggesting that providing subsidies to previously unsubsidized households has fairly modest effects on non-housing outcomes (Mills et al, 2006, Jacob and Ludwig, 2012, Jacob, Kapustin and Ludwig, 2015). This research stands in contrast to non-experimental studies that find that at least some features of housing consumption are associated with important non-housing outcomes (see for example Leventhal and Newman, 2010). Whether this discrepancy is due to problems with internal validity in the non-experimental studies or with limited external validity of the voucher lotteries remains unclear at present and would be valuable to learn more about in future research.
- Similarly, there is virtually no research on the impact of living in Low Income Housing Tax Credit developments, despite the fact that the LIHTC program has become the largest federal low-income housing production program.
- Questions also remain about the the externalities associated with neighborhood conditions like racial and economic composition or social conditions or cohesion like “collective efficacy” (Sampson, Earls and Raudenbush, 2007), which housing programs could in principle affect. Here again the experimental and non-experimental literatures seem to somewhat conflict. For example evidence from the Moving to Opportunity (MTO) experiment suggest important changes in some outcomes, such as physical and mental health, overall well being and (more recently) long-term earnings for children exposed to disadvantaged neighborhoods, but these impacts are less sweeping than what is generally suggested by non-experimental studies. How do we reconcile these literatures?
- What modifications to existing housing programs, if any, could make them more successful in enabling poor families to access less disadvantaged neighborhoods? For example with the current housing voucher program, a sizable share of families offered vouchers are not able to use them to lease a new unit within the program’s limited search window. And those who do lease up wind up living in neighborhoods that are not so different from the ones they were living in prior to receiving a subsidy. To the extent to which neighborhood conditions are important for at least some aspects of well-being, how can we modify our existing housing policy levers to do more to change the geographic concentration of disadvantage in the US?

- What are the advantages and disadvantages of relying on project-based versus tenant-based programs under different types of housing market or economic conditions? Studies like MTO tell us something about the effects of housing vouchers versus public housing, which is valuable but surely cannot be the only word on this subject given that it was carried out in just five cities with extremely distressed public housing developments. In principle the relative advantages and disadvantages of the two types of subsidy programs could vary according to the tightness of the local housing market, a type of potential contingency that we would need much more than five city data points to understand.
- What are the advantages and disadvantages of relying on flat versus income-based rents in housing programs? Flat rents of the sort used in the LIHTC program have the advantage of minimizing work disincentive effects associated with the income-tied rents used in most HUD programs, but have the downside of making units more expensive to low-income households. Almost nothing is known on this point right now, which is a question that could in principle be answered by supporting and studying local housing authority experimentation with the different types of rent approaches.
- What are the benefits and costs of mixed income developments to low-income households? One issue is better understanding the degree to which non-poor households wind up being implicitly subsidized to live in mixed-income developments, and what the other costs are of building mixed-income developments rather than those that would exclusively serve low-income families. A different but related question is how much more it costs to house poor households in higher-valued neighborhoods. How to view these potential tradeoffs 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.
- What are the benefits and costs from a system that provides either smaller or more time-limited subsidies to a larger share of income-eligible households than currently receive housing help from the government? There is an implicit disagreement right now between housing advocates who believe that the benefits of housing subsidies are convex in the subsidy amount and researchers who study other transfer programs who believe the benefits of subsidies in general are more likely to be concave in the subsidy amount. Understanding more about this question is critical for housing policy given that at present fewer than one in four income eligible households receives rent support from federal means-tested subsidy programs.

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

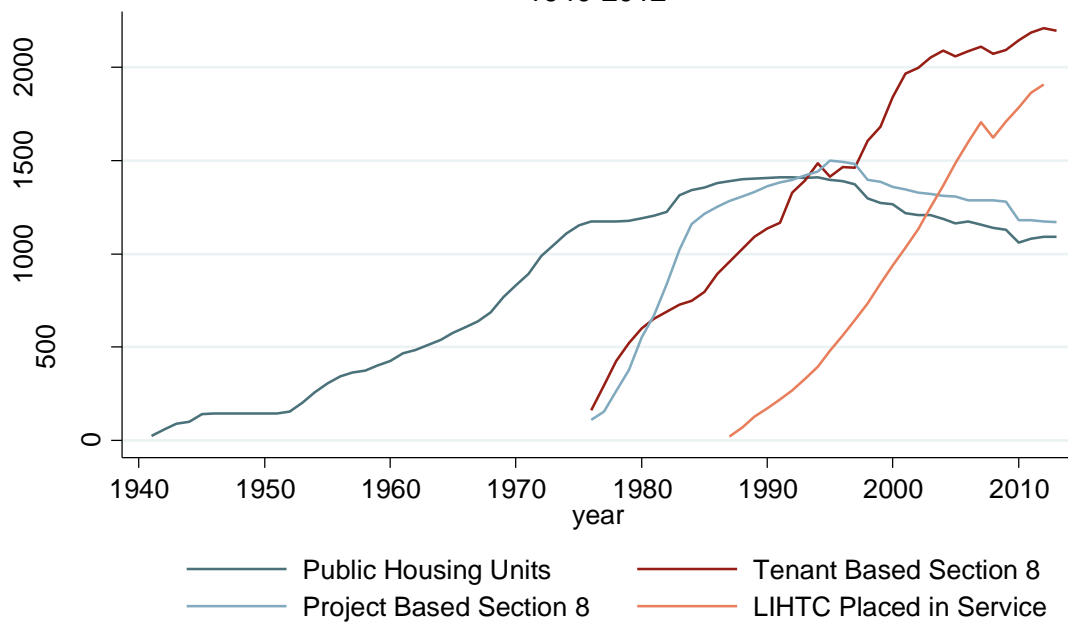
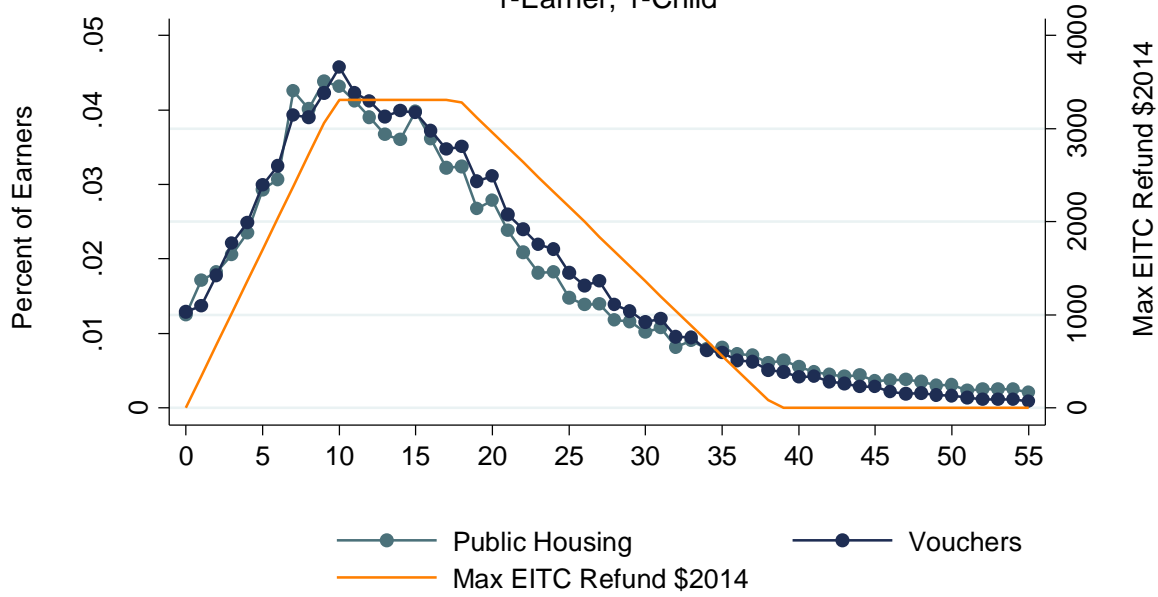


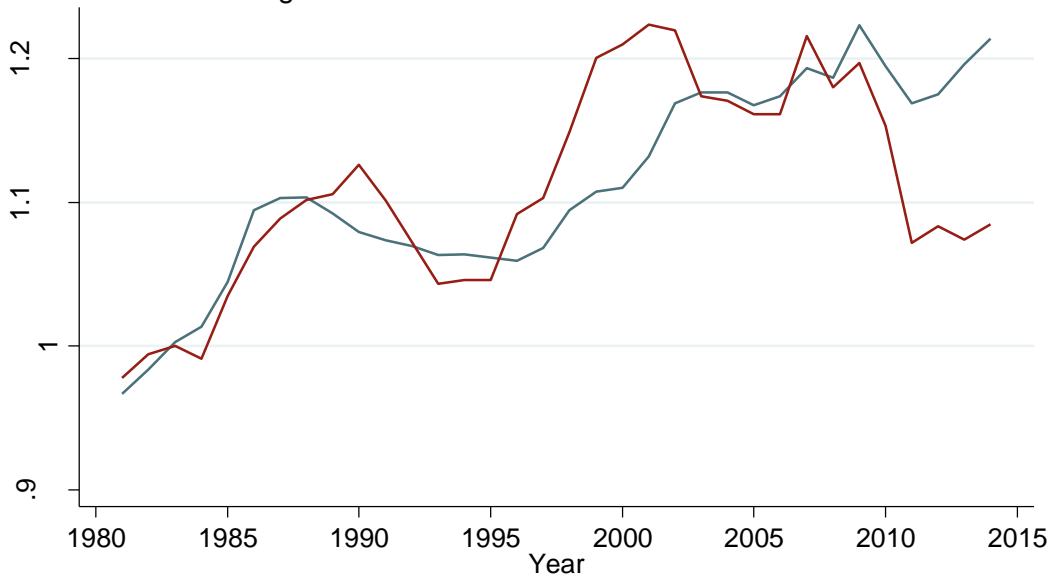
Figure 2: Assisted Households with Earnings v. EITC Schedule
1-Earner, 1-Child



Source: Authors Calculations, HUD PIC 2014, Tax Policy Center 2014

Sample is households with positive wage earnings, one-wage earner, and one dependent

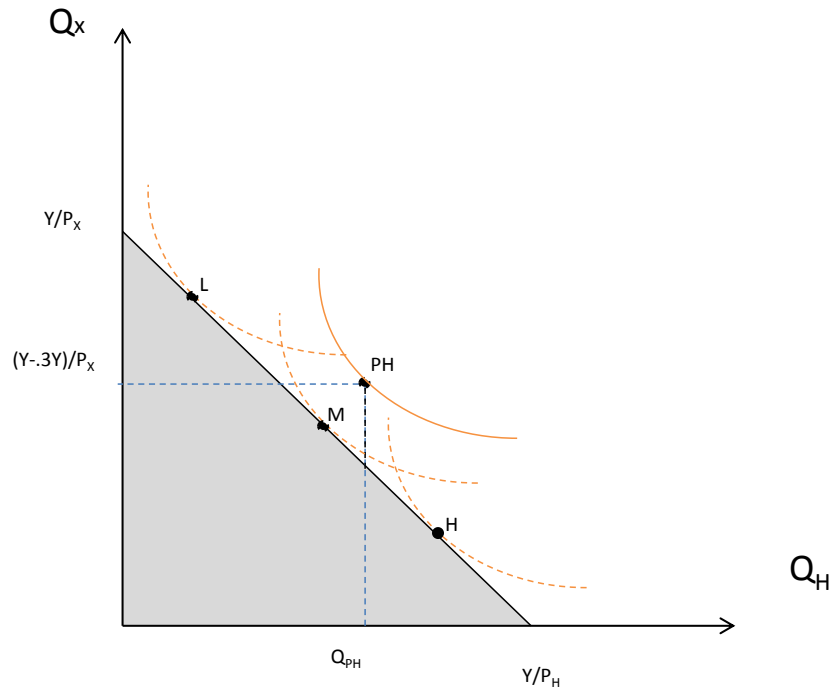
Figure 3: Real Rent v Real Income 1980-2013



Source: Authors' Calculation; Data: CPI City Average Urban Consumers, CPS PUMS

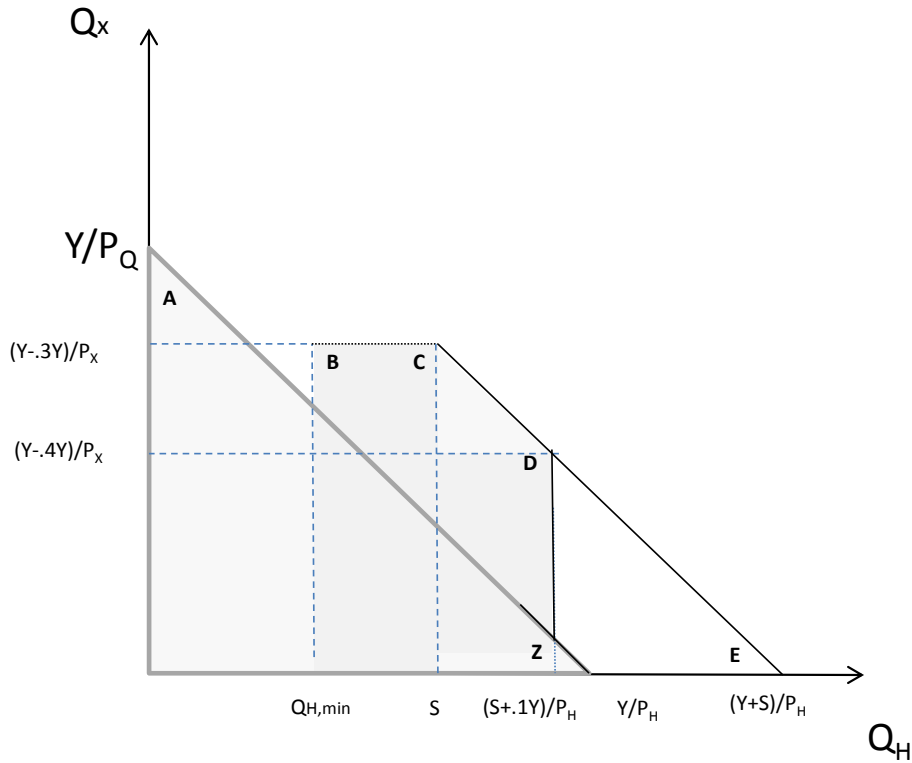
— CPI Rent Index/ Less Shelter Index — 25th Pctile Income Index

Figure 4: Budget set under Public Housing



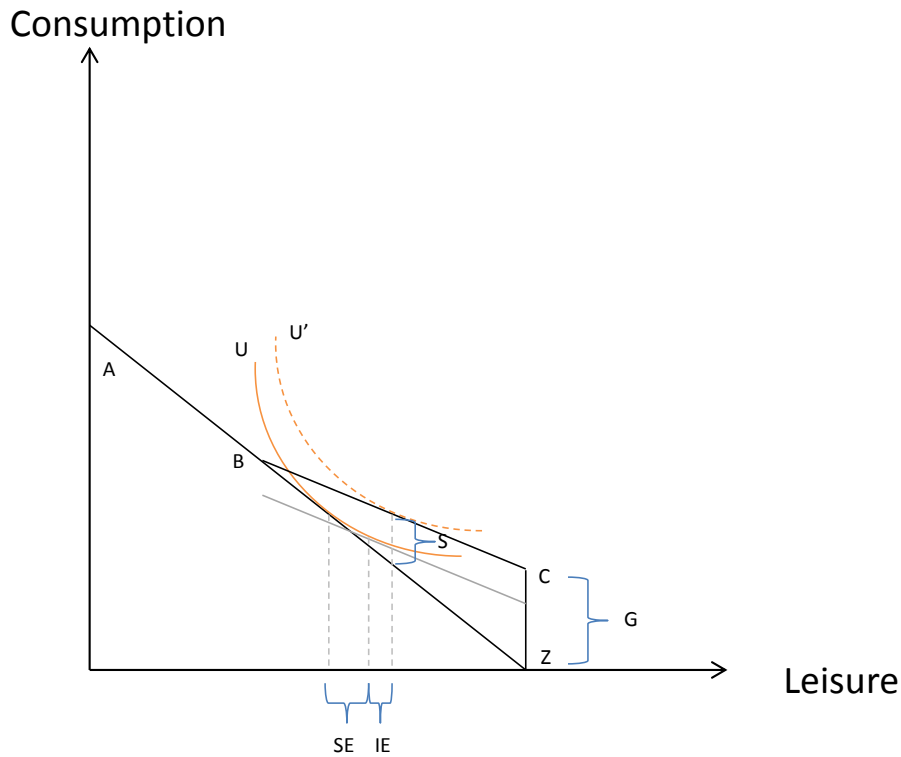
Notes: The figure above illustrates a static view of public housing assistance on the budget set of participants, ignoring labor supply effect. Public housing amounts to an offer of a fixed quality of housing, accepting this offer could result in lower housing consumption with more of other goods consumed, 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 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. A voucher recipient must pay at least 30 percent of their adjusted income (Y) towards rent, and must reside in a unit surpassing a minimum quality threshold (Q_{min}). The voucher pays up to a maximum subsidy ceiling (S), this is often the Fair Market Rent (FMR), but local PHAs have discretion to set the subsidy ceiling from 90-110% of FMR. In the first year of the program, the budget constraint is ABDZ. First year tenants can rent a unit that is more expensive than the maximum subsidy (S), but cannot pay more than 40 percent of their adjusted income on rent, thus the highest quality of housing they can occupy is $(S+0.1Y)/P_H$. The presence of this maximum expenditure ceiling means that theoretically the voucher could lead to reduced housing consumption in the first year of the program. After the first year of the program, tenants can pay more than 40 percent of their adjusted income towards rent, so they face budget constraint ABCDE and should increase housing consumption.

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, ⁴⁵ 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 30% of their adjusted income exceeds the payment standard for six months.	30% of a tenant's adjusted income if unit rents below payment standard; Any amount if rents are above payment standard.

⁴⁵ 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 are low-income units placed in service from HUD's Low Income Housing Tax Credit Database.

Table 3: Characteristics of HUD-Subsidized Households 2013

Variables	ALL	Housing	Project	Other			
	HUD	Choice	Public	Based	Multifam	Section	Moderate
	Programs	Vouchers	Housing	Section-8	ily	236	Rehab
							Program
Subsidized Units (thousands)	5,256	2,386	1,151	841	656	127	22
Subsidized People (thousands)	10,077	5,360	2,335	1,247	946	156	33
% Occupied	94	92	94	96	95	93	89
Subsidized Households Reported	4,553	2,113	1,071	785	493	63	28
Average Rent/Month, Inc. Utiliti	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 % 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 S	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

Notes: This table report summary statistics on households, persons and units by program. Units and households are reported for the program under which units were initially constructed. This means that some many households under the "other multifamily programs" category which includes: Section 8 Loan Management, Rental Assistance Program (RAP), Rent Supplement (SUP), Property Disposition, Section 202/811 capital advance, and preservation may be receiving project-based rental assistance (but are not double-counted).

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)^a
1980	5,480	13,179
1981	6,861	15,091
1982	8,064	16,702
1983	9,449	18,831
1984	10,048	19,337
1985	11,402	21,262
1986	11,441	20,912
1987	11,278	20,102
1988	12,727	21,918
1989	13,979	23,171
1990	15,481	24,744
1991	16,958	26,233
1992	18,776	28,399
1993	21,397	31,611
1994	23,804	34,434
1995	27,438	38,879
1996	26,660	37,100
1997	27,693	37,889
1998	28,686	38,826
1999	27,645	36,853
2000	28,788	37,523
2001	30,067	38,315
2002	33,046	41,475
2003	35,306	43,448
2004	36,574	43,804
2005	37,710	43,756
2006	38,002	42,779
2007	39,436	43,242
2008	40,245	43,278
2009	41,405	44,191
2010	46,628	49,167
2011	47,743	49,324
2012	43,801	44,453
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,

a - real values adjusted using BEA annual GDP Implicit Price Deflator

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

Year	Cost	Cost (\$2013) ^a
2004	4.3	5.1
2005	4.7	5.5
2006	4.8	5.4
2007	5.1	5.6
2008	5.2	5.6
2009	8.3	8.9
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

a- Real values adjusted using BEA annual GDP Implicit Price Deflator