

# Housing Needs and Effective Policies in High-Tech Metropolitan Economies

Kathryn P. Nelson

*U.S. Department of Housing and Urban Development*

## *Abstract*

What are the most effective ways to provide low-income housing to those left behind in new economy housing markets? Do winners and losers in high-tech competition require federal housing strategies geared to metropolitan differences? This article examines 45 large metropolitan areas grouped along a high-tech spectrum to see who is disadvantaged and to deduce effective local low-income housing strategies from market characteristics.

Finding affordable housing was, on average, more difficult for low-income renters and owners in high-tech economies in the 1990s. Nonetheless, high-tech metropolitan economies, like other local/regional markets, vary greatly. Sharp differences among and within metropolitan markets make it essential that federal strategies allow local policies to respond to local conditions. To most effectively provide low-income housing to those left behind in *all* markets, federal policy should target sufficient resources to severe housing needs through many more vouchers and programs that permit and encourage effective local choices.

**Keywords:** Affordability; Low-income housing; Urban/regional housing markets

## **Introduction**

What are the most effective ways to provide low-income housing to those left behind in new economy housing markets? Does the presence of winner and loser areas in the high-tech game require federal housing strategies geared to metropolitan differences?<sup>1</sup> As other studies document (Landis, Elmer, and Zook 2001; Quercia, Stegman, and Davis 2001), housing prices and rents are higher in new economy housing markets than elsewhere, making critical housing problems more common there as well.

This article aims to identify useful strategies for providing affordable housing for those left behind in high-tech economies in order to examine the implications of desirable local policies for effective federal housing strategies and programs. Assessing whether recent high-tech

---

<sup>1</sup> This article uses the terms new economy and high-tech economy interchangeably because they have many characteristics in common, as Landis, Elmer, and Zook (2001) discuss.

competition requires federal strategies geared to metropolitan differences is highly pertinent in subject matter, timing, and its focus on differences among local housing markets. In 2000, Congress established a Millennial Housing Commission (MHC) to review federal housing programs and recommend needed changes,<sup>2</sup> and a consistent theme for low-income housing policy over the past 20 years has been the desirability of devolving housing policy decisions to state and local levels (Orlebeke 2000).

To begin to identify desirable policies for those left behind, this introduction first summarizes what is known about housing problems in high-tech markets generally and the problems of lower-income groups specifically. It then groups 45 large metropolitan statistical areas (MSAs) along a high-tech spectrum to identify winners and losers—the 15 MSAs with the highest or lowest shares of high-tech employment—and introduces the data used in the study.

After summarizing current housing policy issues and identifying lagging renters and owners at the national level, the two major empirical sections of the article examine housing problems in different types of metropolitan areas and market characteristics important for choosing effective housing policies, first for low-income renters and then for low-income owners.<sup>3</sup> Differences between high-tech and relatively low-tech MSAs confirm that those income groups and household types left behind nationally also tend to be more disadvantaged in high-tech economies. To infer effective low-income housing policies at the local and state levels, each section next probes differences in housing problems and market characteristics among individual housing markets, finding much more variation within MSA groups than across groups. Each section concludes by discussing what the range of state and local program needs implies for effective federal policies in terms of current key issues.

The third major section compares needs with possible resources by considering a proposal made by a respected housing advocacy group, the National Housing Conference, which recommended to the MHC that federal expenditures for housing programs that benefit households with incomes below 120 percent of the median be expanded to at least equal

---

<sup>2</sup> The commission's legislative mandate, mission statement, research, and submitted testimony are all found at its Web site: <[www.mhc.gov](http://www.mhc.gov)>. Its legislative mandate, for example, is at <[www.mhc.gov/mandate.html](http://www.mhc.gov/mandate.html)>.

<sup>3</sup> Following definitions for federal rental programs, "low" incomes are those below 80 percent of the area median income, as adjusted by the U.S. Department of Housing and Urban Development. Information about the adjustments made for household size and location is given in HUD 2001b.

the tax benefits that annually go to owners with incomes above 120 percent of the median.<sup>4</sup> This proposal would more than double existing expenditures for low- and middle-income households, adding an additional \$44 billion in fiscal year (FY) 2002 dollars. I consider the implications of the program needs identified in the two empirical sections for best allocating this additional \$44 billion among federal programs. Because needs far outstrip likely new resources, I also suggest ways of using current federal programs more cost-effectively.

I conclude that federal housing strategies should indeed be geared to local differences, not because of recent high-tech competition, but because fundamental forces of housing demand and supply continually generate different housing market conditions in different locations. To most effectively provide housing to those left behind in high-tech areas—and indeed in *all* types of local housing markets—federal housing programs should provide sufficient resources and target them well to areas and households with the most severe housing problems. The most pressing and widespread need is for more consumer-based assistance, the most cost-effective way to reduce the severe cost burdens of extremely low income households. Many locations also need more units affordable and available to renters with incomes below 30 percent of the area median income (AMI), but because the extent of such shortages varies greatly across the country, careful targeting to more needy areas is essential if scarce resources are to be used cost-effectively. Finally, problems of households with incomes of 30 to 80 percent of AMI vary widely across the country, as do housing market conditions resulting from the local interaction of demand and supply forces. Federal resources to reduce these problems should be usable through a flexible menu of approaches that encourage or require local and state choices that are cost-effective and appropriate under local housing market conditions.

### *High-tech metropolitan economies and housing problems*

During the 1990s, the nation's economic boom often worsened housing problems. As the *State of the Cities 2000: Megaforges Shaping the Future of the Nation's Cities* summarized, "(t)he economic growth that is pushing up employment and homeownership in most of the Nation's cities also is driving increases in rents more than one-and-a-half times faster than inflation" (Department of Housing and Urban Development [HUD] 2000b, viii).

<sup>4</sup> The National Housing Conference's response to the commission, like all testimony and responses to the MHC cited in this article, can be found at the Web site, specifically <[www.mhc.gov/responses](http://www.mhc.gov/responses)>.

Landis, Elmer, and Zook (2001) asked whether the higher prices and rents in new economy areas reflected new economic forces at work or long-recognized area differences in housing demand and supply. Measuring the new economy by dot-com firms per thousand private workers, they explored whether this variable increased the explanatory power of models that based housing market outcomes on basic demand and supply measures such as income and building permits compared with job growth. They concluded that “rather than being fundamentally different, new economy housing markets are...faster and more extreme versions of traditional housing markets” (1).

Quercia, Stegman, and Davis (2001) examined the impact of local high-tech economies on critical problems (paying over half of one’s income for housing or occupying severely inadequate housing). After controlling for employment growth, development restrictions, and socioeconomic characteristics, they found that a high-tech presence “significantly contributes to...critical housing problems” (17) for both renters and owners. Similar results held for moderate-income families, those with incomes below 120 percent of AMI but above earnings from full-time work at minimum wage. Although they did not separately study housing problems of the poor, Quercia, Stegman, and Davis (2001) conclude that “policy must strive to meet the housing needs of moderate and middle income working families and not just the very poor” (18).

### *Identifying metropolitan areas with high-tech economies*

This article examines whether areas winning and losing in high-tech competition during the 1990s require federal strategies geared to metropolitan differences. How high-tech housing markets are identified is critical to this goal, but various methods of defining such economies have been used in the literature. Four indicators developed by others were examined, all of them measuring whether high-tech employment, defined along different dimensions, constitutes a relatively large share of total area employment.<sup>5</sup> As table 1, which draws from data presented in Landis, Elmer, and Zook (2001), shows, Hecker counts establishments with above-average shares of employees in R&D in 1995; the American Electronics Association measures shares of workers employed in electronic industries in 1998. The Milken Institute location quotient (1998) compares each area’s share of high-tech employment with the national share, while the TechPole Index developed by Ross DeVol of the Milken Institute (1998) combines this location quotient with output from these industries.

<sup>5</sup> My thanks to Vicki Elmer for sharing these indicators of high-tech new economies assembled for Landis, Elmer, and Zook 2001.

Table 1. Metropolitan Areas Grouped by Indicators of a High-Tech Economy

	Hecker: Percentage of High-Tech Workers, 1995	American Electronics Association: Electronic Workers per 1,000 Jobs, 1998	Milken TechPole Index, 1998	Milken Location Quotient, 1998	Dot-Com Firms per 1,000 Workers, 1998	HUD State of the Cities High-Tech Ranking of 101 MSAs, 1997
<b>Group 1: High tech</b>						
San Jose, CA	24.2	22.6	23.7	4.1	23.4	1
Seattle	4.3	5.1	5.2	2.1	13.4	15
Dallas	4.9	8.5	7.1	1.9	9.3	9
Boston	8.1	6.9	6.3	1.5	10.9	7
Phoenix	4.5	5.2	2.6	1.5	8.9	11
Washington, DC	8.1	6.9	5.1	1.5	12.1	10
Oakland, CA	7.0	6.0	2.2	1.4	15.4	21
Anaheim-Santa Ana, CA	8.8	5.9	2.6	1.4	14.2	25
Denver	4.6	5.8	1.8	1.4	13.7	13
San Diego	7.2	4.7	1.9	1.4	14.4	28
Atlanta	4.7	5.2	3.5	1.4	8.9	60
Los Angeles	6.6	3.4	6.9	1.4	12.8	28
Newark, NJ	7.1	4.1	1.8	1.3	9.4	34
Portland, OR	5.3	6.2	1.3	1.3	11.3	52
Minneapolis-St. Paul	7.4	5.5	1.0	0.9	9.1	27
<b>Group 2: Middle</b>						
Indianapolis	5.1	2.2	1.1	1.3	6.0	53
Sacramento, CA	4.1	5.1	0.8	1.2	10.6	50
Kansas City, MO	5.6	4.2	1.0	1.2	9.4	41
San Francisco	5.8	5.1	1.6	1.1	24.3	35
Philadelphia	4.4	3.6	2.2	1.0	8.8	24
Fort Worth, TX	4.8	2.8	0.7	1.0	5.7	49
Chicago	6.0	4.1	3.8	1.0	7.6	30
Salt Lake City	4.6	4.1	0.4	0.9	8.1	43
Houston	4.1	3.2	1.6	0.9	7.8	16

Table 1. Metropolitan Areas Grouped by Indicators of a High-Tech Economy (continued)

	Hecker: Percentage of High-Tech Workers, 1995	American Electronics Association: Electronic Workers per 1,000 Jobs, 1998	Milken TechPole Index, 1998	Milken Location Quotient, 1998	Dot-Com Firms per 1,000 Workers, 1998	HUD State of the Cities High-Tech Ranking of 101 MSAs, 1997
<b>Group 2: Middle (continued)</b>						
New York	3.1	2.7	3.7	0.9	11.9	45
Hartford, CT	6.7	2.7	0.3	0.8	6.1	23
Charlotte, NC	6.5	3.7	0.3	0.7	5.2	66
Cincinnati	7.2	2.2	0.3	0.7	6.2	44
Detroit	10.0	2.7	0.8	0.7	5.1	57
Milwaukee	6.9	3.1	0.3	0.6	5.8	17
<b>Group 3: Low</b>						
Birmingham, AL	2.8	—	0.4	1.0	—	81
San Antonio	1.5	2.9	0.5	1.0	5.0	48
St. Louis	5.5	2.8	0.9	1.0	5.6	51
Columbus, OH	4.8	3.7	0.4	0.8	6.1	79
Pittsburgh	3.7	2.4	0.5	0.8	5.1	56
Tampa-St. Petersburg, FL	2.8	3.6	0.4	0.7	8.2	5
Baltimore	3.8	3.2	0.4	0.6	9.6	39
Oklahoma City	3.4	2.8	0.1	0.6	5.2	22
Providence, RI	2.4	—	0.1	0.5	—	62
Cleveland	4.6	2.6	0.2	0.5	6.5	31
Newport News-Virginia Beach, VA	4.0	2.5	0.1	0.5	4.6	38
Buffalo, NY	6.6	—	0.1	0.5	5.2	54
Miami	2.9	2.2	0.1	0.4	12.0	76
New Orleans	2.5	—	0.1	0.4	6.1	65
Memphis, TN	1.7	—	0.1	0.4	4.3	89

Sources: Data for first five indicators were provided by Vicki Elmer; HUD 2000b.

Note: The 45 MSAs were ranked according to each index, and the top tercile of values was identified. Values falling in the top tercile are italicized in the table.

The 45 MSAs surveyed on a rotating basis by the American Housing Survey (AHS) (U.S. Bureau of the Census, various years) were divided into three groups by identifying the top third of the 45 for these four indicators. As table 1 details, the 15 MSAs in the “high-tech” group all fell in the highest third for at least two of the four indicators. (All but 2 of the 15 ranked in the highest third for at least three of the indicators.) All MSAs that had one indicator in the upper third of a distribution, except Buffalo (NY), were placed in the middle group, and the 15 lowest metropolitan areas were placed in the third or low-tech MSA group.<sup>6</sup>

Table 1 also shows the dot-com firms per thousand workers indicator used by Landis, Elmer, and Zook (2001) and Quercia, Stegman, and Davis (2001) and HUD’s ranking of 101 MSAs by high-tech employment (HUD 2000b, appendix B). Both rankings show substantial overlap with my high-tech group, but several outliers as well. Nine of HUD’s top 25 are in my high-tech group, four are in my middle group, and two are in my low group.<sup>7</sup> The imperfect correlations among these different rankings underscore the difficulty of measuring the new high-tech economy.

### *Data used in this study*

I examine which renters and owners were relatively disadvantaged in high-tech economies during the 1990s and identify policy-relevant characteristics of housing markets and desirable program responses in different metropolitan economies. To see first whether households with more severe housing problems nationally were also those left behind in high-tech MSAs, this study uses data from several sources to compare arithmetic means for the three groups of metropolitan areas. Most of the data comes from MSAs surveyed by the AHS between 1994 and 1998, although some indicators from 1990 census data are used for owners.<sup>8</sup> Because the homeless are most “left behind,” MSA differences

<sup>6</sup> Buffalo was placed in the lowest group because of its *very* low rankings on both Milken measures.

<sup>7</sup> The high-tech group also includes 10 of the 14 studied as high tech by Cortright and Mayer 2001. They argue that different processes are at work in the largest MSAs, an argument that is consistent with the classification developed here: New York, Chicago, Philadelphia, and Detroit fell into the middle group because for each, only one of the four indicators ranked in the highest third of its distribution.

<sup>8</sup> These data were developed from the Comprehensive Housing Affordability Strategy (CHAS) database (U.S Bureau of the Census 1993). This special tabulation of 1990 census data was produced by the Bureau of the Census with funding by HUD for local jurisdictions to use in preparing comprehensive housing affordability strategies.

in homelessness among the poor are explored using the best data available—daily housing-shelter contacts (Burt, Aron, and Lee 2001). Earlier research that linked housing units longitudinally over four-year periods between 1985 and 1992 to study change in the affordable rental stock is reviewed for insights into the market dynamics underlying differences among and within metropolitan areas (HUD 1996; Nelson and Vandembroucke 1996). The same data are then used to explore the range of problems and market characteristics in individual MSAs to infer cost-effective policies for reducing severe housing problems among low-income renters and owners under a variety of local market conditions.

### **Low-income housing policies and housing problems among low-income renters**

Reviewing low-income rental housing policy over the 50 years since 1949, Orlebeke (2000) characterized the period since 1973 as “marked by a diminished federal leadership role and an increased state and local role” (489). In this context of devolution, a “three-pronged strategy of [housing] vouchers, block grants, and tax credits has achieved reasonably good results and attracted an unusual degree of political consensus” (Orlebeke 2000, 489).

The active federal programs for low-income renters are mainly vouchers, grants such as HOME and Community Development Block Grants (CDBG), and tax credits for producing or rehabilitating rental housing, primarily the Low-Income Housing Tax Credit (LIHTC).<sup>9</sup> Congress charged the MHC with “evaluating this nation’s efforts to support decent housing for all Americans, especially with respect to affordable housing” (MHC 2001). In a letter soliciting public comment, the commission asked how best to meet the challenge of “very low-income and extremely low-income households’ housing needs” (MHC 2001). The commission also asked how these programs and Sections 202 and 811 for elderly and disabled persons could be improved. Further, it solicited opinions about the best ways to preserve existing affordable housing, both public housing and privately owned projects, and about the need for a new rental production program.

Responses to the MHC often cite pressing needs for increased resources for low-income housing programs, with the National Housing Conference calling for more than doubling annual expenditures for low- and

<sup>9</sup> According to the MHC tutorial, since 1990 about 55 percent of HOME funds have gone to rental housing, with the remainder aiding owners. Since 1975, 28 to 35 percent of CDBG funds have been used for housing.

middle-income housing (MHC 2001). The Enterprise Foundation calls for increased authorizations for HOME and CDBG and recommends better targeting CDBG to the low-income population (MHC 2001). Many suggest changes to HOME and CDBG so that they can better work with each other and the LIHTC. With respect to a new production program, there is wide agreement about the need to increase supplies of affordable rental housing, possibly through current programs. But opinions about the income range needing additional affordable units vary greatly. The National Low-Income Housing Coalition (NLIHC) and many others emphasize the pressing need for units affordable to families with incomes below 30 percent of AMI, with the National Alliance to End Homelessness arguing for incomes below 15 percent of AMI. The Mortgage Bankers Association and the National Association of Home Builders, however, argue that new subsidies for production should go to units affordable to renters with incomes of 60 to 100 percent of AMI.

### *The rise in affordability problems among low-income renters*

Over the past two decades, affordability problems among low-income renters rose as housing adequacy improved. In 1999, almost half of U.S. households (45 percent) had low incomes. Almost two-thirds of renters (65 percent) had incomes below 80 percent of AMI. Although housing problems have grown more quickly among owners over the past two decades, as discussed in the next section, housing problems continue to be more common and more severe for renters.

*Severe housing problems.* Since 1978, the number of unassisted low-income renters with priority housing problems<sup>10</sup> rose by 22 percent, from 4.3 million in 1978 to 5.3 million in 1999. This growth was less than the 33 percent increase in U.S. households during this period. As table 2 shows, severe problems rose most, from 3 to 3.75 million, among “extremely low income” renters, the one-fourth of renters whose incomes are less than 30 percent of AMI.<sup>11</sup> This is also the income group

<sup>10</sup> Priority housing problems are defined as either paying more than half of household income for housing costs, including utilities, or living in housing with severe physical problems (which should include the homeless, if data were available). Between 1983 and 1998, income-eligible renters with these problems received preference for admission to rental assistance programs. As used here, the concept therefore excludes households that report receiving housing assistance from federal, state, or local programs. In 1999, another 1.4 million very low income assisted renters paid more than half of their income for housing.

<sup>11</sup> Although median family incomes vary greatly across the United States and poverty cutoffs and HUD’s AMI cutoffs both vary with household size, 30 percent of AMI approximates the poverty line.

Table 2. Housing Problems among U.S. Renters by Income, 1978 and 1999

	Extremely low income (0 to 30% of AMI)		Very low income (31 to 50% of AMI)		Low income (51 to 80% of AMI)	
	1978	1999	1978	1999	1978	1999
Renters (thousands)	5,905	8,553	4,777	6,250	6,088	7,279
As a percentage of all renters		25%		18%		21%
With priority problems	3,019	3,750	944	1,106	359	411
Percent of all renter priority problems		67%		20%		7%
Renters with						
Priority problems	51%	44%	20%	18%	6%	6%
Severe physical problems	11%	4%	7%	3%	4%	3%
Rent burden > 50 percent	44%	42%	14%	15%	2%	3%
Other problems	16%	12%	44%	45%	31%	31%
Assisted	24%	35%	14%	20%	6%	12%

Source: Author's tabulations of the 1978 Annual Housing Survey and the 1999 AHS.

in which both renters and owners are most likely to have severe problems. In 1999, 44 percent of extremely low income renters had severe housing problems, more than double the 18 percent of other very low income renters (whose incomes are between 31 and 50 percent of AMI). Among other low-income renters (those with incomes of 51 to 80 percent of AMI), only 6 percent had severe housing problems.<sup>12</sup>

In part because of the growth in renter households and rental assistance programs, the incidence of priority problems was lower in 1999 than it had been in 1978 for both extremely low income and very low income renters. Although the number of renters with severe rent burdens rose, the number living in severely inadequate housing continued to decline.

Priority problems thus increasingly involve households paying more than half of their income for rent. In 1999, 94 percent of the 4.9 million unassisted very low income renters with "worst-case" needs for rental

<sup>12</sup> Only 3 percent of middle-income renters (incomes of 81 to 120 percent of AMI) had severe problems.

assistance had these severe rent burdens (HUD 2001a).<sup>13</sup> Over three-fourths of these renters lived in adequate, uncrowded housing, so that their only housing problem was an excessive cost burden. Reflecting this shift, consensus on the importance of housing vouchers as a primary tool to solve the problem of excessive cost burden has also increased over the past two decades.

*Shortages of affordable rental housing.* The rising number of households with severe rent burdens reflects accelerating losses of rental units affordable to very low income and extremely low income renters. Between 1991 and 1999, the number of units affordable to renters with incomes below 30 percent of AMI dropped by 940,000, and units affordable to those with incomes of 31 to 50 percent of AMI dropped by another 400,000 units.<sup>14</sup> The main federal programs to reduce shortages of affordable housing are now the LIHTC and HOME, which mainly supply units affordable to those with incomes below 65 percent of AMI. During the 1990s, units affordable to those with incomes between 51 and 65 percent of AMI rose by 600,000 (Nelson 2001).

When affordable units are compared with renters in the income groups needing them (table 3), the most severe shortages affect extremely low income renters, and these shortages have worsened over time. In 1999, there were only 75 affordable units per 100 extremely low income renters, down from 85 units in 1987. By contrast, comparing renters with incomes below 50 percent of AMI with units affordable to them, the United States had more affordable units than renters: 113 affordable units per 100 very low income renters.

Below each of these income cutoffs, shortages of housing that is both affordable and *available* to the renters needing it are more pressing, as the second panel of table 3 shows. This occurs because many “affordable” units house higher-income renters who pay less than 30 percent of their income for rent. Thus in 1999, for every 100 extremely low income renters, there were only 39 affordable units that were potentially or actually available to them (i.e., either vacant for rent or already occupied by renters with incomes below 30 percent of AMI);

<sup>13</sup> The number of very low income renters participating in rental assistance programs but nevertheless paying more than half of their income for housing has also grown recently, almost doubling from 775,000 in 1991 to 1.4 million in 1999. This spurt underlines the fact that neither LIHTC nor HOME, the two main federally funded production programs, typically produce housing that the extremely low income households most likely to have priority housing problems can afford.

<sup>14</sup> Units are “affordable” to an income if the annual rent is equal to or less than 30 percent of that income.

*Table 3. Shortages of Affordable Rental Housing in the United States by Income, 1987 and 1999*

	1987	1999
Affordable units per 100 renters with income		
< 30% of AMI	85	75
< 50% of AMI	123	113
< 65% of AMI	148	142
Affordable and available units per 100 renters		
< 30% of AMI	44	39
< 50% of AMI	75	68
< 65% of AMI	95	91

Source: Author's tabulations of the 1987 and 1999 AHS.

this is down from 47 units per 100 such renters in 1991<sup>15</sup> and translates into a shortage of 4.8 million units. These national averages mask sharp regional and intraregional differences in both shortages of affordable rental housing and the incidence of housing problems.<sup>16</sup>

### *Shortages of affordable rental housing and low-income housing problems in high-tech economies*

*Worse shortages of affordable housing.* When units are compared with renters needing them, shortages of affordable housing were worse in high-tech metropolitan areas and, again, worst for extremely low income renters who live there. On average, there were only 63 affordable units in high-tech areas for every 100 extremely low income renters, compared with 74 and 82 in the two other MSA groups (table 4). For very low income renters, affordable units barely exceeded renters in high-tech areas, with an average ratio of 102 units per 100 renters. The other two groups, by contrast, averaged 129 units per 100 renters. Yet for units affordable to those with low incomes, there were *many* more units than renters, as found nationally. Below this rent cutoff, which included 85 percent of the total rental stock in 1999, there were no differences among the three MSA groups. All three had almost five affordable units for every three renters with incomes below 80 percent of AMI.

<sup>15</sup> This measure still overstates the availability of affordable units because it does not consider whether units are the size and location households need. Moreover, it assumes that units with rents at the top of the income range are affordable to households with incomes lower in the range, which is often not the case.

<sup>16</sup> Differences by state in 1990 are documented in table 8 of HUD 1994.

**Table 4. Worse Shortages of Affordable Rental Units in High-Tech MSAs during the Mid-1990s**

	High Tech	Middle	Lowest
Affordable units per 100 renters below the income cutoff			
< 30% of AMI	63	74	82
< 50% of AMI	102	129	129
< 80% of AMI	165	164	164
Affordable and available units per 100 renters by income			
< 30% of AMI	35	43	49
< 50% of AMI	41	66	69

Source: Author's tabulations of 45 AHS MSAs surveyed, 1994 to 1998.

By the more realistic measure of affordable units *available* to extremely low income renters, shortages in the mid-1990s were also most pressing in high-tech markets. There, only 35 affordable units were available for every 100 renters with incomes below 30 percent of AMI, compared with 43 and 49 per 100 renters in the other two MSA groups. For renters with incomes below 50 percent of AMI as well, shortages of available units were clearly worse in high-tech economies, with only 41 units both affordable and available for every 100 very low income renters needing them. In the other two MSA groups, shortages were less severe, with 66 or more units available on average for every 100 very low income renters.

*Lower vacancy rates.* Worse shortages of affordable units in high-tech MSAs reflect tighter and higher-cost housing markets. In the mid-1990s (table 5), vacancy rates were lowest in high-tech areas for all rental units, for units costing below fair market rents (FMR),<sup>17</sup> and for units affordable to very low income renters. In each range, vacancy rates in high-tech areas were 4 or 5 percentage points below the average of the third MSA group. Yet in no metropolitan group, including the high-tech economies, did vacancy rates average below the 5 percent cutoff typically considered to reflect tight markets.<sup>18</sup>

<sup>17</sup> The FMR, which in the mid-1990s was defined as the 40th percentile of the distribution of rents of adequate units occupied by recent movers, is the payment standard for vouchers in most areas.

<sup>18</sup> The only MSAs with total rental vacancy rates below 5 percent were New York (4.1 percent), San Francisco (4.3 percent), Minneapolis (4.7 percent), and San Jose, CA (4.8 percent). Vacancy rates below 5 percent were, however, more common in housing affordable to very low income renters.

*Table 5. Lower Vacancy Rates and Higher FMRs in High-Tech MSAs*

	High Tech	Middle	Lowest
Rental vacancy rates, mid-1990s			
All units	8.4%	10.0%	13.3%
Rents below FMR (40th percentile)	7.0%	8.5%	11.3%
Rents affordable to those with incomes < 50% of AMI	7.4%	9.5%	12.5%
Share of units with rents below FMR	51%	53%	52%
Share of units with rents affordable to those with incomes < 50% of AMI	33%	44%	43%
1994 monthly two-bedroom FMR	\$699	\$609	\$511
1994 FMR as a percentage of AMI	60%	57%	56%
Rental vacancy rates, late 1980s			
All units	10.6%	12.0%	13.3%
Rents below FMR (45th percentile)	11.0%	13.5%	13.9%

*Sources:* Author's tabulations of 45 AHS MSAs surveyed, 1994 to 1998; HUD 1992.

The greater pressures on affordable housing in new economies are reflected in their below-average share of housing affordable to those with incomes below 50 percent of AMI. On average, only one-third of units in high-tech MSAs had rents this low, compared with over two-fifths of the units in the other two groups. As others have found, rents were more expensive in high-tech MSAs. In 1994, FMRs averaged \$699 for a two-bedroom unit in high-tech markets, almost \$200 above the average for the third group. To some degree, higher rents in high-tech MSAs reflect higher incomes there. Yet FMRs are also higher in those MSAs in relation to AMI: On average, they are affordable to those whose incomes are 60 percent of AMI in high-tech MSAs compared with 56 percent in the third group.<sup>19</sup> In each group of metropolitan areas, around half of all rental units had rents below FMRs.

Between the late 1980s and the mid-1990s, rental vacancy rates for all units fell by at least 2 percentage points in the high-tech and middle MSA groups, although they remained the same for low-tech MSAs.<sup>20</sup>

<sup>19</sup> The ratio of FMR to AMI represents the percentage of the median income at which a two-bedroom FMR equals 30 percent of the income of a three-person household. It may be interpreted as the point in the income distribution above which a family with a voucher would no longer receive a rental subsidy.

<sup>20</sup> Equivalent estimates of vacancy rates were prepared for AHS MSAs surveyed between 1987 and 1990 (HUD 1992). Because Sacramento (CA) and Charlotte (NC) were not surveyed by the AHS in the 1980s, however, the MSAs comprising the three groups differ slightly in the two time periods.

Vacancy rates for units below local FMRs dropped much faster than total vacancy rates.<sup>21</sup> In the late 1980s, average vacancy rates for below-FMR units exceeded total vacancy rates for all three MSA groups, but by the mid-1990s, below-FMR vacancy rates were *lower* than rates for all units. During the decade, the difference between the high-tech MSA group and the third group in below-FMR vacancy rates widened from 2.9 to 4.3 percentage points. This difference suggests that the tighter markets in high-tech areas became particularly difficult for very low income renters.

*Higher worst-case needs.* As expected, in high-tech metropolitan economies, higher shares of renter households had priority housing problems. On average, over two-fifths (41 percent) of very low income renters in high-tech MSAs had worst-case housing needs; this was 4 to 5 percentage points higher than the averages in the other two groups (table 6). Differences among the three groups in the incidence of priority problems were even greater for extremely low income renters: 53 percent of those with incomes below 30 percent of AMI had severe problems in the high-tech MSA group, compared with 45 percent in the lowest group. As the table's third line shows, worst-case needs were much less common among renters whose incomes were between 31 and 50 percent of AMI, but were still relatively higher (25 versus 20 percent) in high-tech economies.

Who are the very low income renters with worst-case problems in high-tech economies? Among the three groups of MSAs, worst-case renters in high-tech areas were on average more likely to be members of minority groups, but less often elderly, suggesting that the elderly poor were more likely to be priced out of high-tech areas. In all types of MSAs, around two-fifths of worst-case renters were families with children.

Yet very low income renters with worst-case needs for housing assistance apparently benefited from economic growth in high-tech economies during the 1990s. There, higher shares were working: Almost three-fourths (73 percent) of the worst-case renters who were neither elderly nor disabled depended on earnings for more than half their income, above the two-thirds on average in the other MSA groups. This may well reflect the higher likelihood of the critical housing problems Quercia, Stegman, and Davis (2001) found for moderate-income working families in high-tech MSAs because nationally over half of these families have incomes below 50 percent of AMI.

<sup>21</sup> The procedure for setting FMRs changed during this period. Until 1994, FMRs were based on the 45th percentile of rents of nonluxury, adequate units occupied by recent movers, whereas from 1994 on they were based on the 40th percentile.

Table 6. Highest Worst-Case Needs in High-Tech MSAs during the Mid-1990s

	High Tech	Middle	Lowest
Mean percentage of the group with worst-case needs			
Very low income renters (0 to 50% of AMI)	41%	37%	36%
Extremely low income renters (0 to 30% of AMI)	53%	49%	45%
Renters with income of 31 to 50% of AMI	25%	23%	20%
Percentage of worst-case renters			
With minority heads	45%	43%	43%
With elderly (62+) heads	23%	26%	29%
Families with children	39%	40%	38%
Able-bodied worst-case renters depending on earnings	73%	65%	68%
Percentage of worst-case renters with only a severe rent burden	81%	79%	81%

Source: Author's tabulations of 45 AHS MSAs surveyed, 1994 to 1998.

A fact relevant to cost-effective policies is that in all types of MSAs, including high-tech areas, over four-fifths of the worst-case renters had only one housing problem—paying more than half of their income for rent. This evidence that the great majority of worst-case renters lived in adequate and uncrowded housing suggests that many could use rental vouchers, if available, to solve their only housing problem while continuing to live in their current units.

*More homeless in high-tech economies.* Evidence that high-tech metropolitan areas have more renters with worst-case needs, tighter housing markets, and worse shortages of affordable housing implies that they might well have a more serious homelessness problem. The only available indicator of homelessness suggests strongly that they do. Counts of daily contacts in 1996 for services such as soup kitchens and shelters that serve the homeless and other poor persons cannot be assumed to directly count the homeless. But as Burt, Aron, and Lee (2001) discuss, counts of housing and shelter contacts are the best data obtainable on this problem. These data from the National Survey of Homeless Assistance Providers and Clients (NSHAPC) are available for 32 of the 45 metropolitan areas (Burt, Aron, and Lee 2001).

The available service contact data for the three MSA groups strongly support the expectation that high-tech economies have more homeless

persons (table 7). On average, the 13 high-tech MSAs in the NSHAPC have fewer *total* daily service contacts per 10,000 poor population than the other two MSA groups. Differences in total contacts can reflect differences in organized response to the needs of the homeless and poor or differences in the incidence of homelessness. The lower number of *total* contacts thus implies that high-tech MSAs have fewer institutions serving the homeless, or fewer people experiencing homelessness, or both.

*Table 7. More Daily Housing-Shelter Contacts in High-Tech MSAs*

	High Tech	Middle	Lowest
Number of MSAs in NSHAPC	13	10	9
Mean service contacts per day per 10,000 poor people			
Total service contacts	1,240	2,341	1,804
Housing-shelter contacts (not permanent housing)	237	195	168

*Source:* Calculated from appendix tables 10.A1 and 10.A3 of Burt, Aron, and Lee (2001).

But despite their lower total service contacts, high-tech MSAs had decidedly more *housing or shelter* contacts per poor population (237 compared with 195 and 168 in the other two MSA groups). This strongly suggests that homelessness and need for shelter are higher in high-tech MSAs than in others. Indeed, given the low number of total service contacts in high-tech MSAs, with its implication of fewer institutions, homelessness may well be even higher in high-tech MSAs than these data suggest, but counted less completely by the fewer institutions. If the homeless could be added to counts of extremely low income renters with worst-case needs, as they should be, differentials among MSA groups in worst-case needs and shortages of affordable rental housing would be even greater than the large differences in tables 4 and 6.

### *Rental housing market dynamics and differences among MSAs*

*Housing market dynamics in high-tech metropolitan areas.* A longitudinal study of rental housing in 39 MSAs between 1985 and 1992 reveals demand and supply dynamics affecting rental housing market conditions

in different types of metropolitan areas<sup>22</sup> (HUD 1996; Nelson and Vandenbroucke 1996). Notably, those areas considered high-tech during the 1990s had gained households much more quickly in the 1980s (table 8), reflecting faster growth in demand there. Another striking difference concerns rates of construction. In the mid-1990s, the high-tech group had higher rates of construction among both rented and owned units during the previous 8 years than the other two groups. In the earlier study, high-tech MSAs similarly had higher rates of rental construction during the early 1980s than other MSAs, probably in response to their faster growth in households. Such differences in demand and supply are consistent with the conclusion of Landis, Elmer, and Zook (2001,1) that high-tech markets are “more extreme versions of traditional housing markets” in responding to fundamental forces of demand and supply. Reflecting the national slowdown in new construction, rates of new rental construction in the 1990s were markedly lower in all three groups of MSAs than they were in the 1980s.

*Table 8. More New Construction in Both the 1980s and 1990s in High-Tech Areas*

	High Tech	Middle	Lowest
<hr/>			
MSAs surveyed in the late 1980s (N = 39)			
4-year change in households	8%	4%	3%
Percentage of rental units built in the previous 8 years	23%	17%	17%
MSAs surveyed in the mid 1990s (N = 45)			
Percentage of rental units built in the previous 8 years	8%	6%	4%
Percentage of owned units built in the previous 8 years	13%	12%	11%
<hr/>			

*Sources:* Recalculation of data for 39 MSAs from Nelson and Vandenbroucke 1996; author's tabulations of 45 AHS MSAs surveyed, 1994 to 1998.

<sup>22</sup> The study linked rental units surveyed in 1985 through 1988 in 41 MSAs with observations made for the same units between 1989 and 1992 to examine the relative importance of changes in rent, tenure, and inventory status on the affordable housing stock. Because of changes in the MSAs surveyed by the AHS, only 39 of the MSAs in the longitudinal study correspond to the 45 MSAs examined for this article. The results summarized here reclassify the San Francisco–Oakland MSA among the 14 in the high-tech group because San Jose and Oakland, CA, were not separately covered earlier. Charlotte (NC), Milwaukee, and Sacramento (CA) are missing from the middle group, which thus includes only 11 MSAs. Buffalo (NY) is not available for the third group, leaving 14 in that group. Although the 39 MSAs in the dynamics study are not identical to the 45 studied for 1994 to 1998, their cross-sectional differences in the late 1980s were all similar to the results reported above for the mid-1990s. In the late 1980s, high-tech MSAs also had a higher incidence of worst-case needs, worse shortages of housing affordable to very low income and to extremely low income renters, and lower shares of the total rental stock affordable to those with incomes below 50 percent of AMI.

Longitudinal changes from the dynamics study for the three MSA groups showed that unsubsidized rental units affordable to renters with incomes below 50 percent of AMI were lost at similarly high rates during the late 1980s in both the high-tech and the middle groups. In high-tech areas, the number of these affordable units dropped because of both rent increases and net tenure conversions to ownership. By contrast, in the other two groups, rent decreases *added* rental units affordable to those with incomes of 50 percent of AMI. In the third MSA group, the number of affordable rental units also increased because of conversions from owned status.

In the 1980s, the high-tech MSAs in the dynamics study had fewer blacks, less racial segregation, and more affluent neighborhoods than other MSA groups. As table 9 summarizes, high-tech areas had only slightly fewer minority households than other MSA groups, but fewer black households and lower indexes of black-white segregation. Compared with those in the low-tech group, households in high-tech areas were one-third less likely to live in zones<sup>23</sup> where more than 30 percent of households were minorities.

*Table 9. Less Segregation and Little Poverty Concentration in High-Tech MSAs*

	High Tech	Middle	Lowest
Minority and racial composition			
Minority households, late 1980s	19%	20%	24%
Black population, 1990	9%	15%	19%
1990 dissimilarity index	0.63	0.71	0.68
Percentage of MSA households living in zones where			
30%+ were minority	19%	21%	27%
20%+ were poor	4%	14%	21%
50%+ had income >120% of AMI	23%	14%	14%

*Source:* Recalculation of data for 39 MSAs from Nelson and Vandenbroucke 1996.

High-tech metropolitan areas also had many fewer households living in zones with poverty rates above 20 percent than the third MSA group (4 percent versus 21 percent). Conversely, more households lived in zones where more than half of households had incomes above 120 percent of AMI (23 percent versus 14 percent).

<sup>23</sup> Zones—areas of at least 100,000 population identified on the AHS-MSA files—were composed of contiguous census tracts and were chosen based on 1980 census data to be as homogeneous as possible with respect to household income, age of housing, housing structure type, and race.

Such differences in zone characteristics within metropolitan areas strongly influenced the dynamics of affordable rental housing during the four-year periods studied. Losses of extremely low rent units<sup>24</sup> were highest in the more desirable neighborhoods (those with highest incomes and lowest poverty),<sup>25</sup> while net flows of units into extremely low rent categories because of filtering occurred only in the poorest neighborhoods. In the tightest markets, however, net losses of affordable rental housing occurred in all types of zones.

*Differences among high-tech housing markets.* All the differences found among these three groups of MSAs are consistent with expectations that metropolitan housing markets with relatively high shares of high-tech employment would be tighter and more expensive, making it harder for low-income households to find affordable housing there.

To move beyond these average differences among metropolitan groups to identify effective policies and programs for low-income housing, however, requires exploring critical housing market indicators in individual MSAs. As table 10 shows, key indicators of housing market conditions also varied widely *within* each of the three MSA groups. For shortages of affordable housing, vacancy rates among below-FMR units, and recent rental construction, coefficients of variation ranged from 33 to 77 percent. Variation was also high with regard to the shares of renters with incomes between 31 and 50 percent of AMI who had worst-case needs. Only around the high shares of extremely low income renters having worst-case needs and the uniformly high shares of worst-case renters having a severe rent burden as their only housing problem was there relatively little variation across these 45 metropolitan areas during the mid-1990s.

### *Effective policies and programs to assist low-income renters*

On average then, rental housing markets in high-tech metropolitan economies tend to be tighter and more expensive than in other areas, with worse shortages of affordable housing and higher shares of extremely low income and very low income renters having severe problems. Yet housing market conditions also varied greatly in the mid-1990s *within* the three MSA groups studied. After summarizing current federal rental programs and their funding levels, this section examines

<sup>24</sup> In this study, extremely low rent units were those affordable to households with incomes below 35 percent of AMI.

<sup>25</sup> Similarly, Somerville and Holmes (2001) find that “it is the affordable units in better neighborhoods that are at most risk of filtering up” (135).

Table 10. Variation in Key Housing Variables in MSAs during the Mid-1990s

	High Tech	Middle	Lowest
Affordable, available units per 100 very low income renters			
Average	41	66	69
Standard deviation	16	21	23
Coefficient of variation	38%	33%	33%
Vacancy rates of units with rents below FMR			
Average	7.0%	8.5%	11.3%
Standard deviation	5.4%	4.9%	4.9%
Coefficient of variation	77%	57%	43%
Percentage of rental housing units built in the past 8 years			
Average	8%	6%	4%
Standard deviation	4%	3%	3%
Coefficient of variation	59%	56%	63%
Percentage of renters with an income of 31 to 50% of AMI with worst-case problems			
Average	25%	20%	23%
Standard deviation	7%	7%	7%
Coefficient of variation	29%	34%	32%
Percentage of renters with an income of 0 to 30% of AMI with worst-case problems			
Average	53%	49%	45%
Standard deviation	10%	7%	6%
Coefficient of Variation	19%	14%	13%
Percent of worst-case renters with a severe rent burden only			
Average	81%	79%	81%
Standard deviation	6%	6%	6%
Coefficient of variation	8%	7%	8%

Source: Author's tabulations of 45 AHS MSAs surveyed, 1994 to 1998.

eight MSAs chosen to reflect the range of local housing market conditions in the high-tech MSA group to see which uses of federal programs would be most cost-effective there. Because local housing market conditions are shown to vary greatly within both high-tech and low-tech groups, this section then develops the implications of a desirable program mix for key issues, particularly whether more vouchers could be used or whether additional supply is needed and, if so, at what rents.

As Orlebeke (2000) summarized, the main federal programs to aid low-income renters now active are tenant-based vouchers, block grants such as HOME and CDBG that can be used in many ways for housing,

and tax credits for producing or rehabilitating rental housing, primarily the LIHTC. He concluded that “a steady expansion of all three components offers the most promising path to the ‘realization as soon as feasible’ of the national housing goal” (Orlebeke 2000, 489). Yet these three approaches now receive quite different resources, growing at different rates. For FY 2002, \$15.6 billion was appropriated for the housing certificate fund, adding 26,000 incremental vouchers (or 1 percent) to the approximately 2.5 million families receiving Section 8 assistance. HOME, which splits 55 percent/45 percent between rental and owner housing, received level funding of \$1.8 billion (about two-thirds of its original 1993 authorization), including \$50 million for down payment assistance.<sup>26</sup> Some \$4.3 billion was appropriated for CDBG, one-third of which has been recently used for housing. Tax expenditures for the LIHTC are over \$3 billion per year, plus an increase of 40 percent that was approved by Congress in 2000 and that will rise with both inflation and population growth.<sup>27</sup>

*State and local policies and programs.* Using several indicators relevant for local policy decisions, table 11 illustrates within-group differences and their different policy implications for 11 MSAs. In all of them, high shares of worst-case renters have only a severe rent burden, so vouchers could help many in place. And all have serious shortages of units affordable and available to extremely low income renters, so supplying more units with these low rents would be highly desirable. But differences in other indicators imply that these MSAs should adopt very different approaches to use resources from existing or proposed programs most cost-effectively. Within MSAs with both high and low shares of high-tech employment, there are housing markets with low and high vacancy rates and with pressing and less pressing shortages of affordable and available rental housing.<sup>28</sup>

<sup>26</sup> According to U.S. House of Representatives (2001), total HUD funding for FY 2002 is \$30 billion, including \$7 billion for public housing operation and modernization, \$1.5 billion for programs for the homeless and persons with AIDS, and \$1 billion for Sections 202 and 811 for elderly and disabled persons.

<sup>27</sup> Federal tax expenditures for tax-exempt multifamily bonds were estimated at \$200 million in 2001, versus \$800 million for mortgage revenue bonds. In 2000, Congress increased each state’s per person cap for all private activity bonds by 50 percent.

<sup>28</sup> The variables shown in table 11 represent only a fraction of the information and detail that decision makers should consider to develop a comprehensive local strategy for effectively reducing housing problems. Bogdon, Silver, and Turner (1993) and Nelson (1992) discuss more thoroughly how local variations in household growth, housing conditions, household composition, shortages of affordable housing, and available resources should be evaluated to develop priorities for investing housing resources.

Table 11. Key Indicators for Rental Policy in Eight High-Tech and Three Low-Tech MSAs

	High-Tech Metropolitan Economies								Low-Tech MSAs		
	San Jose, CA 1993	Los Angeles 1995	Boston 1998	Minneapolis-St. Paul 1998	Denver 1995	Atlanta 1996	Phoenix 1994	Dallas 1994	Tampa-St. Petersburg, FL 1998	Providence, RI 1998	Oklahoma City 1996
Affordable and available units per 100 renters											
Below 50% of AMI	22	27	48	56	64	56	46	62	31	59	86
Below 30% of AMI	22	21	41	41	45	38	30	29	34	42	55
Percentage of renters with worst-case needs											
Income of 0 to 30% of AMI	62%	66%	40%	41%	42%	45%	60%	56%	50%	41%	49%
Income of 31 to 50% of AMI	37%	26%	33%	21%	15%	25%	26%	14%	36%	21%	17%
Rental vacancy rates											
Units with rents affordable to those with incomes of 50% of AMI	2%	5%	2%	2%	8%	10%	18%	18%	17%	4%	22%
Units below FMR	2%	7%	2%	2%	7%	8%	16%	17%	12%	4%	19%
All rental units	5%	8%	6%	5%	9%	10%	13%	13%	14%	10%	19%
1994 40th percentile FMR as a percent of AMI	67%	75%	67%	52%	50%	54%	55%	55%	66%	67%	50%
Need for rehabilitation											
Inadequate units	8%	14%	11%	12%	6%	12%	8%	12%	8%	14%	13%
Percentage of very low income renters											
With worst-case needs	51%	49%	37%	32%	30%	36%	43%	37%	44%	35%	32%
In crowded housing	14%	25%	2%	2%	6%	3%	12%	9%	6%	3%	5%
Percentage of worst-case renters											
With severe rent burden only	82%	69%	85%	79%	88%	79%	79%	77%	85%	79%	82%

Source: Author's tabulations of 45 AHS MSAs surveyed, 1994 to 1998.

High-tech housing markets such as San Jose (CA), Boston, and Minneapolis–St. Paul have acute shortages of housing affordable and available to both very low and extremely low income renters, as well as dangerously low vacancy rates for below-FMR units. Although vacancy rates in Los Angeles are not as low, it, like San Jose, has high crowding and almost two-thirds of extremely low income renters have worst-case needs. Because the two-bedroom FMRs in San Jose, Los Angeles, and Boston are relatively high, equaling 30 percent of income for families with income at or above 67 percent of AMI, more units funded through HOME and LIHTC would add to the below-FMR stock; such increases are obviously badly needed there. Preserving existing assisted housing as affordable is also critical in such tight markets. The low below-FMR vacancy rates mean that vouchers are less likely to help families find different rental units, although they could help extremely low income renters afford HOME or LIHTC rents. Yet the high share of worst-case renters who have only a severe rent burden implies that vouchers could reduce worst-case needs for many in their current housing by allowing them to pay only 30 percent of their income for rent and utilities.

Shortages of housing affordable and available to extremely low income renters are almost as bad in high-tech Phoenix and Dallas as they are in San Jose and Los Angeles, but appreciably more units are affordable and available to *very* low income renters there. Reflecting this difference, worst-case needs among households with incomes between 31 and 50 percent of AMI are much lower in Phoenix and Dallas than in San Jose. Combined with high rental vacancy rates for units with rents affordable to households with incomes below 50 percent of AMI and FMRs affordable to those with incomes of 55 percent of AMI, these indicators imply little need to use LIHTC funds to produce additional units with rents affordable to those with incomes between 50 and 60 percent of AMI. LIHTC resources would be better directed at rehabilitation (to reduce relatively high percentages of inadequate rental units) than at new construction and at adding units with rents affordable to households with incomes well below 50 percent of AMI. The relatively high rates of crowding suggest a need for affordable units with three or more bedrooms. High vacancy rates above 16 percent among below-FMR units imply that efforts to preserve existing assisted housing should focus on units in better neighborhoods and that vouchers should be relatively easy to use in markets such as Phoenix and Dallas. In addition to helping families find housing in better neighborhoods or closer to employment opportunities, additional vouchers in such markets could raise effective demand and incentives for minor repairs to vacant units to meet housing quality standards. There, local decision

makers could also take advantage of HOME's flexible menu of uses to provide short-term tenant-based assistance to extremely low income renters with worst-case needs.

The three low-tech MSAs at the right of table 11 also have high shares of worst-case renters with only a severe rent burden. Nonetheless, they differ greatly in both shortages of affordable housing and rental vacancy rates, illustrating that housing market conditions vary greatly in both low-tech and high-tech economies. Tampa–St. Petersburg (FL) resembles San Jose (CA) in having quite severe shortages of affordable housing and an FMR that is high enough (affordable to those with incomes of 66 percent of AMI) that units with maximum LIHTC or HOME rents could raise the supply of below-FMR housing. Yet its relatively high vacancy rates for all and for below-FMR units mean that this market has little need for new construction to add supply and more possibilities for successful use of vouchers.

Despite less pressing shortages of affordable housing compared with renters, Providence (RI) appears from its low vacancy rate for below-FMR units to need more of these units, which here could be supplied by either HOME or LIHTC. Its high share of inadequate units implies that rehabilitation could usefully supplement new construction and might productively strengthen weaker neighborhoods. Of these 11 MSAs, Oklahoma City clearly *least* needs additional units with rents near LIHTC maximums. With vacancy rates of 22 percent among units with rents affordable to those with incomes below 50 percent of AMI and FMRs affordable to those with incomes of 50 percent of AMI, additional vouchers would provide the most cost-effective way to reduce severe housing problems among renters. If scarce resources are used at all to increase supplies of affordable rental housing rather than provide more tenant-based assistance in markets such as Oklahoma City, they should be focused on rehabilitation and on adding units with rents affordable to households with incomes well below 50 percent of AMI.

*Federal policies and programs to assist low-income renters.* The wide variety of local housing market conditions makes it highly desirable that federal programs provide a menu of approaches. To be most cost-effective, available resources should be allocated to the most pressing needs, but programs should give local decision makers the flexibility to choose the strategies best suited to local market conditions and problems rather than less appropriate and less cost-effective programs for which funding is more easily available. Given these criteria, what do the serious housing needs and range of housing market conditions

found in this survey of 45 metropolitan economies imply for effective federal rental policies?<sup>29</sup>

In light of the predominance of severe affordability problems in all locations, especially among extremely low income renters for whom affordable rental housing is increasingly unavailable, vouchers should receive the most funding. Indeed, with 4.9 million renters with worst-case needs for rental assistance in 1999 and long or closed waiting lists for vouchers everywhere, substantially increasing the number of vouchers could meet many pressing needs most directly, most quickly, and most cost-effectively (U.S. Government Accounting Office 2001).<sup>30</sup> This is particularly true because vouchers are allocated across the country by a “fair-share” formula intended to measure the severity of local needs for affordable rental housing.<sup>31</sup> In many housing markets, more vouchers could easily be used, allowing families to afford to move to better neighborhoods or closer to employment. Even in tighter housing markets, for many with worst-case needs, vouchers could solve affordability problems in their current home. Moreover, the one-fifth of vouchers that may be project based could be used to support production and make HOME or LIHTC rents more affordable to those with extremely low incomes, thus promoting income mixing in projects constructed, rehabilitated, or preserved with HOME or LIHTC funds. The number of vouchers should be substantially increased. At minimum, there should be an entitlement for the 1 million working families with children that have both extremely low incomes and worst-case needs for rental assistance (HUD 2001a, finding 4).

---

<sup>29</sup> Since all 45 MSAs are relatively large, the housing markets studied here do not cover the full range of local situations. In particular, nonmetropolitan locations consistently have much less severe shortages of affordable housing and a lower incidence of severe problems than metropolitan areas do. In 1999, there were 130 affordable units per 100 renters with incomes below 30 percent of AMI in nonmetropolitan areas, compared with 70 units per 100 extremely low income renters in central cities, and such differentials held in every census region. Also, 40 percent of very low income renters had worst-case needs in nonmetropolitan areas versus 48 percent in cities.

<sup>30</sup> Because of the AHS’ known underrecording of income, estimates such as this 4.9 million are claimed to overcount severe rent burdens. Yet to reduce the possibility of an overcount, estimates of worst-case needs have never included any households with zero or negative income as having a severe rent burden. Counting only those households with zero or negative income who paid less than the FMR, Dolbeare (2001) finds an additional 600,000 extremely low income renters with severe rent burdens.

<sup>31</sup> Because of the many small public housing authorities that administer vouchers locally, administrative issues complicate allocation by need. This problem would be eased if agencies that administer vouchers were competitively selected for fewer larger geographical areas, as advocated by Katz and Turner (2001).

HOME is a block grant allocated to states and large jurisdictions based on affordability problems, tight markets, and units needing rehabilitation and adjusted for local construction costs. Funds may be used for construction, rehabilitation, or short-term tenant-based rental assistance for low-income renters and for housing rehabilitation and first-time ownership for low-income owners. Its menu of possible uses is thus more flexible and usable in a wide variety of housing market conditions than any other housing program. For rental units, HOME rents must be less than the local FMR or affordable to those with incomes of 65 percent of AMI, thus ensuring that all rental units funded by HOME add to the three-fifths of national rental stock that can be used with vouchers. Because of these important advantages and flexibility for effective use in all housing markets, funding for this program should be substantially increased. In testimony to the Senate Banking Committee, the Enterprise Foundation advocated \$2.9 billion for HOME in 2003 just to return to the real level authorized in 1993 (Harvey 2001).

With last year's 40 percent increase plus indexing for future inflation, the LIHTC is the largest source of federal funding for the new construction, rehabilitation, and preservation of rental units. With the LIHTC increase plus the 50 percent per capita rise in private activity bond caps, the state agencies that allocate these funds have important new resources that can be used for housing. But, unfortunately, the LIHTC mainly supplies housing at rents affordable to those with incomes between 50 and 60 percent of AMI, which are *not* affordable to extremely low income renters and also are not needed in many locations. Worse, annual tax credit dollar caps are allocated among states by population rather than by any indicator of the wide local variations in shortages of available rental housing affordable to those with incomes of 50 percent of AMI (Nelson and Lubell 2001). Moreover, unlike other federal housing supply programs, the LIHTC allocation does not take into account variation in construction costs. Because higher-cost states such as California and New York are most disadvantaged by this allocation method, the tax credit perversely redistributes dollars from states with more severe shortages of affordable and available rental housing and higher costs for supplying affordable units to less expensive states with less severe shortages. The tax credit is also less successful than HOME in providing housing usable with vouchers, since rents may be affordable to households with incomes of 60 percent of AMI even in the many locations where such rents exceed the FMR.<sup>32</sup>

---

<sup>32</sup> In 1998, 74 percent of the U.S. population and 87 percent of the nonmetropolitan population lived in areas where the FMR was affordable to households with incomes below 60 percent of AMI (Nelson 1999). Over one-fourth of the U.S. population (28 percent) and almost one-half of the nonmetropolitan population (47 percent) lived in areas

Is another production program needed? Data unambiguously show a widespread need for more rental units affordable to households with incomes below 30 percent of AMI. This income range not only has the most renters with severe problems, but also the most acute shortages of affordable housing in all locations. By contrast, the data clearly refute claims that production subsidies are needed for units affordable to incomes from 60 to 100 or even 115 percent of AMI.<sup>33</sup> Evidence of growth in critical housing problems among these income groups is based on large percentage increases from *very* small numerical bases, and among owners more than renters. Severe rent burdens remain very uncommon (4 percent in 1999) among renters whose incomes are between 60 and 100 percent of AMI. This rate is only *one-tenth* the 40 percent rate of severe rent burdens of very low income renters and also below the 7 percent rate for owners whose incomes are between 60 and 100 percent of AMI. The substantial differences among MSAs in severe shortages of affordable housing documented in this article strongly support targeting a new production program toward locations with shortages of units with rents affordable and available to households with incomes below 30 percent of AMI.<sup>34</sup> Like HOME, allocations should be adjusted for local construction costs. Large local differences in population growth, available inventory, vacancy rates, and housing adequacy also imply that any program aimed at increasing the supply of rental housing affordable to households with incomes below 30 percent of AMI should, like HOME and the LIHTC, be usable for rehabilitation, acquisition, and preservation as well as new construction.

The widely supported goal of mixed-income rental developments would be best achieved by structuring any additional production dollars so that 20 to 30 percent of units within a project receiving resources from HOME, LIHTC, or multifamily tax-exempt bonds have rents affordable to those whose incomes are between 15 and 30 percent of AMI. “Sticky”

---

where the FMR was affordable to households with incomes below 50 percent of AMI. By 2001, almost one-half of the U.S. population (46 percent) and almost three-fourths of the nonmetropolitan population (74 percent) lived in areas where the FMR was affordable to households with incomes below 50 percent of AMI (author’s calculations).

<sup>33</sup> It is completely misleading to call families with incomes of between 60 and 100 percent of AMI the “working poor.” Averaged across the nation, the extremely low income cutoffs for one- and two-person households are slightly above the poverty thresholds, while those for larger households are below it (Nelson 1994). The over 5 million renter and owner households with incomes below 30 percent of AMI that depend on earnings are the true working poor (HUD 2000a, exhibits 11 and 19; HUD 2001a, finding 3).

<sup>34</sup> The HOME allocation formula uses excessive rent burden as an indicator of affordability problems, but this can reflect extreme poverty among renters rather than shortages. Shortages of available units affordable to households with incomes of 30 percent of AMI are a much more accurate indicator of widespread shortages, since in tighter markets higher-income people are more likely to seek and retain good deals.

vouchers for first-use in a project could then help some renters with incomes below 15 percent of AMI pay only 30 percent of their income toward these rents. Proposals for income mixing that direct only 15 to 25 percent of the rental units in a new federally subsidized production program to incomes below 60 percent of AMI ignore not only the much more severe needs of households with extremely low incomes, but also the income distribution of U.S. renters. In 1999, not counting the (presumably poorer) homeless, one-fourth of renters in the United States had incomes below 30 percent of AMI, and over one-half had incomes below 60 percent of AMI.<sup>35</sup>

### **Housing problems and policies among U.S. owners**

This article focused first on low-income renters because they generally have had worse problems and fewer resources than owners. But although housing problems continue to be more serious among renters than among owners, the most striking change in problems over the past two decades has been the increasing share of very low income owners who pay more than 30 percent, and often more than 50 percent, of their income for housing. Over the same period, the number of programs that can support both renters and owners has expanded, supplementing CDBG with HOME, using some HOPE VI funds for ownership, and allowing some use of Section 8 vouchers for ownership.

The federal government's largest subsidies to homeownership are tax expenditures, an estimated \$106 billion in FY 2001, almost all of it going to households with incomes above 120 percent of AMI. Loans insured by the Federal Housing Administration or guaranteed by the Department of Veterans Affairs help low-income households afford ownership. Funds from HOME and CDBG may promote low-income ownership or rehabilitation of owner-occupied units. States administer the largest program assisting first-time owners, loans financed by the one-third of tax-exempt private activity bonds that are mortgage revenue bonds.

Comments to the MHC about ownership center around ways to increase it further, among them using vouchers to aid first-time owners, appropriating more money for HOME, or giving tax credits for new owners, either all new owners or those below some income level. Tax credits to stimulate production of affordable ownership units, similar to the LIHTC, are also recommended. Several respondents advocate expanding consumer-based assistance to help current owners with severe housing cost burdens, at least on a temporary basis.

<sup>35</sup> Another 24 percent had incomes between 60 and 100 percent of AMI, and 24 percent had incomes above the HUD-adjusted median family income.

*Lagging ownership among families with children*

After falling during the 1980s, ownership rates in the United States have reached record highs, but lag among low-income families, especially those with children. Because the national ownership rate fell during the 1980s after rising for four decades, recent policy concerns about ownership have focused on increasing it, especially among low- or moderate-income households. In addition to subsidies for first-time owners provided by states through mortgage revenue bonds, a variety of programs and incentives for ownership have been initiated, such as new goals for the housing government-sponsored enterprises to increase ownership among families with below-median incomes and among those in underserved areas.<sup>36</sup>

Despite these efforts, record highs in U.S. homeownership rates in the late 1990s resulted from increased ownership among the one-third of households with incomes above 120 percent of AMI, the only income group still benefiting substantially from the mortgage interest deduction and other tax expenditures. As table 12 shows, between 1978 and 1999 ownership rates among this group rose from 81 percent to 85 percent. By contrast, rates of ownership among low- and middle-income groups were essentially the same in 1999 as they had been in 1978. The slight increase in ownership among very low income households was concentrated among the elderly.<sup>37</sup> It may thus reflect continued ownership among elderly persons whose incomes dropped into the very low income range after retirement, not increasing ownership among nonelderly renters in this income range.

The bottom panels of table 12 document steep increases in affordability problems among owners since 1978. By 1999, paying more than half of reported income for housing had become three-fourths as common among very low income owners (31 percent) as among very low income renters (40 percent).<sup>38</sup> Severe housing cost burdens also rose (from a very small base) to afflict 7 percent of owners with incomes between 51 and 80 percent of AMI in 1999. Paying more than 30 percent of

---

<sup>36</sup> For programs by government-sponsored enterprises, “low” incomes are defined as below-median incomes, and very low incomes as below 60 percent of AMI (Nelson 1994).

<sup>37</sup> As table 13 shows, among households with very low incomes, ownership increased between 1978 and 1999 only among the elderly, rising substantially from 62 to 67 percent.

<sup>38</sup> Benefits of ownership such as appreciation and tax deductions are not considered in this comparison. Because the AHS underreports income, its estimates of households with housing cost burdens may be overstated, but this problem is unlikely to vary over time or by income group.

**Table 12. Ownership and Owner Housing Cost Burdens in the United States by Income, 1978, 1989, and 1999**

	Very Low Income (0 to 50% of AMI) (%)	Low Income (51 to 80% of AMI) (%)	Middle Income (81 to 120% of AMI) (%)	High Income (120%+ of AMI) (%)
Share of U.S. households, 1999	28	17	20	34
Owners	20	16	20	44
Renters	44	21	20	16
Owners				
1978	47	60	69	81
1989	45	56	65	81
1999	49	60	68	85
Owners with housing costs > 50% of income				
1978	17	1	0	0
1989	23	4	1	0
1999	31	7	3	1
Owners with housing costs > 30% of income				
1978	35	7	2	1
1989	46	19	12	4
1999	53	29	17	5

Source: Author's tabulations of the 1978 Annual Housing Survey and the 1989 and 1999 AHS.

income for housing also increased among owners over these two decades. Among low-income owners, 29 percent paid more than 30 percent of their income for housing in 1999, more than four times the 7 percent observed to do so in 1978.<sup>39</sup>

As table 13 documents, families with children are the main group lagging in ownership. By 1999, ownership rates among very low, low-, and middle-income families with children had still not recovered to their 1978 levels, whereas for both elderly households and nonelderly households without children, all but one ownership rate by income were higher in 1999 than in 1978. Lower ownership among families with children is unfortunate because homeownership benefits children, particularly low-income children (Green and White 1997; Haurin, Parcel, and Haurin 2001), and families with children most need the larger

<sup>39</sup> Inadequate housing and crowding are not shown in the table because at every income level, owners are much less likely to have such problems than renters. In 1999, 2 percent of very low income owners had severely inadequate housing, 6 percent had moderately inadequate housing, and 2 percent were crowded. Among very low income renters, 8 percent were crowded, while 5 percent had severely inadequate housing, and 10 percent had moderately inadequate housing.

*Table 13. U.S. Ownership Rates by Income and Household Type, 1978, 1991, 1999*

	Very Low Income (0 to 50% of AMI) (%)	Low Income (51 to 80% of AMI) (%)	Middle Income (81 to 120% of AMI) (%)	Share of U.S. Households in Household Type (%)
Families with children				
1978	37	63	78	42
1991	31	55	71	37
1999	35	58	75	36
Nonelderly, no children				
1978	32	38	50	34
1991	28	36	46	39
1999	31	39	52	40
Elderly				
1978	62	80	82	24
1991	61	80	86	24
1999	67	83	87	24

*Sources:* Author's tabulations of the 1978 Annual Housing Survey and the 1991 and 1999 AHS.

homes and better neighborhoods that are more easily found with owned units.

### *Homeownership in high-tech economies*

Homeownership is lower and less affordable in areas with high-tech economies. In the mid-1990s, homeownership rates were lower on average for the 15 MSAs with high-tech economies. Differences in total ownership among MSA groups were not large (table 14): It averaged 59 percent for the high-tech group, only 4 percentage points below the rate for low-tech MSAs. But the lower ownership in high-tech economies was, as expected, more striking among low-income households (here, *all* households with incomes below 80 percent of AMI). In the mid-1990s, only 45 percent of low-income households were owners in high-tech metropolitan areas, 7 percentage points below the average 52 percent of the MSAs with the least high-tech employment.

Differences in ownership among metropolitan groups had been similar in 1990, with ownership in high-tech MSAs also 4 percentage points below the average for the third group then.<sup>40</sup> Among minority households, ownership was slightly lower (by 2 percentage points) in

<sup>40</sup> Landis, Elmer, and Zook (2001) also found that high-tech MSAs had had lower ownership rates throughout the 1990s.

*Table 14. Lower Ownership Rates in High-Tech MSAs*

	High Tech (%)	Middle (%)	Lowest (%)
Percentage of owners, mid-1990s			
All income groups	59	61	63
Low income (< 80% of AMI)	45	48	52
Percentage of owners, 1990			
All owners	60	61	64
Minorities	43	42	45
Nonelderly households with relatives and income 50 to 95% of AMI	51	55	58

*Source:* Author's tabulations of 45 AHS MSAs surveyed, 1994 to 1998; CHAS data 1990 (U.S. Bureau of the Census 1993).

high-tech metropolitan areas. For 1990, CHAS data (U.S. Bureau of the Census 1993) provide a close proxy for low-income families with children by giving ownership rates for nonelderly households with incomes between 50 and 95 percent of AMI and relatives present (U.S. Bureau of the Census 1993). These families are in the income range where ownership should be possible, and most have children.<sup>41</sup> As was the case in the mid-1990s for all low-income households, ownership was particularly low in high-tech areas in 1990 for these families, 7 percentage points below the 58 percent average for the third MSA group.

Ownership was also less affordable in high-tech MSAs for both actual and potential owners. As table 15 summarizes for three low-income groups, owners in high-tech economies in 1990 were more likely than others to pay more than half of their income for housing. Differences among MSA groups were greatest for owners with incomes between 51 and 80 percent of AMI: Almost twice as many in high-tech areas had severe burdens (13 percent) as in the other MSA groups. Among owners whose incomes were 31 to 50 percent of AMI, one-third again as many in high-tech areas had severe burdens (24 vs. 18 percent) as in the other MSA groups. As was the case for renters, severe cost burdens were most common for the owners with the lowest incomes, although for owners in the extremely low income range, there was little difference among MSA groups. In 1990, almost half (49 percent) of extremely low income owners in high-tech MSAs paid more than half of their income for housing, slightly above the 45 to 46 percent average for the other two groups.

<sup>41</sup> In 1989, over two-thirds of this household type consisted of families with children (Nelson 1992).

*Table 15. Owned Housing Less Affordable in High-Tech MSAs*

	High Tech	Middle	Lowest
Percentage of owners paying > 50% of income for housing, 1990			
Income of 0 to 30% of AMI	49%	45%	46%
Income of 31 to 50% of AMI	24%	17%	18%
Income of 51 to 80% of AMI	13%	7%	8%
Percentage of owner units affordable to those with incomes < 80% of AMI, mid-1990s	11%	19%	14%
Percentage of affordable units that are inadequate	6%	9%	12%
Affordable units per 100 households with incomes < 80% of AMI, 1990	132	164	162

Sources: Author's tabulations of 45 AHS MSAs surveyed, 1994 to 1998; CHAS data 1990 (U.S. Bureau of the Census 1993).

In the mid-1990s, shortages of owned housing affordable to households with low incomes were worse in high-tech economies, with only one-ninth of owned or for-sale units affordable to those with incomes below 80 percent of AMI.<sup>42</sup> In the middle MSA group, almost one-fifth of units were affordable. Similarly, high-tech economies in 1990 had fewer affordable owned or rental units relative to all low-income households than the other groups.

### *Policies and programs to assist low-income owners*

As anticipated, ownership rates were lower in metropolitan areas with high-tech economies in both 1990 and the mid-1990s. Reflecting worse shortages of affordable housing, low-income ownership was particularly low in high-tech areas, with more low-income owners there paying an excessive share of their income for housing. The 7 percentage point differential between high- and low-tech MSA groups found for all low-income households in the mid-1990s was also observed in 1990 for non-elderly households with relatives (most of them children) and incomes between 51 and 95 percent of AMI. As was the case for renters, however,

<sup>42</sup> In both the 1990 CHAS tabulations (U.S. Bureau of the Census 1993) and the AHS tabulations for the mid-1990s (U.S. Bureau of the Census, various years), owned units were defined as affordable to an income cutoff if the reported value of the unit was less than 2.5 times the income cutoff. This was chosen for 1989, when the average 30-year fixed rate on a conventional mortgage was 10.3 percent with 2.1 points. For the mid-1990s, it understates ownership affordability, since by 1996, for example, the interest rate had dropped to 7.8 percent, with 1.7 points.

variation among individual MSAs within each group was often greater than average differences among groups. This was especially true for the shares of units affordable to households with incomes below 80 percent of AMI, rates of new construction, and vacancy rates. To suggest effective federal policies, the next section explores the implications for state and local decisions of conditions in nine local housing markets. As was the case for rental markets, market conditions with respect to ownership differed widely among both high- and low-tech MSAs.

*Effective state and local policies.* In 1990, ownership rates among non-elderly households with relatives and incomes between 50 and 95 percent of AMI lagged total ownership rates in all but one of the nine MSAs in table 16. Differences were greatest—17 percentage points—in San Jose (CA), and least—3 percentage points—in Providence (RI). Table indicators summarize the availability of rental and owned units affordable to households with incomes of 80 percent of AMI and vacancy rates among owned or for sale units to provide guidance about the ease of first-time ownership programs in the area.<sup>43</sup> Severe housing cost burdens provide another perspective on the same question. These key indicators point to different policies as potentially most cost-effective for aiding low-income owners and first-time buyers in these MSAs.

For most of the high-tech MSAs and low-tech Providence (RI), very low vacancy rates among for-sale units imply that it was extremely difficult for renters with incomes of 51 to 80 percent of AMI to become owners in 1990. More telling, the supply/demand ratio of all affordable units, both owner and rental, was very low in San Jose (CA), Los Angeles, Boston, and Providence (RI). When owners with incomes below 80 percent of AMI and owned units affordable to them are added to renters and rental units, the supply/demand ratio in San Jose drops from 105 affordable rental units per 100 renters to an absolute shortage of only 80 owned or rented affordable units per 100 low-income households. In Los Angeles, Boston, and Providence as well, shortages of housing affordable to all low-income households were more serious than shortages of rental housing alone. The most pressing shortages in San Jose and Los Angeles are reflected in their higher shares of severe cost burdens among owners with incomes between 31 and 80 percent of AMI.

---

<sup>43</sup> As noted in the previous footnote, because mortgage interest rates fell between 1989 and the mid-1990s, the number and share of owned units affordable to those with incomes of 80 percent of AMI were higher in the mid-1990s than the estimates in the table. The focus of the table, however, is on differences among MSAs.

Table 16. Key Indicators for Ownership Policy in Nine Different MSAs

	High-Tech Metropolitan Economies				Low-Tech MSAs				
	San Jose, CA 1993	Los Angeles 1995	Boston 1998	Minneapolis-St. Paul 1998	Atlanta 1996	Dallas 1994	Tampa-St. Petersburg, FL 1998	Providence, RI 1998	Oklahoma City 1996
Ownership rates, 1990									
Total	60%	49%	59%	70%	64%	56%	70%	61%	66%
Nonelderly households with relatives and income 50 to 95% of AMI	43%	40%	54%	73%	58%	48%	60%	58%	57%
Affordable units per 100 renters, 1990									
Renters with incomes < 80% of AMI	105	119	138	177	189	188	176	155	187
Households with incomes < 80% of AMI	80	90	92	161	194	191	158	104	206
Owner vacancy rates									
Total, 1990	1.4%	1.8%	1.5%	1.4%	3.2%	3.3%	3.7%	1.4%	4.1%
Units affordable to those with incomes < 80% of AMI	2.2%	1.6%	2.2%	1.5%	2.9%	4.0%	4.4%	1.3%	5.0%
Percentage of owned units built in the past 8 years, mid-1990s	8%	5%	6%	15%	23%	16%	12%	7%	9%
Percentage of owner units affordable to those with incomes < 80% of AMI, mid-1990s	9%	7%	16%	42%	14%	22%	48%	20%	32%
Percentage of affordable units that are inadequate	4%	6%	6%	4%	10%	15%	4%	6%	21%

Table 16. Key Indicators for Ownership Policy in Nine Different MSAs (continued)

	High-Tech Metropolitan Economies			Low-Tech MSAs					
	San Jose, CA 1993	Los Angeles 1995	Boston 1998	Minneapolis-St. Paul 1998	Atlanta 1996	Dallas 1994	Tampa-St. Petersburg, FL 1998	Providence, RI 1998	Oklahoma City 1996
Percentage of owners paying > 50% of income for housing, 1990	45%	44%	48%	45%	46%	45%	45%	49%	43%
Income of 0 to 30% of AMI	27%	27%	19%	19%	24%	19%	20%	15%	18%
Income of 31 to 50% of AMI	21%	19%	13%	5%	9%	8%	9%	8%	6%

Source: Author's tabulations of 1990 CHAS data and of 45 AHS MSAs surveyed, 1994 to 1998.

Their severe shortages of affordable owned units, very low vacancy rates, and relatively low rates of recent new construction all imply that MSAs such as San Jose, Los Angeles, Boston, and Providence need additional owned and rental units if at all possible. In such MSAs, using vouchers or another program to help low-income renters become first-time owners is unlikely to be effective because of the small number of affordable units and the unavailability of affordable units for sale.

In sharpest contrast, in low-tech Oklahoma City, supplies of affordable housing were much greater relative to demand. There, adding owned units and owners raises the supply-demand ratio from an already high 187 affordable rental units per 100 low-income renters to 206 units per 100 low-income households, more than 2 to 1. High-tech Dallas and Atlanta also have high ratios of affordable units to households, and all of these MSAs have relatively high vacancy rates for affordable for-sale units. These conditions imply little need for additional production but suggest that first-time ownership programs could provide low-income families with a viable and attractive option that could be aided by HOME, CDBG, and mortgage revenue bonds. (At the same time, the higher rates of inadequate units among the affordable owned stock in all three MSAs indicate greater local needs for rehabilitation of units occupied by low-income owners, another permissible use of HOME.) Since FMRs equal 50 to 55 percent of AMI in these MSAs (table 11), vouchers might be used for ownership by very low income renters, particularly if the large units needed by families with children were more available or more affordable among for-sale than for-rent units, as is often the case.

*Federal policies and programs.* This overview of housing market conditions for owners and potential owners in different MSAs shows that the demand for and supply of affordable owned housing, as for rental housing, vary greatly across MSAs and vary more within MSA groups than do the average differences observed between high- and low-tech groups. Yet as is the case for renters, severe housing problems, mainly excessive housing cost burdens, tend to be more common at each income level in the tighter, more expensive metropolitan areas. While the share of extremely low income owners paying more than half of their income for housing varied only slightly (from 43 to 49 percent) in the nine individual MSAs, the incidence of severe cost burdens varied more than four-fold (from 5 to 21 percent) among owners whose incomes were between 51 and 80 percent of AMI.

Rising affordability problems among owners are reflected by the fact that close to half of extremely low income owners have severe cost burdens in all three MSA groups. Over half of these households are elderly, so some have greater savings than their current income implies. If they

have sufficient equity in their house,<sup>44</sup> they might be helped by reverse mortgages<sup>45</sup>; and state programs that reduce or eliminate property taxes for low-income elderly owners could also ease their burden. Another one-fourth of the extremely low income owners with severe cost burdens are families with children, whose expenditures for other necessities are severely constrained by high housing cost burdens. The prevalence of severe cost burdens for this income group regardless of market conditions suggests the desirability of extending consumer-based assistance to these owners, since helping them remain in their current homes may well be more cost-effective for government than any alternative. Yet severe problems remain more common among renters than among owners at all income levels, and renters typically have even fewer financial resources. Thus, unless the number of vouchers is greatly increased, it would be unwise to make owners eligible for consumer-based assistance.

As is the case with renters, severe cost burdens are most common for the lowest-income owners. They affect fewer owners with incomes from 31 to 50 percent of AMI and fewer yet of those whose incomes are 51 to 80 percent of AMI. The extent of severe problems varies most across MSAs for households with incomes between 51 and 80 percent of AMI. The high of 21 percent in the tightest, most expensive market of San Jose (CA) illustrates why concern over critical problems for this income group has recently grown. Yet problems for this group are not geographically widespread or nearly as common as they are among very low income renters and owners. More generally, high cost burdens among owners warn that increasing ownership has dangers as well as benefits, raising needs for counseling and safety nets, particularly during economic downturns.

The fact that ownership nationally lags most for low-income families with children, and more in high-tech areas, is seen most clearly in San Jose, but occurs in almost all MSAs. Of current programs to aid first-time owners, HOME best targets families with children because it must aid families with incomes below 80 percent of AMI, adjusted for family size. Mortgage revenue bonds help households with higher incomes, since most states use the maximums permitted under federal law: incomes up to 100 percent of AMI for one- or two-person households and up to 115 percent of AMI for households with three or more

---

<sup>44</sup> Nationally, over three-fourths of elderly owners, including 82 percent of poor elderly owners, owned their home free and clear in 1999.

<sup>45</sup> However, while reverse mortgages provide needed resources to elderly homeowners, they delay the circulation of older homes to younger households and thus effectively reduce the supply of more affordable homes.

persons.<sup>46</sup> The government-sponsored enterprise goals also apply to higher incomes: those below the area median family income, with no adjustment at all for family size. These two programs, which are intended to increase homeownership, are thus effectively biased *against* families with children, the households that most need the larger homes and better neighborhoods that more often characterize owned units.

The wide variation across housing markets in shares of owned units affordable to households with low incomes (ranging in table 16 from 9 to 48 percent) and in affordable units per 100 low-income households (from 80 to 206) has several implications. First, any effort to increase supplies of affordable owner units should not fund only new construction, but also permit rehabilitation, acquisition, or other locally appropriate action such as land banks.

Second, it implies the desirability of targeting resources for helping those with incomes of 30 to 80 percent of AMI through programs like HOME that can be used for either renters or owners, depending on local market conditions. In places like Oklahoma City with high for-sale vacancy rates, for example, ownership vouchers might well be more cost-effective than rental vouchers, especially for families needing large units.<sup>47</sup> Conversely, requiring that funding be used only for first-time ownership could be counterproductive in very tight markets. For example, requiring that a fixed percentage set-aside within HOME be used for ownership everywhere would be both difficult and expensive in markets like San Jose. This would make it likely that a given amount of money might serve fewer needy families than would be possible if local officials could decide to use it in another way.

## Effective program mix and needed resources

What resources should the various federal housing programs receive to most effectively provide decent affordable housing for disadvantaged low-income families? To begin to answer this question, I consider what the lessons from this study imply for the best use of the “balance initiative” recommended by the National Housing Conference to add some \$44 billion to housing programs for low- and middle-income households

<sup>46</sup> HUD’s adjustments to income limits for household size mean that a one-person household with income below “80 percent of adjusted area median income” actually has income below 56 percent of AMI and a three-person household has income below 72 percent of AMI (HUD 2001b).

<sup>47</sup> Nationally, the supply of three or more bedroom units with rents below 120 percent of the FMR fell by 6 percent from 1991 to 1999, while the number of such units with rents above 120 percent of the FMR surged by 63 percent.

in FY 2002 (MHC 2001). Then, since increases this large, no matter how sorely needed, are unlikely in the current budget climate, I recommend ways to use available resources more cost-effectively to reduce serious problems.

*Consumer-based assistance.* Because vouchers directly address problems of severe rent burdens in a wide variety of housing market conditions, they should continue to receive the most funding. Yet incremental vouchers for all of the 4.9 million renters with worst-case needs in 1999 would cost an additional \$27 billion.<sup>48</sup> Some \$19 billion would cover the 3.4 million working families with children, disabled persons, and elderly households that have worst-case needs; to serve only those with extremely low incomes would require \$15 billion.

Making vouchers an entitlement would have the additional advantage of helping house homeless families with children and disabled homeless persons. As Burt (2001,5) notes in discussing effective programs to end homelessness: "Providing housing helps currently homeless people leave homelessness. It also prevents people from losing their homes. In fact, without housing, virtually nothing else works." The associated need for supportive services means that the current \$1 billion for homeless services should be at least doubled.

While most discussion of ownership policy focuses on ways to increase homeownership, severe cost burdens have mushroomed among households that are already owners. In addition to the 4.9 million unassisted renters with worst-case needs, another 4.6 million very low income owners have either severe housing cost burdens or severely inadequate housing.<sup>49</sup> Making (short-term?) consumer-based assistance for extremely low income owners an eligible use of HOME funds and/or vouchers should thus be seriously considered, although doing so would greatly increase the resources needed. An entitlement to consumer-based assistance structured like vouchers for the 3.4 million very low income owners with severe problems who are elderly or have children

---

<sup>48</sup> This is based on the average per voucher cost of \$5,540 assumed for FY 2002 incremental vouchers. These figures assume 100 percent participation among those estimated to have worst-case needs, an unrealistically high rate. Yet as footnote 30 states, the AHS worst-case estimate may wrongly exclude another 600,000 households.

<sup>49</sup> Along with the 1.5 million assisted very low income renters with severe problems, these very low income renters and owners comprise 84 percent of the 13 million households with incomes below 120 percent of AMI that have what Quercia, Stegman, and Davis (2001) term critical housing problems. Of the remaining 2 million households with severe problems and incomes of between 50 and 120 percent of AMI, 1.5 million are owners and 500,000 are renters.

would cost roughly \$19 billion; serving only the 2.5 million extremely low income owners in this category would still require \$14 billion.<sup>50</sup> These severe housing cost burdens among extremely low income owners provide another reason for hesitating to use vouchers to allow higher-income renters to buy homes. At a minimum, rental vouchers should be usable for first-time ownership only when monthly payments plus a reserve for maintenance are less than the FMR and rental housing of the needed size is either not available or more expensive.

*HOME.* Because of its flexibility for both renters and owners with low incomes in a variety of market conditions, HOME should be increased appreciably above its original authorization, particularly if consumer-based assistance for owners is added to its menu of potential uses. Rather than increasing its appropriation to \$2.9 billion, as the Enterprise Foundation recommends (Harvey 2001), funding should be doubled or tripled to a total of \$4 to \$6 billion.

Whether or not vouchers and HOME are expanded, the high incidence of severe cost burdens among owners shows the desirability of expanding counseling services to all very low income owners, not just first-time or recent home buyers. We should also improve counseling and eviction protection for renters, as services to prevent homelessness have begun to do.

*Another rental production program?* But even many more vouchers might not provide enough badly needed units affordable and available to extremely low income renters in many locations, and HOME and the LIHTC generally do not supply them either. Therefore, a program like the Housing Trust Fund advocated by the NLIHC (MHC 2001) is needed to subsidize the production of housing affordable to renters with incomes at or below 30 percent of AMI. The NLIHC and its partners recommend funding \$10 billion per year for 10 years to supply 1.5 million units. Even if all these units (rather than the 75 percent recommended by NLIHC) were affordable to extremely low income renters, they would supply less than a third of the 4.8 million needed to fill the national shortage of units both affordable and available to extremely low income renters in 1999. The wide range of local housing market conditions shown in this article mean that these funds should be usable for rehabilitation, acquisition, and preservation, as well as new construction. In particular, funds for such a production program should be usable for targeted maintenance subsidies to low-rent

---

<sup>50</sup> Because needed data are unavailable for owners, these estimates include all families with children rather than only those working (as was done for renters), but exclude owners who are disabled.

landlords. Simulations by Quigley, Raphael, and Smolensky (2001) suggest that such subsidies and vouchers provide the two most effective ways to reduce homelessness in tight housing markets.

The National Community Development Association recommends locating a new production program within HOME (MHC 2001). Using an existing structure is desirable, and the purposes and uses of a supply program for extremely low income renters complement those of HOME. But new funds for this purpose should *not* be allocated by the HOME formula: Rather, they should be well targeted to locations with shortages of housing affordable and available to extremely low income renters. They should be used to make 20 to 25 percent of units in projects funded by HOME, LIHTC, or tax-exempt multifamily bonds affordable to and occupied by extremely low income renters, including retroactively adding such affordable units to projects already built with federal subsidies.

These estimates suggest that an additional \$35 to \$40 billion per year could make a significant dent in severe housing problems among extremely low income renters and owners and the homeless over the next 10 years, although it would not solve their problems completely.<sup>51</sup> Supplying more units affordable to and occupied by extremely low income renters would also relieve pressure on higher-rent units and help keep both rents generally and FMRs specifically from rising so quickly. Over time, this effect should make it possible to help more households within any given amount of federal resources.

*Tax credits for owners?* Several MHC respondents support a tax credit similar to the LIHTC for rental housing to produce owner-occupied housing. In the face of severe constraints on appropriations, a tax credit has inherent appeal for supplying new resources for housing, particularly if it would rise automatically with inflation and/or population growth over time. The variation across MSAs in vacancy rates and shortages of owned and rental housing affordable to households with incomes of 80 percent of AMI clearly means that such a tax credit should, like the LIHTC, be usable for rehabilitation and acquisition as well as new construction. For many reasons, including affordability, neighborhood revitalization, and land conservation, it should be usable

---

<sup>51</sup> I have added nothing for Section 202 and Section 811 for several reasons. Most elderly people prefer to stay in their current homes (and could be aided in this by more tenant-based assistance), and the number of elderly people will continue to grow slowly until 2010. Similarly, many disabled people would like to live in the community, rather than in isolated projects, and a program adding units affordable to extremely low income renters should include provision for constructing or acquiring small group homes for this population as a permissible use of funds.

for both multifamily and single-family units. Because of the greater demand for large units, homes with three or more bedrooms are most needed. Although this article cites data on owned units affordable to households with incomes below 80 percent of AMI, the greater need across the United States is for for-sale units affordable to families with incomes below 50 or 60 percent of AMI. Therefore, such a tax credit should give state and local decision makers incentives and the capability to supply units affordable to those with incomes below 80 percent of AMI when possible. Finally, the LIHTC clearly shows that allocating special-purpose credits among states by population is a very inefficient way of solving problems that vary with housing market conditions. If a tax credit is enacted, its allocation should be based on a detailed analysis of 2000 CHAS data.<sup>52</sup>

Some MHC respondents advocate tax credits for first-time home buyers. Families with children have a greater need for owned homes and would benefit more from being homeowners. Yet they are the only household type with lower ownership rates in 1999 than in 1978 in every income group. Moreover, low-income families with children are more likely than other low-income households to have some housing problem (62 percent versus 53 percent) and multiple problems (11 percent versus 5 percent). They also more often pay over 30 percent of their income for housing, even though families with children can least afford other necessities with such a cost burden (Stone 1994). Thus, if such a credit is enacted, it should go mainly to families that have children and incomes below 80 percent of AMI, adjusted for family size.

*Improving program efficiency.* Even with fewer resources than I have assumed, this study of effective strategies under different housing market conditions suggests many possibilities for using available resources more cost-effectively. For example:

To reduce barriers to using HOME and LIHTC resources together, some recommend that LIHTC maximum rents and income targeting provisions apply to HOME. With the added goal of better using scarce federal dollars to supply more units usable with vouchers, HOME maximum rents capped at the FMR should instead be used for units funded by the LIHTC and/or tax-exempt multifamily bonds. This would allow LIHTC rents to rise to 65 percent of AMI in the tightest markets with

---

<sup>52</sup> According to 1990 CHAS data (U.S. Bureau of the Census 1993) and the need for affordable housing reviewed here, the most appropriate indicator might be shortages of housing, both rental and owned, that has two or more bedrooms and is affordable and available to families that have incomes below 50 percent of AMI and that need two or more bedrooms. With HUD funding, the Bureau of the Census will provide special tabulations of 2000 census data with information equivalent to the 1990 CHAS tabulations.

FMRs above this level—the markets most needing added rental units in this range. But it would cap LIHTC rents at the FMR in many other locations, thus reducing the tax credit's current incentives to produce new housing with federal subsidy in locations where it is not needed and too often undermines other federally insured units. HOME income-targeting provisions—that at least 40 percent of units be affordable to and occupied by renters with incomes below 50 percent of AMI—are also preferable to LIHTC requirements that at least 20 percent of units be affordable to and occupied by renters with these very low incomes.

Existing programs could also be made more cost-effective if their allocation formulas were updated to better direct their resources to locations with more pressing needs. No formula uses severe rent burden as an allocation element, although this is by far the most serious housing problem nationally and in almost all locations. To allocate vouchers more effectively to locations based on need, the fair-share formula should give a heavy weight to severe rent burdens, which at present are not considered at all. None of the three major production programs—LIHTC, HOME, and CDBG—are directed toward shortages of affordable and available units, although this is the most sensitive and accurate indicator of severe shortages and the necessary data were produced and widely disseminated in 1993. The LIHTC's (mis)allocation to states by population is particularly egregious. If annual credits were instead allocated among states by shortages of housing affordable and available to very low income renters, adjusted for local construction costs, the same federal tax expenditures could more effectively reduce severe shortages where additions to supply are most needed. Similarly, allocating funds to programs for the homeless should be mainly based on severe rent burdens among extremely low income renters and shortages of housing affordable and available to extremely low income renters rather than on the CDBG formula.

Last but far from least, last year's 50 percent increase in state caps for private activity bonds gives states new resources that they could choose to use for tax-exempt multifamily bonds or mortgage revenue bonds. Therefore, it would be highly desirable to structure any new production resources—or any federal funding streams—so that they provide incentives to states to direct more of their private activity bonds to low-income housing in general, and more to locations with the greatest need for it in particular.

## **Conclusion and recommendations**

To recommend effective local and federal policies for reducing low-income housing problems in a rapidly changing market economy, this

article has identified differences in housing problems and market conditions during the 1990s in 45 MSAs, grouped by shares of employment and output in high-tech industries. On average, the grouped results show that more very low income renters had severe problems in high-tech metropolitan areas in the mid-1990s because shortages of affordable rental housing were worse in those places. Similarly, fewer low-income households, particularly families with children, were owners in such MSAs, and those who were owners were more likely to pay an excessive share of their income for housing. The best available data on homelessness imply that it is higher in new economy housing markets as well.

Yet individual metropolitan areas differed greatly in the severity of shortages of affordable housing, the incidence of severe housing problems, market tightness, and housing dynamics over time. Although these differences were associated with high-tech employment on average, they more significantly reflected fundamental, often long-standing, variations in demand and supply. These results mean that it is not recent high-tech competition that requires federal strategies geared to metropolitan differences. Instead, the continuing reality, long recognized by regional housing economists, is that flexible federal housing programs that can be used appropriately in a variety of market conditions are always best. Only with flexible programs and sufficient resources can local decision makers effectively exploit the fundamental forces of housing demand and supply that underlie the major differences across housing markets that are common at any point in time.

The wide variation across MSAs in the incidence of housing problems at different income levels and in key housing market characteristics confirms that the two most needed federal programs—tenant-based assistance and HOME—already exist, although both could and should be better funded and targeted to areas with more serious needs. HOME's glaring weakness is its relative inability to supply units affordable to extremely low income renters. Federal priorities should thus be, first, to greatly increase funding for vouchers, and second, to increase the number of units affordable to and occupied by extremely low income renters through a means compatible with HOME and other federally subsidized "affordable" housing programs.

To identify needed resources, I allocated the National Housing Conference's recommended additional \$44 billion (in 2002 dollars) among programs to see whether they could meet the nation's most pressing housing needs if they were funded effectively. My recommended mix for the next decade would be at least an additional \$25 billion per year for vouchers for extremely low income elderly and disabled households and families with children, both renters and owners, with severe housing

problems. *If* effectively targeted at locations with the most pressing shortages, up to \$10 billion per year should be allocated to produce units affordable and available to extremely low income renters through a flexible program like HOME with a range of possible uses. An added billion for continuum of care housing and services for the homeless, combined with more vouchers and more units affordable to extremely low income renters, should allow substantial progress toward Secretary Martinez's goal of eliminating homelessness in 10 years. Because of its flexible menu of programs for production, rehabilitation, acquisition, tenant-based assistance, and aid for first-time home buyers in ways that promote community and neighborhood revitalization, HOME funding should be tripled, with an additional \$4 billion to be used for either low-income renters or owners in appropriate and cost-effective ways in local markets. The remaining several billion could usefully go to an effectively targeted tax credit that would increase the supply of modest owned and for-sale units affordable to households with incomes of 50 to 80 percent of AMI and to a tax credit to reduce home buying costs for low-income homeowners with children.

This exercise shows that even adding \$44 billion, which is politically unlikely, would not solve all the severe problems of low-income households. To do that, current funding for low-income households should be *more* than doubled. This conclusion is not surprising considering the calculation behind the National Housing Conference's recommended increase: If \$84 billion in housing tax expenditures benefits the upper one-third of the income distribution, for balance alone, \$168 billion, over four times the amount of current funding, should be expended for the lower two-thirds of U.S. households. In fact, I was pleasantly surprised to see how much an additional \$44 billion a year could potentially accomplish.

Even if only insufficient new funding can be added for low-income housing, the relative importance of these programs should hold. More than half of any new funds should go to vouchers, the supply of units affordable to and occupied by extremely low income renters should be increased, and HOME, as the most flexible program for general use at local discretion, should receive more funds. With appropriations constrained, tax credits to increase the supply of owned units affordable to low-income families or to help low-income families with children purchase homes could increase the total resources available for housing, though such credits are less likely to reduce severe problems than additional funding for extremely low income households would do. No other ownership program would be as cost-effective, since both vouchers and HOME may be used for ownership by families with incomes up to 80 percent of AMI, and low-income families with children most need aid to buy a home.

Not surprisingly, the lower federal expenditures for housing are in relation to need, the more essential it is to use available resources wisely. To do so, Congress should

1. Modify LIHTC and tax-exempt multifamily bonds so that, like HOME, they can be used only for below-FMR units. When so many households have critical housing problems, it misuses constrained federal resources to allow any federal funds to subsidize rents above local FMRs. This change would not only add directly to the supply of below-FMR units, it would also lead to more efficient use of resources for programs such as vouchers by slowing increases in FMRs.
2. Target all programs as well as possible to current needs. At present, the LIHTC provides a clear example of how federal dollars are wasted because of abysmally poor targeting to states by population rather than by shortages of affordable and available rental units. However, other allocation formulas could and should be improved as well. In particular, any program to increase the supply of units affordable and available to extremely low income renters should definitely be well targeted to areas with greater shortages; it should also encourage local decision makers to use the most cost-effective alternatives possible, consistent with other objectives, to increase supply in their housing markets.
3. To encourage the use of the recently increased LIHTC and private activity bonds for needed rental and owner-occupied housing, structure any new production funding to provide incentives to states to direct more bond and LIHTC resources to low-income housing, particularly to locations with the greatest need for it. If tax credits for producing affordable owned units or reducing costs for low-income owners are enacted and allocated by the states, direct a substantial fraction of total credits differentially to states that better target their mortgage revenue bonds toward low-income families with children and more needy groups or locations.
4. Consistent with the Government Performance and Results Act of 1993, hold state and local decision makers accountable for the effects and effectiveness of their use of federal program dollars. Seriously reconsider the recommendations of the Advisory Commission on Regulatory Barriers to Affordable Housing (1990) on ways to encourage or require local governments to reduce restrictions on development. Reaffirm the original intent of the Comprehensive

Housing Affordability Strategy to encourage local decision makers to thoroughly analyze local needs and market conditions when deciding on funding priorities and to provide useful information for the public and local advocates for low-income housing.

This article has focused on the implications of local needs and local market conditions for effective federal strategies and programs for low-income housing. But it also has clear lessons for state and local decision makers. With or without federal action, the state agencies that allocate tax credits and tax-exempt multifamily bonds should strongly encourage rents below local FMRs and, if at all possible, ones affordable to extremely low income renters. They should also allocate tax credits and tax-exempt bonds to the locations with the most severe shortages of housing affordable and available to extremely low income renters. States have the discretion to target mortgage revenue bonds to locations and households with a greater need for owned housing, particularly low-income families with children, and should do so.

Federal housing policies and programs should provide enough resources and target them to areas and households with severe housing problems. The most pressing need, everywhere, is for more consumer-based assistance, the most cost-effective, direct, and timely way to solve the severe cost-burden problems of low-income households. Many locations also need more units affordable and available to renters with incomes below 30 percent of AMI, but since the extent of shortages varies greatly, careful targeting is essential. Finally, the problems of households with incomes between 30 and 80 percent of AMI vary widely across the country, as do housing market conditions resulting from the local interaction of fundamental demand and supply forces. Federally supplied resources to meet these needs should be usable through a flexible menu of approaches that not only permit, but encourage or require that local or state choices to meet the most severe problems be both cost-effective and appropriate for local housing market conditions.

### *Author*

Kathryn P. Nelson is an Economist in the Office of Policy Development and Research at the Department of Housing and Urban Development.

The author thanks Richard Bourdon, Cushing Dolbeare, Vicki Elmer, Jill Khadduri, Stephen Malpezzi, John Quigley, Stevens Redburn, Arthur Reiger, Mark Shroder, and two anonymous reviewers for helpful comments, questions, and suggestions.

The opinions given here do not represent the official or unofficial positions of the Department of Housing and Urban Development.

## References

- Advisory Commission on Regulatory Barriers to Affordable Housing. 1990. *Not in My Back Yard*. Washington, DC: U.S. Department of Housing and Urban Development.
- Bogdon, Amy, Joshua Silver, and Margery Austin Turner. 1993. *National Analysis of Housing Affordability, Adequacy, and Availability: A Framework for Local Housing Strategies*. HUD-1448-PDR. Washington, DC: U.S. Department of Housing and Urban Development.
- Burt, Martha. 2001. *What Will It Take to End Homelessness?* Washington, DC: Urban Institute.
- Burt, Martha, Laudan Y. Aron, and Edgar Lee (with Jesse Valente). 2001. *Helping America's Homeless: Emergency Shelter or Affordable Housing?* Washington, DC: Urban Institute Press.
- Cortright, Joseph, and Heike Mayer. 2001. *High-Tech Specialization: A Comparison of High-Technology Centers*. Washington, DC: Brookings Institution, Center on Urban and Metropolitan Policy.
- Dolbeare, Cushing. 2001. *Low-Income Housing Profile*. World Wide Web page <<http://www.nlihc.org/pubs/profile/index.htm>> (accessed November 21).
- Green, Richard K., and Michelle J. White. 1997. Measuring the Benefits of Homeowning: Effects on Children. *Journal of Urban Economics* 41:441-61.
- Harvey, F. Barton. 2001. Statement at the November 29 hearing on "Housing and Community Development Needs: The FY 2003 HUD Budget" of the U.S. Senate Committee on Banking, Housing, and Urban Affairs. World Wide Web page <<http://banking.senate.gov/01-11hrg/112901/harvey.htm>> (accessed November 30).
- Haurin, Donald R., Toby L. Parcel, and R. Jean Haurin. 2001. *The Impact of Homeownership on Child Outcomes*. World Wide Web page <[http://www.homeownershipalliance.com/media/events/homeowners\\_week/betterlife/study/full\\_study.pdf](http://www.homeownershipalliance.com/media/events/homeowners_week/betterlife/study/full_study.pdf)> (accessed November 21).
- Katz, Bruce J., and Margery Austin Turner. 2001. Who Should Run the Housing Voucher Program? A Reform Proposal. *Housing Policy Debate* 12(2):239-62.
- Landis, John, Vicki Elmer, and Matthew Zook. 2001. The New Economy and Housing Market Outcomes. Paper read at the special session on Housing and the New Economy at the midyear meeting of the American Real Estate and Urban Economics Association, Washington, DC, May 31.
- Millennial Housing Commission. 2001. *Millennial Housing Commission Home Page*. World Wide Web page <<http://www.mhc.gov>> (accessed October 5).
- Nelson, Kathryn P. 1992. Housing Assistance Needs and the Housing Stock: Data for Comprehensive Housing Affordability Strategies. *Journal of the American Planning Association* 58:85-102.
- Nelson, Kathryn P. 1994. Whose Shortage of Affordable Housing? *Housing Policy Debate* 5(4):401-42.

Nelson, Kathryn P. 1999. To Reduce the Low-Income Rental Housing Crisis, the Low-Income Tax Credit Should Be Better Targeted, Not Just Indexed for Inflation. Paper read at the midyear meeting of the American Real Estate and Urban Economics Association, Washington, DC, May 26.

Nelson, Kathryn P. 2001. What Do We Know about Shortages of Affordable Housing? Testimony on May 3 to the Subcommittee on Housing and Community Opportunity of the House of Representatives Committee on Financial Services. World Wide Web page <<http://www.house.gov/financialservices/050301ne.pdf>> (accessed October 19).

Nelson, Kathryn P., and Jeffrey Lubell. 2001. An Analysis of the Formula Used to Allocate Low-Income Housing Tax Credits. Paper prepared for the Millennial Housing Commission.

Nelson, Kathryn P., and David Vandenbroucke. 1996. Affordable Housing: Lost, Stolen, or Strayed? Paper read at the midyear meeting of the American Real Estate and Urban Economics Association, Washington, DC, May 28.

Orlebeke, Charles J. 2000. The Evolution of Low-Income Housing Policy, 1949 to 1999. *Housing Policy Debate* 11(2):489–520.

Quercia, Roberto, Michael Stegman, and Walter Davis. 2001. Does a High-Tech Boom Worsen Housing Problems for Working Families? Paper read at the special session on Housing and the New Economy at the midyear meeting of the American Real Estate and Urban Economics Association, Washington, DC, May 31.

Quigley, John M., Steven Raphael, and Eugene Smolensky. 2001. *Homelessness in California*. San Francisco: Public Policy Institute.

Somerville, C. Tsuriel, and Cynthia Holmes. 2001. Dynamics of the Affordable Housing Stock: Microdata Analysis of Filtering. *Journal of Housing Research* 12(1):115–40.

Stone, Michael E. 1994. Comment on Kathryn P. Nelson's "Whose Shortage of Affordable Housing?" *Housing Policy Debate* 5(4):443–58.

U.S. Bureau of the Census. 1978. *Annual Housing Survey* microdata files. Washington, DC.

U.S. Bureau of the Census. 1983. *Annual Housing Survey* microdata files. Washington, DC.

U.S. Bureau of the Census. 1987. *American Housing Survey* microdata files. Washington, DC.

U.S. Bureau of the Census. 1989. *American Housing Survey* microdata files. Washington, DC.

U.S. Bureau of the Census. 1991. *American Housing Survey* microdata files. Washington, DC.

U.S. Bureau of the Census. 1993. The Comprehensive Housing Affordability Strategy (CHAS) Database. CD-CHAS. Washington, DC.

U.S. Bureau of the Census. 1994. *American Housing Survey* microdata files. Washington, DC.

U.S. Bureau of the Census. 1995. *American Housing Survey* microdata files. Washington, DC.

U.S. Bureau of the Census. 1996. *American Housing Survey* microdata files. Washington, DC.

U.S. Bureau of the Census. 1997. *American Housing Survey* microdata files. Washington, DC.

U.S. Bureau of the Census. 1998. *American Housing Survey* microdata files. Washington, DC.

U.S. Bureau of the Census. 1999. *American Housing Survey* microdata files. Washington, DC.

U.S. Department of Housing and Urban Development. 1992. *The Location of Worst Case Needs in the Late 1980s: A Report to Congress*. HUD-1387-PDR. Washington, DC.

U.S. Department of Housing and Urban Development. 1994. *Worst Case Needs for Housing Assistance in the United States in 1990 and 1991: A Report to Congress*. HUD-1481-PDR. Washington, DC.

U.S. Department of Housing and Urban Development, Office of Policy Development and Research. 1996. *Affordable Rental Housing: When to Build, When to Preserve, When to Subsidize*. Washington, DC.

U.S. Department of Housing and Urban Development. 2000a. *Rental Housing Assistance—The Worsening Crisis: A Report to Congress on Worst Case Housing Needs*. Washington, DC.

U.S. Department of Housing and Urban Development. 2000b. *The State of the Cities 2000: Megaforges Shaping the Future of the Nation's Cities*. Washington, DC.

U.S. Department of Housing and Urban Development. 2001a. *A Report on Worst Case Housing Needs in 1999: New Opportunity amid Continuing Challenges*. Washington, DC.

U.S. Department of Housing and Urban Development. 2001b. FY 2002 HUD Income Limits Briefing Material. World Wide Web page <<http://www.huduser.org/datasets/il/fmr02/briefing02.pdf>> (accessed December 30).

U.S. General Accounting Office. 2001. *Federal Housing Programs: What They Cost and What They Provide*. GAO-01-901R. Washington, DC.

U.S. House of Representatives, Committee on Appropriations. 2001. Conferees Approve VA-HUD Conference Report. World Wide Web page <<http://www.house.gov/appropriations/news/2002/02vahudconf.html>> (accessed November 7).