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HOUSING NEEDS AND POLICY ISSUES IN HIGH TECH ECONOMIES

By

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Housing Needs and Policy Issues in High Tech Economies

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Housing Needs and Policy Issues in High Tech Economies

Who is left behind in New Economy housing markets? What are the most effective approaches to securing low-income housing in such markets? Does the presence of “winner” and “loser” areas in the high-tech game require federal housing strategies geared to metropolitan differences? After summarizing national trends in housing problems and policies over past two decades, this paper groups 45 large metropolitan statistical areas (MSAs) along a “high-tech” spectrum to examine average ownership rates and rental housing problems for three MSA groups.

The results imply that high-tech economies are indeed those where finding affordable housing is more difficult for low-income owners and renters on average, but that high-tech metropolitan economies, like other metropolitan areas, vary greatly in local housing market conditions and dynamics. The paper concludes by discussing the implications for effective state, local, and federal policies of the sharp differences found among and within metropolitan housing markets.

Housing problems and policies among U.S. renters and owners over the past two decades

Affordability problems rose among low-income renters as housing adequacy improved

Over the past two decades, the number of unassisted low-income renters with severe housing problems² rose by 22 percent, from 4.3 million in 1978 to 5.3 million in 1999.³ As Table 1 shows, the increase was greatest, from 3 to 3.75 million, among “extremely-low-income” renters, those with incomes less than 30 percent of area median income (AMI).⁴ This is also the income group in which both renters and owners are most likely to have severe problems. In 1999, over two-fifths (44 percent) of extremely-low-income renters had severe housing problems, compared to less than one-fifth (18 percent) of “very-low-income” renters (those with incomes between 31 and 50 percent of AMI). Among other “low” income renters (those with incomes 51-80 percent of AMI), only 6 percent had severe housing problems.

Because of growth in numbers of renter households and in the number and share of renters participating in rental assistance programs, the incidence of severe problems was lower in 1999 than it had been in 1978 for both extremely-low- and very-low-income renters. Among extremely-low-income renters, the share with severe problems fell from 51% to 44% between 1978 and 1999 as the share receiving assistance rose from 24% to 35%. Although the number of renters with severe housing problems rose, those with physical problems of severely

² Severe housing problems are defined as either paying more than half of income for housing costs, including utilities, or living in housing with severe physical problems. As used here, they exclude households who report receiving housing assistance from federal or state programs.

³ Between 1978 and 1999, the total number of U.S. households rose by 33 percent, from 77 to 103 million.

⁴ Although median family incomes vary greatly across the U.S., 30 percent of area median income approximates the poverty line.

inadequate housing continued to decline. Even among extremely-low-income renters, the share with severely inadequate housing dropped from 11 to 4 percent between 1978 and 1999.

Severe problems thus increasingly represent 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” problems had these severe rent burdens.⁵ 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 in type of problems, consensus about the importance of housing vouchers as a primary tool to solve excessive cost burden has also increased over the past two decades.

The rising number of renter households with severe rent burdens reflects accelerating losses of rental units affordable to very-low- 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 (14 percent), and units affordable to incomes 31-50 percent of AMI dropped by an additional 400,000 units.⁶ The main federal programs intended to reduce shortages of affordable housing are the low-income housing tax credit (LIHTC) and HOME. These programs mainly supply units affordable to incomes below 65 percent of AMI, and they helped increase the number of units affordable to incomes 51-65 percent of AMI by 600,000 during this period.

As Table 2 summarizes, when affordable units are compared to renters in the income groups needing them, the worst shortages of housing occur for extremely-low-income renters. Indeed, nationally, only for that income group are there technically fewer affordable units than renters. In 1999, there were only 75 affordable units per 100 extremely-low-income renters, down from 85 units per hundred renters in 1987. In comparison, among renters with incomes below 50 percent of AMI and units with rents affordable to them, there were somewhat more affordable units than renters, with a 1999 ratio of 113 units/100 renters. Below incomes of 65 percent of AMI, there were clear surpluses of affordable units: the ratio of affordable units to renters was above 140 units/100 renters in both 1987 and 1999.

As the second panel of Table 2 documents, below each income level there is less housing that is both affordable and *available* to the renters needing it. This occurs because many theoretically affordable units are occupied by 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 also potentially or actually available to them because they were either vacant for rent or already occupied by renters with incomes below 30 percent of AMI. There were also worsening shortages among available units affordable to renters with incomes below 50 percent of AMI: in 1999 there were 68 units/100 renters, down from 75 units/100 renters in 1987.

⁵ U.S. Department of Housing and Urban Development, 2001. *A Report on Worst Case Housing Needs in 1999: New Opportunity amid Continuing Challenges*.

⁶ Units are considered “affordable” to an income level if the annual rent is equal to or less than 30 percent of that income.

These national averages mask sharp regional and intraregional differences both in shortages of affordable rental housing and in the incidence of housing problems.⁷ After exploring the extent to which differences among metropolitan areas reflect high tech economies, this paper discusses appropriate policies for reducing affordability problems in different local housing markets.

Ownership rates in the U.S. fell during the 1980s, but have since reached record highs.

Because the national ownership rate fell in the 1980s after rising for the previous four decades, policy concerns with respect to ownership over the past two decades have focused on increasing ownership, especially among households with low or moderate incomes. 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, and recent success in reaching new highs in ownership applauded.

As the first panel of Table 3 shows, however, the new highs in ownership basically result from increased ownership among the one-third of households with incomes above 120 percent of AMI, the only income group that still benefits substantially from the mortgage interest deduction. Between 1978 and 1999, rates of ownership among this group rose from 81 percent to 85 percent. By contrast, rates of ownership were essentially unchanged among low- and moderate-income groups over these two decades. Ownership did increase slightly among very-low-income households, but as shown below, this increase was concentrated among the elderly. It may thus mainly reflect continued ownership among households whose incomes dropped into the very-low-income range after retirement.

The bottom panels of Table 3 document the steep increases in affordability problems among owners that underlie policy concerns with making ownership more affordable. By 1999, paying more than half of their income for housing had become as common among very-low-income owners (31 percent) as among very-low-income renters.⁸ The shares of low and moderate-income owners paying more than 30 percent of income for housing also rose sharply during the past two decades. Among low-income owners, for example, 29 percent paid more than 30 percent of their income for housing in 1999, more than 4 times the 7 percent observed in 1978. The table does not show either inadequate housing or crowding because at every income level owners are much less likely to have such problems than renters.

As Table 4 illustrates, low and moderate income families with children are the main group left behind by current efforts to increase ownership. By 1999, ownership rates among very-low-,

⁷ Differences by state are documented in Table 8 of *Worst Case Needs for Housing Assistance in the United States in 1990 and 1991: A Report to Congress*, HUD 1994, HUD-1481-PDR.

⁸ Such benefits of ownership as appreciation and tax deductibility are not included in this comparison, however. Because the American Housing Survey underreports income, all AHS estimates of numbers of households with housing cost burdens are probably overstated, but it is unlikely that this problem varies over time, by tenure, or by income group.

low-, and moderate-income families with children had still not recovered to their 1978 levels. By contrast, for both elderly households and nonelderly households without children, ownership rates by income in 1999 were higher than they had been in 1978, sometimes appreciably so. Because families with children most need the larger homes and better neighborhoods that more often characterize owned units, it is unfortunate that they are effectively disadvantaged by most policies intended to increase homeownership.⁹

Studying housing conditions in high-tech housing markets

Housing problems are commonly thought to be worse in high-tech markets

HUD's *The State of the Cities 2000: Megaforges shaping the Future of the Nation's Cities* focuses on high-tech economies, noting that "the hot high-tech markets are among the highest cost housing markets" (ix). "The 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—and creating staggering jumps in home prices as well" (viii). Such claims imply that examination of differences among metropolitan areas will find worse shortages of affordable housing, worse housing problems among low-income renters, and lower rates of ownership among low-income households in high-tech housing markets. Moreover, shortages of affordable housing and the incidence of affordability problems have worsened among both owners and renters in the past decade as high-tech employment has boomed. This implies that over time housing problems worsened more in high-tech markets.

Identifying high-tech metropolitan areas

Because of the variety of approaches used in past research, identifying high tech housing markets is obviously key to this paper. To divide the 45 MSAs now surveyed by the American Housing Survey into three groups, I identified the top third among the 45 according to four indicators that high tech employment was a relatively large share of the total MSA employment, which seemed most relevant to examining the effects of high-tech boom on housing markets. As the Appendix details, the 15 MSAs categorized in the first "high-tech" group all fell in the highest third for at least two of the four indicators. All except Buffalo that had at least one indicator in the upper third of a distribution were placed in the second, "middle" group, and the 15 lowest MSAs were placed in the third "low" MSA group.

As Appendix Table 1 shows, the approach used here is similar to the recent ranking of the 50 largest metropolitan regions by the Progressive Policy Institute: 10 of their highest 15 fall into the "high-tech" group.¹⁰ There is also some resemblance to the ranking of 101 MSAs in terms of

⁹ The effective bias of most ownership programs against children is discussed in Kathryn P. Nelson and Jill Khadduri (1992), "To Whom Should Limited Housing Resources be Directed?" *Housing Policy Debate*, Vol 3 (1-55).

¹⁰ Robert D. Atkinson and Paul D. Gottlieb, *The Metropolitan New Economy Index*, Progressive Policy

the percent of jobs in high-tech employment given in HUD's 2001 State of the Cities report: nine of HUD's top 33 fall into the first group, 4 into the middle group, and two into the bottom group.¹¹ Clearly, however, correlations among these different rankings are less than perfect, reinforcing the warning that this is at best an exploratory study.

Approach of this paper

To identify which owner and renters are relatively disadvantaged in high-tech economies and policy-relevant characteristics of housing markets in all types of MSAs, this exploratory study examines unweighted means across three groups of metropolitan areas using data from several sources. Most of the data comes from MSAs surveyed by the AHS between 1994 and 1998, although some indicators from 1990 Census data are used, particularly for owners.¹² But I also draw on an earlier study that linked rental housing units longitudinally over four year periods between 1985 and 1992 to study the sources of change in the affordable rental stock. This study provides some insights into the dynamics underlying differences among and within MSAs. Although housing market conditions in metropolitan areas differ, on average, in ways consistent with conventional wisdom about high-tech economies, the wide variation found among high-tech MSAs and all MSAs implies that effective policies for better providing low-income housing must be carefully tuned to local conditions.

Did housing outcomes in high-tech economies differ from those in other metropolitan areas during the 1990s?

Was homeownership lower in MSAs with high-tech economies?

In the mid-1990s, homeownership rates were on average lower for the group of 15 MSAs that scored highest as high tech economies. As Table 5 shows, the difference among the three MSA groups was not large for total ownership rates: ownership averaged 59 percent for the high tech group, only 4 percentage points below the rate for the third group of MSAs. But low-income households (here, *all* those with income below 80 percent of area median income, not just those in the 51-80 percent of AMI range) were, as hypothesized, particularly disadvantaged in the MSAs with high-tech economies. In the mid-1990s, only 45 percent of low-income households were owners in high-tech MSAs, 7 percentage points below the average low-income ownership rate of 52 percent found in the least technical MSAs.

Institute, April 2001.

¹¹ The "high-tech" also group includes 10 of the 14 studied as high tech by Cortright and Mayer 2001. (Brookings Institution, 2001, *High Tech Specialization: A Comparison of High Technology Centers*). Cortright and Meyer argue that different processes are at work in largest MSAs, which is consistent with the classification used here: New York, Chicago, Philadelphia and Detroit fell into the middle group because each of them had only one of the four indicators in the highest third.

¹² These data were developed from the Comprehensive Housing Affordability Strategy (CHAS) database. This special tabulation of 1990 Census data was produced by the Census Bureau with funding by HUD for use by local jurisdictions in preparing comprehensive housing strategies.

CHAS data suggest that in 1990 differences among MSA groups in ownership rates were of similar magnitude, with ownership in the high-tech MSAs also 4 percentage points below the average for the third group. Among minority households, ownership was slightly lower in high-tech MSAs as well, although the difference between the highest and lowest was only 2 percentage points. For 1990, CHAS data provide a close proxy for low-income families with children by giving ownership rates for households with incomes 50-95 percent of AMI and relatives present.¹³ These families are in the income range where ownership should be a realistic option, and with children present, arguably would benefit more from larger homes and better neighborhoods than other household types. As found in the mid-1990s for all low-income households, in the high-tech group of MSAs, ownership among these families averaged 7 percentage points below the 58 percent found for the third group.

With respect to ownership then, rates do appear to have been lower in metropolitan areas with high-tech economies in both 1990 and the mid-1990s. Ownership among households with incomes below 80 percent of median was, as hypothesized, particularly low in high-tech MSAs, and the differential of 7 percentage points found among MSA groups for all low-income households in the mid-1990s also was observed in 1990 for families of relatives, many of them with children, with incomes between 51 and 95 percent of AMI. To a lesser degree, minority ownership also lagged in MSAs with high-tech economies.

Were rental housing problems and shortages of affordable housing worse in high tech economies?

Higher worst case needs. As expected, serious problems affected higher shares of rental households in high-tech areas. On average, over two-fifths (43 percent) of very-low-income renters had severe housing problems in high-tech MSAs, 4-5 percentage points higher than the averages found in the other two groups (Table 6). Differences among the metropolitan groups in the incidence of severe 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 group, compared to 45 percent in the group with lowest high-tech ratings. Most striking, perhaps, is that worst case needs plagued almost 6 percent of all households in new economy cities, appreciably higher than in the other two groups. Thus not only are the very-low-income renters more likely to have severe problems in those metropolitan areas, but worst case needs beset higher shares of total households there.

Lower vacancy rates. The higher rates of serious problems found in high-tech MSAs reflect tighter and more expensive housing markets there. As Table 7 illustrates, rental housing vacancy rates in the mid-1990s were lowest in high-tech areas for all rental units, for units renting below the FMR, and for units with rents affordable to very-low-income renters. In each rent range, vacancy rates in high-tech areas averaged 4-5 percentage points below those of the

¹³ Analysis of 1989 AHS data showed that almost two-thirds of this household type were families with children.

third MSA group. Yet in none of the metro groups, including the high-tech economies, did vacancy rates average below the 5 percent cutoff typically considered indicative of tight markets.¹⁴

The greater pressures on affordable housing in new economies can also be seen in the below-average shares of housing that is affordable to incomes below 50 percent of AMI. Only one-third of rental units, on average, had rents this low in high-tech MSAs, compared to over two-fifths in the other metropolitan groups. As predicted by other research, rents were more expensive in high-tech MSAs. In 1994, Fair Market Rents (FMRs), defined as rents at the 40th percentile of the distribution of adequate but not luxurious units occupied by recent movers, averaged \$699 for two-bedroom units in high-tech markets, almost \$200 above the average FMRs for the third group. To some degree, the higher rents in high-tech MSAs can be attributed to higher incomes in those areas. However, as the last panel of the table shows, FMRs are also higher in relation to area median income in those MSAs.¹⁵

Worse shortages of affordable housing. Comparing units to renters needing them, shortages of affordable housing were clearly worse in high-tech cities. As is typically found, shortages of affordable housing were worse for extremely-low-income renters than for higher-income renters. On average, there were only 63 affordable units for every 100 extremely-low-income renters needing them in high-tech areas, compared to 74 and 82 in the other types of metropolitan areas (Table 8). For very-low-income renters, affordable units barely exceeded renters in the high-tech areas, with an average ratio of 102 units/100 renters. In the other two MSA groups, by contrast, there were almost 4 affordable units for every 3 very-low-income renters. For rents affordable to incomes below 80 percent of AMI, there were many more units than renters, as generally found nationally. In all three groups of MSAs, there were effectively 5 units for every 3 renters with incomes below 80 percent of AMI.

According to the more realistic measure of affordable units actually *available* to extremely-low-income renters in the mid-1990s, shortages in the three MSA groups were again most pressing in high-tech markets. There, only 35 affordable units were available on average for every 100 renters with incomes below 30 percent of area median, compared to 43 and 49 per hundred renters in the other two metropolitan groups. For very-low-income renters as well, shortages of available units are clearly worse in high tech economies. Although high-tech MSAs technically have enough very-low-rent units for very-low-income renters, only 41 are both affordable and available for every 100 very-low-income renters needing them. In the other two groups of metro areas, shortages of available units were less severe, with 66 or more units available for every 100 renters.

¹⁴ The only MSAs with total rental vacancy rates below 5 percent were New York 4.1%, San Francisco, 4.3%, Minneapolis 4.7%, and San Jose 4.8%. Vacancy rates below 5% were, however, more common for housing affordable to very-low-income renters.

¹⁵ The ratio of FMR to area median income represents the percent of median income at which a two-bedroom FMR equals 30% of a 3-person household income. Viewed differently, it gives the point in the income distribution above which a family with a voucher would no longer receive a rental subsidy.

Who are the renters “left behind” in high-tech economies?

Who are the very-low-income renters who were more likely to have “worst case” problems in high-tech economies? Among very-low-income renters in the nation in 1999, worst case needs were highest for households with disabled members, among whom three-fifths of the unassisted households had worst case problems.¹⁶ Needs were also high for the elderly, with 51 percent of unassisted very-low-income renters having worst case needs. Over two-fifths (42 percent) of very-low-income renters with children had worst case problems, while severe problems were least common (36 percent) among other nonelderly families without children. By race and ethnicity, worst case needs were highest among non-Hispanic blacks, with 49 percent of unassisted very-low-income blacks having worst case problems, and lowest among Hispanics (41 percent). Such differentials by household type and race and ethnicity characterize metropolitan areas as well.

Among different types of MSAs, as Table 9 shows, in high-tech areas worst case renters were on average less often elderly, but slightly more likely to be members of minority groups. In all types of MSAs, around two-fifths of worst case renters were families with children.

Among very-low-income renters, even those with worst case needs for housing assistance apparently did benefit from the local economic growth characterizing high-tech economies. In the high-tech group of MSAs, higher shares were working: almost three-fourths (73%) of the worst case renters who were neither elderly nor disabled depended on earnings for more than half their income, a higher share than the two-thirds seen in other MSA groups.

Looking ahead to consideration of effective policies, it is relevant that over four-fifths of the worst case renters in high-tech areas 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 they could use rental vouchers, if available, to solve their only housing problem while living in their current housing units.

¹⁶ HUD 2001, *Worst Case Housing Needs in 1999*, Finding 3.

Did housing problems worsen in high-tech MSAs over the past decade?

Between the late 1980s and the mid-1990s, worst case needs and vacancy rates both apparently fell.

As discussed above, the evidence that housing problems are worse in high-tech housing markets, combined with faster economic and employment growth in high-tech areas, together imply that housing problems might be expected to have worsened more in high-tech areas in the past decade. Although it does appear that rental housing markets tightened more quickly in high-tech areas between the late 1980s and mid-1990s, counterintuitively, worst case needs apparently fell in all MSA groups.

Equivalent estimates of the incidence of worst case needs among very-low-income renters, and of vacancy rates, were prepared for AHS MSAs surveyed between 1987 and 1990 for a report to Congress.¹⁷ As Table 10 summarizes, between the late 1980s and the mid-1990s, rental vacancy rates for all units fell by at least two percentage points in the high-tech and middle MSA groups, although they averaged 13.3 percent in both time periods for the third MSA group. Of particular interest is the fact that vacancy rates among units with rents below the local FMRs apparently dropped much faster than did total vacancy rates.¹⁸ Whereas in the late 1980s average vacancy rates for below-FMR units had exceeded the total vacancy rates for all three groups, by the mid-1990s, below-FMR vacancy rates were *lower* than those for all units. Furthermore, the difference in below-FMR vacancy rates between the high-tech MSA group and the third group had widened from 2.9 to 4.3 percentage points during the decade. This difference suggests that the tighter markets became particularly difficult for very-low-income renters in high-tech areas.

As Table 11 shows, however, contrary to expectation the share of very-low-income renters experiencing worst case problems apparently fell between the late 1980s and the mid-1990s for all three MSA groups.¹⁹ Only in the fact that the differential between the highest and lowest group widened slightly is this finding consistent with expectation.

What housing market dynamics underlay these changes in conditions over time, and did they differ in high-tech metropolitan areas?

Some insight into the dynamics affecting rental housing market conditions in different types of metropolitan areas are available from a longitudinal study of rental housing in 39 MSAs

¹⁷ *The Location of Worst Case Needs in the Late 1980s: A Report to Congress*, HUD 1992, HUD-1387-PDR. Because Sacramento and Charlotte were not surveyed by the AHS in the 1980s, however, the MSAs comprising the three groups differ slightly in the two time periods.

¹⁸ I say apparently because, as the table notes, the procedure for setting FMRs also changed during this period. Until 1994, FMRs were based on the 45th percentile of rents of non-luxury adequate units occupied by recent movers, whereas from 1994 on they were based on the 40th percentile.

¹⁹ Some of the apparent decrease in needs may result from a procedural change in the questions used to define households receiving rental assistance that increased the number reporting assistance.

between 1985 and 1994.²⁰ One striking difference concerns rates of construction. As Table 12 summarizes, in the mid-1990s, the high-tech group had higher rates of construction among both rented and owned units during the 8 years prior to survey than the other two MSA groups. Results from the earlier longitudinal study suggest that high-tech MSAs similarly had higher rates of rental construction during the early 1980s than other MSAs, but that in the 1980s many more units were built in all three groups of MSAs.

Although the 39 MSAs in the dynamics study differ from the 45 MSAs studied above, the cross-sectional differences revealed by the dynamics study with respect to worst case problems and shortages of affordable rental housing in the late 1980s are all consistent with the results reported above for the mid-1990s and 1990. Like them, they show a higher incidence of worst case problems in high-tech MSAs, worse shortages of housing affordable to very-low-income and to extremely-low-income renters there, and lower shares of the total rental stock affordable to incomes below 50 percent of AMI.

Averaging the longitudinal changes estimated for that study for 3 groups of MSAs similarly selected by high-tech status (Table 13) suggests that unsubsidized rental units affordable to renters with incomes below 50 percent of AMI were being lost at similarly high rates during the 1980s in both the high-tech and the middle groups. In high-tech MSAs, these affordable units were dropping in number because of both net tenure conversions to ownership and rent increases in the rental stock. In the other two MSA groups, by contrast, net rent decreases were adding to the stock of rental units affordable to incomes at 50% of AMI. In the third MSA group, rental units also increased because of conversions from owned status.

Results of the dynamics study also suggest that in the 1980s high-tech MSAs tended to have fewer blacks, less racial segregation, and more affluent neighborhoods than other MSA groups. As Table 14 summarizes, high-tech MSAs had only slightly fewer minority households than other MSA groups, but appreciably lower shares of black households. In 1990, these MSAs were slightly less likely to have high indices of black/white segregation. Similarly, households living in high-tech MSAs were one-third less likely than those in the bottom group to live in zones²¹ where more than 30% of households were minorities.

²⁰ HUD, Office of Policy Development and Research, Draft 1996 “Affordable Rental Housing: When to Build, When to Preserve, When to Subsidize?” 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, in tenure and in inventory status on the affordable housing stock. Because of changes in MSAs surveyed by the AHS, only 39 of the MSAs in the longitudinal study correspond to the 45 MSAs covered by this paper. The results summarized here recategorize San Francisco into the High-Tech group because San Jose and Oakland were not independently covered in the earlier research. Charlotte, Milwaukee, and Sacramento are missing from the middle group, and Buffalo is not available for the third group.

²¹ Areas of at least 100,000 population identified on the AHS-MSA files. Zones are comprised 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.

High-tech MSAs also had much lower shares of households living in zones with poverty rates above 20% than the third MSA group (4% compared to 21%). Conversely, more households lived in zones where more than half of households had incomes above 120% of area median income (23% vs. 14%). These differentials reinforce the oft-stated conclusion that high-tech industries are attracted by amenities.

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

A closer look: differences among high-tech housing markets

The differences among average values for three groups of MSAs investigated to this point are consistent with expectations that metropolitan housing markets with relatively high shares of high-tech employment might be tighter and more expensive, thus making it harder for low-income households to find affordable housing or attain homeownership there. The most effective policies for reducing housing problems and increasing housing opportunities among low-income families, however, should not be based on averages, either national or subnational. To move from these average differences among MSA groups to consider preferable future policies and programs for low-income housing requires exploring the variation in critical housing indicators that exists among the 45 MSAs studied here. As Table 15 illustrates, on key indicators of housing market conditions there was wide variation within each of the three MSA groups. With regard to shortages of affordable housing, vacancy rates among below-FMR rental units, and recent construction, coefficients of variation ranged from 33 to 77%. Only in having high shares of very-low-income renters having worst case needs was there relatively little variation among these 45 metropolitan areas during the mid-1990s.

What policies would most effectively improve housing conditions for low-income families?

How well are existing federal, state, and local housing policies and programs working in new economy markets, and what alternatives might be preferable? Nationally, the decreasing share of renters with severe housing problems and the increase in homeownership rates over the past two decades suggest that current policies are having some success. Yet the number of households with severe affordability problems continues to grow, especially among owners, and in 1999 35% of households with children had housing problems, most of them paying more than 30% of income for rent. Nationally, high rates of housing affordability problems among the poor jeopardize other important national goals like self-sufficiency and successful welfare

reform, while in the fastest-growing metropolitan areas severe cost burdens among the working poor and barriers to low-income ownership jeopardize further economic growth.

Reviewing the evolution of low-income housing policy since 1949, Orlebeke characterized the period since 1973 as “marked by a diminished federal leadership role and an increased state and local role.”²² In this context of devolution, a “three-pronged strategy of [housing vouchers, housing block grants, and the Low-Income Housing Tax Credit] has achieved reasonably good results and has attracted an unusual degree of political consensus.” To consider what alternatives to this policy mix might be preferable, this paper concludes by briefly exploring optimal state and local policies for the low-income renters and owners left behind in several quite different metropolitan markets, and then discussing how federal programs might better support desirable state and local actions.

State and local policies and programs

Policies and programs to assist low-income renters. As shown above, rental housing markets in high-tech metropolitan economies tend to be more expensive and tighter, with worse shortages of affordable housing and higher shares of very-low-income renters having severe problems. Yet housing market conditions also varied greatly in the mid-1990s within each of the three MSA groups studied. Table 16 illustrates this variation within groups for 5 MSAs, using several indicators particularly relevant for policy decisions. Within both high-tech MSAs and the “lowest” group with least high-tech employment, there are MSAs with low and high vacancy rates, and with pressing and less pressing shortages of affordable and available rental housing.

Markets like San Jose, with very severe shortages of housing affordable and available to very-low as well as extremely-low-income renters plus dangerously low vacancy rates among units with below-FMR rents, clearly need more of the additional housing that could be produced through resources from the HOME block grant and the LIHTC. The fact that the 2-bedroom FMR equals 30% of income for a family with income equivalent to 67% of AMI in San Jose means that these programs would add units with below-FMR rents even if their rents are not affordable to incomes below 30% of AMI. Preserving existing assisted housing as affordable is also very important in such a tight market. Because of low below-FMR vacancy rates, vouchers there are unlikely to aid families in finding different rental units, although they could help extremely-low-income renters afford LIHTC rents. Still, the fact that over four-fifths of worst case renters have only a severe rent burden implies that vouchers could also reduce worst case needs for many in their current housing by allowing them to pay only 30% of their income for rent and utilities.

²² Charles J. Orlebeke, “The Evolution of Low-Income Housing Policy: 1949-99” , presented at the 1999 Annual Housing Conference on the Legacy of the 1949 Housing Act, Washington, DC, September 30, 1999.

Although shortages of housing affordable and available to extremely-low-income renters are almost as bad in Dallas as in San Jose, appreciably more units are affordable and available to *very*-low-income renters there. This differential, combined with high rental vacancy rates for units with below-FMR rents and the fact that FMRs are affordable to families with incomes at 55% of AMI, implies that there is relatively little need to produce additional new units with rents affordable to incomes 55-65% of AMI. Thus, LIHTC resources would be better directed at rehabilitation (to reduce the relatively high share of inadequate rental units) than at new construction, and at rents affordable to incomes well below 50% of median, to the degree possible. The high vacancy rate of 17% among units with below-FMR rents suggests that vouchers should be relatively easy to use in Dallas. In addition to helping families find housing in better neighborhoods or closer to employment opportunities, in such markets vouchers could also raise effective demand and incentives for minor repairs for vacant units. For similar reasons, efforts to preserve existing assisted housing should focus on units in better neighborhoods. Markets such as these also offer local decision-makers opportunities to take advantage of HOME's flexibility of use to provide additional short-term tenant-based assistance.

Although they too have high shares of worst case renters with only a severe rent burden, the three relatively "low-tech" MSAs in Table 16 reveal even wider ranges of conditions in both shortages of affordable housing and rental vacancy rates. Tampa-St. Pete resembles San Jose in having quite severe shortages of affordable housing and evidence that units with maximum LIHTC or HOME rents could add to the supply of below-FMR housing. Yet its relatively high vacancy rates for below-FMR units and for all rental units imply less need for new construction and more possibilities for successful use of vouchers there. Despite less pressing shortages of affordable housing compared to renters, Providence appears from its low vacancy rate for units with below-FMR rents to need more of the below-FMR units that the LIHTC or HOME could supply. Its high share of inadequate units, however, suggests that rehabilitation could be useful in addition to new construction, and might productively strengthen declining neighborhoods. Of these 5 MSAs, Oklahoma City clearly *least* needs additional units with rents at or near LIHTC maximums. With vacancy rates approaching 19% among units with rents below FMR, and FMRs affordable to incomes at 50% of AMI, additional vouchers would provide the most effective and least expensive means of reducing severe housing problems among renters. To the extent that scarce resources are used for increasing supplies of affordable housing in markets such as Oklahoma City, they should focus on rehabilitation and on units with rents affordable to incomes well below 50% of AMI.

Policies and programs to increase homeownership. The federal government provides the largest subsidies to homeownership through tax expenditures, most of which go to upper-income households. Since 1986, however, states have administered the largest program specifically directed to first-time owners, the one-third of private activity bonds which are used as mortgage revenue bonds. Funds from HOME and Community Development Block Grants

(CDBG) also may be used to promote low-income ownership.²³ As shown in Table 4, over the past two decades homeownership rates have dropped most among low-income families with children, those with incomes, adjusted for family size, between 51 and 80% of AMI. In 1999, only 58% of this group were owners, 5 percentage points below their 1978 rate. Mortgage revenue bonds target households with appreciably higher incomes, since most states use the maximums permitted under federal law: incomes up to 100% of area median family income for one or two person households and up to 115% of median for households with 3 or more persons.²⁴

In 1990, ownership rates among families with children with incomes between 50 and 95% of adjusted area median income lagged total ownership rates in all five MSAs in Table 17. The difference was greatest – 17 percentage points – in San Jose, and least – 3 percentage points – in Providence. The other indicators in the table – summarizing the availability of rental and owned units affordable to incomes at 80% of AMI and vacancy rates among owned or for sale units – provide guidance about the ease of first-time ownership programs in the area. For San Jose and Providence, they suggest that it was very difficult in 1990 for renters with incomes in the 51-80% of median to become owners. Not only were vacancy rates among for-sale units very low, but when owners with incomes below 80% of median and owned units affordable to them are added to renters and rental units, the supply/demand ratio of affordable units is appreciably less, dropping in San Jose from 105 affordable units/ 100 renters to an absolute shortage of only 80 units/ 100 low-income households. By sharpest contrast, in Oklahoma City adding owned units and owners raises the supply-demand ratio from an already high 187 affordable units/ 100 renters to 206 units/ 100 households, more than 2 to 1. There and in Dallas and Tampa, high ratios of affordable units/ households, along with relatively high owner vacancy rates, suggest that first-time ownership programs could provide a viable and attractive option for families in this income range.

Federal policies and programs

Policies and programs to assist low-income renters. As Orlebeke summarized, federal programs to aid low-income renters now are mainly vouchers, block grants such as HOME and CDBG, and tax credits for rental housing, primarily the LIHTC. He concludes his survey by saying 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.” Before proceeding further, however, we should note that at present these three approaches receive quite different levels of resources, and have been expanding at quite different rates. For FY 2002, budget authority of \$15.7 billion is requested for the housing certificate fund, including 35,000 incremental vouchers, while for HOME level funding of \$1.8 billion is requested. Tax expenditures for the

²³ Other programs that support first-time ownership are discussed in Kathryn P. Nelson and Jill Khadduri (1992), “To Whom Should Limited Housing Resources be Directed?” *Housing Policy Debate*, Vol 3 (1-55).

²⁴ HUD’s adjustments to income limits for household size mean that a 1-person household with income below “80% of adjusted area median income” actually has income below 56% of median income and a 3-person household has income below 90% of median income.

LIHTC are estimated at over \$3 billion per year, and an increase of 40% has just been approved by Congress.

The variety of housing market conditions illustrated above implies that it is highly desirable that Federal programs provide a menu of approaches, so that local areas can choose those most effective in local circumstances. To be most effective, available resources should also be allocated to meet the most pressing needs and to allow localities to choose the approach best suited to local market conditions rather than a less appropriate one for which funding is available. Against these criteria, what do the kinds of problems and the range of housing market conditions found imply for federal policies?

In view of the predominance of severe affordability problems, especially among the extremely-low-income renters for whom affordable housing is often unavailable, vouchers should receive the most funding. Indeed, with 4.9 million renters with worst case needs and long waiting lists for vouchers, increasing the number available could meet many pressing needs most directly and effectively, particularly since vouchers are allocated across the country based on local needs for affordable housing. In many metropolitan housing markets, more vouchers could easily be used, allowing families to move to better neighborhoods or closer to employment. In tighter housing markets, vouchers could solve affordability problems in their current home for many of those with worst case problems, and the share that may be project-based could be used to make LIHTC rents affordable to those with extremely low incomes. In my opinion, at minimum vouchers should be made an entitlement for working families with children and extremely low incomes.

HOME is a block grant allocated to states and large jurisdictions by need, to be used for construction, rehabilitation, or tenant-based assistance for low-income renters, and for rehabilitation and first-time ownership for low-income owners. As such, it provides a much more flexible and potentially useful menu of possible uses than any other program. For rental units, it requires that rents be the lesser of the local FMR or ones affordable to incomes at 65% of AMI, thus ensuring that rental units with HOME funding add to the stock of units usable with vouchers. Because of these important advantages and unique flexibility for use in all types of housing markets, I believe its funding should be substantially increased.

With its recent increase of 40%, plus future indexing for inflation, the LIHTC will continue to be the most important source of funding for rental new construction and rehabilitation.

Unfortunately, it is allocated among states by population rather than by need for affordable rental housing, which greatly limits its potential effectiveness in reducing severe shortages of affordable rental housing. Moreover, its rents may be affordable to incomes at 60% of AMI even when such rents exceed the FMR. I urge states to strongly encourage rents below local FMRs and affordable to extremely-low-income renters if possible, and to allocate the LIHTC within states to places with the most severe shortages of available housing affordable to extremely-low-income renters.

Summary

To recommend effective local and federal policies for low-income housing in a rapidly changing economy, this paper has identified differences in housing problems and market conditions in 45 MSAs, grouped in terms of shares of employment in “high-tech” industries. The results, as expected, suggest that more very-low-income renters have severe problems in high-tech areas because shortages of affordable rental housing are worse there. Similarly, fewer low-income households are owners, particularly families with children.

However, MSAs were found to differ greatly in the severity of shortages of affordable housing, market tightness, local neighborhoods, and housing dynamics over time. Although these differences were on average associated with the extent of “high-tech” employment, that was hardly the only relevant factor. The sharp differences found imply that effective policies should differ to take advantage of local conditions. Federal housing strategies should provide a flexible menu of approaches and sufficient resources that are well targeted to areas and households with the most severe needs.

Table 1: Housing problems among United States renters by income, 1978 and 1999

	Income as % of Area Median Income					
	0-30%		31-50%		51-80%	
	Extremely-low-income	Very-low-income	Low-income			
	1978	1999	1978	1999	1978	1999
Renters in 000s	5,905	8,553	4,777	6,250	6,088	7,279
With priority problems	3,019	3,750	944	1,106	359	411
Percent with:						
Priority problems	51%	44%	20%	18%	6%	6%
Severe physical problems	11%	4%	7%	3%	4%	3%
Rent burden > 50%	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 American Housing Survey

Table 2. Shortages of affordable rental housing in the U.S. by income, 1987 and 1999

	1987	1999
Affordable units/100 renters below income cutoff:		
below 30% of AMI	85	75
Below 50% of AMI	123	113
below 65% of AMI	148	142
Affordable and available units/100 renters		
below 30% of AMI	44	39
Below 50% of AMI	75	68
below 65% of AMI	95	91

Source: Tabulations of the 1987 and 1999 American Housing Survey

Table 3. Ownership and owner housing cost burdens in the U.S. by income, 1978 and 1999

	Income as % of AMI			
	Very-low 0-50%	Low 51-80%	Moderate 81-120%	High 120%+
% owners				
1978	47%	60%	69%	81%
1999	49%	60%	68%	85%
% with housing costs > 50% of income				
1978	17%	1%	0%	0%
1999	31%	7%	3%	1%
% with housing costs > 30% of income				
1978	35%	7%	2%	1%
1999	53%	29%	17%	5%

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

Table 4. U.S. ownership rates by income and household type, 1978, 1991, 1999

	Income as % of AMI		
	Very-low 0-50%	Low 51-80%	Moderate 81-120%
Families with children			
1978	37%	63%	78%
1991	31%	55%	71%
1999	35%	58%	75%
Nonelderly, no children			
1978	32%	38%	50%
1991	28%	36%	46%
1999	31%	39%	52%
Elderly			
1978	62%	80%	82%
1991	61%	80%	86%
1999	67%	83%	87%

Source: Author's tabulations of the 1978 Annual Housing Survey and the 1987 and 1999 American Housing Survey

Table 5. Ownership rates in 45 MSAs grouped by high-tech status

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

Source: Tabulations of 45 AHS MSAs surveyed 1994-1998

Table 6. Worst case needs were highest in high-tech MSAs

	High Tech	Middle	Lowest
Mean % of group with worst case needs:			
Very-low-income renters	41%	37%	36%
Extremely-low-income renters	53%	49%	45%
All MSA households	5.9%	5.3%	4.9%

Source: Tabulations of 45 AHS MSAs surveyed 1994-1998

Table 7. High-tech MSAs have lower vacancy rates and higher FMRs

	High Tech	Middle	Lowest
Rental vacancy rates, mid-1990s:			
All units	8.4%	10.0%	13.3%
Rents below FMR	7.0%	8.5%	11.3%
Rents affordable < 50% AMI	7.4%	9.5%	12.5%
Share of units with rents affordable<50% AMI	33%	44%	43%
1994 monthly 2-bedroom FMR	\$ 699	\$ 609	\$ 511
1994 FMR as % of AMI	60%	57%	56%

Table 8. High-tech MSAs had worse shortages of affordable rental units in mid-1990s

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

Table 9. Characteristics of worst case renters in 3 MSA groups in the mid-1990s

	High Tech	Middle	Lowest
Elderly % of worst case	23%	26%	29%
Minority % of worst case	45%	43%	43%
% of WC with children	39%	40%	38%
% of "able-bodied" WC depending on earnings	73%	65%	68%
% of WC with only severe rent burden	81%	79%	81%

Table 10. Between the late 1980s and mid 1990s, rental vacancy rates dropped, especially among below-FMR units

	High Tech	Middle	Lowest
<u>Rental vacancy rates:</u>			
1994-1998			
All units	8.4%	10.0%	13.3%
Rents below FMR (40th percentile)	7.0%	8.5%	11.3%
1987-1990 (1992 rpt)			
All units	10.6%	12.0%	13.3%
Rents below FMR (45th percentile)	11.0%	13.5%	13.9%

Table 11. Worst case needs were lower in the mid-1990s than in the late 1980s in all three types of MSAs

	High Tech	Middle	Lowest
% of very-low-income renters <u>with worst case needs</u>			
1994-1998	41%	37%	36%
1987-1990 (1992 rpt)	44%	41%	40%

Table 12. High-tech areas had more new construction in both the 1990s and the 1980s

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

Table 13. Affordable units dropped in high-tech areas because of rent filtering and conversion to ownership

	High Tech	Middle	Lowest
Average net change over 4 years, 1985-1992			
Unsubsidized units affordable to income <50% AMI	-9.3%	-10.5%	-1.3%
Change due to rent filtering (- means fewer units)	-0.6%	2.2%	10.6%
Net tenure change to/from(+) owned units	-0.9%	-0.4%	0.8%

Source: recalculation of data for 39 MSAs from HUD/PD&R Study of Housing Market Dynamics

Table 14. High-tech MSAs had less segregation and little poverty concentration

	High Tech	Middle	Lowest
Minority and racial composition			
% minority households, late 1980s	19%	20%	24%
% black population, 1990	9%	15%	19%
1990 dissimilarity index	0.625	0.71	0.68
% of MSA households living in zones where			
30%+ were minority	19%	21%	27%
20%+ were poor	4%	14%	21%
50%+ had income > 120% AMI	23%	14%	14%

Source: recalculation of data for 39 MSAs from HUD/PD&R Study of Housing Market Dynamics

Table 15. High-tech MSAs, like other MSAs, differ greatly in key housing variables

	High Tech	Middle	Lowest
Affordable and available units/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%
% of rental housing units built in past 8 years			
Average	8%	6%	4%
Standard deviation	4%	3%	3%
Coefficient of Variation	59%	56%	63%
% of very-low-income renters with worst case problems			
Average	40%	37%	36%
Standard deviation	7%	7%	6%
Coefficient of Variation	18%	18%	16%

Table 16. Key indicators for rental policy in 5 quite different MSAs

MSA:	San Jose	Dallas	Tampa-St.Pete	Providence	Oklahoma City
Year of survey:	1993	1994	1998	1998	1996
High-tech group:	<u>High Tech</u>	<u>High Tech</u>	<u>Lowest</u>	<u>Lowest</u>	<u>Lowest</u>
<u>Affordable and available units/100 renters</u>					
Below 50% AMI	22	62	31	59	86
Below 30% AMI	22	29	34	42	55
<u>Rental vacancy rates</u>					
Units with rents below FMR	1.6%	17.3%	11.8%	3.9%	18.8%
All rental units	4.8%	12.8%	14.3%	9.9%	18.9%
1994 40th percentile FMR as % of AMI	67%	55%	66%	67%	50%
<u>Need for rehab</u>					
Inadequate units	8%	12%	8%	14%	13%
<u>Percent of very-low-income renters</u>					
With worst case needs	51%	39%	44%	35%	32%
In crowded housing	14%	9%	6%	3%	5%
<u>Percent of worst case renters</u>					
With severe rent burden only	82%	77%	85%	79%	82%

Table 17. Key indicators for ownership policy in 5 quite different MSAs

	San Jose	Dallas	Tampa-St.Pete	Providence	Oklahoma City
	<u>High Tech</u>	<u>High Tech</u>	<u>Lowest</u>	<u>Lowest</u>	<u>Lowest</u>
<u>Ownership rates, 1990</u>					
Total	60%	56%	70%	61%	66%
Low income families (50-95% AMI)	43%	48%	60%	58%	57%
<u>Affordable units, 1990, per 100</u>					
Renters with income < 80% AMI	105	188	176	155	187
Households with income < 80% AMI	80	191	158	104	206
<u>Owner vacancy rates, 1990</u>					
Total	2%	3%	4%	1%	4%
Units affordable < 80% AMI	2%	4%	4%	1%	5%

APPENDIX TABLE 1

Metropolitan areas in three groups by high-tech indicators

	Hecker: % High-Tech workers in MSA BLS, 1995	AEA high-tech workers/ 1000 private workers	Milikin Tech Pole Index 1998	Miliken Location Quotient 1998	Dot Com Location Quotient 1995	HUD State of Cities Appx B High-Tech Ranking 101 MSAs % of jobs that were high-tech, 1997	PPI Rank of 50 largest MSAs
Group 1 - "High-tech"							
San Jose CA	24.2	270.1	23.7	4.1	11.7	1	1
Seattle WA	4.3	70.0	5.2	2.1	2.7	15	3
Dallas TX	4.9	97.7	7.1	1.9	0.9	9	12
Boston MA	8.1	87.1	6.3	1.5	3.0	7	8
Phoenix AZ	4.5	64.2	2.6	1.5	1.2	11	16
Washington DC	8.1	80.7	5.1	1.5	2.8	10	6
Oakland CA	7.0	66.0	2.2	1.4	3.9	21	
Anah-Santa Ana CA	8.8	72.7	2.6	1.4	1.7		
Denver CO	4.6	125.0	1.8	1.4	4.1	25	7
San Diego CA	7.2	58.5	1.9	1.4	2.6	13	5
Atlanta GA	4.7	61.5	3.5	1.4	1.1	60	11
Los Angeles CA	6.6	42.9	6.9	1.4	1.4	28	20
Newark NJ	7.1	52.6	1.8	1.3	1.1	34	
Portland OR	5.3	67.9	1.3	1.3	2.0	52	15
Minneapolis-St.Paul MN	7.4	64.2	1.0	0.9	1.6	27	10
Group 2 - Middle							
Indianapolis city IN	5.1	28.1	1.1	1.3	0.6	53	29
Sacramento CA	4.1	65.6	0.8	1.2	0.9	50	26
Kansas City MO	5.6	46.2	1.0	1.2	0.5	41	24
San Francisco CA	5.8	52.4	1.6	1.1	7.2	35	1
Philadelphia PA	4.4	44.1	2.2	1.0	0.9	24	18
Fort Worth TX	4.8	31.2	0.7	1.0	0.4	49	
Chicago IL	6.0	47.6	3.8	1.0	1.0	30	19
Salt Lake City UT	4.6	47.0	0.4	0.9	0.9	43	9
Houston TX	4.1	35.1	1.6	0.9	1.0	16	14
New York NY	3.1	30.2	3.7	0.9	1.6	45	17
Hartford CT	6.7	29.0	0.3	0.8	0.6	23	22
Charlotte NC	6.5	40.5	0.3	0.7	0.5	66	30
Cincinnati OH	7.2	24.4	0.3	0.7	0.6	44	34
Detroit MI	10.0	29.9	0.8	0.7	0.6	57	28
Milwaukee WI	6.9	34.6	0.3	0.6	0.8	17	40
Group 3 - Low							
Birmingham AL	2.8		0.4	1.0	0.4	81	
San Antonio TX	1.5	33.8	0.5	1.0	0.5	48	49
St Louis MO	5.5	33.5	0.9	1.0	0.5	51	27
Columbus OH	4.8	43.3	0.4	0.8	0.8	79	36
Pittsburgh PA	3.7	27.5	0.5	0.8	0.9	56	37
Tampa-St.Pete FL	2.8		0.4	0.7	0.7	5	43
Baltimore MD	3.8	37.0	0.4	0.6	0.9	39	
Oklahoma City OK	3.4	36.3	0.1	0.6	0.3	22	39
Providence RI	2.4		0.1	0.5	0.6	62	
Cleveland OH	4.6	28.0	0.2	0.5	0.6	31	33
Newpt.N.Va Beach VA	4.0	26.7	0.1	0.5	0.5	38	44
Buffalo NY	6.6		0.1	0.5	0.5	54	31
Miami FL	2.9	26.4	0.1	0.4	0.7	76	13
New Orleans LA	2.5		0.1	0.4	0.4	65	38
Memphis TN	1.7		0.1	0.4	0.4	89	47

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