

The changing problem of overcrowded housing.

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Residential overcrowding has long been identified as an important housing problem. Early in the century, lower-income households were doubled and tripled up in substandard tenement housing in major cities, particularly those receiving waves of immigrants (Ward 1971, chapter 4). These conditions, which helped to call the social reform movement into being, thus lie at the very roots of the housing profession and of city planning more generally (Lubove 1962).

Over the course of the century, and especially after the Great Depression, the incidence of overcrowding steadily declined until the 1980s. In that decade, however, overcrowding reversed its downward national trend, especially for renters: in 1980 it affected 7 percent of renter households, but that figure rose to 8.9 percent in 1990. As one would expect, this increase in overcrowding is not spread evenly across the nation, but is concentrated in certain states where the reversal has been especially dramatic, as we will show. The problem also affects certain types of households more than others.

Overcrowding is a highly complex problem, involving household structure, racial and ethnic diversity, housing availability, and consumer preferences. The dynamics of what causes overcrowding are largely unknown. Instead, past social science research has focused largely on the effects of overcrowding, although even those findings are uncertain. Moreover, the issue of overcrowding exemplifies the current perplexities about imposing a particular, middle-class, majority standard in an evolving multiethnic society. In short, how much crowding is excessive? Considering the historical variability of definitions of overcrowding, and the differences we believe exist among ethnic groups, it is time to re-examine this issue. Not only is the problem according to its traditional definitions growing in magnitude, but, we believe, the nature of the problem and its very definition for policy purposes are also changing.

It will be useful to identify the local factors that explain the marked variation in levels of residential crowding between locales, and between ethnic and racial groups. Restrictions on housing supply, housing affordability, low incomes, and immigrant concentrations are all possible explanations. We also should re-examine our policy responses to these emerging conditions, because the traditional responses could misdirect the nation's limited housing aid.

This article seeks to fill part of the information void surrounding the resurgence of overcrowding. We first review how the measures of overcrowding are applied in housing policy. Then we turn to an empirical analysis of 1990 census data to learn more about the factors associated with higher rates of overcrowding. We begin with the question of who is overcrowded, surveying a number of different characteristics, and examining the roles of income, household size, and race/ethnicity in detail. Next we explore where overcrowding is

greatest, mapping the national distribution, and listing the places with the highest levels of overcrowding. Then we address why overcrowding is higher in some places than in others, modeling its incidence in metropolitan areas in relation to housing market conditions and other factors believed to cause overcrowding. We conclude by discussing the findings and various implications for housing policy.

OVERCROWDING AS AN ISSUE IN HOUSING POLICYImplicit in all discussions of crowding is the assumption that it is a policy problem--that the effects from crowding, and especially overcrowding, are deleterious to people's physical and mental health. Although much analysis has been marshaled to support this conclusion, it has never been definitively established. After a century of debate it is still in question whether so-called overcrowding is harmful to the people affected, or merely socially distasteful to outsiders who observe its presence among others. To be sure, no one has demonstrated the reverse: that crowding, much less overcrowding, is salubrious or enjoyable--it is an acknowledged problem. But just how much of a problem, and how best to resolve it are still unclear. To see why that is so, and to attempt to throw new light on housing policy through our findings, we begin by exploring how overcrowding is defined and interpreted.

INDICATORS OF HOUSING NEEDHousing conditions are measured by several indicators, which fall into two broad sets. One is the physical and economic characteristics of the housing stock, such as structure types, size of units (number of rooms or bedrooms), age of structures, adequacy of plumbing, presence of physical defects, and cost (rent level or value). Overcrowding belongs to a second set of characteristics that measure households' fit to their housing units. Household fit characteristics include the level of crowding (persons per room) and the level of affordability (percentage of household income spent on the rent or mortgage).

Federal, state, and local housing programs measure housing needs using a combination of the number of physically deficient units and the number of households that are either too large or too poor for their units. As physical problems have diminished (Clemmer and Simonson 1983), the problems of fit, and particularly affordability, have grown more prominent. Lack of affordability--measured by the percentage of household income spent on housing--has emerged as the primary housing problem in most cities.

Overcrowding has been a concern of housing professionals here and abroad since the turn of the century. From their very beginnings up through the 1960s, both the Public Housing Administration and the Urban Renewal Administration under the U.S. Housing and Home Finance Agency (the predecessor of HUD) used overcrowding as an indicator of substandard housing (Fisher 1959, 31; U.S. Department of Housing and Urban Development 1992, 5). Although it declined sharply during this period, overcrowding continued to be relied upon as an important indicator when targeting housing subsidies.

Under the Community Development Block Grant legislation of 1974, overcrowding was weighted 25 percent in the formula for determining how much funding each city was to receive (Bunce and Glickman 1980, 517-9). More recently, overcrowding has been one of the core indicators in estimates of "worst case needs" (U.S. Department of Housing and Urban Development 1992b), and it is a key consideration in the National Affordable Housing Act of 1990. This Act requires every local government to prepare a Comprehensive Housing Affordability Strategy (CHAS). The CHAS identifies a community's current and anticipated

needs for affordable and supportive housing, and outlines a strategy for addressing those needs through use of such HUD programs as CDBG, HOME, and Supportive Housing Programs for the Elderly and Disabled (Nelson 1992; Bogdon, Silver, and Turner 1993). An initial assessment of first-year CHAS submissions showed that half of them mentioned overcrowding as a component of housing need, and 30 percent noted it as a change in key housing need (U.S. Department of Housing and Urban Development 1992a).

THE RELATIVE BASIS FOR OVERCROWDING STANDARDSThe history of how overcrowding is handled in public policy makes the issue appear cut and dried, and noncontroversial. This appearance, however, is far from the truth. Technically, crowding per se is only an indicator--an objective measure--of the per room density of people in their housing, or persons per room (PPR).^(FN1) Overcrowding expresses a normative judgment about the degree of crowding that shows up on the measure. This judgment applies a standard by which society declares crowding beyond a particular density unacceptable. The crowding indicator, PPR, is objective, but the use of a particular PPR as an overcrowding standard is a subjective evaluation. Because they are subjective, overcrowding standards have changed over time, and the process by which they are established is rarely explicitly described. It appears to be based on assumptions about national income distributions, assessments of the nation's housing quality, and prospects for the future (Fisher 1959, 52-61; Baer 1976). The conventional standard applied by local and federal governments in 1940 was 2.00 PPR, but it was lowered to 1.50 PPR by 1950, and down to 1.00 PPR by 1960. At the turn of the century, however, the crowding measure had been qualitatively different--households per housing unit. That difference serves to further remind us how far the nation had advanced in reducing crowding, at least until 1980.

This point is best illustrated by juxtaposing the change in crowding, according to each of the three PPR indicators identified above, against the changes in the indicator chosen as an overcrowding standard. Figure 1 shows the decline in crowding between 1940 and 1990, as measured by each of the three indicators. For each indicator, the period during which it operated as the overcrowding standard is shown as well, by a superimposed heavy line. The standards have become increasingly rigorous as the phenomenon has declined. But note the upturn in overcrowding between 1980 and 1990. This recent resurgence of overcrowding, under the current standard and government allocation formulas, will carry much more weight in the nation's allocation of housing subsidies. Is that outcome a desirable public policy?

STANDARDS BASED ON HOUSING AND HEALTHJudging overcrowding in relative terms is inescapable, because objective proof of overcrowding's harms has been so elusive. Since the 1890s, numerous studies have been done on the mental and physical effects of overcrowding. Edith Elmer Wood was America's earliest champion of using overcrowding as an indicator of housing need (Birch 1975). In a seminal article urging national use of this measure, Wood proclaimed the common knowledge of both European and American experts about the relationship between crowding and health, but offered few citations (Wood 1928). An overcrowding measure was first included in the U.S. Census in 1940, but the scientific findings about the relationship between crowding and health have been inconsistent ever since (Baldassarre 1988; Choi 1993). Researchers markedly disagreed almost a century ago--and they still do today. The fractious debate in the *American Sociological Review*, with Booth, Johnson and Edwards (1980a, 1980b) arguing against there being much in the way of effects from crowding, and Gove, Hughes, and Galle (1980a, 1980b) arguing that there are decided effects, is

but the latest round in this long-standing debate.

As yet, there is no basis in the scientific literature for choosing one standard of unacceptable crowding over another. The basic research issues are so problematic that researchers never get to the standard-setting stage in applying their findings. Indeed, in a curious twist, they use the unproven standard (e.g., 1.00) to measure the basic phenomena whose extent they are trying to determine. Thus researchers tend to implicitly leave standard setting to professional organizations such as the American Public Health Association, or to building code officials (both of which groups, by the way, have more relaxed standards than do policy commentators or even HUD); meanwhile, these organizations pretend the standards have some basis in science.

RESEARCH DESIGNThis study adopts a very different research strategy. Rather than seek to measure harm from overcrowding, we wish to measure and describe its growing prevalence geographically and racially/ethnically. Close examination of who is overcrowded and where overcrowding is most common may help to reveal its causes, its extent, and the trend toward increase or decline. Such an analysis may also help us to discover how much of a social problem overcrowding has become and whether it is largely self-correcting over the long run or demands greater policy attention.

As a prelude to presenting the research, we here define the policy dilemma we will discuss at the conclusion: If we are to target housing subsidies to worstcase needs, should we plan to revise our overcrowding standards upward again if the rising trend continues? If applying uniform standards across the nation now makes less sense, should HUD follow Struyk's (1977) advice, that housing policy must be fine-tuned to local circumstances, by allowing local planning agencies to revise their standards upward in highly impacted areas such as Los Angeles, New York, or rural enclaves of overcrowding? These are the policy issues that helped shape our focus on the findings to be presented here.(FN2).

RESEARCH QUESTIONSThis research was designed to answer three broad questions. First, who are most likely to be overcrowded? Are they the poorest households, or merely the largest? What racial or ethnic differences are related to the probability of being overcrowded? Answers to the question of who are overcrowded will tell us not only who are most likely to carry that burden but also, perhaps, who are more accustomed to crowded living conditions.

The second research question asks, where in the nation is overcrowding greatest, and where has it increased the most? Are some states and regions more prone to overcrowding than are others? What kinds of metropolitan areas or counties have the highest levels of overcrowding? Answers to these questions of problem location are useful for judging the applicability of a single national standard and for evaluating where housing assistance is most needed.

The third research question asks why some metropolitan areas have much higher incidences of overcrowding. What features of local areas explain their higher levels of overcrowding? Potential explanations include shortages of affordable housing, concentrations of lower-income households, or concentrations of minorities or recent immigrants. Illuminating the causes of the problem will help to indicate the likelihood that housing assistance can alleviate it.

DATA AND METHODSData from the 1990 census permit comparison of all localities in the nation. With identical data available for 1980, changes over time can also be compared. Most of

the analysis was carried out with summary data tabulated for states, metropolitan areas, and counties. At the state level, overcrowding rates between 1980 and 1990 were graphically compared. At the metropolitan level, multivariate models were estimated to test the explanatory power of different local factors than might increase overcrowding rates; the sample consists of 335 metros in 1990. Change over time was not assessed with metros, because their boundaries changed substantially between the censuses. At the smallest level of geography, the county, we merely rank ordered the counties to see what types of areas were most heavily overcrowded in 1990.

The question of who is likely to be overcrowded requires data of a different type. In addition to the well-known summary tabulations from the 1990 census, microdata files were released that describe the housing conditions and personal characteristics of individual households.(FN3) We used a one-percent sample of the households in the nation that was released as the Public Use Microdata Sample (PUMS). With this file we calculated national rates of overcrowding for different types of households. We turn now to those findings.

WHICH HOUSEHOLDS ARE MOST AT RISK OF BEING OVERCROWDED?Overcrowding is not distributed equally among households in the United States. Renters are much more prone to crowding than are owners, and other important differences are found for both demographic and economic characteristics.

The incidence of overcrowding in 1990 is profiled in table 1, showing figures separately for owners and renters, as well as those for all households. The table presents the percentage of households in each category that are overcrowded by each of two standards, more than 1.00 PPR or more than 1.50 PPR. The incidence is approximately twice as great at the more stringent, currently standard definition of overcrowding. Although the discussion that follows will focus on this standard, in use since 1960, the reader may wish to compare the data for the alternative 1.50 PPR standard.

AGE AND HOUSEHOLD TYPEYoung households are much more likely to be overcrowded than are older ones. This is probably due to several factors: the greater numbers of children accompanying young adults, together with the lower family income in this early adult life-cycle stage, and later the reduced mobility of older adults, which leaves them living in homes large enough to accommodate their departed children. Notice that among renters the peak incidence of crowding is at ages 35 to 44, the period when family sizes are likely to be largest (and when middle-income renters have shifted into home-ownership).

Similarly, we find that family households are far more likely than nonfamily households are to be crowded. It is not clear why families headed by men are more crowded than those headed by women (with married couples assigned to neither gender).

YEAR OF IMMIGRATION, AND RACE/ETHNICITYThe highest rates of overcrowding are found among recent immigrants. Of householders who arrived in the United States during the 1980s, 35.9 percent are overcrowded and 21.6 percent extremely overcrowded; similarly high rates are found for those who arrived in the 1970s. The incidence of overcrowding is much lower among those who arrived before 1970. One reason for the slight difference between the first two immigrant groups is that among recent arrivals, family sizes often increase after arrival, because many immigrants are in their teens or twenties when they arrive; the result is that their space

needs may increase as rapidly as their financial resources do (Myers and Lee 1995).

Among racial and ethnic groups, Hispanic and Asian households have the highest incidences of overcrowding. As might be expected, recent immigrants among these groups have the highest overcrowding rates of all (Choi 1993). However, even the native-born members of these two ethnic groups have proportionally much higher levels of overcrowding than do their native-born counterparts among black or white households (Myers et al. 1993).

Recent immigrants, and Asians and Hispanics as a group, account for very large shares of all the overcrowded households in the United States. Although immigrants who arrived in the 1970s or later are only 6.0 percent of all households, they account for 35.4 percent of all overcrowded households (51.1 percent of all severely overcrowded households). Similarly, Asian and Hispanic households amount to 8.3 percent of all households but account for 46.6 percent of all overcrowded households (62.3 percent of all severely overcrowded households).(FN4).

ECONOMIC LEVELIn general, we would expect lower-income households to exhibit more overcrowding than those with higher incomes do: lower-income households have more trouble finding affordable housing, forcing them to occupy smaller-sized units than they would otherwise prefer. These economic constraints can be measured with two variables. The first is the federally defined poverty level, which specifies the minimum income level necessary to meet a nationally defined cost of living. The advantage of this measure is that it is adjusted for differences in household size. However, as discussed in Myers and Wolch (1995), this poverty measure is biased, because it assumes a single national cost of living and ignores the fact that housing costs and other expenses vary sharply from state to state. As a result, relatively low-income persons in Connecticut might not fall below the national poverty line, whereas moderate-income persons in Mississippi could. Thus an alternative economic measure, also used here, defines income levels relative to the median household income of each state, with different comparison medians for each household size, grouping households into categories used by the U.S. Department of Housing and Urban Development. (See table 1.).

On either measure, the difference in the rate of overcrowding between the lowest and highest income categories is pronounced. The reader should note, however, that overcrowding rates do not drop substantially until households exceed 200 percent of the poverty level, or until relative income passes the median level. It may be that households are slow to use the added income to escape from overcrowding, because they prefer to use their still relatively limited finances for more urgent priorities (cf. Glazer 1980).

RACE AND ECONOMIC LEVELIt may well be that the differences observed above among races/ethnicities are actually due to economic differences (or vice versa). It also is possible that racial and ethnic differences are confused with household sizes. For example, if Hispanics and Asians are more likely to have large families, then their greater risk of overcrowding would be related to that characteristic, and not directly to race/ethnicity.

Accordingly, we have carefully prepared the data in figure 2. Data are selected only for four-person households, and the figure contrasts the overcrowding rates of different races and ethnicities at different income levels. Overcrowding levels are very high for Asians and Hispanics, not dropping markedly until incomes exceed 80 percent of the median level. (Whereas table 1 shows a higher rate of crowding for Hispanics, once household size is

controlled to four persons, Asians have a clearly higher rate.) Even at income levels twice the median, 8 percent of Asian and Hispanic households remain overcrowded, which is a percentage well above the national level.

In contrast, overcrowding levels never reach high rates for white, non-Hispanic households, and even blacks and American Indians have overcrowding rates less than half those of Hispanics or Asians. Choi (1993) argues that the latter groups have a cultural preference, or at least a tolerance, for living in close quarters. At every income level, they apparently have more preferred uses for their money than purchasing more housing space. A cultural preference for dense household living among Mexican-Americans has recently been argued by Pader (1994).

SPATIAL INCIDENCE OF OVERCROWDING Residential overcrowding is more prevalent in some places than others. This section examines changes in overcrowding at the state, metropolitan, and county levels. The analysis is restricted to rental households, because overcrowding is most prevalent among them.

We first offer a comparative overview of the 50 states. Next we rank metropolitan areas by their degrees of overcrowding. Even higher rates of overcrowding may be found to prevail in particular county subareas of states and metropolitan areas. At the smallest geographic scale--neighborhoods or census tracts--overcrowding is often even more highly concentrated. In a subsequent section we model the variation in overcrowding statistically, using metropolitan areas because those best represent functional housing markets.

1990 DIFFERENCES AMONG STATES The 50 states provide a comprehensive geographic overview of the prevalence of overcrowding among renters. Figure 3 shows the percentages of rental units with more than one person per room for each state in 1990. The darker shaded portion of the bar indicates the percentage of renters living in severely crowded units, with more than 1.5 persons per room. The states are ranked within each region by their incidence of overcrowding.

California and Hawaii, two states with notoriously expensive housing, loom far above the rest, with nearly 20 percent of renters living in overcrowded conditions. Most of the other western states have more than 6 percent of renters living in overcrowded conditions. In the Midwest, only Illinois has overcrowding greater than 6 percent, and in the East, only New York and New Jersey do. In the South, however, several states have more than 6 percent of their renters overcrowded. Myers et al. (1993) found that unusually high rates of overcrowding persisted in the South and in Hawaii even after controlling for economic factors, and speculated that a warmer climate may encourage more outdoor living and use of fewer rooms per person.

It is noteworthy that the states with the greatest prevalence of overcrowding also have relatively greater proportions of renters in the more severe category of crowding. In California, more than 12 percent of renters are severely overcrowded.

STATE CHANGES FROM 1980 TO 1990 Figure 4 displays the change in overcrowding in each state from 1980 to 1990 by means of a scatter plot, with the 1990 percentage overcrowded on the vertical axis and the 1980 percentage on the horizontal. States with no change fall on the diagonal; those where overcrowding is increasing lie above and those with declines lie below.

Whereas Hawaii's percentages are constant, with more than 18 percent overcrowding in both

years, California shows a large increase, from about 11 percent in 1980 to near 20 percent by 1990. Most other states have a more constant rate of overcrowding, and in some it even decreases.

Change in severe overcrowding (more than 1.5 persons per room) from 1980 to 1990 is portrayed in figure 5. In California and New York, percentages of severe overcrowding nearly doubled.

METROPOLITAN AREAS AND COUNTIES WITH THE GREATEST

OVERCROWDING States include both urban and rural localities, so the statewide data may not reflect conditions in smaller areas. In a list of places with the highest incidence of rental overcrowding (see table 2), the three most overcrowded metropolitan areas are in Texas, in the Rio Grande Valley on the border with Mexico. Los Angeles-Long Beach follows in fourth place. Fully 13 of the 20 most crowded metros are in California. For severe overcrowding, the same basic pattern is observed, with minor changes in the rank order.

Counties are even more localized than metropolitan (cont. on p.75) areas, including inner-city portions of metros as well as rural areas. Table 3 lists the nation's 20 counties with the highest incidences of rental overcrowding. This list includes counties in the Dakotas with Indian reservations, as well as counties in the Rio Grande Valley and other agricultural areas. Los Angeles is the only large urban county to make the list of 20 most crowded counties. Dade (Miami) in Florida ranks 21st, with 25.8 percent rental overcrowding. In a listing of counties by the percentage severely overcrowded, Los Angeles moves up to 6th place and Dade to 12th; otherwise the pattern resembles that in table 3.

Among still smaller-sized areas, that is, neighborhoods, the variation in overcrowding levels is even wider, with extremely high incidences of overcrowding in particular neighborhoods. This is illustrated by the case of Orange County in California, a suburb of Los Angeles that has recently received sizable waves of immigration from both Mexico and southeast Asia. Countywide, the incidence of overcrowding among renters in 1990 was just short of 20 percent. However, at the community level the incidence of rental overcrowding within the county varied from 49 percent in Santa Ana City (the largest city in the county and the one with the oldest housing stock) to 0.9 percent in Rossmoor (a retirement area). Within Santa Ana, the 60 census tracts display quite a range in the incidence of rental overcrowding, as low as 26 percent in one and as high as 93 percent in another.

In sum, the higher incidences of overcrowding are likely to be found for specific subareas rather than for larger areas. Because of the statistical arbitrariness with which most boundaries are drawn, the most reliable unit for comparison is probably the metropolitan area. Defined as relatively self-contained economic areas, they encompass the full range of central-city and suburban neighborhoods.

MULTIVARIATE DETERMINANTS OF THE PREVALENCE OF OVERCROWDING IN METROPOLITAN AREAS

Closer examination of the prevalence of overcrowding requires analysis of multiple determinants. With 1990 census data, 335 metropolitan areas can be analyzed for the percentages of rental households living (cont. on p.77) in overcrowded conditions. The analysis is repeated for both the standard (PPR 1.0) and severe (PPR 1.50) levels of overcrowding.

SELECTION OF VARIABLESA number of factors may explain why rental overcrowding is more common in some metropolitan locations than in others. The demographic summary presented in table 1 identifies four household types that are most at risk of being overcrowded: recent immigrants, Asians, Hispanics, and lower-income households. Areas with high concentrations of these groups are likely to have more overcrowding.

In addition to demographic characteristics, economic and housing market characteristics of a metropolitan area also may increase the risk of overcrowding. In larger regions (measured by population), which often have more intense pressure on their housing stocks, a shortage of rental housing or a lack of affordable housing may cause households to double up or to live in smaller units than they would otherwise choose. Shortages can be indicated by low rental vacancy rates; affordability is represented by several alternative factors: the median rent level, the percentage of renters paying low rent (less than \$300 per month), or the percentage of renters paying more than 30 percent of their income. A region's level of overcrowding may also reflect its concentration of poor households, which are likely to have trouble paying market-level rents. This factor can be measured by the median income of renters, the percentage of renters with incomes under \$20,000, or the percentage of households that have children present and are living in poverty.

Table 4 summarizes the variables selected for analysis, giving their definitions and sources in the 1990 summary tape files issued by the Census Bureau. The variables grouped together in table 4 consist of alternative measures, such as for income, not all of which will be analyzed at the same time. The mean and standard deviations for these variables are listed in table 5.

MULTIVARIATE MODELThe percentage of renters living in overcrowded housing can be estimated in a linear probability model that employs multiple regression techniques. A total of 12 models were estimated, with different sets of explanatory variables, chosen to test basic models for explaining overcrowding--demographic, poverty, and housing market--and to limit the problem of multicollinearity.(FN5) Although the estimation was carried out for both versions of the dependent variable (i.e., standard and severe definitions of crowding), the results for each are similar, because the two versions of the definition yield highly correlated ($r = 0.98$) percentages of overcrowded households in our sample of metropolitan areas. Thus only the results for the standard version are shown here.

Table 6 summarizes the results from the 12 models. Remarkably little difference is observed among the R-square statistics that represent the proportions of variation in overcrowding explained by the respective models: the range is only from 0.83 to 0.88. The simplest model uses the demographic variables describing the metropolitan populations: population size (expressed in millions), percentage of renters who are black, percentage of Asian renters, percentage of Hispanic renters, and percentage of persons who are recent immigrants. This base model by itself explains 83 percent of the variation (the R-square statistic) in overcrowding rates across the metropolitan areas. All of the variables but one are highly significant and have the expected effect on rates of overcrowding. The exception is population size, which indicates that larger metro areas have less overcrowding once the demographic composition is controlled.

Models 2 through 4 test the alternative income variables, all of which are highly significant. Areas with higher median incomes have less overcrowding, and those with more low-income or poor families have more overcrowding. The latter variable--the percentage of households that have children and are below the poverty line--seems to have a stronger effect than do the other

income measures, raising the R-square statistic to 86.7 percent of variance explained.

The findings for housing supply and affordability are somewhat surprising. Models 5 through 7 test alternative sets of housing supply and affordability measures (excluding the income variables). In none of the models is vacancy a statistically significant determinant of overcrowding rates. Although median rent is significant in Model 5, its negative sign means that areas with higher rents have less overcrowding, not more, as expected. The percentage of renters paying low rent has no statistically significant effect in either direction (Model 6). In Model 7, we find that the percentage of renters who pay excessive rents relative to their incomes has a significant positive effect on rates of overcrowding. However, the overall R-square is little improved over the base model. In sum, housing supply and affordability measures contribute little toward explaining metropolitan rates of rental overcrowding.

Models 8 through 11 include both the income and the housing variables in various combinations, excluding variables that are collinear with one another. Model 10 is especially interesting, because vacancy rates become significant when combined with the percentage of poor families and the median rent. The positive sign indicates that areas with more vacancies are also more overcrowded--the opposite of intuitive expectation. Median rent also shows a significant positive effect. This model also yields a higher R-square (0.876) than does the previous model, which included poor families without housing variables.

The results of Model 10 imply that, controlling for the percentage of poor families (and other demographics), areas with higher rents and more vacancies also have more overcrowding. This anomaly is consistent with the dual market conditions found in some areas in the 1980s: booming construction produced new housing at higher rents, which increased vacancy rates, while lower-income households struggled to find adequate housing they could afford. Unfortunately, the vacant units can be prevalent in the wrong rent brackets to help poor families. (Census data do not permit measurement of separate vacancy rates for each rent level.)

The final model in table 6 includes all variables not subject to exclusion for reasons of collinearity. This model has the highest overall R-square statistic; however, its results are more difficult to interpret. The measure of rent burden added to this model takes on a negative sign, implying that areas where higher proportions of renters pay more than 30 percent of income for rent have lower rates of overcrowding. At the same time, the effect of renters with low payments is also negative, meaning that areas where more of the renters pay less than \$300 per month have lower rates of overcrowding. Controlling for these housing market measures, the percentage of households that are poor families retains its strong effect on raising the overcrowding rate.

RELATIVE MAGNITUDES OF DETERMINANTS Since some of the determinants of metropolitan rates of overcrowding are more powerful than others, table 7 provides an alternative assessment of the findings from the multivariate models. In this table the standardized regression coefficients, or betas (b), are reported in place of the metric coefficients. The standardized coefficients may be compared directly to see which variables influence the rate of overcrowding most.

In the base model, the percentage of renters that are Hispanic and the percentage of immigrants are clearly the most important variables, with coefficients of 0.534 and 0.497, respectively. These two variables retain their dominant importance across all 12 models. The only other

variable with comparable effect is the percentage of households that are poor families with children. In fact, the importance of the Hispanic variable is weakened considerably when poor families with children are added to the model.

Much weaker effects are found for the housing supply and affordability variables. Their beta coefficients are much smaller and sometimes insignificant, or else they carry the opposite sign to what was expected. Only the percentage of renters with low payments has a substantial effect in Models 11 and 12 (and only in the presence of the poor-family variable). The rent burden indicator of affordability is especially disappointing. This measures directly the percentage of renters who must pay an excessive rent relative to their incomes. Although it is statistically significant, in Model 12 it is negative, implying less overcrowding in areas where more renters are burdened. The variable has the expected positive sign in Model 7, but even there the coefficient is relatively weak.

DISCUSSION AND POLICY IMPLICATIONSThe empirical evidence supports several important implications for policies about overcrowded housing. These include (1) the possibility of choice between moderate and severe standards of overcrowding for different places, (2) the strong causal role of race/ethnicity and immigration, (3) differences among ethnic groups in the tolerance for overcrowding, and (4) the slight importance of housing market factors in explaining overcrowding.

CHOOSING THE STANDARD TO APPLY IN EACH PLACEOne important finding of the preceding analysis is that the choice of a moderate or a severe standard of overcrowding has relatively little effect on the ranking of places by the incidence of overcrowding.^(FN6) Places with high incidences of overcrowding at the moderate level also have high incidences at the severe level, and vice versa. What is altered by choosing a more stringent standard of overcrowding is the total number of households identified as in need, and, by implication, the amount of assistance called for to meet the need. At the individual level, of course, choice of a less stringent standard of overcrowding (tolerating moderate but not severe overcrowding) would give priority for assistance to those households most clearly in need.

There is another concern to be found here, however. If the nation implicitly made its crowding standard more stringent as living standards increased in the first half of the century, should we consider relaxing the standard now that real incomes have fallen and overcrowding is growing again? A related question is, should we recognize diversity of place, and relax our standards (at least during the present surge in overcrowding) in those places where overcrowding is worst? Applying a high standard to the living conditions of those too poor to achieve it offers them small relief if society is unwilling to make up the difference between what we say people should have, and what we are willing to provide to help them achieve it.

DOMINANCE OF DEMOGRAPHIC EXPLANATIONThe second overall finding is the great importance of racial/ethnic factors and immigration in explaining overcrowding. These factors alone explain the lion's share of the variation across metropolitan areas in overcrowding; the basic demographic variables alone account for 83 percent. All of the housing and income variables combined add barely another 5 percent to the explanation. Examination of the beta coefficients in table 7 shows how dominant are two factors: the percentage of Hispanics and the percentage of immigrants.

Fully half (51.1 percent) of all severely overcrowded households are headed by immigrants who arrived since 1970. As shown in table 1, rates of overcrowding are much higher for recent immigrants than for those with longer periods of assimilation. It appears that all groups, but to differing degrees, move out of overcrowded conditions as their financial circumstances improve or they become more culturally assimilated. In other words, overcrowding may be self-correcting, although further research on this point is called for.(FN7) One thing is certain, given the high association of overcrowding with recently arrived Asians and Hispanics: policy responses based on this measure of need (e.g., CDBG grants) would tilt housing assistance toward areas with recent immigrants. As observed by an astute reviewer, this does not imply that the immigrants themselves would necessarily benefit from the assistance; the tilt simply is toward the areas affected by immigration and facing overcrowded services, for example. As such, this bias toward high-immigration areas could be beneficial if it provides impacted local areas with needed assistance from the federal government.

RESPONDING TO CULTURAL DIFFERENCES IN REACTIONS TO CROWDINGA third finding is the importance of cultural differences that may be indicated by racial/ethnic identification. As shown in figure 2, controlling for both household size and income, Asian and Hispanic households are much more likely to be overcrowded than are white or black households. Equally striking is the finding that overcrowding still remains at high levels even in Asian or Hispanic households with incomes more than twice the average of all households. Those households could avoid overcrowding if they so desired, but their revealed preference suggests that it may not be seen as an urgent personal problem. As Choi (1993) argues, immigrants from Asian and Latin America come from "close contact" societies (Hall 1966), where living in close quarters is judged voluntary or at least tolerable. Pader (1994) recently expanded this notion, using anthropological analysis, which has largely been ignored in the more traditional epidemiological, sociological, or psychological literature on crowding. She shows the importance of acknowledging the differences in cultural standards; we show here that even after decades in the United States the differences in these cultural standards may persist.

The point to be examined here is analogous to place diversity. Do we recognize racial, ethnic, and cultural diversity in our standards, by "tailoring" the standard to the place or to the person? (In other words, do we admit that our present policy of imposing a homogeneous standard on a culturally diverse population can be counter-productive?) In other matters our society is far more agreeable to differing cultures than it was in the 1920s, when crowding standards were first established. Perhaps we should relax our crowding standards to bring them in line with other responses to cultural diversity in our society.

WEAK IMPORTANCE OF HOUSING MARKET CONDITIONSA fourth finding is that housing supply in a metropolitan area seems to have no effect on the incidence of overcrowding. In particular, areas with higher rental vacancy rates do not have lower rates of overcrowding. This lack of correlation between vacancy rates and other housing problems has been observed by other analysts and termed a puzzle (Turner and Edwards 1993). The discrepancy suggests that housing policy responses aimed at increasing overall supply will do little to alleviate overcrowding in the near term.

Finally, housing affordability appears to explain very little of the incidence of metropolitan overcrowding. Housing affordability was measured here in several ways: by average rent levels, the percentage of lower-income households, and the percentage of renters with excessive rent

burden. Of these measures, only the percentage of households that are poor families with children carries substantial weight. Most importantly, rent burden has little effect in the models tested. Although this non-effect seems surprising, our finding for the metropolitan level is consistent with research by Myers and Wolch (1995) that examines the relationship between overcrowding and affordability for individual households in the nation as a whole. Demand-side subsidies also may have relatively little effect on overcrowding, at least in the short run.

PROSPECTS FOR POLICY SOLUTIONS TO OVERCROWDING Taken together, these findings substantially narrow the arena for policy assistance for overcrowding, and limit the types of causes that should be considered for policy response. The finding that neither housing supply conditions nor affordability conditions explain the levels of residential overcrowding in different metropolitan areas suggests that housing programs would be ineffective in reducing overcrowding. The only approaches that might substantially reduce overcrowding would entail diminishing racial/ethnic diversity and restricting immigration. Both of those alternatives not only reach well beyond the scope of housing policy, but could be highly undesirable on other grounds. Indeed, the demographic evidence suggests that many United States residents of Asian and Hispanic origin may not perceive the harmful effects of overcrowding that are assumed by the housing policy standards. Among immigrants, it is also likely that overcrowding will decline as the newcomers assimilate into American middle-class culture. Government seems to have little role in this process.

CONCLUSION By the traditional definition of overcrowding, the problem is growing, but at the same time the policy issues it presents are changing. The resurgence of overcrowding exposes deep cultural differences among Americans in their living arrangements and preferred standards. The dilemma for housing policy is that in a diverse society a single problem definition may no longer be sufficient. And although it may be possible to apply more relaxed or more stringent standards in different states or localities, it would be difficult to apply different standards to households according to race and ethnicity.

As a measure of housing need the simplest solution is to drop the overcrowding indicator. Those to whom traditionally defined overcrowding seems to matter--Whites and African-Americans--have largely reduced their exposure to it. Those to whom overcrowding is of lesser importance--Hispanics and Asians--would still be served by other indicators of housing conditions.(FN8).

However, as a measure of service needs in neighborhoods and communities, the indicator is still useful. Areas with growing levels of overcrowding, that is, with increasing population density, need higher levels of services. For the welfare of both the overcrowded households and their neighbors, it may be well to increase the funding for selected public services (e.g., schools, trash collection, and parking provision). Much of the cultural conflict related to overcrowded housing involves longtime residents' reactions to the effects on a neighborhood of recent immigrants or other newcomers. Therefore, mitigation of such neighborhood and community effects may help to reduce friction in communities with rapid ethnic change. For this purpose, CDBG funds could be usefully targeted to multiethnic communities.

Considering how best to approach the overcrowding problem in America may hold broad lessons for planning in our evolving multiethnic, multicultural society.(FN9) Rather than judge households by a single middle-class, majority standard, we should allow for more diverse social expressions. It would be better to focus public efforts on building multicultural respect and on

reducing friction between groups as they are, rather than simply laying down the standard to which all are expected to conform.

Added material.

Overcrowding has increased in the U.S. after decades of decline--dramatically so in some locales and for some ethnic groups. The nature of the problem and its very definition for policy purposes are also changing. We examine the special characteristics of the overcrowded, where they are located, why the incidence of crowding has resurged, and why it is confined to specific locales. Ethnicity, age, immigration, and poverty play important roles, but housing market conditions appear much less important. We also show that the planning standard used to judge overcrowding is a relative one that has varied over time, and that the social norms vary among ethnic groups. The issue of overcrowding may exemplify the current perplexities about imposing uniform standards in an evolving multiethnic society. Worst-case housing needs would be better targeted in highly impacted locales by allowing more "place diversity" in the setting of standards.

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TABLE 1. Rates of overcrowding under two alternative standards, for different types of households in the United States, 1990.

(TABLE) More than 1.00 Person per Room	More than 1.50 Persons per Room	Age of Householder	All HHs	Owners	Renters	All HHs	Owners	Renters
15 to 24	8.40	4.79	9.09	4.19	1.71	4.67	2.5	3.10
25 to 34	7.58	4.31	10.26	3.10	1.31	4.56	3.83	11.29
35 to 44	6.35	3.83	11.29	2.37	1.07	4.90	4.45	2.81
45 to 54	4.45	2.81	9.47	1.73	0.86	4.41	5.91	1.00
55 to 64	2.58	1.74	5.91	1.00	0.53	2.87	65 to 74	1.13
75 to 84	0.78	2.42	0.48	0.26	1.32	75 or more	0.59	0.38
85 or more	1.10	0.29	0.13	0.67	Household Type	Married-Couple Family	5.56	3.06
14.45	2.16	0.90	6.63	Male-Headed Family	11.85	5.24	19.50	5.57
1.75	9.99	Female-Headed Family	9.03	3.70	13.48	3.44	1.11	5.40
1.08	0.26	1.66	0.68	0.13	1.07	Other Male Household	0.32	0.05
0.59	0.22	0.03	0.42	Year of Immigration	1980s	35.89	23.78	39.35
21.62	11.32	24.56	1970s	30.34	23.51	36.29	16.84	11.16
21.80	1960s or Before	7.95	5.72	11.95	3.42	2.19	5.63	Native Born
2.97	1.80	5.22	0.86	0.40	1.75	Race and Hispanic Origin	White, Non-Hispanic	1.83
1.20	3.23	0.44	0.20	0.98	Black, Non-Hispanic	8.95	5.94	11.31
3.00	1.62	4.09	American Indian	13.69	12.76	14.75	6.41	6.82
5.94	Asian & Pacific Islander	23.14	15.78	31.01	12.45	6.31	19.01	Other, Non-Hispanic
14.43	5.92	20.78	5.56	1.25	8.78	Hispanic	27.29	18.14
33.81	14.75	8.01	19.56	Relative Income Category (FN*)	35% (very low)	8.04	3.65	10.68
3.67	1.43	5.03	35 to 50% (low)	7.78	3.59	11.76	3.43	1.20
5.55	51 to 80% (moderate)	7.27	4.08	10.97	3.07	1.35	5.08	81 to 120% (middle)
5.34	3.64	8.02	1.98	0.97	3.57	121 to 200% (upper middle)	3.16	2.28
5.50	1.11	0.63	2.37	200% or more (higher)	1.28	0.95	3.16	0.44
0.24	1.54	Relation to Poverty Level	Under 75% of Poverty Level	12.81	7.43	15.52	5.65	2.76
7.11	75% to 100% of Poverty	9.39	5.50	12.03	4.06	1.94	5.50	100% to 199%
8.08	5.26	11.19	3.29	1.56				

5.20200% to 399% 4.09 2.87 6.37 1.52 0.80 2.86400% and Over 1.10 0.73 2.52 0.41 0.19 1.22.

Source: 1990 PUMS-A (5%) file, subsampled at 1-in-5.

FOOTNOTE* Relative income is computed as the ratio between the household's income and that of the median household income for the state of residence. Medians are adjusted for household size in accordance with procedures of the U.S. Department of Housing and Urban Development.

TABLE 2. Twenty most crowded MSA/PMSAs (more than 1 person per room), 1990.

(TABLE)Rank MSA/PMSA % 1 McAllen--Edinburg--Mission, TX MSA 34.8 2 Laredo, TX MSA 34.1 3 Brownsville--Harlingen, TX MSA 32.0 4 Los Angeles--Long Beach, CA PMSA 27.5 5 Merced, CA MSA 26.0 6 Miami--Hialeah, FL PMSA 25.8 7 Visalia--Tulare--Porterville, CA MSA 25.3 8 Fresno, CA MSA 22.3 9 Salinas--Seaside--Monterey, CA MSA 21.9 10 Stockton, CA MSA 21.5 11 Yuma, AZ MSA 20.8 12 El Paso, TX MSA 20.7 13 Honolulu, HI MSA 20.0 14 Anaheim--Santa Ana, CA PMSA 19.9 15 Oxnard--Ventura, CA PMSA 19.2 16 Bakersfield, CA MSA 18.6 17 Riverside--San Bernardino, CA PMSA 17.5 18 San Jose, CA PMSA 17.5 19 Modesto, CA MSA 17.5 20 Santa Barbara--Santa Maria--Lompoc, CA MSA 17.1.

Source: U.S. Bureau of the Census, Census of Population and Housing, 1990: STF1C.

TABLE 3. Twenty most crowded counties (more than 1 person per room), 1990.

(TABLE)Rank State County % 1 South Dakota Shannon 48.1 2 Texas Starr 44.1 3 Alaska Wade Hampton Census Area 41.9 4 Texas Zapata 36.6 5 Texas Zavala 35.6 6 Texas Hidalgo 34.8 7 Texas Webb 34.1 8 Arizona Apache 34.1 9 Texas Cameron 32.0 10 Alaska Bethel Census Area 31.8 11 Texas Maverick 31.1 12 South Dakota Ziebach 30.8 13 Idaho Madison 30.5 14 California Imperial 30.3 15 Texas Willacy 29.0 16 North Dakota Sioux 28.3 17 Arizona Santa Cruz 27.9 18 California Los Angeles 27.5 19 Alaska Nome Census Area 27.0 20 California Merced 26.0.

Source: U.S. Bureau of the Census, Census of Population and Housing, 1990: STF1C.

TABLE 4. Identification of variables.

(TABLE)Variables Note Source (Table Number)Renter Overcrowded % more than 1.01 PPR STF1 (H.22)(PPR101, PPR151) % more than 1.51 PPRPopulation Population STF3 (P.1)(POPULATION)Race of Renter Households % Black STF3 (H.10 & H.11)(BLACKH, ASIANH, HISPH) % Asian % HispanicRecent Immigrants % recent immigrants ('80-90) to total persons STF3 (P.36)(IMMIGR)Rental Vacancy Rate % rental vacant units STF3 (H.6)(VACRENT)Median Income Median renter income STF3 (H.50)(MEDINC)Low Income % renters earning less than \$20,000 STF3 (H.50)(LOWINC)Poor Family Households % poor family households with STF3 (P.123)(POORFAM) children under 18 to total householdsMedian Gross Rent Median gross rent STF3 (H.43)(MEDRENT)Low Rent % renters paying less than \$300(LOWRENT)Rent Burden % renters earning less than \$20,000 STF3 (H.50)(BURDEN) and paying more than 30% of their income.

TABLE 5. Descriptive statistics of variables.

(TABLE) Mean Standard DeviationObs 335PPR101 6.63 5.2PPR151 2.71 3.2POPULATION 575,302 978,181BLACKH 13.6 12.0ASIANH 1.8 3.1HISPH 14.7 29.0IMMIGR 2.2

2.8VACRENT 8.6 3.6MEDINC 19,822 4,626LOWINC 52.1 10.3POORFAM 5.4
2.8MEDRENT 426.2 104,6LOWRENT 24.9 12.2BURDEN 35.7 5.7.

TABLE 6. Twelve regression results (b coefficients) for the relationship between overcrowded renter households (more than 1 person per room) and selected variables at the metropolitan level.

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TABLE 7. Twelve regression results (b coefficients) for the relationship between overcrowded renter households (more than 1 person per room) and selected variables at the metropolitan level.

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FIGURE 1. Trends in United States renter crowding (percent of renters) and in the prevailing overcrowding standards, 1940-1990.

FIGURE 2. Percentage of 4-person households in the United States that are overcrowded (PPR 1.00), by race/ethnicity and income, 1990.

FIGURE 3. 1990 overcrowding percentage for renters, ranked within region, sums of moderate and extreme overcrowding.

FIGURE 4. Change in percentages of renter-occupied units in each state that are overcrowded by conventional standard (1.0 PPR).

FIGURE 5. Change in percentages of renter-occupied units in each state that are severely overcrowded (1.5 PPR).

FOOTNOTES1. A number of other density indicators are possible. One common indicator is persons per acre, which is the product of persons per room, rooms per unit, and units per acre (Abbott 1982). A more socially defined indicator calculates the number of persons per room by age and gender (Greenfield and Lewis 1973). The importance of the per room calculation of density is that it reflects the degree of privacy and the potential threat to health of living in close quarters. Health standards, however, use the alternative indicator of square feet per person.

2. The resurgence of overcrowding has been the subject of substantial research at the University of Southern California, with Choi's (1993) study of policy issues and spatial variation, Myers et al.'s (1993) analysis of the change in overcrowding, Myers and Wolch's (1995) analysis of links between overcrowding and homelessness (or precariously housed status), Myers and Lee's (1995) analysis of the roles of immigration and assimilation in overcrowding trends, and other papers in preparation from a three-year study of overcrowding in southern California.

3. See Myers (1992, chapters 4 and 12) for an explanation of these microdata files and how they differ from the summary tabulations.

4. These "shares" were calculated from the same data used to calculate the overcrowding "rates" in table 1. Although the language in the text makes clear their distinction, further clarification is offered in Myers 1992, 256-60.

5. Each model was tested for multicollinearity (using the COLLIN option available in the PROC

REG procedure of SAS), and only models that passed the test that the "condition number" must be lower than 10 are reported.

6. Recall that the correlation between moderate and severe overcrowding rates in our metro sample is a nearly-perfect 0.98. The listings of states and counties by moderate and severe crowding also show only minor variations in rankings between the two.

7. Duration of exposure to overcrowding has not been explored in the literature. Such longitudinal analysis requires panel data covering the same households observed at multiple points in time. As an alternative, Myers and Lee (1995) have explored the progress of immigration cohorts observed with census data in 1980 and again in 1990. Their evidence suggests that Asian, black, and white immigrants substantially reduced their rates of overcrowding after residing in the U.S. for an additional decade. Hispanic immigrants, however, appear to become more overcrowded, due to slow income growth combined with increasing family size (e.g., as 20-year-old immigrants married and acquired children by the time they turned 30).

8. Alternatively, the policy might be put on a "hold harmless" basis. More relaxed standards of crowding could be allowed (e.g., 1.50 PPR) if applying the more rigorous standard (1.00 PPR) would penalize the ethnic group, e.g., by denying them the ability to act as foster parents (Pader 1994), or by displacing them from their homes for overcrowding. By contrast, the more rigorous standard would be invoked uniformly for measuring need and making funding allocations. However, this alternative is complex, shifting, and potentially confusing, thereby undercutting a prime purpose of invoking standards.

9. For instance, what if the real problem in overcrowding is its effects not on the people who are overcrowded, but on others who are not? What if it is more the cultural clashes--and the resulting policy--that truly injure one's mental and physical health? In the first half of the 20th century, the middle and professional classes were offended (and harmed?) by overcrowding among the poor. Redevelopment was the result (although for more reasons than overcrowding alone). That not only forced the poor to move, but reduced their opportunities to find replacement housing by demolishing much lowcost housing. The classic studies of Gans (1962) and Fried (1963) on Boston's West End were some of the first to question the efficacy of redevelopment and its middle-class bias. Zoning is perhaps another example of sometimes inflicting harm by incorporating cultural standards into laws.

But the middle class, who have fostered and embraced traditional crowding standards, are disturbed when those are not followed (a breach of etiquette?). Relaxing the overcrowding standards may be decried for inflicting on the middle-class the trauma of observing other cultures conducting their lives oblivious to middle-class standards.

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