Homelessness in California

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Foreword

Over the past 30 years, many explanations have been offered for the increasing prevalence of homelessness in America. Initial arguments attributed the problem to the deinstitutionalization of the mentally ill. Subsequent arguments focused on the emergence of widespread drug abuse in America's cities and the concomitant inconsistency of drug dependence and a stable home life. One of the most intriguing arguments suggested that the growth in the homeless population was related to the destruction of skid rows and the development of demanding standards for the construction of new housing. Others suggested that it was government's increasing unwillingness to subsidize single-parent families that created the greatest shortfall between housing needs and ability to pay.

The authors of the present volume—John Quigley, Stephen Raphael, and Eugene Smolensky, all from the Goldman School of Public Policy at the University of California, Berkeley—argue that growing income inequality is a contributing factor in the growth of homelessness in California. Drawing on PPIC's first publication, *The Distribution of Income in California* by Deborah Reed, Melissa Glenn Haber, and Laura Mameesh, Quigley and his colleagues conclude that the growing gap between rich and poor—a gap caused mostly by deteriorating incomes among the poor—is forcing lower-income families to "buy down" as a result of higher housing prices and rapidly rising rents. They argue that this buy-down process has increased the demand for and price of barely standard units and has literally forced the lowest-income renters into the streets.

The authors' analysis shows that rent subsidies to poor families are the most effective policy option for providing low-end housing for the very poor, including the homeless. Using a simulation model that explores the effects of alternative subsidy programs in San Francisco, Los Angeles, San Diego, and Sacramento, they find that rent subsidies are far

more effective in reducing homelessness than other options they examined. With the incidence of homelessness continuing to trouble the leaders and residents of California's major cities, these findings should foster a serious discussion of alternative policies in communities with particularly high rates of homelessness. Most important, the authors have gone beyond the broad array of theories of homelessness and have provided a policy analysis that penetrates to the heart of the problem—How can we provide affordable housing for those who currently find no alternative but to sleep in our parks and streets?

David W. Lyon
President and CEO
Public Policy Institute of California

Summary

Rapidly rising homelessness in the 1980s shocked Americans and led to a flurry of studies, a deluge of news stories, and to Public Law 100-77, the Stewart B. McKinney Homeless Assistance Act of July 1987. The McKinney Act marked the entrance of the federal government into homelessness policy, which, until then, had been a purely local issue.

A dozen years later, housing the homeless remains a recurrent political issue in many cities in California. Improving the quality of life of those without a regular and decent place to spend the night rests primarily with a multitude of nonprofit organizations. Meagerly funded by all levels of government, they must not only house the homeless but must also attend to their many personal problems. While a multifaceted approach is probably required to eliminate the homelessness problem, in California homelessness might be substantially reduced with modest policy changes attacking the problem in the most obvious way: by adding to the stock of adequate housing accessible to the poor. We explore options that aim to do exactly that in this monograph.

Policy Perspective

It is quite consequential for policymaking that influencing housing markets is seen to be a necessary, if not sufficient, condition for alleviating the plight of the homeless. Intervening in the intimate aspects of a person's life, even a homeless person's life, is not congenial to many Americans. However, if the homelessness problem were one of drugs and schizophrenia, then personally intrusive solutions would seem the natural response. To the extent that the problem can be alleviated by interventions in the housing market, however, policy responses are available with which Americans are quite familiar.

We do not, it is true, like to intervene in markets. Intervention in the housing market, however, is ubiquitous. We do not tax the implicit rent on owner-occupied housing. We permit the deduction of home

mortgage interest. We subsidize housing construction directly and through vouchers to consumers. Governments have built housing, and they routinely tear houses down. Relatively unobtrusive housing policy responses to mitigate homelessness are available.

Theoretical Considerations

There is no agreement about how many homeless there are in California or in the nation. That homelessness grew rapidly in the 1980s and remains at a historically high level, however, is not contested. Why this is so has been much debated, and explanations generally fall into two main categories. One set of causal theories puts primary emphasis on the debilitating personal habits and attributes of many of the homeless—alcoholism, drug addiction, and mental disorders—and the changes in social policy toward these illnesses. At the center of this explanation is the perceived relationship between homelessness and mental illness. Large-scale deinstitutionalization of the mentally ill in the last quarter of the 20th century coincided with growth in the number of public shelters and increased visibility of the homeless. Seemingly growing in tandem, these trends implied causation to some. Rapidly rising rents, rapidly declining numbers of low-income rental units, and deceleration in federal housing programs are noted but are thought not to be central.

Others emphasize the economics of the low-rent housing market as the primary cause of the rise of homelessness. They point to trends in the destruction of single resident occupancy units and other types of affordable housing and to insufficient federal funding for new construction or subsidized rents for low-income units. They believe that these factors have increased the pool of Americans vulnerable to homelessness. At the same time, they acknowledge the role of personal attributes and suggest that these characteristics determine who among the vulnerable actually experience homelessness. Within this category of causal theories emphasizing housing, Brendan O'Flaherty (1996) has produced a carefully reasoned examination of the "economics of homelessness." He makes the case that increased income inequality working through the housing market is the root cause of the increase in homelessness that we have observed.

The central argument, briefly put, is this. Increasing inequality in the distribution of income affects the level of homelessness by raising the price of extremely low-quality housing. An increase in income inequality amid a stable average income across a population (which is not unlike the course of incomes in the United States in the 1980s) reduces the demand for middle-quality housing and raises the demand for low-quality housing. That is, those near the lower end of the income distribution whose incomes have fallen relative to others reduce their demand for housing quality, enter the lower-quality market, and bid up prices at the low end. The resulting higher rents for abandonment-quality housing imply a higher cut-off income, below which homelessness is preferred to conventional housing. The higher-income cut-off implies more homelessness because it increases the number of individuals voluntarily choosing homelessness as well as those forced into the streets.

Linking Housing Markets, Income Inequality, and Homelessness

In 1996, in the first monograph published by the Public Policy Institute of California, Deborah Reed and her colleagues tracked the substantial increase in income inequality in California since 1967 and especially during the 1980s. Inequality grew more in California than in the nation as a whole, and the increasing gap between the rich and the poor was due more to deteriorating incomes among the poor than to rising incomes at the top of the income distribution. Reed's work appeared at the same time that Brendan O'Flaherty published his new and plausible theoretical relationship between increasing inequality and a concurrent increase in homelessness. However, although he could support his argument with smatterings of data, the empirical evidence he presented was not nearly as compelling as the theory. Reed's results suggest that the scenario described by O'Flaherty is possible for California, where there are now fewer middle class households—some have moved up in the distribution and some down; but, on average, income is unchanged.

The coincidental appearance of the research by Reed et al. and O'Flaherty strongly support a reconsideration of the link between

inequality and homelessness through the housing market. We set out to examine the relevance of this theory and thus the case for accelerated intervention in the housing market to prevent homelessness. Consequently, the empirical work presented here is focused on this causal theory in particular.

Empirical Results

Of the various categories into which the homeless might be organized, one that is likely to be relatively responsive to housing market conditions is the population eligible for Aid to Families with Dependent Children (AFDC), now known as Temporary Assistance for Needy Families (TANF), who are also "suffering the special need of shelter due to homelessness." Data on this population in California are available from the Homeless Assistance Program (HAP). Although our empirical work analyzes a total of four datasets (two national and two California-specific), the California HAP data best test the income-inequality/homelessness nexus.

Holding constant many of the factors affecting the likelihood of being homeless in any California county,[1] we found measures of housing tightness and of income inequality statistically significant and quantitatively important. A higher vacancy rate, which means a looser housing market, is consistently associated with a lower incidence of homelessness. Where the proportion of the population of the county that is poor (incomes less than $15,000 per year) is high, homelessness is relatively high. In addition, most significantly for the hypothesis that increasing inequality is a driving factor in the growth of homelessness, the ratio of HUD (Department of Housing and Urban Development) fair market rent to per-capita income (a measure of inequality) in a county is statistically significant and consequential. (Fair market rent is the rent commanded by a dwelling at the 40th percentile in the rent distribution.)

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[1]Held constant in our regression analysis were per-capita income, the unemployment rate, the average daily temperature in January, and the proportion of Supplemental Security Income (SSI) recipients in the county's population.

One way to evaluate these results is to consider this question: How large would the changes in housing market conditions have to be to lower homelessness by one-fourth? Our data suggest that, in California, a 1 percent increase in the vacancy rate combined with a small decrease in average monthly rent-to-income ratio from 39.6 to 39.4 percent would do the job. Of course, given that we use imperfect data, there is some uncertainty about these precise estimates. Nevertheless, these results strongly suggest that the task is feasible. We also find that the incidence of homelessness is higher where climates are milder—consistent with a view that the homeless are not driven only by personal failings.

In simulations of the housing markets for the four largest metropolitan areas in California, we also find a powerful link between increases in inequality and increases in homelessness. We also find that general housing subsidy policies have a powerful effect in reducing homelessness. An effective universal housing voucher program is estimated to reduce homelessness by about one-fourth. A program to target subsidies to landlords providing housing in the lowest quartile of the housing quality distribution would largely be passed through to tenants and would have important benefits in reducing homelessness.

Of course, the homeless would be only a very small fraction of the beneficiaries of these policies. Most of the benefits would go to low-income households who are not homeless. Targeting precisely on the homeless may seem potentially more cost-effective, but the homeless are ill defined, small in number by any definition, widely dispersed, and hence virtually impossible to target. Providing housing of such low quality that only the homeless would be attracted might be effective, but individuals so housed would probably still be defined as homeless, much as the poor in shelters are homeless.

Policy Implications

From the policy analyst's perspective, perhaps the most important aspect of the homeless population is that it is very small in the aggregate. The data sources underlying our analyses imply that between 0.2 and 1.3 percent of all housing units in California would house those who have been made homeless by increasing income inequality and its attendant

housing market dynamics. Perhaps even more relevant is that the number of rental units removed from the housing stock per year in each of California's four largest cities far exceeds the number of homeless households in these cities as implied by our data. Relative to the size of the state, it seems that the extent of homelessness that arises from the lack of affordable housing is a manageable problem.

The history of federal interventions intended to make housing more affordable is remarkably consistent in several dimensions. One trend has been to move away from new construction of public housing toward more flexible and intensive use of the privately built housing stock. Consistent with that trend has been a movement at all levels of government away from direct expenditures and toward forgoing tax receipts as the preferred supply-side incentive. A further trend has been the persistent shift away from subsidizing rental units and toward directly subsidizing poor tenants. The epitome of all these trends is the emergence of the tenant-based Section 8 program, which provides housing vouchers to low-income households to cover that portion of the rent that exceeds some pre-set proportion of income (currently 30 percent) in units available on the open market.

One policy consistent with these broader trends is to maintain the number of "barely standard" units so that they remain occupied, rather than letting them deteriorate to the point at which they are best demolished. To determine whether Section 8 housing vouchers, in conjunction with a supply-side policy making use of tax deductions to forestall removal of housing from the low-end housing stock, might be successful, we turn to simulation. In place of the variables of the statistical analyses—vacancy rates, median rents, and the ratio of rents to median income—we manipulate subsidies to individual households in the form of vouchers, and subsidies to landlords in the form of tax deductions targeted at increasing maintenance expenditures.

Our simulation results imply powerful effects from a housing voucher program, such as tenant-based Section 8, on homelessness, even though vouchers are intended primarily to raise the quality of housing for those already housed. Although expensive in some absolute sense, the provision of vouchers to tenants has a significantly larger effect on homelessness than programs of equal total cost that subsidize landlords.

These results are, however, highly contingent upon national averages of income and supply elasticities, construction and maintenance costs, and filtering probabilities. For communities where these parameters are far from the national average, vouchers would need to be accompanied by supply-side subsidies. For example, there is considerable anecdotal evidence that Section 8 vouchers are frequently turned back to their issuer in San Francisco because too few landlords are willing to accept them and because policy restricts the amount of housing available for rent.

Conclusion

Reporting precise estimates of the effects of market conditions and policies upon homelessness surely overstates the accuracy with which these effects can be forecast. Nevertheless, our analysis encourages the addition of housing in California. Reducing barriers to new construction and conversion can have large effects upon homelessness—even though the dwellings added to the housing supply are mainly occupied by those not homeless. Available vacancies matter. Similarly, intelligent housing subsidy policies designed to improve the living conditions of low-income households can have large effects upon the size of the homeless population.

Our analysis reinforces the view that the two-decade growth in homelessness is related to the function of housing markets rather than to the personal disabilities of the homeless population. Local governments should evaluate the potential to make low-quality housing more affordable and thereby reduce homelessness to its 1980 levels. Federal and state governments should stand ready to assist those localities to combine housing vouchers with credits to landlords, which effectively deter the removal of habitable units from the very low end of the housing stock.

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1. Introduction

The visibility of street beggars and those sleeping in public places increased substantially about two decades ago, and "the homeless" became a substantive political issue in 1981. The first "authoritative" count of the homeless appeared shortly thereafter (Hombs and Snyder, 1982), followed by estimates produced by the U.S. Department of Housing and Urban Development (HUD) in 1984, by university scholars (e.g., Rossi, 1989), by nonprofit research centers (e.g., Burt and Cohen, 1989), and by the U.S. Bureau of the Census in 1990. The latter, an attempt to estimate the number of homeless in urban places, was included as a special survey in the 1990 Census of Population. More recently, HUD has required that local governments estimate homeless populations as a prerequisite to funding under the Homeless Assistance Act (1987). These various estimates differ substantially in methodology and definition, and their interpretation is subject to political manipulation as well as legitimate statistical controversy (see Jencks, 1994; O'Flaherty, 1996; Cordray and Pion, 1997). Nevertheless, a consensus has emerged that the incidence of homelessness increased substantially during the 1980s and has yet to decline in the United States and in California.

Despite the methodological debates surrounding counting the homeless, identifying the direction of the time trend has been considerably more successful than uncovering the underlying causes of homelessness and apportioning responsibilities. Possible causes include the deinstitutionalization of the mentally ill, the crack epidemic that swept through America's inner cities during the mid-1980s, and the historically high cost of housing in the lower tail of the housing quality distribution. The last of these, in addition to contributing to homelessness, imposes a burden on all poor households. Several prominent social scientists (in particular, Jencks, 1994), after having surveyed the data carefully, concluded that housing affordability deserved

less emphasis than the readily visible decline in the number of mentally ill committed to institutions and the ravaging consequences of increased drug use.[1]

Recently, however, O'Flaherty (1996) has questioned these conventional explanations. For example, he points out that the introduction of crack cocaine has had ambiguous effects on housing demand and housing consumption. The cost of getting high was reduced, and the resulting savings could have had an income effect, inducing greater housing consumption. Alternatively, with drugs cheaper relative to other goods, a substitution effect could lead to reduced consumption of other goods such as housing.

O'Flaherty has made an even more important contribution. He has crafted a theoretical model of urban housing markets that, when combined with the well-documented increase in income inequality during the 1980s (Reed et al., 1996), points to a more complete explanation of the increase in the incidence of homelessness in California and in the United States than has thus far appeared in the literature. Housing affordability plays a central role in this framework.

The debate surrounding the relative importance of various determinants of homelessness generally relies on indirect evidence. It begins with an informed judgment: Homelessness has increased. It then seeks to draw indirect inferences from changes over time in the factors theorized to be causally related to homelessness. In contrast, our research strategy is to analyze directly the determinants of variation in homelessness. We analyze the incidence of homelessness, defined as the number of homeless per 10,000 residents, using essentially all the systematic survey information available in the United States. We use two cross-sectional datasets in which the unit of observation is the metropolitan area. We also use two bodies of county-level data for the state of California.

We estimate comparably specified models using all four data series and compare the results across samples. For all of these disparate

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[1]This emphasis on the importance of "acute personal problems" in explaining homelessness, and the rejection of housing market explanations, is even more apparent in the European literature on homelessness. See Fitzpatrick (1998).

measures of homelessness, we find that (1) higher vacancy rates are associated with a lower incidence of homelessness, and (2) higher rents for housing just good enough to be considered "standard quality" are associated with greater homelessness. Our analysis also shows that the greater the disparity between housing costs and personal and household incomes, the greater the incidence of homelessness. We also find some weak evidence that metropolitan areas located in states with above-average rates of deinstitutionalization during the 1980s experience higher rates of homelessness. Deinstitutionalization significantly affects homelessness for one of our datasets, although its estimated magnitude is smaller than the effects of the housing variables. In short, we consistently find that housing affordability is strongly associated with the level of homelessness and that it greatly outweighs other causes.

In summary, the origin of the rapid growth in homelessness in the1980s is much debated. No one believes there is a simple, single cause. Explanations fall into two main categories. One puts primary emphasis on the debilitating personal attributes of many of the homeless—alcoholism, crack cocaine addiction, and personality disorders—and the changes in social policy toward these illnesses. Rapidly rising rents, rapidly declining numbers of low-income rental units, and deceleration in federal housing programs are noted but are not thought to be central. The other emphasizes the economics of the low-rent housing market while acknowledging the many debilitating personal attributes of many of the homeless. Neither camp denies the importance of making more housing accessible to the poor.

2. Characteristics of the Homeless Population, Housing Markets, and Income Inequality

The characteristics of the homeless population certainly support the tendency to downplay the importance of housing availability as an explanation for the rise in homelessness during the 1980s. The research reporting the traits of the homeless population describes a group of people who suffer disproportionately from mental illness, drug and alcohol addiction, and extreme social isolation (Burt and Cohen, 1989; Shlay and Rossi, 1992). The majority of the homeless are men unattached to other family members such as a spouse or children. A large proportion of the homeless have spent some time in jail or prison. Given this confluence of personal problems and predicaments, housing availability seems like a proximate rather than a fundamental cause of homelessness.

It may well be that the incidence of homelessness increased during the 1980s as a consequence of the growing incidence of mental illness or drug and alcohol abuse. Even if the incidence of such disorders did not increase in the general population over this time period, changes in the treatment of individuals with personal deficits could have increased the likelihood that such deficits would render them more vulnerable to homelessness than in the past.

We do know that the number of inpatients receiving treatment at state and county mental hospitals declined steadily during this period. The inpatient rate dropped precipitously, from approximately 148 per 100,000 people in 1971 to 30 per 100,000 in 1993. The timing of deinstitutionalization, however, suggests that the conventional wisdom concerning its effect on homelessness during the 1980s may not be

correct. Although homelessness increased substantially during the 1980s, the deinstitutionalization of the mentally ill has been occurring steadily since the mid-1950s. An additional qualification to the deinstitutionalization hypothesis turns on the definition of institutionalization. When defined solely in terms of counts of inpatients in state and county mental hospitals, the rate of institutionalization of the mentally ill declined during the 1980s. However, if the definition of the institutionalized includes a count of the mentally ill in other institutions such as nursing homes and prisons, the direction of the changes in the rate of institutionalization is not clear. For the mentally ill, prison may be an important competing risk with homelessness. Hence, to the extent that the mentally ill in today's prisons would have been in state and county mental hospitals in the past, the declining population in institutions entirely for the mentally ill does not reflect accurately the increased risk of homelessness for this population. Nevertheless, in the regressions we estimate using national data, we do include the institutionalized population (state mental hospital inpatients) as a potential explanatory variable.

As with deinstitutionalization, the rapid increase in income inequality during the 1980s is a prominent trend of the decade and is linked in the literature to the increase in homelessness. The major findings of Reed et al. (1996) in their study of trends in the distribution of income in California suggest that inequality could have contributed quite substantially to the increase in homelessness in the 1980s in two ways. First, the study concludes that inequality in household income increased significantly during the 1980s. Second, "This rise in income inequality is explained by a dramatic decline in income at the lower and lower-middle ranks of the distribution, and a simultaneous growth in income in the upper ranks" (p. 60).

The key to understanding the relationship between increasing income inequality and increases in homelessness lies in the process by which housing units filter down from middle-income to low-income households as posited by hierarchical models of housing markets. According to these models, new housing construction typically occurs above a certain quality threshold. These housing units, if not maintained at their initial quality level, filter down through the rent distribution and

quality distribution via depreciation. Characteristics of the U.S. housing market are consistent with this theory. The great preponderance of housing occupied by the poor originates in the private sector, and rarely is new low-income housing built by the for-profit sector. Consequently, low-income households generally occupy housing units originally built to please middle-income families.

Below some minimum quality, rents do not justify the costs of maintenance and, eventually, landlords abandon these units. A profit-maximizing landlord would consciously allow a housing unit to deteriorate over time for good reason. Housing units built in past decades reflect middle-income housing demand when incomes and, in turn, demands for housing amenities were lower. For example, middle-class housing built immediately after World War II is unlikely to satisfy middle-income families during the 1990s. Houses have become larger and the quality of interior amenities such as bathrooms, built-in appliances, and electrical systems has increased. The higher-quality housing demands of middle-income households, viewed together with increases in real incomes and the high cost of upgrading an existing unit (relative to the cost of new construction), suggest that such households will generally occupy more recently constructed housing. Older housing is left for families lower in the income distribution. Housing suppliers are required, therefore, to balance the allocation of their resources between maintaining existing housing and building new housing. Ultimately, in well-functioning markets, they will get the balance right. When they do, the returns are equalized across building anew and maintaining the old. For many units, the result will be a level of maintenance below that required to maintain the quality of the unit, leading to quality depreciation.

In the lowest portion of the income distribution, individuals must choose between the minimum quality of housing available and homelessness. In the language of economists, for a group with similar preferences, the richest, rational, utility-maximizing homeless person is just indifferent between consuming "abandonment quality" housing and paying its market-determined rent, on one hand, and homelessness at zero rent, on the other. This language is not intended to suggest that choosing homelessness over residence in conventional housing reflects

some preference for the "homeless lifestyle." Instead, homelessness results from having to make decisions constrained by extremely low income. The choice is between two terrible alternatives: consumption of housing of very low quality that absorbs a large portion of resources or increased expenditures on other necessities with zero housing expenditure.

When deciding what to buy and in what quantities, the minimum quality housing available at the price asked by landlords may not compare favorably with other goods. Some households simply will not have sufficient income to rent the minimum quality housing even if they allocate 100 percent of their budgets to housing. Other households may not be willing to pay an extremely high rent and forgo consumption of other goods. Neither type of household includes housing in their consumption baskets. Both sets of consumers are homeless; one by necessity, the other by making a choice difficult for decently housed families to understand.

Changes in the distribution of income affect the level of homelessness most directly through the price of abandonment-quality housing. An increase in household income inequality around a stable average (which corresponds roughly to the course of incomes during the 1980s in California) reduces the demand for middle-quality housing while increasing the demand for low-quality housing. That is, households whose incomes have declined reduce their effective demand for housing, enter the lower-quality housing market, and bid up prices at that end of the market. Higher rents for abandonment-quality housing imply a higher cutoff income level below which homelessness is preferred to conventional housing. The higher income cutoff will, other things equal, imply more homelessness by increasing the number of individuals actually choosing, or being forced into, the streets and shelters.

Reed et al. suggest that this scenario is reasonable for California, where there are now relatively fewer middle-class households—some have moved up in the distribution and some down, but average income is more or less unchanged. The immediate implication is a fall in demand for used housing just below new construction quality. Prices must change: Prices for lower-quality dwellings must rise and for higher-quality ones must fall. With the increase in demand at the lower end, the price of

housing just above abandonment quality rises. When the dust settles, we know that the quality of housing at abandonment must fall. The increase in demand for low-quality housing will cause adjustments in both price and quantity: Prices increase because of greater competition for lower-quality housing, and the quantity of low-quality housing units increases as owners dip further into abandonment-quality units to satisfy the increase in demand. Note that the marginal units would not have been profitable had the distribution of income not changed.

To be sure, the expansion of supply along this margin will partially mitigate the upward pressure on the price of low-quality housing. However, the extent to which the available stock of housing supplied to the market can adjust in this manner will be limited by minimum standard codes present in nearly all metropolitan areas (e.g., minimum square footage requirements and codes regarding separate entrances).

Under these conditions, the incidence of homelessness increases inexorably. There are more homeless, but not just because there are more poor people. There are more homeless because homelessness extends further up the income distribution. After the distribution of income has changed, some households of absolutely higher income facing, as they do, higher prices and probably lower quality, choose not to buy housing at all. Rather, they choose to spend their meager resources elsewhere.

O'Flaherty's model yields several empirical predictions. For example, the model predicts that, across local housing markets, holding constant the distribution of housing costs, the incidence of homelessness will be greater if household income is more unequally distributed. The model also suggests that the greater the disparity between the distributions of housing rents and income (measured, for example, by the ratio of median rents to median income) the higher the incidence of homelessness. Below, we assess whether these predictions are empirically supported by geographic and within-county variation in homelessness.

Measures of Homelessness: The Data

The characteristics of the four datasets we use are described in detail in Appendix A. Here, we summarize their salient features. The first of the national datasets is the S-Night homeless counts enumerated by the

U.S. Bureau of the Census. The second national dataset consists of the survey evidence gathered by Burt (1992a). Burt's data measure the availability of beds in public shelters or private facilities serving the homeless in a large selection of cities. The advantages of these datasets include the large cross-sectional variation across the nation in the factors thought to be potential determinants of homelessness and state-to-state variation in such institutional factors as the pace of deinstitutionalization. The principal disadvantage of these data sources arises from the possibility that unobserved variation in metropolitan areas and in state responses to homelessness may bias estimates of causal relationships. Despite their limitations, these datasets contribute to our ability to interpret the data for California.

For California, we explore the determinants of intercounty variation in homelessness using two datasets. One consists of counts from the Continuum-of-Care reports filed by California counties with HUD. This county-level cross-section includes separate estimates of the homeless sleeping in shelters and those sleeping in public places and hence is a measure of the colloquially homeless. The second California data source is a county-level panel for the period 1989 to 1996 of monthly caseloads recorded by the California Homeless Assistance Program (HAP). The HAP program helps families eligible for Aid to Families with Dependent Children (AFDC) in need of shelter by providing emergency or transitional assistance.[1] In addition to helping us understand what is happening in California, these data permit us to analyze variations in the incidence of housing distress that occur under a single set of state institutions (i.e., the effect of variation in state-led efforts to combat homelessness will not affect the relationships that we estimate with the two California datasets). The AFDC-HAP data are particularly useful in that we observe county-level caseloads over an eight-year period and are able to use standard panel techniques to address unobserved variations across the counties not captured in our other model specifications.

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[1]AFDC was superseded in 1996 by a new program entitled Temporary Assistance for Needy Families (TANF). In California, this program is called CalWORKS.

The S-Night Enumeration

This dataset resulted from the count by Census enumerators of those living in shelters or on the streets in urban places with populations in excess of 50,000 people on March 20, 1990. We analyze these data aggregated to the level of the metropolitan statistical area (MSA). The methodology employed by the Census in the S-Night enumeration has been criticized by many observers, and it is widely believed that the 1990 Census represents a substantial undercount of the homeless (Hudson, 1993).

The Burt Survey

Dissatisfied with the Census methodology, the Urban Institute surveyed local officials in major cities to establish the number of beds available to house the homeless. Martha Burt, principal investigator, obtained lists of shelter providers from the Comprehensive Homeless Assistance Plans (CHAPs) submitted by local officials and supplemented these lists with additional shelter providers identified by coalitions and coordinators of services for the homeless. All cities with populations exceeding 100,000 in 1986 were surveyed. Burt produced counts for 147 cities and 35 suburban areas, measuring 1989 shelter-bed capacity for each area. We analyzed the counts for cities. These data are also likely to undercount the homeless (not all homeless stay in shelters). But the data were collected with careful attention paid to consistency across cities, and experts speculate that the cross-sectional variation in this dataset strongly correlates with actual variation in the incidence of homelessness. More concretely, Burt's shelter-bed counts are strongly correlated with earlier counts of the homeless population conducted by the Urban Institute in 1987 ($r = .934$) and by HUD in 1984 ($r = .827$) (Burt, 1992a).

Continuum-of-Care Homeless Counts

Since 1994, HUD has provided support under the Super Notice of Fund Availability (NOFA) program to help the homeless achieve self-sufficiency and permanent housing. Appropriations for HUD's Homeless Assistance Grant programs nationwide totaled $923 million in 1998; appropriations for fiscal year 2000 were $975 million. To gain

access to funding under this program, eligible counties must submit a Continuum-of-Care plan to HUD. These plans provide the rationale for community requests for funding under a variety of federal programs such as the Supportive Housing Program and the Shelter Plus Care Program. A major reason for requiring these plans is to obtain consistent quantitative estimates of the numbers of homeless persons by type of housing need and the availability of housing by type to meet these needs. Guidelines for completion of these plans attempt to enforce a common structure for counting the homeless and taking inventory of the relevant housing stock. The guidelines elicit estimates of the incidence of homelessness at a single point in time (U.S. Department of Housing and Urban Development, 1994, p. 6).

Bonnewit (1998) has assembled these reports for the 33 counties in California eligible under the Super NOFA program. Further, she has supplemented these reports by identifying comparable published information for 19 of the 25 counties ineligible for the program. For the six remaining counties, she estimated the number of homeless families and individuals using the AFDC-HAP dataset described below.[2] This cross-sectional dataset provides comprehensive estimates of the number of homeless individuals and the number of homeless family members for each of California's 58 counties. Estimates are for a single point in time in 1996 or 1997.

Bonnewit's estimates suggest that there are about 361,000 homeless in California. This is a large number, amounting to 1.1 percent of the state population.[3] About 37 percent of the homeless in her dataset are persons in families with children: The rest are individuals.

The California Homeless Assistance Program

Since 1991, the Social Security Act has permitted states to operate, at their option, an "Emergency Assistance Program for needy families with

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[2]These extrapolations assume that those in families, as a fraction of the homeless population, are the same in these six counties as the average for the other counties in California.

[3]We suspect that the methods used and the incentives implicit in these Continuum-of-Care reports lead to overestimates of homelessness, but we have no reason to think that the importance of these factors varies across counties.

children (whether or not eligible for AFDC) if the assistance is necessary to avoid the destitution of the child or to provide living arrangements in a home for the child" (U.S. House of Representatives, 1991, p. 592). The statute authorized a 50 percent federal match for accommodation for up to 30 days in any one-year period. Regulations implementing the statute were revised several times in response to perceived abuses, notably, the conditions in some "welfare hotels" in large cities.

In California, this emergency assistance program, the Homeless Assistance Program, was established in 1988 as a component of AFDC. AFDC-HAP was created as part of a court settlement after the California Court of Appeals ordered the state to provide shelter to children in homeless families. The program provides payments to families participating in, or apparently eligible for, AFDC (now CalWORKS) suffering the special need for shelter because of homelessness. Eligibility is based on the income of the family and family composition.

The program provides grants for "temporary" shelter assistance (subject to verification of shelter expenditures and housing search) and for "permanent" housing assistance. The latter grants include reimbursement of move-in costs such as security and utility deposits. Since its inception a decade ago, program regulations and eligibility standards have changed several times, most notably in 1996 when eligibility for assistance was confined to once per lifetime. Hence, in all the statistical models we estimated, we control for year-to-year variation in program regulations common to all counties. The data cover all 58 California counties and correspond to the period from 1989 to 1996.[4]

The Datasets Complement Each Other

Analyses using the Census, Burt, and the two California datasets complement each other in many respects. First, the Census and the Burt data represent different approaches to the measurement of a single concept, "the colloquial homeless." The Census attempts to measure all

[4]We obtained data on the number of families receiving temporary and permanent assistance per month. We summed the monthly caseloads within years to arrive at a count of the number of families receiving assistance during the year. In the least restrictive years, families were permitted assistance no more than once annually. Summing the data does not double-count repeat users.

homeless people on a given night, whereas Burt's survey essentially measures the availability of one type of service for the homeless (shelter beds). An advantage of the Burt survey is the consistency of enumeration methods across cities. The disadvantage, of course, is that there is hardly a one-to-one relationship between shelter beds and homeless persons. An advantage of the S-Night count is its attempt to enumerate fully the homeless population. A major disadvantage, however, is the possibility that the S-Night enumeration severely undercounted the homeless in a manner that was not consistent across places.[5] Both national datasets are based upon reasonably large samples: 269 MSAs for the Census enumeration and 119 cities for the Burt data. Finally, since the metropolitan areas and cities covered in these two datasets cross state boundaries, interstate variation in changes in the inpatient rates of reliance on mental hospitals can be used to test for an effect of deinstitutionalization on the incidence of homelessness.

An additional disadvantage of the national datasets derives from the possibility that unobserved interstate and intermetropolitan area variation in housing assistance programs may have important effects on homelessness. Moreover, if such unobserved services are systematically related to the variables included in our regression analyses such as vacancy rates and rents, the statistical results from these cross-sectional models may be biased. This qualification, however, should be less important for our analysis of the two California datasets. In the California data, variation in the incidence of homelessness occurs under the same set of state institutions at a point in time. Moreover, although the Continuum-of-Care data are a single-year cross-section, as are the national data, our AFDC-HAP data provide an eight-year panel of county observations. The HAP data permit us to control for effects specific to each county that do not change over the period; thus, any intercounty factors that affect homelessness but do not vary over the time period covered by our panel are eliminated. By using a comparable model specification for all datasets, the results from the within-county models using the HAP data provide a consistency check on the cross-

[5]For example, undercounts were thought to be particularly large in places with large minority populations (Hudson, 1993).

sectional results using the Continuum-of-Care series, S-Night, and Burt data.

The Continuum-of-Care data and the AFDC-HAP caseloads complement each other, since they pertain to different subgroups within the population of people most likely to suffer homelessness. A component of the Continuum-of-Care series corresponds more closely to visible homelessness—predominantly single men who sleep in shelters or in public places and who suffer disproportionately from mental illness and substance abuse problems. The AFDC-HAP caseloads correspond to intact families with children who find themselves in need of emergency housing assistance. A priori, one might suspect that housing and labor market conditions would be a more significant determinant of homelessness among the latter than among the former. Hence, analyzing both datasets yields some comparative insights.

The Different Concepts of Homelessness Yield a Consistent Story

To quantify the effects of housing affordability on homelessness, we tested for relationships between homelessness and several variables. For all datasets, we analyzed the effects of housing vacancy rates and median rents on homelessness. If homelessness is a housing market problem, homelessness should rise as vacancy rates fall and rise as rents rise. We also explored the effects of measures of household or per-capita income, the proportion of residents who are poor (annual income less than $15,000), and local unemployment rates. If homelessness is determined by insufficient income or slack labor markets, homelessness should be positively correlated with the unemployment rate and negatively correlated with median incomes. Finally, the larger the pool of poor households, the greater is the population at risk of a spell of homelessness.

To provide evidence on the arguments offered by O'Flaherty (1996), we estimated two model specifications for the S-Night, Burt, and Continuum-of-Care data. These models were intended to capture the effect of a mismatch between the distribution of housing prices and the distribution of incomes. First, we included a regressor measuring the

ratio of median rent to median household income for the S-Night and Burt samples, and the ratio of fair market rents to per-capita income for the Continuum-of-Care sample. Higher average rents relative to average income should be positively correlated with the cross-sectional incidence of homelessness. We also estimated a similarly specified model using the AFDC-HAP panel. Second, a more precise prediction from O'Flaherty's model is that, holding the distribution of housing prices constant, homelessness increases with the degree of income inequality. We evaluated this prediction using the three cross-sections by regressing homelessness on vacancy rates, median rents, the proportion of low-income households (i.e., the fraction with 1989 annual incomes below $15,000), and median household income. Holding constant the proportion of households in the lower tail of the income distribution, higher median household incomes indicate greater levels of inequality. The O'Flaherty model predicts that median household income in this specification will be positively related to the incidence of homelessness. Since the proportion of low-income households is measured only at Census years, we were unable to estimate this specification using the HAP panel.

In all models, we included controls for January temperature and the number of disability income—i.e., Supplemental Security Income (SSI)—recipients per 10,000 state residents. In addition, for the two national datasets, we attached state-level measures of the change in the mental hospital inpatient population per 100,000 state residents between 1980 and 1990. Since homelessness is an even less-attractive option in colder areas, we expected a positive relationship between January temperatures and the homeless incidence. The expected relationship with the SSI population is less clear. A proportionally larger recipient population may indicate a larger population at risk. Alternatively, more SSI recipients may indicate that local service providers are more effective in connecting the potentially homeless to available program support. Finally, if deinstitutionalization has been an important contributor to the increase in homelessness, cities and metropolitan areas in states where the decrease in the inpatient population was large should have higher rates of homelessness. Hence, changes in the inpatient population should be negatively associated with homelessness.

The Effects of the Housing Variables Are Individually Important

The data entered into our regressions and their sources are displayed and discussed at length in Appendix B. Here, we summarize the raw data. Figures 2.1 through 2.6 display the relationships between rates of homelessness and housing, income, and weather variables for each of the four datasets. We divide the S-Night, Burt, and Continuum-of-Care datasets into two groups—areas in which homelessness exceeds the median and areas in which homelessness falls below the median—and then, in the figures, present mean values separately for areas with above- and below-median rates of homelessness.

The HAP data are treated differently. We divide the sample into those years in which a county's homelessness rate is above its own mean (as calculated using all available years of information) and below its own mean. In addition, the averages presented in the figures for the housing and income variables are the *average deviations* from county-specific averages for the variable of interest. For example, in Figure 2.1, the AFDC-HAP bars present the average deviation in vacancy rates from the respective county average for counties with above-median and below-median homelessness. Hence, in counties and years when the vacancy rate is above average, homelessness is below average; and in counties and years when the vacancy rate in the county is below average, homelessness is above average.[6]

The mean incidence of homelessness varies considerably across cities and counties in each database. In the S-Night tabulations, for example, homelessness for the entire sample is 11 per 10,000 metropolitan area residents. For areas below the median, homelessness averages 4.2 per 10,000 whereas for areas above the median the incidence is 14.1 per 10,000. Obviously the distinction between above-average and below-average homelessness is meaningful.

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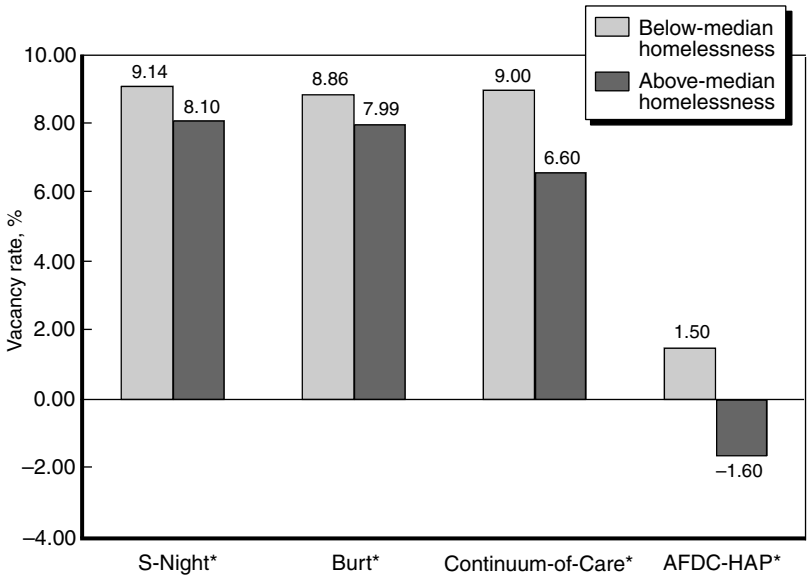
[6]The presentation of the data as deviations from county-specific means is what accounts for the negative values in several of the figures. These deviations are multiplied by 100 to align the scales of the AFDC-HAP variables and the values for the other three datasets.

The basic patterns in the explanatory variables suggest that the associations between housing variables and homelessness are as expected. Figure 2.1 shows that homelessness is higher where vacant units are scarcer. With all four datasets, there is a statistically significant difference between the vacancy rates in cities (counties) with above-median and below-median homelessness rates. Moreover, Figure 2.2 shows that in all but one of the data sets, rents are higher in areas with above-median homelessness rates. Hence, for each of these four diverse measures of homelessness, a clear relationship between measures of housing availability and homelessness is detected.

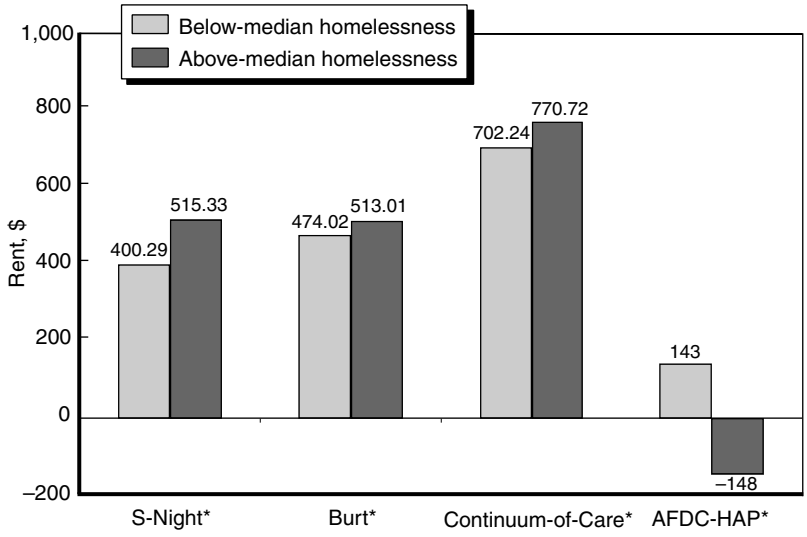
Figure 2.3 presents comparisons of the average ratio of rent to income in cities (counties) with above- and below-median homelessness. These ratios gauge the extent to which there is a disparity between



NOTE: AFDC-HAP figures give the deviation from county-level averages multiplied by 100.

*The difference across categories is statistically significant.

Figure 2.1—Homelessness Is Lower Where Vacancy Rates Are Higher



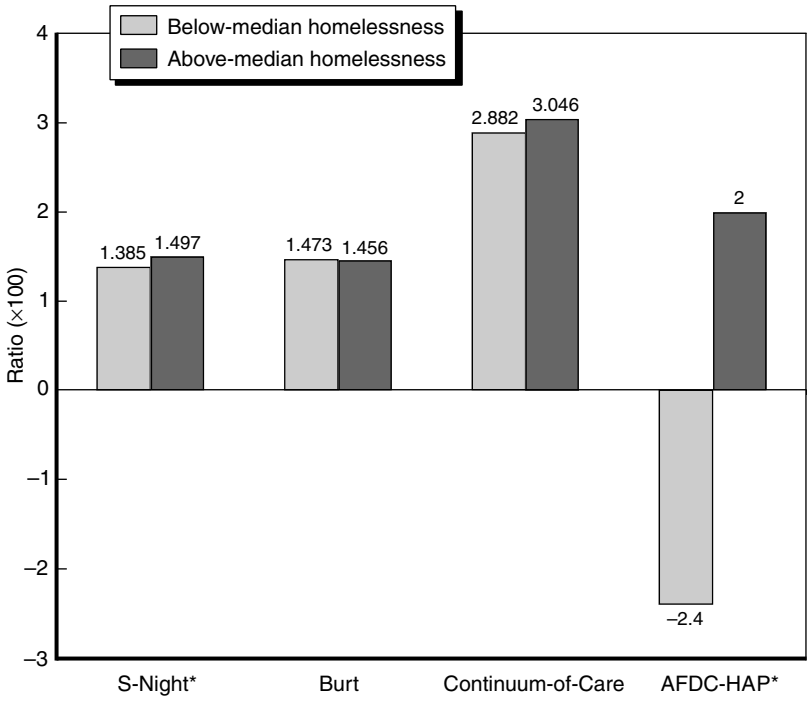
NOTE: AFDC-HAP figures give the deviation from county-level averages multiplied by 100.
*The difference across categories is statistically significant.

Figure 2.2—Homelessness Is More Prevalent Where Rents Are Higher

median rents and median incomes. The figure shows that for three of the four measures, areas with above-median homelessness have higher rent-to-income ratios than areas with below-median homelessness. Moreover, for two of our samples, these mean differences are statistically significant.

The final three figures present similar comparisons for median incomes, poverty rates, and mean January temperatures. The findings in Figures 2.4 and 2.5 are surprising: More homelessness is associated with statistically significant higher incomes and lower poverty rates for two of the four samples. Tighter housing markets in larger, relatively wealthy urban areas may be responsible for driving such patterns. The pattern in Figure 2.6, on the other hand, is as expected. In two of the four datasets, where the weather is a little more conducive to living on the streets, homelessness is more prevalent.

In sum, taken one by one, the housing variables behaved as we expected. Especially important is that the relationships in the HAP data

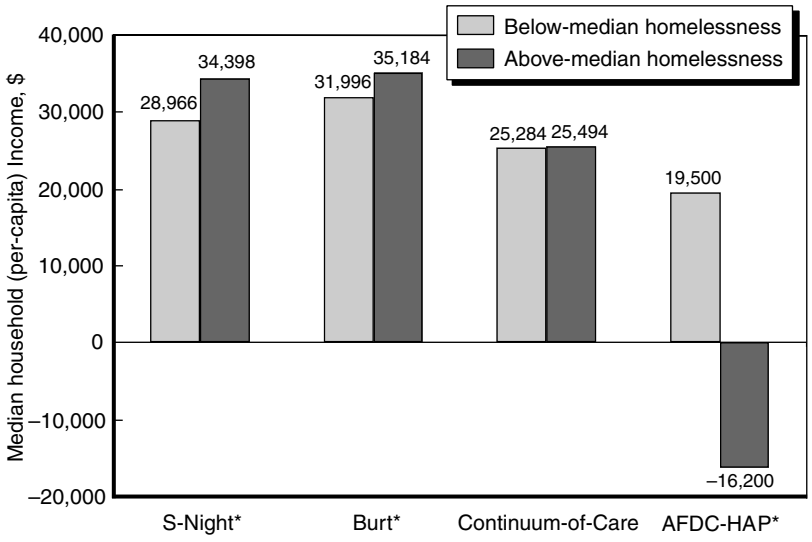


NOTE: AFDC-HAP figures give deviations from state averages multiplied by 100.

*The difference across catagories is statistically significant.

Figure 2.3—Homelessness Is More Prevalent Where the Ratio of Rents to Income Is Higher

are generally similar to those of the other samples. For all datasets, lower vacancy rates are associated with higher homelessness. One important difference between the HAP results and those for the other three datasets is that rents are inversely related to homelessness in the HAP data and positively related to homelessness for the other three measures. Nonetheless, the ratio of rents to income (arguably the more accurate measure of local affordability) is positively related to homelessness in the HAP sample and in two of the cross-sectional samples. We feel that this concordance for vacancy rates and the ratio of rents-to-income provides strong support for housing explanations of homelessness. This consistency suggests strongly that results are robust after controlling for



NOTE: AFDC-HAP figures give the deviations from county-level averages multiplied by 100.
*The difference across categories is statisically significant.

Figure 2.4—Higher Average Incomes Are Associated with More Homelessness

effects specific to an area that do not change over the period. Of course, one would want to know whether these patterns survive statistical adjustment for other factors, demographic and otherwise, that may also affect the incidence of homelessness. The following section demonstrates that these results are also robust across datasets when the housing and other variables are evaluated simultaneously.

The Effects of Housing Market Conditions Are Important Determinants of Homelessness

In Appendix B, we report the results of a detailed statistical analysis of the multivariate relationship between homelessness and housing market conditions. The analysis is conducted separately for each of the four datasets described above. In this analysis, we investigate the independent effects of housing vacancy rates, rent levels, income, and

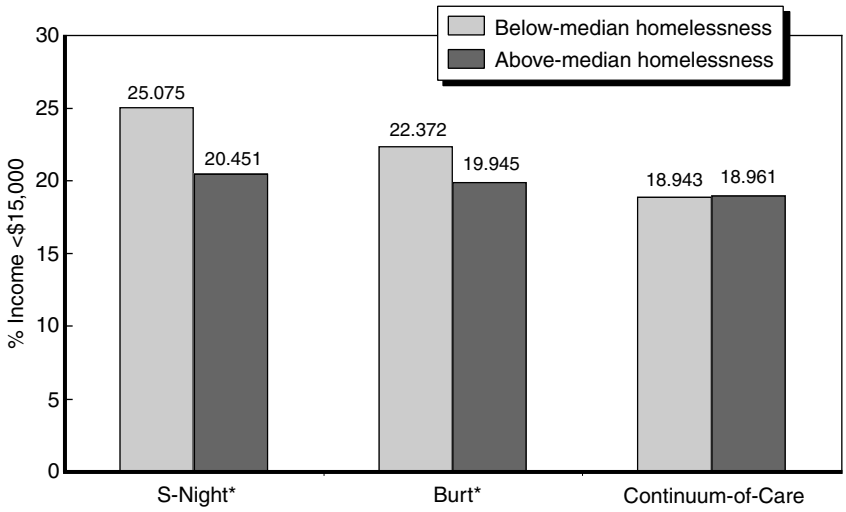


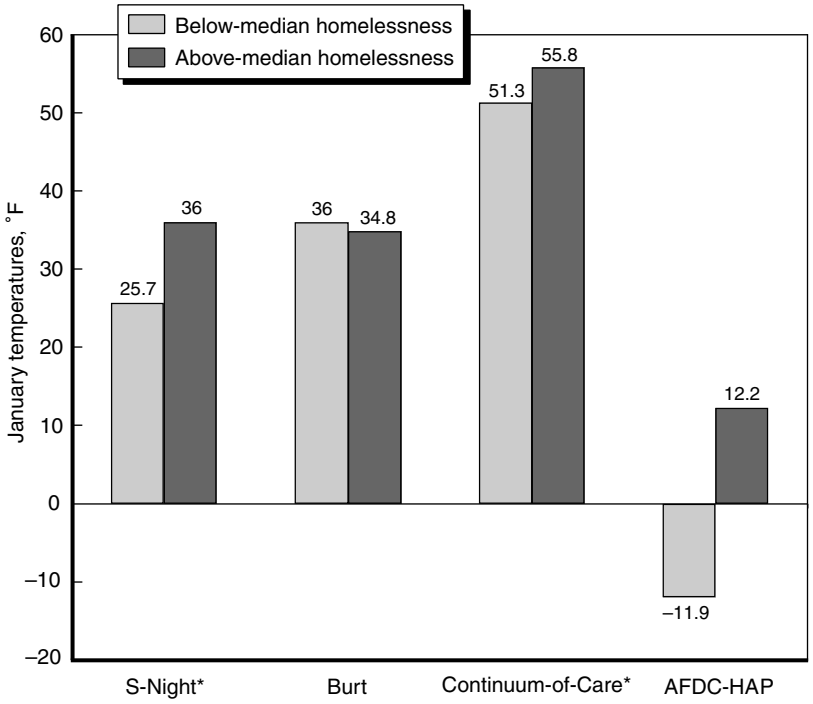
Figure 2.5—Homelessness Is Lower Where Poverty Is More Prevalent

poverty populations upon the incidence of homelessness. In the specification of the statistical models, we hold constant the effects of climatic conditions (i.e., January temperatures), disability populations (i.e., SSI recipients), unemployment, and changes in mental patient and prison populations. We summarize the results and their implications here.

The S-Night Counts

Multiple regression estimates reveal that rental vacancy rates have a strong negative and significant effect on homelessness whereas the ratio of rents to income is positively related to homelessness (see Table B.3) Higher rents are associated with higher levels of homelessness.

Metropolitan areas with a higher percentage of households with income below $15,000 have a higher incidence of homelessness. In addition, median household income is positively (and significantly) associated with homelessness. These relationships control for the proportion of households in the lower tail of the earnings distribution



NOTE: AFDC-HAP figures give the deviation from county-level averages multiplied by 100.

*The difference across categories is statisically significant.

Figure 2.6—Homelessness Is More Prevalent Where Winters Are Less Severe

(the proportion with household income below $15,000); thus, high median household incomes indicate higher levels of household income inequality. Hence, these patterns are consistent with the expectation that homelessness is higher in cities with greater inequality.

The metropolitan area unemployment rate is negative but statistically insignificant. There are no measurable effects of deinstitutionalization as measured by the changes in the inpatient population, the prison population, and the SSI recipient population on the incidence of homelessness. Finally, warmer weather almost always has a positive significant effect on the incidence of homelessness.

The Shelter Counts

For a variety of reasons discussed in Appendix B, analyses of the Burt shelter counts are more difficult to interpret. These data, however, do indicate that decreases in the state mental hospital populations are associated with an increased incidence of homelessness (see Table B.3).

Continuum-of-Care in California

For homeless *individuals*, vacancy rates are consistently negatively related to homelessness (see Table B.4). The effect of weather is also consistent with expectations. The statistical results are consistent with expectations, but the sample is small and, as a consequence, coefficients are not significant. For individuals in families, we find no meaningful results other than that warmer weather is associated with greater homelessness.

AFDC-HAP in California

Our final set of estimation results uses the AFDC-HAP panel for California counties. Table B.5 presents separate results for households receiving permanent assistance over the course of the year and households receiving temporary assistance.

These results provide the strongest evidence that measures of housing market tightness are important determinants of homelessness. For the permanent caseloads, housing vacancy rates have a strong negative and statistically significant effect (at the 1 percent level) on the incidence of homelessness. Moreover, the point estimates of the effect are quite similar across model specifications. Higher rents raise homelessness as predicted by theory. Higher ratios of rents to incomes raise homelessness. For homelessness, as measured by the incidence of households seeking permanent assistance in response to a spell of homelessness, measures of housing market tightness exhibit strong and statistically significant effects consistent with the predictions of theory.

We find a significant negative effect of per-capita income on the incidence of families seeking permanent assistance. This result is the opposite of the effect of income using the S-Night sample. However, the specifications of these two models differ in that we cannot control for the

proportion of county residents who are poor in the HAP sample. This is because this variable is observed only in Census years, and thus we cannot identify within-county variation in poverty. Hence, the income effect for the HAP sample is likely to pick up within-county variation in poverty, whereas variation in median income in the cross-sectional samples (holding constant the proportion poor) captures variation in income inequality. There are no measurable effects of county unemployment rates and no effects of the SSI populations that are consistent and significant across specifications. Once again, warmer weather is positively associated with homelessness in all specifications.

For families seeking temporary assistance, the patterns are quite similar to the results for the permanent caseloads. Housing vacancy rates are consistently negative and significant. Higher rents generally increase homelessness. Higher ratios of rents to income raise homelessness. Per-capita income, however, is insignificant in all regressions. Again, we find positive significant effects of warm weather.

Summary and Conclusion

Access to affordable housing matters, although it is, of course, not the whole story. In two datasets covering very different homeless populations, the S-Night and HAP samples, vacancy rates, rents, income, and income inequality all are statistically significant and quantitatively important and carry the signs that theory predicts. Only the Burt sample results are consistent with the view that personal defects are quantitatively significant and housing accessibility is not.

The more detailed statistical results reported in Appendix B can be crudely summarized (with some loss of precision) in a single table. Table 2.1 summarizes four multivariate regressions estimated using all four sources of data in combination. Column 1 presents regression results relating homelessness to two measures of housing market conditions—vacancy rates and rents. The vacancy rate is negative, and its coefficient is over five times its standard error. Similarly, the effect of rents upon homelessness is large and statistically quite important. Holding other things constant, a 10 percent increase in rents is associated with a 6-1/2 percent increase in the incidence of homelessness.

Table 2.1

Logarithmic Regressions of Homeless Rates on Measures of Housing Availability, Rents-to-Income Ratios, and Metropolitan Area (and County) Variables

	(1)	(2)	(3)	(4)
Rental vacancy rate	-0.312	-0.932	-0.601	-0.668
	(0.051)	(0.058)	(0.052)	(0.057)
Rents[a]	1.464	1.361	—	—
	(0.089)	(0.108)		
Rents/income	—	—	0.776	0.352
			(0.160)	(0.201)
January temperature	—	0.106	—	0.401
		(0.051)		(0.052)
Unemployment rate	—	-0.131	—	-0.304
		(0.094)		(0.098)
Disability pension recipients	—	-0.184	—	-0.194
(per 10,000)		(0.065)		(0.072)
R^2	0.975	0.976	0.969	0.973
Number	1,404	1,396	1,404	1,396

NOTES: The dependent variable is the logarithm of the homelessness rate. Standard errors are in parentheses. The data combine the four homelessness datasets described in the text. Fixed effects for each dataset as well as fixed effects for county and year (for the California datasets) are included in each regression. A more detailed discussion of this specification appears in Quigley and Raphael (2000).

[a]Rents are measured by either median gross rents for the metropolitan area or Fair Market Rents as determined by HUD.

Column 2 adds three control variables to the analysis. Metropolitan areas or counties with milder winters experience higher levels of homelessness. There is little evidence that homelessness varies with the local unemployment rate. The coefficient on the rate of disability benefit receipt suggests that this rate negatively affects homelessness. It is important to note that the magnitude and significance of the housing market variables are unchanged when these additional controls are used.

Column 3 reports a different specification of housing market conditions. In this specification, we include rental vacancy rates and the ratio of median rents to median incomes as explanatory variables. In this specification, the coefficient on the rental vacancy rate is large, and its t-ratio is about ten. A 10 percent increase in vacancy rates (from 6.7

percent, on average, to 8.4 percent) is associated with a 6 percent reduction in rates of homelessness. The rent-to-income variable is highly significant, indicating quite clearly that in housing markets where rents are high, relative to ability to pay, the incidence of homelessness is higher.

Column 4 adds the other controls to the analysis. The qualitative nature of the results is unchanged, but the magnitude of the rent-to-income variable is reduced substantially and is insignificantly different from zero. The results presented in the table suggest that relatively small changes in housing market conditions can have substantial effects upon rates of homelessness. Consider, for example, a reduction in the rate of homelessness by one-fourth. The quantitative results suggest that this could be achieved in these housing markets by a one percentage point increase in the vacancy rate (from an average of 8.4 percent) combined with a decrease in average monthly median rent-to-income ratios from 17.5 to 16.8 percent. As is discussed in Appendix B, the accuracy of these precise estimates is open to question. Nevertheless, the calculations suggest that modest changes in housing market conditions can have substantial effects upon the incidence of homelessness.

3. Policy Responses

The Extent of the Problem

Homelessness is a complex problem, and complex problems call for many-faceted policy responses. We have not pretended to examine the whole range of issues that homelessness raises. Rather, we have made the narrow argument that growing income inequality and identifiable housing market conditions have contributed to the growth of homelessness since the early 1980s. Households denied access to housing because of housing market conditions and growing income inequality are households that could meet the obligations normally expected of a tenant. In this chapter, we evaluate various housing market policies that could restore access to decent housing to low-income California households who can meet the obligations of tenants. How many such homeless are there in California? How large is this population relative to the annual changes in the low-income housing stock? Is it feasible to meet the minimal goal of reducing homelessness to its 1980 levels with housing policies alone? We answer these questions below.

Estimating the Need

We have not tried to count the homeless population in California as a whole or in any of its housing markets. However, the data sources presented in the previous chapter and detailed in Appendix A include estimates of the homeless in metropolitan areas across the nation and in the state of California and its individual counties. Since different conceptions of what constitutes homelessness structure the different empirical studies, and since there are many difficulties in implementing any of the concepts when gathering the data, the range of these estimates is large. However, some notion of the upper and lower bounds to the prevalence of homelessness can be extracted from our four major data sources. For California, Bonnewitt's estimates from the Continuum-of-

Care data are large relative to the other data sources and probably exceed a reasonable upper bound.[1] The HAP data for California for temporary assistance in the most recent year, when assistance was available only once in a lifetime and only for AFDC-eligible families, constitute a lower bound. The national datasets fall between these two. For our purposes, we need to know the number of "affordable" dwelling units that these estimates of the homeless imply. We therefore must know how many of the homeless are in family units. We also need to know the proportion of individuals and families who can meet the responsibilities of being a tenant.

Bonnewitt's reworking of the Continuum-of-Care data for 1996–1997 reports 227,000 individuals and 134,000 people in families with children as homeless in California. Assuming that each individual requires a housing unit and that average family size is two,[2] the total number of required units is roughly 295,000 (227,000 + 67,000). Assuming that 40 percent of these household units can meet the responsibilities of being a tenant reduces the number of required private dwellings (for purposes of our calculations) to roughly 118,000.[3] Thus, an upper bound to the requisite number of units is 118,000.

In 1997, 21,000 families received temporary assistance under the HAP program in California. In 1990, when eligibility was far less restrictive, 95,000 families received assistance. It would seem then that the housing shortfall for AFDC-eligible families that can maintain themselves if the rent is low enough or their subsidy is high enough lies between 21,000 and 95,000 units. Thus, a lower-bound estimate to the number of requisite units is 21,000.

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[1]Federal funding is conditional on the number of homeless in a county, and no independent estimate is readily available. Thus, the incentive of the reporting agencies is to provide an upper-bound estimate. It may also be that counties are reporting the number of homeless in a year, rather than on any given night.

[2]Average family size is probably closer to three than two for families with children. Assuming a family size of two, therefore, is consistent with seeking an upper-bound estimate. See Jencks (1994, p.11, Table 1).

[3]Figures presented by Burt (1992a) indicate that roughly 40 percent of the homeless interviewed in shelters at a given point in time do not have a history of being institutionalized for mental illness, for a substance abuse problem, or for committing a crime.

In summary, the data on homelessness in California, which we relied upon earlier, provide bounds on the number of private housing units needed to house the "housable" homeless. The difference between the number of people living in conventional housing units and the number who could live in such units if only they had sufficient resources to pay the rent lies between 21,000 and 118,000 households.[4] The true number is probably closer to the lower than the upper bound.

Can a range greater than fivefold serve as a basis for policy? Perhaps it can. Either number is small relative to the annual change in the number of low-income housing units potentially available to the very poor. In 1980, when the numbers of homeless were beginning to rise, there were 8.6 million households in standard housing in California. During the decade of the 1980s, then, the number of housing units required to forestall homelessness ranged between a mere 0.2 and 1.4 percent of all housing units. Perhaps more relevant is the number of housing units that are removed from the housing stock each year by demolition and abandonment. Since the very beginnings of urban renewal, critics have argued that demolition and abandonment would raise the cost of housing to the poor and expand homelessness (Anderson, 1964). It may still be true, even now when massive demolition projects are no longer a central component of federal housing policy, that housing for the homeless could be the by-product of less demolition and abandonment.

As Table 3.1 indicates, in the four cities that we will examine in some detail, the loss in the low-income housing stock in 1980 and in 1990 through demolition, abandonment, change in use, and gentrification substantially exceeded the number of homeless reported by the Census. In 1980 the demolition rate was about 3.5 percent of the housing stock or 325,000 units. By 1990, demolition rates had substantially declined, particularly in San Francisco and Los Angeles. But even applying the low rate of demolition in Los Angeles to the 1980

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[4]S-Night estimates of the number of Californians homeless on a particular night in 1990 range from a low of 64,400 to a high of 226,800. If the average number of persons in a household is 1.2 (as in 1997), and if only 40 percent of these households would be responsible tenants, the number of units required in a year would range from a high of 75,600 to a low of 21,467.

Table 3.1

Housing Removal Rates in Four California Cities, 1980 and 1990
(in percent)

City	1980 Rate	1990 Rate	Change, 1980–1990
Removal Rates			
San Francisco	3.58	2.30	–35.72
Los Angeles	3.13	1.74	–44.48
San Diego	3.58	3.57	–0.26
Sacramento	3.59	3.59	–0.07
Homeless Rates			
San Francisco	0.53	0.64	19.84
Los Angeles	0.53	0.62	16.58
San Diego	0.53	0.86	60.85
Sacramento	0.52	0.43	–18.49

SOURCE: Author's computations from the *Annual Housing Survey.*

California housing stock yields about 161,500 units to serve a maximum of 118,000 households. Relative to the size of the California housing market, it would seem that homelessness resulting from a lack of affordability should be a manageable problem.

New Construction Is Not the Solution[5]

Seeking to provide a decent home for all Americans first became federal policy in the Housing Act of 1937. From 1937 until 1962, all subsidized low-rent housing for low-income households was built, owned, and operated by government entities. Between 1962 and 1974, private entities were increasingly encouraged to provide low-rent federally subsidized housing for the poor. Finally, in 1974, the link between new construction of dwelling units and the subsidy to low-income housing was broken.

New construction of public housing was the only federal housing assistance program for the poor for 25 years. From the beginning, and to this day, this program elicited considerable excess demand. Nevertheless,

[5]This survey draws on Quigley (2000).

public housing was increasingly plagued by the inconsistent demands placed upon it. Although units of government were both owners and managers, project planning as well as day-to-day operation fell to local housing authorities (LHAs). LHAs were to meet operating costs out of rental income, while the federal government bore the capital costs. The incentive for the LHAs to substitute capital for operating costs was, of course, quickly recognized and exploited (e.g., high rise, small and few windows, small common areas). It has been estimated that subsidizing input rather than output quantities raised taxpayer costs by 40 percent over the value of housing produced. Nevertheless, since rents were tied to tenant income, as the units aged the LHAs were forced to take in higher-income tenants and to raise the acceptable rent-to-income ratio to cover operating costs. In response, in 1970, the Brooke Amendment capped rent as a percentage of income and compensated LHAs with federal operating subsidies.

A second inconsistency built into public provision of low-income housing also originates in the reliance upon LHAs. Public housing can be built in a community only if an LHA has been created. Creating an LHA is a local decision. Once in operation, an LHA concentrates poor people in selected neighborhoods. One response to the resulting NIMBY (Not-In-My-Backyard) problem was not to create an LHA in the first place. Although public housing reached 1.2 million units by 1980, there has been scarcely any growth since.

Beginning in 1965, units leased from the private sector began to grow in importance relative to built units. Leasing newly built units from the private sector and spatially dispersing anonymous beneficiaries offset the NIMBY problem somewhat. Leasing existing units was even more effective in offsetting the problem. It was also less expensive. Hence, since the early 1970s, half or more of the units added to the public housing stock have come from leasing rather than from new construction. Nevertheless, in more recent years, maintaining an aging, obsolete housing stock has absorbed substantial expenditures. In the 1980s, federal spending on operating expenditures for public housing began to exceed spending on capital. It is a sobering thought that with rents at 30 percent of household income, these archaic units still command substantial waiting lists.

The trend to draw upon existing housing to alleviate the housing burdens of the poor has moved from project- to tenant-based housing subsidies and toward state and local programs relying on federal tax incentives. Building on a series of experiments during the 1960s, Section 8 of the Housing and Community Development Act of 1974 opened the way for greater participation by private entities in the provision of housing for the poor. Section 8 eliminated a key characteristic of earlier programs—subsidies were no longer restricted to owners of new or rehabilitated dwellings. Further, landlords could receive payments on behalf of a particular tenant rather than for a particular unit. Tenant-based subsidies quickly came to dominate the program. There are now about 1.6 million households subsidized through Section 8 vouchers and certificates and 1.4 million households subsidized through the project-based program.

With the unwillingness to appropriate new funding for public housing or for Section 8 new construction, additions to the stock of subsidized housing now rely almost entirely on recycled dwellings. In 1977, 65 percent of (net) new HUD commitments for rental assistance went to newly constructed units. By 1997, 72 percent of new subsidy commitments went to existing units. In addition, new federal commitments for both types of dwellings fell 86 percent from an annual average of 350,000 newly subsidized units between 1977 and 1980 to an average of 49,000 units a year between 1995 and 1997. A million housing units may be substandard today, and bringing these units up to standard would require as much as $158 billion.

The major remaining program for the construction of new housing for low-income households is the Low Income Housing Tax Credit (LIHTC), a provision of the Tax Reform Act of 1986. Project-oriented, and locally administered through public-private partnerships, LIHTC units are thought to be an inefficient use of federal funds (Cummings and DiPasquale, 1999). It is for that reason, perhaps, that the available tax credit is capped at a very small amount.

Quigley (2000) summarizes his extensive review of U.S. housing policy history this way:

> During the period since the explicit recognition of the goal of a "decent home" for all Americans, four important economic trends have emerged in

> housing subsidy programs. First, the locus of subsidy has changed from the dwelling unit to the household occupying the dwelling unit. Second, the type of property subsidized has changed from newly constructed dwellings to used dwellings originally constructed for higher-income households. Third, the ownership of subsidized dwellings has changed from agencies of the government to private non-profit agencies, and increasingly to for-profit landlords. Fourth, there has been a downsizing of the relative commitment to housing programs in comparison to other objectives of federal government expenditure (p. 72).

What does the history of policies providing low-income housing suggest are the components of politically feasible policy options for housing the homeless? First, a flexible shelter allowance program such as Section 8 vouchers will be the backbone of any housing assistance program. Second, little new construction for low-income tenants can be expected in the near term. Affordable housing will be provided from the depreciated stock of existing dwellings. Third, any assistance provided is more likely to come from forgoing tax receipts than from direct expenditures of tax dollars. Fourth, local governments will have control over where in the city the homeless are to be housed. Taken together, these seem to suggest that the best chance for success rests with local initiatives that sacrifice tax revenues (as opposed to legislating explicit expenditures), which minimize the NIMBY problem, and which exploit the advantages of Section 8 vouchers. One class of policy alternatives meeting these objectives, as suggested above, involves efforts to maintain the number of "barely standard" units so that they remain occupied, rather than letting them deteriorate to the point at which they are best demolished. Tax and assessment policies are appropriate instruments.

Keeping Low-Rent Housing Available for Those at Risk of Homelessness

Many analysts have concluded that maintaining the low-rent housing stock that might otherwise leave the market should be a fundamental component of any policy aimed at reducing homelessness (Wright and Rubin, 1991). Generally, this view rests on three premises. First, new federally subsidized construction of low-income housing is and will continue to be extremely limited. Second, the NIMBY problem

plagues the dedication of specific units to the homeless. Keeping housing now occupied by low-income households who, if forced to leave the unit, would have a high probability of becoming homeless seems the only alternative. And third, maintaining low-rent units is considerably less costly than constructing new units of comparable quality.

Abandonment tends to follow a sequence in time: reduced repairs, mortgage default, and cessation of property tax payments (Bender, 1979; White, 1986). Assessment rates and the property tax rate, two variables under local control, are key factors found to influence the decision to abandon a property. Perhaps the key point of these studies is that abandonment is far too often a rational, profit-maximizing response to assessment levels and prevailing attributes of tax administration policy (such as providing for long grace periods when landlords can be in arrears in their tax payments) and tax rates per se.

White, for example, found that the largest expenditure on units before their abandonment is the property tax. Her simulations indicate that small reductions in assessed valuations would yield large savings. Less abandonment and the attendant savings to the city of lower social expenditures and a broader tax base yield large benefit-cost ratios.

White also found that allowing property taxes to go into arrears could accelerate the decision to abandon a property. If a property is located in a neighborhood in decline and the owner considers future abandonment inevitable, a rational landlord may allow his property to fall into arrears even if its rental income covers its tax and other operating expenses. If, for example, there is a three-year grace period, a landlord has a higher benefit stream (three years of rent and no property tax) than if there is a one-year grace period (one year's rent and no property tax). Reducing the grace period reduces the likelihood that owners who are covering their costs will abandon their buildings.

Which Policy Alternatives Are Better?

We now turn to an evaluation of several stylized policy alternatives. Since we also believe that the Section 8 voucher program will be an essential element of any housing program for the homeless, we consider this policy alone and in conjunction with two tax policy alternatives.

First, however, we distinguish what we do in this chapter from the statistical modeling we pursued in Chapter 2.

In the preceding chapter, we found strong effects of housing market indicators such as vacancy rates, median rents, and the ratio of rents to median income on the incidence of homelessness. To complement these findings, we now explore the relationship between homelessness and housing markets using simulations calibrated to the housing markets of four California metropolitan areas. Rather than focusing on whether market forces generate homelessness, as in Chapter 2, our current purpose is to assess the extent to which policy interventions in the housing market can lower homelessness rates. In this section we first describe the simulation model briefly. The model is described in detail in Appendix C.

Computer simulations using numerical models deeply rooted in economic theory have a long tradition in housing market studies. The housing market is too complex, with too many interrelated submarkets, to permit complex policy conjectures to be analyzed on the basis of pure theory or simple statistical models. Thus, housing market models consisting of several nonlinear equations calibrated with data drawn from a variety of databases have become the norm. We use a previously tested, 13-equation model in which housing filters through the income distribution over time as property owners choose maintenance practices that they believe will maximize their profits.

The Simulation Model

We use a theoretical simulation model developed in a series of papers by Anas and Arnott (1991, 1993a, 1993b, 1993c, 1994) and Anas (1999) to assess the extent to which homelessness can be reduced. In contrast to previous empirical research that estimates the effects of various measures of housing costs on homelessness rates, we use the Anas and Arnott model to simulate the prevalence of homelessness under various policy regimes.

The model describes the workings of a regional housing market in which units filter through a quality hierarchy (where quality is defined across discrete categories) and households of various income levels choose among alternative housing types. One alternative is for households to

opt out of the housing market and spend their money on "other goods." The proportion of households choosing this option is an estimate of the proportion homeless. As we alter selected policy initiatives, we analyze changes in the proportion homeless as well as changes in other market outcomes.

We calibrate the Anas and Arnott model to the four largest metropolitan areas in California with data from the 1980 and 1990 Census of Population and Housing and various years of the American Housing Survey (AHS). First, we calibrate the model for each metropolitan area to observed housing market and income conditions in 1980 and assess how well the model predicts the subsequent changes in rents as they are revealed in the 1990 Census. Having established that the logic imbedded in the model, as calibrated, projects California housing conditions reasonably well, we then recalibrate the model to represent housing market conditions in 1990. First, we set out to determine if the numerical model is consistent with the theoretical arguments discussed above. We then explore the effects on homelessness of changes in the income distribution similar to those observed during the 1980s. Increasing inequality in the model in the way it has occurred in the 1980s does increase the incidence of homelessness predicted by the model. Finally, we explore the effects on homelessness of three housing market policy interventions: extending housing vouchers to all low-income households, subsidizing all landlords, and subsidizing the suppliers of low-income housing.

Testing the Model

To test how well the model fits the data, we calibrated the model to 1980 using data from the 1979 and 1981 AHS and the 1980 Census. We use these calibrations to predict how rents for each metropolitan area change during the decade of the 1980s. To do this, we use populations and income levels observed in the calibrations of the model for 1980. We can compare the model's predictions for 1990 with actual outcomes. This simple test is a direct measure of the extent to which this filtering model describes the workings of the housing market in the four major metropolitan areas in California. Figure 3.1 summarizes the results of

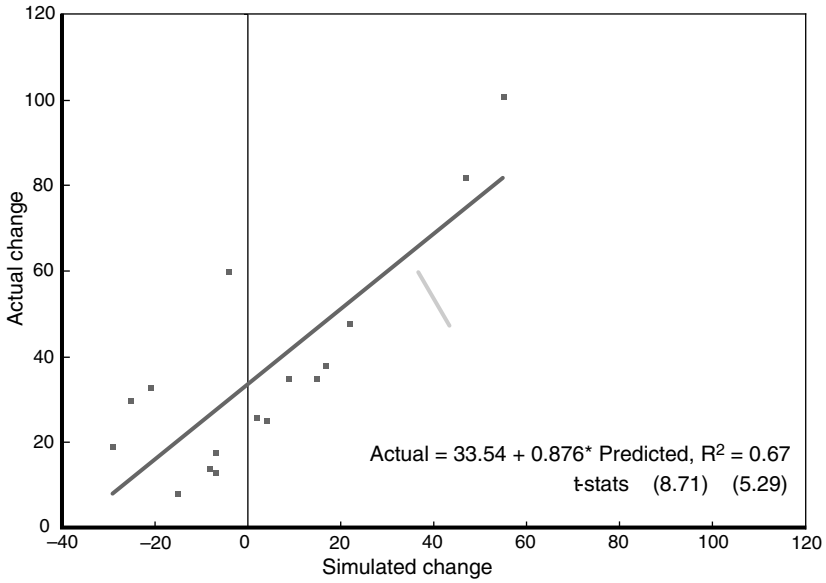

Figure 3.1—Percentage Change in Rents for Each Quartile Compared to Simulated Changes for Four California Metropolitan Areas, 1980 to 1990

this exercise. The figure plots the actual percentage change in rents during the decade of the 1980s against the percentage change predicted by the model on the basis of the changes in incomes and populations reported by the U.S. Census. Each data point represents the changes within one quartile in one of the four metropolitan areas (e.g., the change in average rent in the bottom 25 percent of the San Diego housing market between 1980 and 1990). Hence there are 16 observations. As can be seen, the model performs well in predicting relative changes in rents. A regression of actual changes on predicted changes yields a slope of 0.876 and is highly significant.[6] The model tracks demographic changes rather well.

[6]Perfect prediction would yield a regression line with a zero intercept and unitary slope. Hence, although the model underpredicts actual changes in rents (as is evident by the positive intercept in the regression), changes in relative rents are predicted with reasonable accuracy.

Inequality in the Simulation Model

We now use the model calibrated to 1990 to simulate how homelessness changes in response to changes in the income distribution. This exercise illustrates how changes in income inequality work through the filtering of different housing quality levels to cause homelessness. We perform three simulations for each MSA. First, we decrease the average income of households in the lowest quintile of the renter distribution by 20 percent. Second, we increase the average income of households in the top quintile by 20 percent. Finally, we redistribute the populations in the third quintile equally between the bottom and top income quintiles. This final simulation in effect eliminates the middle class. In each of the three simulations, the median income remains the same. We analyze changes in the variance and kurtosis of the income distribution, that is, the spread and the tail of the distribution.

Figure 3.2 presents the results of these simulations. As expected, decreasing the incomes of the lowest quintile causes sizable increases in the homeless population in all four metropolitan areas. Increasing the incomes of the highest quintile has marginal effects. Most important, eliminating the middle class increases homelessness in all simulations, although to a lesser degree than reducing the income of the lowest quintile. The results of these simulations imply that the more sophisticated representation of the housing market in the Anas and Arnott model is consistent with our theoretical expectations.

Description of the Policy Simulations

We simulate the effects on homelessness of three housing market policy interventions. First, we simulate the effects of rent subsidies similar to current certificate and voucher programs under Section 8 of the Housing Act of 1974. To do this, we provide subsidies in the model to low-income households equal to the difference between the rent of the lowest-quality housing and 30 percent of the income of low-income residents.[7]

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[7]Under current tenant-based subsidy programs, participating households receive the difference between "fair market rents" (administratively calculated for each housing market) and 30 percent of income.

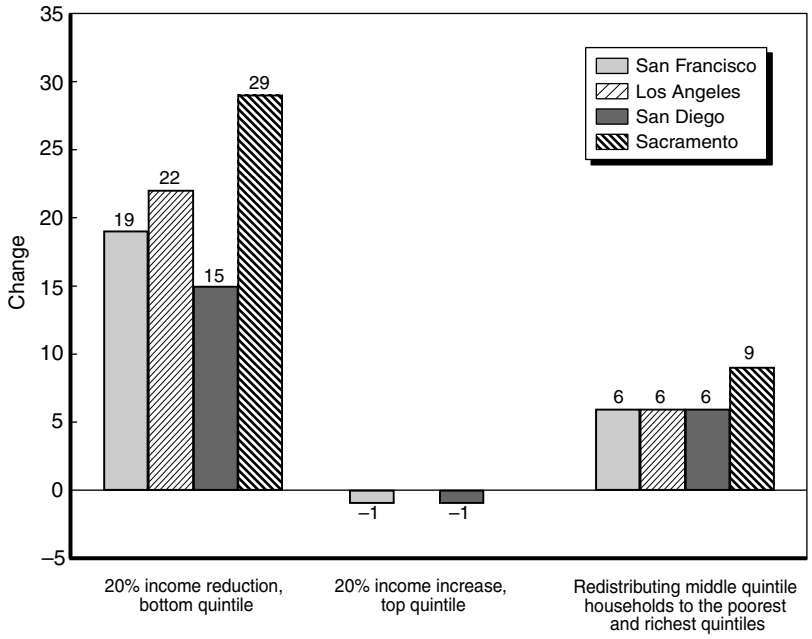

Figure 3.2—Percentage Change in Homelessness Caused by Selected Changes in the Income Distribution

Our second policy simulation targets a maintenance subsidy to landlords who supply low-income housing. This policy is modeled by decreasing the landlord's out-of-pocket costs to maintain housing at the same quality. We target this decrease in maintenance costs to the lowest-quality units only. Total program costs are set equal to those under the rent subsidy program. With the exception of Sacramento, the subsidy is large enough to offset completely landlord maintenance costs, thus resulting in a positive gross subsidy to landlords.

Targeting a maintenance subsidy to low-quality units may encourage landlords to accelerate the depreciation of their units. Consequently, for our final policy simulation we provide a general maintenance subsidy to all landlords regardless of the quality of the unit supplied. Once again, the level of the subsidy is chosen so that total spending under this program equals total spending under the rent subsidy program.

Landlord subsidies are modeled by decreasing the landlord contribution to maintenance costs by the amount of the subsidy for all housing types.[8]

Results of the Policy Simulations

Table 3.2 presents the effects of our three policy interventions on the distribution of rents, on the demolition rates of low-rent housing, and on homelessness. The first panel presents the results from providing rent subsidies to all poor households equal to the difference between rents and 30 percent of mean household income for this group. The size of the annual subsidy given to poor households is $1,690 in San Francisco, $2,634 in Los Angeles, $2,500 in San Diego, and $1,454 in Sacramento. This would correspond to total program costs of $319, $517, $476, and $157 per household in each of the respective MSAs.

As should be expected with a program subsidizing the demand side of the market, annual rents increase for all quality levels. These increases, however, are quite small. All are below $100 and constitute less than 1 percent of base rents. These demand-side subsidies also reduce the demolition rate in all four cities (the reduction ranging from 0.01 percentage points in Sacramento to 0.08 percentage points in San Francisco). Again, the proportional reduction is small, ranging from 0.6 percent to 1.5 percent of the starting demolition rates. The largest effects of the rent subsidies are on the projected homeless population. In each metropolitan area, extending rent subsidies to all low-income households reduces the homeless population by at least 25 percent (San Francisco) and by as much as 33 percent (Los Angeles). Moreover, this large decrease in homelessness is achieved with relatively small increases in rents.

The middle panel of Table 3.2 presents the comparable simulation results for the general landlord maintenance subsidies. Recall that the subsidies per unit provided are set so that the total cost of the program is

[8]For all simulations, we assume that programs are funded with resources from outside the metropolitan area. Hence, we ignore the issue of the incidence of the taxes needed to generate funding for the programs. For all programs, we simulate the change in homelessness, the changes in rents for housing of all types, and changes in transition rates.

Table 3.2

Changes in Rents, Demolition Rates, and Homelessness Caused by the Alternative Policy Interventions

	San Francisco	Los Angeles	San Diego	Sacramento
Rent Subsidies				
$ change in rents (% change)				
Low-rent units	29 (0.8)	6(0.2)	6 (0.1)	2 (0.1)
Medium/low-rent units	44 (0.7)	12 (0.2)	12 (0.2)	4 (0.1)
Medium/high-rent units	57 (0.7)	16 (0.2)	18 (0.2)	6 (0.1)
High-rent units	62 (0.6)	18 (0.2)	21 (0.2)	7 (0.1)
Change in demolition rate of low-rent units (% change)	–0.08 (–1.5)	–0.02 (–0.6)	–0.03 (–1.5)	–0.01 (–0.7)
Change in homeless population (% change)	–4,121 (–25)	–4,396 (–33)	–2,123 (–32)	–610 (–27)
General Landlord Maintenance Subsidies				
$ change in rents (% change)				
Low-rent units	–323 (–9.3)	–520 (–12.2)	–481 (–10.3)	–284 (–8.8)
Medium/low-rent units	–320 (–5.1)	–519 (–8.2)	–480 (–7.7)	–283 (–5.7)
Medium/high-rent units	–317 (–3.7)	–518 (–6.4)	–478 (–6.3)	–283 (–4.8)
High-rent units	–316 (–2.9)	–517 (–5.0)	–478 (–4.7)	–283 (–3.6)
Change in demolition rate of low-rent units (% change)	–0.00 (–0.03)	–0.00 (–0.01)	–0.01 (–0.04)	–0.00 (–0.2)
Change in homeless population (% change)	–912 (–5.7)	–1,084 (–8.1)	–506 (–7.7)	–143 (–6.4)
Targeted Landlord Maintenance Subsidies				
$ change in rents (% change)				
Low-rent units	–1,148 (–33.0)	–1,697 (–40.0)	–1,626 (–35.0)	–988 (–31.0)
Medium/low-rent units	–45 (–0.7)	–29 (–0.5)	–33 (–0.1)	–0.3(–1.0)
Medium/high-rent units	–92 (–1.1)	–85 (–1.1)	–30 (–0.4)	–16 (–0.3)
High-rent units	–95 (–0.9)	–108 (–1.0)	–40 (–0.4)	–21 (–0.3)
Change in demolition rate of low-rent units (% change)	–0.59 (–10.9)	–0.51 (–15.6)	–0.27 (–15.8)	–0.18 (–12.2)
Change in homeless population (% change)	–1,838 (–11)	–1,561 (–12)	–818 (–12)	–244 (–11)

equal to the total cost of the rent subsidies to all low-income households listed above. This yields per-unit subsidies to landlords equal to $323 in San Francisco, $520 in Los Angeles, $482 in San Diego, and $283 in Sacramento. The general maintenance subsidies cause large declines in equilibrium rents, on the order of 4 to 5 percent for high-rent units and 9 to 20 percent for low-rent units. The declines in rents are actually larger than the per-unit subsidies. The general maintenance subsidies yield small decreases in the demolition rates for low-rent housing, similar in magnitude to the changes in demolition rates caused by the rent subsidies. The declines in homelessness caused by the program are somewhat smaller than the declines caused by the rent subsidy. These changes range from 7 percent in Sacramento to 12 percent in San Francisco.

Finally, the last panel of Table 3.2 presents the results from the simulations that provide maintenance subsidies targeted to the suppliers of low-rent units only. Again, the subsidies are calculated so that the total cost of the program equals the total costs of the rent subsidies. This yields targeted subsidies equal to $1,227 in San Francisco, $1,799 in Los Angeles, $1,676 in San Diego, and $1,016 in Sacramento. By comparison, maintenance costs are $1,153 in San Francisco, $1,284 in Los Angeles, $1,032 in San Diego, and $1,219 in Sacramento. Moreover, these subsidies are equal to roughly 55 to 72 percent of the observed rents for low-rent units.

The most notable effects of the targeted subsidies are large declines in the rents and demolition rates of low-rent units. For all four metropolitan areas, nearly the entire maintenance subsidy passes through into a rent decrease for low-rent units (roughly 93 to 97 percent). The targeted subsidy also induces rent decreases for units in the other three quality levels. These declines are small, however, ranging from 1 to 2 percent of base rents. Unlike the previous two programs, demolition rates decline considerably. These declines range from 11 percent in San Francisco to 16 percent in San Diego. Similar to the general maintenance subsidy, the declines in homelessness caused by the targeted subsidies are moderate ranging from 11 percent in Sacramento to 13 percent in Los Angeles.

Figures 3.3 and 3.4 summarize the effects of the three policy simulations on the absolute and relative changes in the homeless population. For all metropolitan areas, the rent subsidy yields the largest reductions in homelessness, followed by the effects of the targeted landlord subsidy, and finally the general landlord subsidy. Given that the simulation design constrains the total costs of all policy options to be equal, the "bang-per-buck" in terms of reduction in homelessness per dollar spent follows a similar pattern to that shown in the figures. In summary, all three policy interventions reduce homelessness, but to varying degrees. The largest decrease in homelessness, ranging from 25 to 33 percent, comes from demand-side rent subsidies. The supply-side programs (costing the same amount) also decrease homelessness but by roughly one-third the size of the decrease caused by the rent subsidies. If our objective, however, is to extend the life of the low-quality housing stock (as a hedge against a future increase in potential homelessness), the targeted maintenance program is most effective. This program causes decreases in demolition ranging from 11 to 16 percent, whereas the

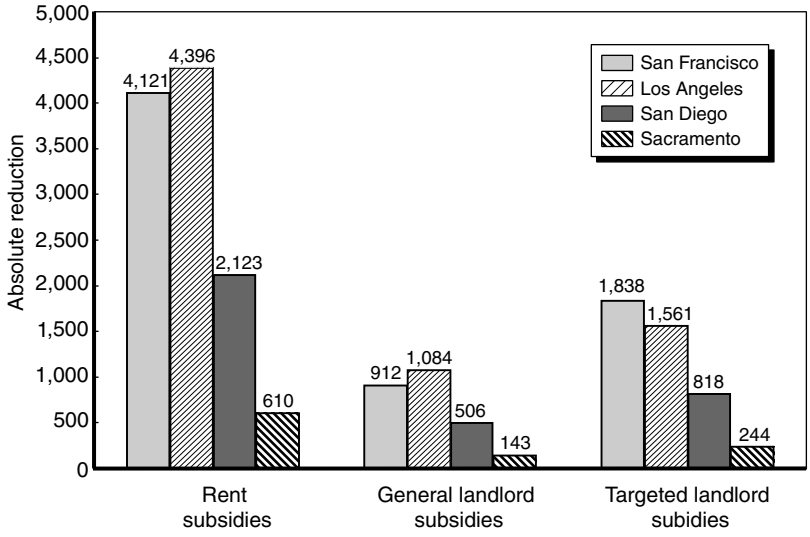

Figure 3.3—Absolute Reduction in Homelessness for Each Policy Simulation, by Metropolitan Area

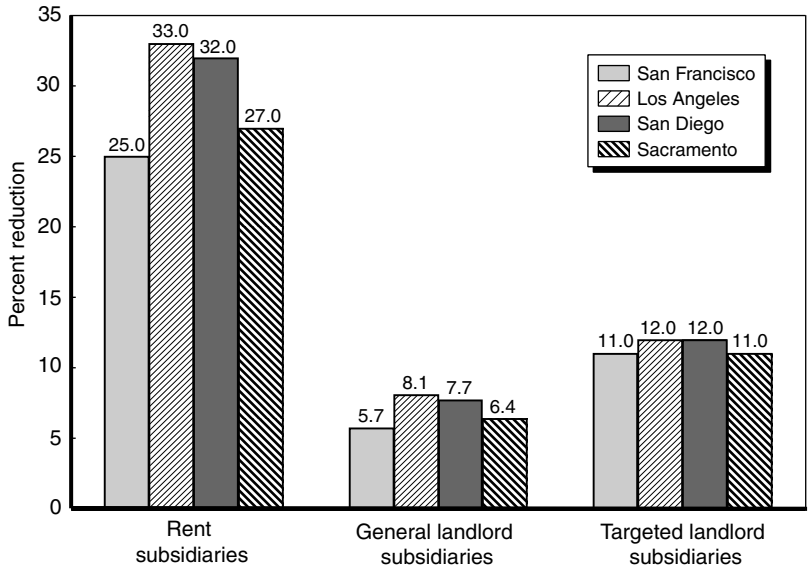

Figure 3.4—Percentage Reduction in Homelessness for Each Policy Simulation, by Metropolitan Area

decreases caused by the general maintenance and the rent subsidies programs equal only a fraction of this amount.

Conclusion

The simulation results of this chapter are consistent with growing income inequality as a source of the growth of homelessness after 1980. Increased inequality has increased the price of the lowest-quality housing, decreased the supply, and forced out renters. These individuals and households are homeless because they have been priced out of the housing market; they could be stable renters of private market housing were it available at affordable prices.

Subsequent simulation experiments reported in this chapter strongly suggest that a major policy response to the lack of affordable housing, Section 8 vouchers, may, at the same time, be a quite appropriate response to homelessness. Drawing upon the relevant supply and demand elasticities, construction and maintenance costs, and the filtering probabilities that can be gleaned from the literature, Section 8 vouchers

are shown to have a substantial effect on the prevalence of homelessness. Although expensive in some absolute sense, the type of voucher program simulated here has a larger effect on homelessness than would equal-cost subsidies to all landlords or to landlords supplying low-rent housing units.

The regressions of Chapter 2 and the simulations of this chapter make a compelling case that the increase in homelessness of recent decades is, in large part, a housing problem amenable to solutions increasing effective demand for housing or subsidizing supply. Not all homelessness is responsive to these policies, of course. But our evidence suggests that a great deal of the homeless population is responsive.

Chapter 2 and this chapter are too coarse-grained, however, to reveal which kinds of interventions would have the highest ratio of benefits to costs in a particular housing market. Where the supply, demand, cost, and maintenance parameters are near to those in the literature, expanded Section 8 is the likely appropriate response. There is substantial anecdotal evidence, however, that Section 8 vouchers alone will not work well in many markets. Many apparently are returned to their issuers because landlords cannot be found to accept them. In markets where supply, maintenance, construction, and filter parameters are far from the national average, a demand-side program is not sufficient. In particular, the benefits of demand-side programs noted here are achievable only with reasonable responses on the supply side of the market. Some evidence suggests that a strategy aimed at reducing the removal of low-rent units from the housing stock would be useful. One instrument available to the state government seeking to implement such a strategy would be a rebate of property taxes or regulatory compliance costs combined with assistance in rapid foreclosure when taxes are not paid promptly.

Policy recommendations more specific than these are hardly appropriate. Housing markets are very heterogeneous. The very poor are also quite heterogeneous. The homeless are a very small population concentrated in small areas, but they are located in many different neighborhoods. Solutions need to be crafted locality by locality. The best that federal and state governments can do is to enlarge the range of feasible local options. Enlarging the Section 8 program and

compensating local governments for lost revenues when local units offer tax credits to suppliers of low-rent units is the best that can be expected of them.

It cannot be reiterated too often that the homeless population is very small. The cost of reaching this population through general housing policies such as Section 8 or tax credits is very expensive per unit of the homeless housed. Simulations not reported here (see Mansur et al., 2000) suggest that a program such as Section 8 financed by the federal government substantially raises total welfare in the recipient community. Not only do the homeless benefit, so also do other low-income households as well as landlords of almost every kind of rental unit (middle-income renters are made slightly worse off). These benefits may exceed the burden of raising the taxes required to fund them. Finally, it should be noted that none of the simulations value the reduction in the externalities associated with reducing the incidence of homelessness.

The major policy conclusion of this study, then, is that local governments should evaluate the potential to make low-quality housing more affordable and thereby, largely as a by-product, reduce homelessness. Federal and state governments should stand ready to assist localities that combine housing vouchers with credits to landlords which effectively deter removal of habitable units from the very low-end of the housing stock.

Appendix A

Sources of Data on the Size of the Homeless Population[1]

This appendix describes the four data sources that measure the incidence of homelessness. They are (1) case counts from HAP operated as an emergency special need under California's AFDC program (AFDC-HAP), (2) estimates reported by county officials to HUD as part of the Continuum-of-Care funding process, (3) the U.S. Census Bureau's S-Night count of the homeless, enumerated on March 20, 1990, and (4) homeless shelter survey data gathered by Martha Burt and her colleagues at the Urban Institute. As noted below, only the AFDC-HAP data source represents an extended statewide time series composed of actual claims of homelessness. Declarations of homeless status are reported directly by the families involved to front-line claims workers as a prerequisite to obtaining assistance grants. These data allow us to study the variation in housing distress occurring over time under a single set of state institutions. Further, the AFDC-HAP dataset permits the observation of monthly county-level caseloads over an eight-year period; this framework facilitates the standard panel-data techniques we use to account for unobserved heterogeneity throughout the sample.

AFDC-HAP Caseload Data

History of Emergency and Special Needs Under AFDC

Grant standards under the AFDC program and its successor, TANF, historically were intended to cover the basic consumption needs of eligible families: food, clothing, shelter, and essential household supplies. In addition to assistance for basic needs, AFDC and TANF have also authorized states to provide for "special" needs, whether recurrent or

[1]This appendix was originally drafted by Larry A. Rosenthal.

otherwise, considered essential for some recipients but not others. Special needs typically include particular dietary requirements, pregnancy allowances, training and educational expenses, and expenses caused by catastrophe or eviction. Determination of special needs is on an individual basis. Like basic-need payments, special-need expenditures are eligible for the matching funds reimbursed to the states by the federal government.

When the problem of homelessness attained new visibility during the 1980s, advocates for poor families began asking why it was that emergency shelter to prevent the destitution of a child was not being covered under AFDC. Some states started experimenting with treating homelessness either as a special need or as an "emergency" covered by the Emergency Assistance to Families (EAF) program, which ran parallel to AFDC.[2] EAF added a contingency element to the benefit structure, covering unexpected need caused by everything from earthquakes and violent crime to sickness and eviction. Whether they used EAF or the special-need device under AFDC, many jurisdictions by the mid-1980s grew accustomed to viewing homelessness as an important element in the portfolio of need that federal welfare programs were intended to cover.

Concerns over the sustained use of EAF funds for placement of homeless families in "welfare hotels," over periods extending several months in some cases, led the federal Department of Health and Human Services (DHHS) in September 1987 to issue a proposed rule establishing an "unambiguous" time limit on use of EAF funds to address homelessness.[3] Countering these regulations, Congress enacted, as part

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[2]Both AFDC and EAF were subsumed under TANF. EAF aid was generally furnished for periods no longer than 30 days in any 12-month period, although some states covered longer time periods. Before 1980, fewer than half the states participated in EAF, and expenditures averaged only about $50 million annually. During the 1980s, there were 25 state programs, with expenditures totaling about $170 million each year. By 1990, 32 jurisdictions had opted into EAF, and by 1995 all but three states and territories had adopted this component of AFDC in their state plans in some form.

[3]*Federal Register* (1987, pp. 47, 420). According to the 1992 *Green Book* (U.S. Congress, 1992), DHHS's proposal would have allowed EAF matching funds only for aid furnished for one period of 30 consecutive days, or less, in 12 consecutive months "to meet the actual expenses of needs in existence during that period which arose from an emergency or unusual crisis situation, and which continue to exist until aid is furnished."

of the McKinney Homeless Assistance Act Amendments of 1988, a moratorium deferring the proposed DHHS restrictions. Congress prevailed in this skirmish, successfully postponing any final resolution.

After welfare reform, EAF and AFDC were subsumed under TANF, but, operationally, welfare reform occasioned little change in the 50 percent federal budget match applicable to emergency assistance or special needs allowances directed toward shelter for the homeless.[4] As the number of participating states grew in the 1990s, EAF spending expanded, jumping from $378 million in 1990 to $1.6 billion in 1994 and approximately $3.2 billion in 1995. In 1995, about two-thirds of all EAF expenditures were made by only three states: New York (39 percent of the total), California (15 percent), and Pennsylvania (12 percent). Beginning around 1993, however, some states began using EAF funds for long-term dilemmas involving child protection, family preservation, juvenile justice, and mental health.

As of late 1993, 31 states and other federal territories covered special-needs items of various kinds. Nine of these jurisdictions (California, Connecticut, Hawaii, Illinois, New Jersey, New York, Rhode Island, the Virgin Islands, and Washington) used special-needs allowances to shelter families or prevent homelessness. An additional four states (Massachusetts, Michigan, Oklahoma, and Pennsylvania) provided assistance in meeting the costs of shelter and utilities at levels exceeding basic payment amounts. All forty-six of the states and territories having an EAF program covered homelessness as an emergency, but only a few directed those emergency funds toward long-term housing in so-called welfare hotels (Bane, 1993). Utah and Wisconsin later began providing homeless assistance as part of their TANF aid structure.[5]

It also proposed to forbid states from varying shelter allowances in the AFDC need standard, either as a basic or special need.

[4]This information comes from a telephone conversation with John Baarts of the San Mateo, California, County Human Services Agency on December 16, 1998.

[5]Under TANF, Attorney General Janet Reno specifically excluded shelter payments for the homeless from those elements of AFDC made unavailable to resident aliens under welfare reform. Her order declared EAF and AFDC special-needs homeless spending one of several programs "necessary for protection of life and safety" and thus to be preserved despite the overhaul of federal welfare programs generally. More recently, the District of Columbia has been urged to incorporate emergency assistance funding for homeless

California's AFDC-HAP

The use of AFDC/EAF to provide emergency housing assistance in California was forced by a lawsuit brought by the homeless advocacy community. Prior policy had separated homeless programs from child welfare services. In fact, the state had argued that homeless children needed placement in foster care, not increased welfare payments to their parents, and acted accordingly.

The practice of removing children from homeless families was invalidated by the state appellate court in 1987. The court enjoined the state Department of Social Services (DSS) from defining "emergency shelter care" so as to exclude homeless children "regardless of whether [they] remain with their parent(s), guardian(s), or caretaker(s)." In settlement negotiations over remedy, the plaintiffs won an expanded definition of shelter need under AFDC through the creation of a special-needs provision governing homelessness. The state legislature codified the settlement's terms later that year as an amendment to the AFDC program.[6]

The resulting program (known then and now as AFDC-HAP) provides two types of benefits to homeless families.[7] For a period lasting up to 16 consecutive days, "temporary assistance" pays $30 per night shelter expenses for an eligible family of four or fewer; $7.50 per night is available for each additional family member, up to a maximum of $60

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families in its Phase II TANF legislation (Weir, 1998). According to the General Accounting Office, 19 states' TANF programs now provide cash benefits or services to the homeless, and 29 states provide cash benefits or services to families at risk of becoming homeless. No federal statutory factors directly limit the use of TANF funds for the special housing needs of homeless families. However, federal officials warn that many homeless benefits are threatened when restrictive welfare-to-work time limits expire (U.S. GAO, 1999).

[6]*California Welfare and Institutions Code*, § 11450, subd. (f). The bill also amended the state's child welfare services statutes to proscribe emergency removal of children from homeless families unless such measures are necessary to protect them from abuse, neglect, or exploitation (*id.*, § 16501). The legislature conditioned the availability of homeless assistance upon federal financial participation (*1987 Statutes of California*, ch. 1353 (Assembly Bill 1733 [Isenberg]), § 8); federal matching funds began to flow under a series of state plan amendments approved shortly thereafter.

[7]Homelessness under AFDC-HAP exists when a family lacks a fixed and regular nighttime residence or is living either in a supervised temporary shelter or in a public or private place not designed for, or ordinarily used as, a regular sleeping accommodation by human beings.

per night.[8] "Permanent assistance" under AFDC-HAP is available only when total housing costs do not exceed 80 percent of the family's AFDC payment. Despite their label, permanent-type grants include only one-time reimbursement of move-in costs such as security and utility deposits, in which case total allowances may not exceed two months' rent. Governing regulations require that claimants' housing status be verified repeatedly during the grant period.

The California Homeless and Housing Coalition reported in November 1990 that 174,000 families with children had moved off the streets in the AFDC-HAP program's first two and a half years, with overall program costs totaling less than $700 per family.[9] The following month, a state study indicated that most early recipients of the aid stabilized their living situations within six months of entering the program and did not file a claim the following year.

From its inception in February 1988, recipients could claim AFDC-HAP benefits once every year. During fiscal year 1990, program expenditures reached $97.8 million (half of which was reimbursed by the 50 percent federal match) on 170,421 cases (counting both temporary and permanent aid, without omitting recipients of assistance in both categories during that year).[10] But constraints on eligibility have changed over time, moving toward greater and greater limits on program spending through restrictions on the allowable frequency of claims. Twice during the administration of Governor Pete Wilson the legislature reduced eligibility. In emergency amendments adopted during the recession year of 1991, AFDC families were prohibited from applying for homeless shelter assistance more than once every two years.[11] The

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[8]Duration of funding under AFDC-HAP has changed over the course of its 11-year history. When first introduced, assistance was available for up to 21 consecutive days; a total of 28 days of funding was available on a showing of good faith but unsuccessful efforts to obtain permanent housing. In 1991, when overall eligibility was reduced from once every 12 months to once every 24 months, the period of eligibility for shelter assistance was limited to just 16 days.

[9]California Homeless and Housing Coalition (1991).

[10]California's fiscal year is named after the year in which it begins and runs from July through June. Fiscal year 1990 was July 1, 1990, to June 30, 1991.

[11]*1991 Statutes of California*, ch. 97 (Senate Bill 724), § 6, effective August 1, 1991.

maximum duration of temporary shelter allowances was reduced at that time from 28 to 16 days. By fiscal year 1993, California's AFDC-HAP spending had fallen to $59.5 million on 122,166 total cases.

Under 1995 legislation that took effect in January 1996, program eligibility was reduced to once per lifetime, with the following very limited exceptions: (1) homelessness caused by officially declared natural disasters, after which assistance apparently can be offered as often as a county finds necessary, and (2) homelessness resulting directly from domestic violence, fire or other catastrophe, or illness (to which the former once-every-two-years limit applies).[12] Program cuts were substantial: As the state's welfare agency interpreted the amendment, all families who ever received prior benefits were grandfathered out of eligibility permanently, deemed already to have exhausted their once-per-lifetime episode of homelessness.[13] By fiscal year 1996, statewide AFDC-HAP expenditures had fallen to $18.5 million, on just 43,132 cases. This history of changes over time affected our choice of estimating strategy in Chapter Two.

Our AFDC-HAP dataset comes most directly from monthly case-flow reports issued by the California Department of Social Services through its Information Services Bureau, in "Public Welfare in California" (Statistical Series PA3-443). We relied in particular upon the bureau's monthly printouts, generated internally but circulated to a select group of subscribers, which set forth the supporting data series in greater detail.[14]

Each case of homelessness identified in the AFDC-HAP data was presumably verified to the satisfaction of a county caseworker trained to

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[12] *1995 Statutes of California*, ch. 307 (Assembly Bill 908), § 7, effective August 1, 1991, implemented in *DSS-MPP*, § 44-211.54.

[13] California Department of Social Services (1995). Over our study period, changes in the state welfare agency's program rules have addressed fraud prevention, detection, and enforcement. Many of the fraud revisions were necessitated after negotiations with DHHS in the early 1990s over the acceptability of California's state plan amendment incorporating the AFDC-HAP program. In the text, our models adjust for programmatic changes by including fixed-effects point-in-time variables at the month level.

[14] We are indebted to the San Francisco homeless advocacy organization HomeBase, and its librarian Kathy Cowan, for granting us access to a historical series of these monthly agency printouts.

physically observe claimants and review their applications. In a number of instances, a claimant met with caseworkers more than once, to supply additional information if requested or to arrange for payment of supplementary benefits. At the case level, an administrative review of a claim of homelessness after a face-to-face meeting yields a different and potentially greater degree of confidence in the finding of homelessness than more remote, passing observations of individuals sleeping on the street or of reported shelter bed capacities.

Of course, AFDC-HAP selects from the invisible homeless population only AFDC-eligible families who show up at the welfare office to pursue their claims. That selection effect likely does not bias significantly the depiction of population trends over time, and even if it does, our models account for macroeconomic trends that might influence claim volumes. At worst, our analysis becomes a useful exploration of homeless assistance program volumes in isolation, which merits our attention independently and fits our hypotheses and findings. In either event, the case-level data depict benefit-claim events as a flow. This allows us to track housing market, general economy, and climatological influences on how the underlying homeless population expands and contracts over time. We are reasonably confident that, despite its defects, the AFDC-HAP caseflow data reflect the *relative* degree of homelessness in different California counties at different times from 1989 to 1996.

HUD Continuum-of-Care Applications Data

For an informative comparison to the AFDC-HAP data, we have analyzed homeless estimates provided by eligible jurisdictions in recent consolidated grant applications filed under the HUD Continuum-of-Care funding process. County data were compiled from Continuum-of-Care applications by Natalie Bonnewit, a master's degree student in the Department of City and Regional Planning at UC-Berkeley, as part of her final thesis project (Bonnewit, 1998). Bonnewit's work resulted in a cross-sectional dataset providing comprehensive estimates of the number of homeless individuals and the number of homeless family members for each of California's 58 counties. These estimates are for a single point in time in 1996 or 1997. Her findings were also included in a report on the status of California's housing markets by the state's Department of

Housing and Community Development (Smith-Heimer, 1998). The Continuum-of-Care data are informative but flawed, for several reasons.

The Continuum-of-Care funding process was developed out of a concern, voiced at the outset of the Clinton administration, that federal efforts toward alleviating homelessness had become unduly fragmented and disorganized. The remedy became consolidation and coordination. Local officials were encouraged to combine forces and enter regional applications for aid. Numerous disparate applications for homeless funds were reduced to a single programmatic formula grant known as the Continuum-of-Care.

Administered under Super NOFA, Continuum-of-Care applications now provide the rationale for community requests for funding under a variety of federal programs, such as the Supportive Housing and Shelter Plus Care grants. The federal government requires that each application contain a "gaps analysis," representing the unmet need for housing and supportive services (U.S. Department of Housing and Urban Development, 1998). The instructions accompanying the application form dictate a simple subtraction formula for calculating unmet need in the "beds/units" category: "Estimated Need—Current Inventory." Continuum-of-Care applicants are advised to identify estimated need by using data "consistent with [their] locality's Consolidated Plan(s)." The 1998 application instructions state in part:

> To show the estimated need for beds, enter the estimated number of beds that the community would need to accommodate, *at one point in time* (that is, on a given night) all homeless individuals and families with children. When added together, these represent the estimated number of homeless persons in the community at one point in time. Be sure *not to double count* since a homeless person would occupy only one type of housing on a given night. (Emphasis in original.)

Our cross-sectional data for entitled counties are drawn entirely from the "Estimated Need" elements of the subtraction reported in Continuum-of-Care documents (Bonnewit, 1998).

Given the inherent difficulty in measuring a highly mobile, unpredictable and often invisible homeless population, the point-in-time estimates submitted to the federal government in Continuum-of-Care applications should be viewed circumspectly. The gaps numbers in the

Bonnewit database come from a mass of Continuum-of-Care paperwork, which appears patterned and uniform. But a closer inspection of the underlying source materials reveals marked deviation in sources, counting methodologies, and timeframes. Bonnewit (1998) lists no less than 12 methods and sources informing the homeless estimates of California Continuum-of-Care participants. In jurisdictions where multiple published and informal estimates are extant, applicants often conflate them, without much explanation, into a locally informed best guess.

The counting approaches in the California sample include: Census S-Night counts (original and adjusted); unduplicated shelter surveys; consolidated plans, housing elements, comprehensive housing affordability strategy ("CHAS") reports, or local area studies; original client surveys by providers; AFDC-HAP program data (requests rather than approvals); opinions of agency and nonprofit personnel; analysis by Continuum-of-Care participants; extrapolation and inference from national estimates; special task force estimates; and post-S-Night street counts. One task force report from San Diego County put the following gloss on estimation challenges:

> Homeless population estimates of the Task Force are more a reflection of the Task Force's perception of what is being said in the mix of facts and opinions at the community level. To date, there is no regional methodology for arriving at these estimates.[15]

Perhaps the most that can be said about the possible inconsistency and incomparability of the cross-sectional data is that all participating jurisdictions grapple with similar methodological challenges, administrative motivation, and incapacity to produce more refined estimates.

HUD's instructions in the Continuum-of-Care program materials and Super NOFA documentation encourage applicants to use existing estimates of the homeless population. The government does not go so far as to discourage attempts to survey the homeless, but it seems to recognize the measurement expense and complexity involved and, apparently, the low social returns to forcing repeated efforts to identify a

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[15]San Diego Regional Task Force on the Homeless (1998).

virtually unknowable number.[16] These factors lead both grantor and applicants to deemphasize the accuracy and importance of homeless population estimates. And indeed, the connection between the actual flow of federal Continuum-of-Care money to the local level and the stated estimated need is attenuated at best. This fact is demonstrated by the rather marginal role the gaps analysis plays in the allocation of homeless program funds.

The manner in which funds are allocated is basically identical to the operation of the Community Development Block Grant and Emergency Shelter Grant programs at HUD. A rough description of the grants award process goes as follows. The total amount appropriated nationally is first subjected to a preliminary geographic allocation by the Secretary of HUD following statutory guidelines.[17] These guidelines call for the consideration of local and national population, housing stock, and poverty factors—not homeless counts—to arrive at a pro rata level of need.[18] In divvying up a locality's available money among competing

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[16]A supplement to the 1998 Continuum-of-Care application instructions stated:

> Your community probably already has existing data sources that use point-in-time figures, such as the sources used to complete your community's Consolidated Plan, if it has one. If your community needs to update or wants to supplement the data used for its Consolidated Plan, or if your community doesn't have a Consolidated Plan, then it may undertake a survey.
>
> Your local or state government planning agencies have information on how to do a survey, as well as the benefits of various survey designs.

The supplement then recommends a 1992 HUD pamphlet authored by Martha Burt (1992b).

[17]The total grants available nationally in the 1998 Continuum-of-Care competition were $700 million, covering the Supportive Housing, Shelter Plus Care, and Section 8 Moderate Rehabilitation Single Room Occupancy programs. Also available under the consolidated Continuum-of-Care/HOPWA (Housing Opportunities for Persons with AIDS) applications were the following program amounts: $20.15 million for HOPWA; $402.4 million for Section 202 Supportive Housing for the Elderly; $74.37 million for Section 811 Supportive Housing for Persons with Disabilities; and $88.5 million for Section 8 Tenant-Based Assistance for Persons with Disabilities (Super NOFA, HUD Docket No. FR-4364-N-01).

[18]The secretary's geographical "preliminary" or "pro rata" need figures for each locality are arrived at by choosing between two arithmetic means, each averaging three ratios: the arithmetic mean of (a) the local population, poverty rate, and housing overcrowding relative to that found in all metropolitan areas nationally, combined; or the

applicants and their projects, HUD uses a 100-point ranking system. Forty points out of the 100 possible depend on how project costs rank within the pro rata allocation to the locality; the remaining 60 points represent a qualitative grade of the Continuum-of-Care strategy as a whole. On the qualitative side, *only ten points* are available based on the gaps analysis alone, and that analysis is the only place in the Continuum-of-Care application where competitors state the extent of their homeless populations.[19]

The 1998 cutoff for Continuum-of-Care funding was a score of 73. This means that, at most, 14 percent of a successful applicant's score could come from an accurately calculated estimate of need and a well crafted gaps analysis. For this reason, the Continuum-of-Care grants process provides little incentive to localities to direct their often sparse resources toward enhancing confidence in the accuracy and currency of the reigning homeless population estimate.

Despite its limitations, the Continuum-of-Care information is important in the way it complements the AFDC-HAP dataset by adding a measure of "colloquially homeless" individuals living outside family units. Inasmuch as the housing and labor market influences we track might be expected to affect families more substantially than individuals, Continuum-of-Care information provides a very useful comparative benchmark for the present study—one which is California-specific.

S-Night and Burt Shelter Counts

The Census Bureau's S-Night effort counted homeless in shelters and on streets on the night of March 20, 1990, and into the early morning hours of March 21, 1990. Before the count, the Census Bureau sent letters to local officials requesting identification of shelters, hotels, and motels charging less than $12 nightly and other locations on and off

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arithmetic mean of (b) local growth lag, poverty, and housing age measures compared to national metropolitan averages (*cf.* 42 U.S.C. § 5306).

[19]Responding to our inquiries about how gaps analyses figure into the eventual awarding of funds, HUD personnel from the San Francisco office provided us with a mimeographed worksheet entitled "Determining Need Number/Awarding Need Points." This worksheet shows the following point breakdown on scoring the "Quality Rating" of the Continuum-of-Care plans supplied with the applications: community process (15), strategy (15), gap analysis (10), project priority (10), resources (5), and leverage (5).

streets where persons were known to spend the night. Shelter and facility occupants were counted in the early evening, and street occupation was tallied from 2:00 a.m. to 4:00 a.m. For the four hours immediately thereafter, enumerators waited outside boarded-up and abandoned structures to count those departing. In all, some 11,000 shelters and 24,000 street locations were included. Nationally, a total of 292,178 homeless persons were counted. Of these, over 178,000 were located in shelters and nearly 50,000 were found on the street (Helvie, 1999, p. 9). In our analysis, we aggregate published S-Night data by census place, county, and MSA.

The following description from the "Collection and Processing Procedures" write-up accompanying the 1990 Census of Population and Housing (STF3) appears in Appendix D of the technical documentation (U.S. Bureau of the Census, 1990):

> In preparation for "Shelter-and-Street-Night" enumeration, the regional census centers (RCC's) mailed a certified letter to the highest elected official of each active functioning government of the United States (more than 39,000) requesting them to identify:
>
> - All shelters with sleeping facilities (permanent and temporary, such as church basements, armories, public buildings, and so forth, that could be open on March 20).
> - Hotels and motels used to house homeless persons and families.
> - A list of outdoor locations where homeless persons tend to be at night. Places such as bus or train stations, subway stations, airports, hospital emergency rooms, and so forth, where homeless persons seek shelter at night.
> - The specific addresses of abandoned or boarded-up buildings where homeless persons were thought to stay at night.
>
> The letter from the RCC's to the governmental units emphasized the importance of listing nighttime congregating sites. The list of shelters was expanded using information from administrative records and informed local sources. The street sites were limited to the list provided by the jurisdictions. All governmental units were eligible for "Shelter and Street Night." For cities with 50,000 or more persons, the Census Bureau took additional steps to update the list of shelter and street locations if the local jurisdiction did not respond to the certified letter. Smaller cities and rural areas participated if the local jurisdiction provided the Census Bureau a list of shelters or open public places to visit or if shelters were identified through our inventory development, local knowledge update, or during the Special Place Pre-list operation.

Because of the counting protocols, a report of "no homeless" in shelters in places with a population under 50,000 may occur because either (a) Census takers went to reported shelters and counted no homeless or (b) the place did not report any shelters to the Census. Because of these anomalies, our analysis examines only places with over 50,000 population. Focusing on cities omits 2.6 percent of the homeless counted in shelters, because 1,381 places with fewer than 50,000 people reported at least one homeless person in a shelter.

Our study focuses solely on the part of the enumeration covering sheltered homeless because of multiple problems with the street data. Criticism of the Census Bureau's S-Night effort has been voluminous. S-Night reportedly failed to count homeless who were well hidden, moving, or in shelters or street locations other than those identified by local governments. Some local officials and service providers apparently refused to participate altogether, protesting that bureaucratic reliance on the inevitable undercount would be unfair (U.S. Commission on Security and Cooperation in Europe, 1990, p. 10). The Census Bureau specifically excluded some street locations because of the potential danger to both Census takers and homeless persons. Thus, the count likely missed persons living in cars, dumpsters, rooftops, and other nontraditional housing structures. Follow-up surveys at shelters found, in some places, more individuals who had been missed than counted. For their part, Census officials never promised a complete count of the homeless, suggesting that the nation was nonetheless served "[a]s long as the data are clearly seen for what they are and others do not try to make them into something they are not" (U.S. Congress, 1991). Despite the well-known defects in the S-Night methodology, we consider the biases and risks of undercounting likely to be consistent across the national sample. Under these circumstances, the S-Night cross-sectional data remain useful for exploratory purposes in attempting to identify housing market effects.

Burt (1992a) set out to measure the growth of the homeless population in the 1980s by determining differences in shelter bed rates in 1981 and 1989. She studied all 182 U.S. cities with populations of 100,000 or more in 1986. Thirty-five were suburbs of major cities. Of

the 147 major cities, we focused on the 116 that were the primary city in an MSA and assigned that homeless rate to the entire MSA. The homeless rates were determined from shelter bed counts, because this information was available in consistent ways for both 1981 and 1989.

Burt's research team called virtually all shelter providers in the 182 cities to collect the shelter and voucher-subsidized bed counts. A list was compiled from shelters that filed for HUD's CHAP. Three questions were asked of respondent shelters in 1989:

- What is your current bed capacity (or the number of people who get vouchers)?
- When did you open (or when did you first offer shelter services, if the facility had an earlier history of offering different services)?
- What was your bed capacity in 1981?

Burt's resulting homeless rates were determined by dividing the number of shelter beds reported by the local population.

Burt experimented with measuring how shelters housed more individuals than they had capacity for, but elected not to include these measures in her final results. No attempt was made to study underuse. Like the AFDC-HAP data, Burt's shelter bed counts partly serve to estimate local policy response to the homeless problem. Nonetheless, small-sample efforts revealed high correlations between local anecdotal homeless population estimates and shelter bed capacity.

Burt's measure of the homeless population is problematic for several reasons. She provides these three grounds for doubt herself:

> First, we cannot be certain how the number of shelter beds relates to the true number of homeless people in a given jurisdiction. Second, the measure confounds local responsiveness to the homeless problem (the building of shelters) with the problem itself. Third, shelters that existed earlier in the decade but had closed their doors by 1989 may have gone uncounted (Burt, 1992a, p. 130).

To these concerns, O'Flaherty (1996, p. 167) adds another: variation in the colloquial understanding of what "shelter" means. Although Burt's study and the Census' S-Night count were completed within months of one another, they diverge markedly, in some places by an entire order of magnitude or more. Climate variation, the inclusion of cheap hotels by

the Census but not by Burt, and the passage of time cannot account for substantially different measures in the same cities. Researchers, social service administrators, and the homeless themselves, O'Flaherty suggests, have their own meanings for what constitutes shelter. Much like the problematic definition of "homelessness" itself, the concept of shelter may depend on who one asks and what motivates the answer.

Commenting on Burt's earlier surveys of shelter users, Jencks (1994, p. 12) characterized the real challenge in counting the homeless:

> Burt's survey provides quite a good picture of the visible homeless. It does not tell us much about those who avoid shelters, soup kitchens, and the company of other homeless individuals. I doubt that such people are numerous, but I can see no way of proving this. It is hard enough finding the proverbial needle in the haystack. It is far harder to prove that a haystack contains no more needles.

Appendix B

Statistical Analysis of Homelessness

Table B.1 presents descriptive statistics for the homeless counts and accompanying explanatory variables for the S-Night and Burt samples. Homeless counts (per 10,000 persons) from the S-Night sample pertain to metropolitan areas as do all of the accompanying explanatory variables with the exception of the changes in state mental hospital inpatient populations and the change in state prison populations. With the exception of the January temperature, change in inpatients and prisoners, and SSI variables, all other explanatory variables come from the 1990 Census Summary Tape Files. Data on state mental inpatient populations come from various years of Mental Health Statistical Notes. Data on January temperatures come from the 1995 Statistical Abstract of the United States, Rand McNally, and the National Weather Service. Data on SSI program recipients are for December 1991 and come from the U.S. Social Security Administration. Data on state prison populations come from Bureau of Justice Statistics.

The homeless counts (per 10,000) from Burt are the number of shelter beds in central cities in 1989 with population greater than 100,000 in 1986. The explanatory variables, however, pertain to the corresponding metropolitan areas or corresponding states of which the city is a part. The regression results to be reported below for the Burt data are generally poor. That the regressors are for different geographic areas and different years than the dependent variable may be the source of the ill-fitting regressions. All explanatory variables used to analyze the Burt shelter counts come from the same sources as the explanatory variables used with the S-Night data. The table presents estimated means and standard errors for each dependent and explanatory variable for the full sample and for the sample stratified into metropolitan areas (or cities) with above-median and below-median homelessness rates (as calculated for the separate samples). The corresponding metropolitan area population weights all figures presented in Table B.1.

Table B.1

Mean Homeless Rates and Means of the Explanatory Variables for Census S-Night Counts (1990) and Burt Counts of Shelter Beds (1989), Full Sample, and Stratified by Metropolitan Areas with Below-Median and Above-Median Homelessness Rates

Variable	Full Sample	Below-Median Homelessness	Above-Median Homelessness
S-Night Counts			
Homeless per 10,000	11.12 (0.47)	4.21 (0.12)	14.11 (0.64)
Rental vacancy rate, %	8.41 (0.19)	9.14 (0.26)	8.10 (0.27)
Median gross rent, $	480.59 (6.28)	400.30 (4.98)	515.33 (8.55)
Median household income ($1000s)	32.76 (0.33)	28.97 (0.32)	34.40 (0.45)
Households earning <$15K, %	21.85 (0.31)	25.08 (0.41)	20.45 (0.39)
Median gross rent/median household income, %	1.47 (0.01)	1.385 (0.01)	1.50 (0.01)
Δ(90–80)state mental patients per 100,000 residents	–20.60 (1.05)	–23.65 (1.52)	–19.28 (1.47)
Δ(90–80)state prisoners per 100,000 residents	162.82 (6.16)	146.57 (4.78)	169.28 (9.67)
January temperature[a]	32.88 (0.87)	25.66 (0.97)	36.01 (1.22)
SSI recipients per 10,000	191.42 (4.67)	176.17 (5.64)	198.02 (6.91)
Unemployment rate, %	6.21 (0.09)	6.52 (0.14)	6.08 (0.12)
Number of observations	270	135	135
Burt Shelter Counts			
Homeless per 10,000	23.54 (1.32)	11.20 (0.35)	33.30 (1.57)
Rental vacancy rate, %	8.37 (0.28)	8.86 (0.378)	7.99 (0.40)
Median gross rent, $	495.80 (9.28)	474.03 (13.550)	513.01 (12.42)
Median household income ($1000s)	33.78 (0.47)	32.00 (0.54)	35.18 (0.71)
Households earning <$15K, %	21.02 (0.41)	22.37 (0.57)	19.95 (0.54)
Median gross rent/median household income, %	1.46 (0.01)	1.47 (0.02)	1.46 (0.02)
Δ(90–80)state mental patients per 100,000 residents	–19.74 (1.55)	–14.10 (1.73)	–24.19 (2.35)
Δ(90–80)state prisoners per 100,000 residents	167.67 (10.09)	168.11 (8.13)	167.35 (16.73)
January temperature[a]	35.36 (1.27)	36.04 (2.03)	34.82 (1.61)
SSI recipients per 10,000	192.80 (6.77)	199.85 (9.38)	187.22 (9.73)
Unemployment rate, %	6.19 (0.12)	6.62 (0.18)	5.86 (0.15)
Number of observations	116	58	58

NOTE: Standard errors are in parentheses.

[a]One half of the sum of the January average high temperature and the January average low temperature.

Table B.2 presents comparable descriptive statistics for the two California-based samples. All of the data for the Continuum-of-Care and AFDC-HAP data are measured at the county level. For the AFDC-HAP panel, each observation is a county year for the period 1989–1996. Since these data refer to off-Census years, we replace median MSA rents, which are not available annually, with the fair market rent for a just-standard two-bedroom apartment, as estimated annually for each county by HUD. In addition, we replace median household income with per-capita income at the county level and rental vacancy rates with housing vacancy rates, both measured annually. For the 1996/1997 Continuum-of-Care sample, we include the proportion of county households with income below $15,000 as measured in the 1990 Census. All other variables come from various issues of the California Statistical Abstract.

For the Continuum-of-Care data in the first panel, we again see considerable variation across California counties in homelessness rates, with a mean aggregate homelessness rate of 24.6 per 10,000 inhabitants in below-median counties and 140.9 in above-median counties. For the overall sample and the stratified subsamples, most of the homeless are single unattached individuals. As before, areas with below-median homelessness have higher housing vacancy rates, lower fair market rents, and lower ratios of rents to income. January temperatures as well as SSI recipiency rates are positively associated with homelessness.

The descriptive statistics reported in the second panel for the AFDC-HAP sample differ from the presentations for the other three samples. The first column presents means for the entire sample, but the second and third columns present the average of each of the variables measured as deviations from county means. Rather than stratifying the sample into observations with above- and below-median homelessness, the sample is divided in county years in which homelessness is below the county-specific mean and county years in which homelessness is above the county-specific mean. For variables that are positively associated with within-county variation in homelessness, the means reported in the second column (the mean for the subsample with below-median homelessness) will be negative and the means reported in the third column (the mean for the subsample with above-median homelessness)

Table B.2

Mean California County Homelessness Rates and Means of the Explanatory Variables for Continuum-of-Care County-Level Cross-Section (1996, 1997) and AFDC-HAP County-Level Panel (1989–1996)

Continuum-of-Care Variable	Full Sample	Below-Median Homelessness	Above-Median Homelessness
Homeless per 10,000			
Total	117.71(12.24)	24.63 (1.94)	140.86 (16.40)
Individuals	73.69 (8.07)	12.57 (1.29)	88.89 (10.82)
Families with children	44.02 (6.20)	12.06 (1.14)	51.97 (9.19)
Housing vacancy rate, %	7.08 (0.56)	9.00 (1.24)	6.60 (0.61)
Fair market rent, $	757.08(18.92)	702.24 (35.08)	770.72 (23.8)
Per-capita income ($1000s)	25.45 (0.79)	25.28 (1.76)	25.49 (0.90)
Households earning <$15K, %[a]	18.96 (0.71)	18.94 (1.52)	18.96 (0.84)
Fair market rent/per-capita income, %	3.01 (0.05)	2.88 (0.08)	3.05 (0.07)
January temperature[b]	54.82 (0.61)	51.25 (0.89)	55.75 (0.751)
SSI recipients per 10,000	188.31 (9.16)	177.50 (14.57)	190.99 (12.63)
Unemployment rate, %	7.31 (0.45)	7.66 (1.03)	7.23 (0.50)
Number of observations	50	25	25
AFDC-HAP Variable	**Full Sample**	**Below County-Specific Mean[c]**	**Above County-Specific Mean[c]**
Cases per 10,000			
Total	31.49 (0.00)	–18.95 (1.12)	19.69 (1.28)
Permanent	13.98 (0.00)	–8.47 (0.60)	8.80 (0.63)
Temporary	17.51 (0.00)	–10.47 (0.64)	10.88 (0.99)
Housing vacancy rate, %	6.74 (0.00)	.15 (0.07)	–.16 (0.07)
Fair market rent, $	738.94 (0.01)	1.43 (2.57)	–1.48 (2.57)
Per-capita income ($1000s)	22.52 (0.29)	195.44 (0.13)	–161.67 (82.17)
Fair market rent/per-capita income, %	3.30 (0.00)	–.02 (0.02)	.020 (0.01)
January temperature[b]	53.55 (0.00)	–.12 (0.14)	.12 (0.15)
SSI recipients per 10,000	180.95 (0.00)	2.07 (3.56)	–2.15 (3.26)
Unemployment rate, %	7.53 (0.00)	–.11 (0.10)	.11 (0.09)
Number of observations	522	266	266

NOTE: Standard errors are in parentheses.

[a]This variable measures the proportion of households in the county with incomes below $15,000 for the year 1990. All other variables used with the Continuum-of-Care data are for the year 1996.

[b]One half of the sum of the January average high temperature and the January average low temperature.

[c]The means in this column are average deviations from county-specific means for each variable.

will be positive; the reverse holds for variables negatively associated with the incidence of homelessness.

For the HAP program, the mean caseloads per 10,000 residents are comparable for both the permanent and temporary assistance programs. Housing vacancy rates are negatively associated, within county, with variation in the incidence of housing distress (as is evident from the statistically significant positive value for vacancy rates in the second column and the significant negative value in the third), as is the ratio of fair market rents to personal income. The descriptive statistics in the second panel suggest that these patterns are important even after controlling for persistent countywide determinants of homelessness. None of the other differences across subsamples in the explanatory variables appear to be significant in the unadjusted data.

Table B.3 presents the regression results for the two national-level datasets. All variables with the exception of the inpatient and prison populations are measured in logs. Hence, the coefficient estimates can be interpreted as elasticities. For both national datasets, we estimate four specifications. The first tests rental vacancy rates and median rents. The next tests our household income and labor market variables. Housing market, income, and labor market variables are included simultaneously in the third specification, and the final regression tests the effect of the rent distribution relative to the income distribution by including the ratio of median rents to household incomes. All specifications include the same set of control variables: 1980 to 1990 changes in state mental hospital inpatient populations and in state prison populations, the log of January temperature (the average of the January high and low in 1990), and the log SSI recipients per 100,000 state residents.

The S-Night Data

The housing variables perform fairly well but not perfectly in the regressions using the S-Night data. The results from regression (1) indicate a significant negative effect of rental vacancy rates and a positive effect of median rents on the incidence of homelessness. After adding the income and labor market variables in specification (3), the point estimates for the housing variable coefficients become small and insignificant. In the final regression in which we add the ratio of median

Table B.3

Logarithmic Regressions of Homelessness Rates on Measures of Housing Costs and Availability, Household Income, and Labor Market Conditions Using the S-Night Homeless Counts and Burt Shelter Counts for National Samples of MSAs and Cities, 1989–1990

	S-Night Data				Burt Data			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Rental vacancy rate	–0.326	—	–0.134	–0.661	–0.301	—	–0.036	–0.376
	(0.127)		(0.136)	(0.124)	(0.228)		(0.260)	(0.206)
Median gross rent	1.503	—	0.397	—	0.724	—	–0.649	—
	(0.251)		(0.489)		(0.437)		(0.958)	
Households earning <$15K, %	—	1.308	1.392	—	—	0.861	0.620	—
		(0.605)	(0.626)			(1.123)	(1.180)	
Median household income	—	3.928	3.404	—	—	2.212	2.622	—
		(0.716)	(0.849)			(1.300)	(1.642)	
Median gross rent/ median household income	—	—	—	0.806	—	—	—	–0.219
				(0.510)				(0.901)
Unemployment rate	—	–0.183	–0.185	–0.118	—	–0.680	–0.614	–0.638
		(0.233)	(0.239)	(0.217)		(0.454)	(0.468)	(0.346)
Δ(90–80) state mental patients per 100,000	0.0014	0.0026	0.0026	0.0012	–0.011	–0.009	–0.009	–0.011
	(0.0021)	(0.0022)	(0.0022)	(0.0023)	(0.004)	(0.003)	(0.004)	(0.004)
Δ(90–80) state prisoners per 100,000	0.0004	0.0005	0.0006	0.0011	–0.0006	–0.0005	–0.0005	–0.0004
	(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0006)	(0.0007)	(0.0007)	(0.0006)
January temperature	0.059	0.370	0.324	0.234	0.011	0.069	0.180	0.074
	(0.122)	(0.109)	(0.140)	(0.154)	(0.188)	(0.179)	(0.236)	(0.234)
SSI recipients per 100,000	0.014	0.085	0.001	–0.057	–0.398	–0.108	–0.049	–0.114
	(0.107)	(0.131)	(0.148)	(0.147)	(0.188)	(0.226)	(0.282)	(0.260)
R^2	0.427	0.462	0.465	0.347	0.285	0.320	0.324	0.290
Number	246	246	246	246	102	102	102	102

NOTES: Standard errors are in parentheses. All variables except changes in mental patient and prisoner populations are measured in logarithms. All regressions include a constant and four dummies indicating MSA-population quartiles.

rents to household incomes, rental vacancy rates have a strong negative and significant effect on homelessness, and the ratio of rents to income has a weakly significant (at 10 percent) positive effect on homelessness. Hence, with the exception of the results from specification (3), housing market variables have the predicted effects in the incidence of homelessness as measured in the S-Night counts.

The income variable in specifications (2) and (3) indicates that the higher the percentage of households with income below $15,000, the higher the incidence of homelessness. These effects are significant at the 1 percent level in both specifications. In addition, the log of median household income is positively (and significantly) associated with homelessness in both models. Since we are controlling for the proportion of households in the lower tail of the earnings distribution (by including the proportion with household income below $15,000), high median household incomes indicate higher levels of household income inequality. Hence, these patterns are consistent with the arguments offered by O'Flaherty that homelessness will be higher in cities with greater inequality.

All of the point estimates on the metropolitan area unemployment rate are negative and statistically insignificant. There are no measurable effects of deinstitutionalization as measured by the changes in the inpatient population, changes in the prison population, and the SSI recipient population on the incidence of homelessness. To be sure, these poor results may be driven by the imperfect match in the geographic units used to measure the dependent and independent variables. Finally, in three of the four specifications, warmer weather has a positive significant effect on the incidence of homelessness.

The Shelter Counts

In the Burt shelter count data, vacancy rates have insignificant effects in specifications (5) and (7) and a weakly significant negative effect in the final specification that includes the ratio of rents to household incomes. Median rents have the theoretically predicted positive significant effect in the first specification only. There is no measurable effect of the proportion of low-income households in any of the specifications, and median household incomes are positively associated with the incidence of

homelessness. Finally, the ratio of rents to household income is insignificant in the final specification. The unemployment rate, changes in the prison population, January temperatures, and the SSI recipient population are, for the most part, insignificant. The one variable that is consistently significant across specifications is the change in the state inpatient population. In all specifications, decreases in the state mental hospital population cause increases in the incidence of homelessness as measured by the Burt shelter counts.

Continuum-of-Care in California

Table B.4 presents regression results using two measures of homelessness from the Continuum-of-Care cross-sections for California. The first four results are for models where the dependent variable is homeless individuals per 10,000 county residents. The next four present separate results for homelessness in families with children per 10,000 county residents. As in the national datasets, all variables are measured in logs. The specifications are comparable to those presented in the national dataset with a few exceptions. First, since this cross-section measures variation in homelessness across California counties, we are unable to control for changes in the inpatient and prison populations. In addition, since the homelessness data are for off-Census years (1996 and 1997), median rents, rental vacancy rates, and household incomes are unavailable. We replace these variables with housing vacancy rates, HUD fair market rents for a two-bedroom apartment, and per-capita income. For the proportion of households with income below $15,000, we simply use the 1990 value from the Census.

The results for homeless individuals parallel the patterns observed in the S-Night models, although the smaller sample yields fewer statistically significant coefficients. Housing vacancy rates are significant and have the expected negative effects in two of the three specifications for which this variable is included—columns (1) and (4). The fair market rent variable is insignificant in all regressions, and the ratio of rents to income is also insignificant. The income and labor market variables perform poorly. The proportion poor and per-capita income are insignificant in all specifications. In addition, the unemployment rate has no discernible effect on the incidence of homelessness. The variables that are

Table B.4

Logarithmic Regressions of Homelessness Rates on Measures of Housing Availability and Labor Market Conditions Using Continuum-of-Care Counts for California Counties, 1996–1997

	Homeless Individuals				Homeless Members of Families with Children			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Housing vacancy rate	–0.85	—	–0.50	–0.90	0.32	—	1.00	0.41
	(0.38)		(0.42)	(0.32)	(0.47)		(0.49)	(0.39)
Fair market rent	1.05	—	–1.65	—	0.49	—	–2.51	—
	(1.03)		(1.77)		(1.28)		(2.08)	
Households earning < $15,000, %	—	–2.38	–1.57	—	—	–2.60	–4.09	—
		(1.34)	(1.49)			(1.66)	(1.76)	
Per-capita income	—	1.70	2.60	—	—	–0.72	2.40	—
		(1.07)	(1.85)			(1.32)	(2.17)	
Fair market rent/per-capita income	—	—	—	–2.34	—	—	—	–3.16
				(1.69)				(2.06)
Unemployment rate, %	—	0.47	0.44	–0.18	—	–0.21	0.73	–0.10
		(0.64)	(0.72)	(0.58)		(0.79)	(0.85)	(0.71)
January temperature[a]	5.75	7.69	9.01	9.35	1.94	3.26	6.33	5.82
	(1.96)	(1.67)	(2.40)	(2.31)	(2.43)	(2.07)	(2.83)	(2.82)
SSI recipients per 10,000	1.23	2.89	2.34	1.49	0.13	1.99	2.74	0.53
	(0.43)	(0.88)	(0.97)	(0.53)	(0.53)	(1.09)	(1.13)	(0.64)
R^2	0.42	0.46	0.49	0.40	0.04	0.12	0.24	0.13
Number	49	49	49	49	48	48	48	48

NOTES: All regressions include a constant. Standard errors are in parentheses. All variables are measured in logarithms. All regressions are weighted by county population.

[a]Measured in January 1996 using method reported in Tables B.1 and B.2.

consistently significant across all specifications are January temperature and the SSI recipient population. Both variables exhibit positive significant effects on the incidence of homelessness among individuals who are not members of families with children.

For the models using homeless members of families with children, the housing market variables are statistically insignificant in most specifications, as are the variables measuring personal income, the proportion of low-income households, and the county unemployment rate. The only variable exerting a statistically significant effect in more than one specification with the theoretically predicted sign is the measure of January temperature. Hence, the results from the Continuum-of-Care regressions are mixed indeed, offering only slight evidence supporting the hypothesized importance of housing and income variables on the incidence of homelessness.

AFDC-HAP in California

Our final set of estimation results uses the AFDC-HAP data for California counties. Table B.5 presents separate results for households receiving permanent assistance over the course of the year and households receiving temporary assistance. Again, these variables are expressed per 10,000 county residents, and all variables are in logs. The specifications of the models estimated for each outcome are similar to those for the other three measures of homelessness, but with several important differences. First, all models estimated in Table B.5 include a full set of county and year dummies. Hence, all estimates are robust to criticisms regarding unobserved time-invariant county heterogeneity that may be biasing the results. Second, since eight of the nine years of the panel are non-Census years, we are unable to control for the proportion of households with low incomes. Finally, since per-capita income for 1997 is not yet available, the sample sizes for regressions omitting this variable are slightly larger than for regressions when per-capita income is included in the specification.[1]

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[1]For this dataset, it was not possible to control for incarcerated or institutionalized populations except through use of fixed effects.

Table B.5

Logarithmic Regressions of Homelessness Rates on Measures of Housing Costs and Availability, Per-Capita Incomes, and Labor Market Conditions Using AFDC-HAP Counts for California Counties, 1989–1997

	Permanent Caseload				Temporary Caseload			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Vacancy rate, %	–0.83	—	–0.76	–0.77	–0.43	—	–0.49	–0.45
	(0.11)		(0.11)	(0.11)	(0.10)		(0.10)	(0.10)
Fair market rent	1.88	—	1.29	—	0.05	—	0.92	—
	(0.32)		(0.32)		(0.30)		(0.29)	
Per-capita income	—	–2.00	–1.41	—	—	–0.36	0.01	—
		(.53)	(0.51)			(0.46)	(0.45)	
Fair market rent/per-capita income	—	—	—	1.32	—	—	—	0.66
				(0.28)				(0.25)
Unemployment rate, %	—	–0.27	0.12	0.12	—	–0.53	–0.29	–0.36
		(0.18)	(0.18)	(0.18)		(0.15)	(0.16)	(0.16)
January temperature	1.07	1.718	1.299	1.29	2.51	2.28	2.025	2.098
	(0.45)	(0.45)	(0.43)	(0.43)	(0.43)	(0.387)	(0.38)	(0.38)
SSI recipients per 10,000	1.24	–0.22	0.31	0.32	–0.07	0.08	0.45	0.36
	(0.39)	(0.48)	(0.46)	(0.45)	(0.37)	(0.42)	(0.41)	(0.41)
Number	511	458	458	458	509	456	456	456

NOTES: All regressions include a complete set of 58-county fixed effects and 9-year fixed effects. The dependent variable is the log of the respective caseload per 10,000 county residents. All variables are measured in logs. All regressions are weighted by county population.

The results in Table B.5 provide the strongest evidence that measures of housing market tightness are important determinants of homelessness. For the permanent caseloads, in all three specifications that include them, housing vacancy rates have a strong negative and statistically significant effect (at the 1 percent level) on the incidence of homelessness. Moreover, the point estimates of this elasticity are quite similar across specifications. In the two specifications including fair market rents—(1) and (3)—rents exhibit a significant positive effect on the incidence of homelessness as predicted by theory. In addition, the specification including the ratio of rents to income indicates a strong positive effect of this variable. Hence, for homelessness as measured by the incidence of households seeking permanent assistance in response to a spell of homelessness, measures of housing market tightness consistently exhibit strong and statistically significant effects consistent with the predictions of theory.

We find a significant negative effect of per-capita income on the incidence of families seeking permanent assistance. However, there are no measurable effects of county unemployment rates and no effects of the SSI populations that are consistent and significant across specifications. Once again, warmer weather is positively associated with homelessness in all four specifications.

For families seeking temporary assistance, the patterns are quite similar to the results for the permanent caseloads. Housing vacancy rates are consistently negative and significant. Fair market rents have an insignificant effect in the first specification presented in column (5) but a highly significant and positive effect in the third specification in column (7). The ratio of rents to income in regression (8) has a positive significant effect on the incidence of homelessness. Per-capita income, however, is insignificant in all regressions. Again, we find positive significant effects of warm weather.

Appendix C

The Simulations[1]

In contrast to previous empirical research that estimates the effects of various measures of housing costs on the homelessness rate (Honig and Filer 1993, Appendix B), we extend a model by Anas and Arnott to simulate the sensitivity of homelessness to various changes in income conditions, population, and policies. The model describes the workings of a regional housing market in which units filter through a quality hierarchy (where quality is defined among discrete categories) and in which households of various income levels choose among these alternative discrete types. One option in the stationary equilibrium is for households to opt out of the housing market and spend their money on "other goods." The proportion of households choosing this option provides an estimate of the incidence of homelessness. Changes in this outcome motivate our analysis. However, the policies that we simulate have their principal effects upon those who are not homeless (since a very small fraction of households are homeless). With this in mind, we also explore the broader and quantitatively more important implications of the simulated policies.

We calibrate the Anas and Arnott model to the four largest metropolitan areas in California. Using data from the Census of Population and Housing for 1980 and 1990 and various years of the American Housing Survey, we explore several alternative simulations. First, we calibrate the model for each metropolitan area to observed housing market and income conditions in 1980 and assess how well the model predicts the observed changes in rents during the subsequent decade. Having established that the model projects reasonably well, we then calibrate the model to 1990 conditions. Following O'Flaherty's

[1]We are grateful to Alex Anas for providing us with a complete and transparent version of the Anas and Arnott model (Anas, 1999) and for his patience and assistance in calibrating the model.

theoretical arguments (1996), we explore the effects on homelessness of changes in the income distribution similar to those that actually occurred during the 1980s in these four markets. Finally, we explore the welfare consequences and effects on homelessness of three housing market policy interventions: extending housing vouchers to all low-income households, subsidizing all landlords, and subsidizing landlords who supply low-income housing.

The Simulation Model[2]

We calibrate the stationary version of the Anas and Arnott model of urban housing markets described in Anas (1999). Risk-neutral housing producers determine the supply of rental housing units for each level of quality k (k = {0, 1, . . . 4}) so as to equalize returns across housing types. With the exception of housing of the highest quality (k = 4 in our simulations), the supply of housing at each quality level is determined by the proportion of the stock of this quality in the previous period that is maintained plus the proportion that filters down from higher-quality levels. Reverse filtering is not permitted. Maintenance and housing costs vary across but not within housing types. In addition, conversion costs—as well as conversion possibilities (which we refer to as the conversion technology)—differ between any two types of housing. In addition, there is idiosyncratic dispersion in ownership costs for all housing types and land. We restrict the conversion technology so that only housing of the highest quality is newly constructed.[3] We further restrict the conversion technology so that housing units do not "reverse filter" up the quality hierarchy but either remain at the same quality or filter down to the next-lowest quality level. The lowest quality can be demolished at a cost, clearing the land for the construction of high-quality units. Hence, a change in the market conditions in higher-quality submarkets may change the price of low-quality housing through competition for land.

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[2]Here we present a verbal description of the stationary Anas and Arnott model described in Anas (1999). See Mansur et al. (2000) for a more detailed description of the model and the calibration process.

[3]This restriction appears to be empirically plausible; it restricts new construction to units renting for at least $850 to $900 in San Francisco, Los Angeles, and San Diego, and at least $650 in Sacramento.

Households fall into five income classes (h = {1, . . , 5}) and are heterogeneous with respect to their tastes for housing. Average incomes in each class, the distribution of households across income groups, and the total population are exogenous to the model. In addition, each household has an exogenously determined reservation utility at which households are indifferent between consuming rental housing and homelessness. This latter feature provides an exit option that can be interpreted as homelessness (or "doubling up"—when two households occupy a single dwelling) in response to high housing prices. The model assumes a specific form of the household utility function with idiosyncratic preferences, yielding a multinomial logit specification of household choice probabilities over the four housing types and homelessness. The conversion probabilities are also modeled with a multinomial logit specification.

At stationary equilibrium in this model, housing stocks, the stock of vacant land, rents, and asset prices are constant from one period to the next. In this equilibrium, housing is filtering across quality levels, low-quality housing is being demolished, and high-quality housing is being constructed, all at a constant rate. Four sets of market-clearing equations must be satisfied. First, demand must equal supply in each of the quality submarkets. Second, suppliers must earn normal profits. That is, for each housing type and for vacant land as well, the price of the asset must equalize the expected rate of return and the real interest rate. The third and fourth conditions are accounting identities. The third condition ensures that the stock of housing of a given type equals the sum of those units that are newly constructed, those that filter in, and those that are maintained from the previous period. The final condition ensures that the sum of developed and undeveloped land equals the fixed quantity available in the metropolitan area. These identities impose some restrictions on the values of the equilibrium conversion probabilities.

Calibration of the Model and Some Initial Predictive Results

Calibrating the model requires specification of the observed equilibrium conditions (rents, asset values, and stocks), populations,

income levels, conversion and maintenance costs, and the real interest rate. In addition, we must assume values for the price elasticity of housing demand and the price elasticity of short-run stock adjustments. We must also specify housing unit conversion possibilities (a complete pre-specification of the conversion possibilities of each type).[4] Assuming that these initial observed values represent a stationary equilibrium, the model uses this information to calibrate the unobserved parameters of the structural equations. "Calibration" is achieved when the structural equations of the model, combined with observed exogenous conditions, reproduce the observed market conditions (rents, stocks, and asset values). The calibrated model can then be used to simulate the effects of changes in any of the exogenous variables.

Important intermediate equations produced in the calibration process are those that calculate the probability that a household of income class h chooses housing of quality type k. When k is equal to zero, this variable provides the probability that the household opts out of the housing market. Given fixed population sizes, this probability provides an estimate of homelessness. Changes in this probability caused by changes in any of the exogenous variables are estimates of the effect of that change on the size of the homeless population. This variable, the homeless rate, is one of the key outcomes analyzed in the policy simulations presented below.

We calibrate the model for four California MSAs—San Francisco, Los Angeles, San Diego, and Sacramento—using data from the 1989 and 1991 American Housing Surveys (AHS) and the 1990 Census of Population and Housing. Again, the model includes five household types (quintiles of the metropolitan income distribution for renters) and four housing types (land and the stock of rental housing segmented by rent quartile). We assume that renters in the lowest quintile never live in housing of the highest quality.[5] All other renters may occupy any type of housing. We do not include owner-occupied housing in the analysis.

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[4]A complete list of variables and parameters that must be pre-specified is provided in Mansur et al. (2000).

[5]Empirically, this is an inconsequential assumption. In these specific markets, the assumption implies that low-income renters never choose to spend more than approximately twice their annual income on housing.

We thus assume that there is no interaction between rental and owner-occupied markets. Most owner-occupied housing is composed of single dwellings, which are far less likely to be in the rental stock. In addition, homeownership is an unlikely option for renters at the bottom of the income distribution, the population that is of particular interest here.

As discussed above, we restrict conversion technologies so that only housing of the highest quality is newly constructed. We estimate construction costs of high-quality housing by capitalizing the equilibrium rent (calculated as the average annual rent observed for housing in this quartile in each market divided by the normal rate of return). Only the lowest quality of housing is demolished, and filtering is restricted to one level per period. We assume that maintaining a housing unit at the current quality level requires expenditures of 1 percent of market value plus the cost of utilities.[6] A unit depreciates to the next-lowest housing type if it is not profitable for the landlord to incur these maintenance costs. We assume that demolition costs of low-quality units are equal to 20 percent of construction costs. Finally we assume that all rental units have the same structural density.

Since each rental group equals one-quarter of the rental population, the gross flows of demolitions and the filtering flows must all equal each other and also equal the flow of construction for all states in equilibrium. We estimate the demolition rates using the 1989 and 1991 AHS for each MSA. The construction rate is assumed to be half that of demolition. In the initial calibrated equilibrium, the number of units transitioning from one state to the next will be the same for all transitions, including construction, filtering, and demolition. By assuming that the construction rate is half that of demolition and filtering, there must be twice as many units of land vacant to be built upon as there are in any one housing type. Since there are four types of housing and one type of land, one-third of all land will be vacant in equilibrium. We assume that the price elasticities of demand and short-run stock adjustment are –0.67 and 0.50 for all cities, housing types, household types, and time periods (Hanushek and Quigley, 1980).

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[6]This is the widely used one-in-a-hundred rule; see Kain and Quigley (1975) for an early discussion.

The choice probabilities for each household type are computed from the proportions reported in the 1989 and 1991 AHS for each metropolitan area. In addition, we use the AHS to compute conversion rates, mean rents for each quartile, mean incomes for each income quintile, mean rents of newly constructed units, and utility costs by quartile. The number of rental households in each MSA comes from the 1990 Census. We estimate the homeless population for each MSA from several sources.[7]

For all simulations, we assume that programs are funded with resources from outside the metropolitan area. Hence, we ignore the issue of the incidence of the taxes needed to generate funding for the programs. For all programs, we simulate the change in homelessness, the changes in rents for housing of all types, and changes in transition rates. In addition, we compute the compensating variation for each policy for households of all types and for landlords. Since the model assumes that landlords are risk-neutral, changes in profits identify changes in the well-being of landlords.

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[7]The models were calibrated so that the rent measures computed by the models were within 0.2 percent of the rents reported in the relevant Census publications. Although the model underpredicts actual changes in rents (as is evident by the positive intercept in the regression), changes in relative rents are predicted with a fair degree of accuracy. Of course, a great many things happened in these housing markets during the 1980s that are ignored in these simulations.

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