Targeting Housing Aid to the Homeless: Evidence from the National Survey of Homeless Assistance Providers and Clients

Dirk W. Early

Associate Professor of Economics
Department of Economics and Business
Southwestern University
Georgetown, TX 78627
Phone: (512) 863-1592
earlyd@southwestern.edu

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ABSTRACT

This study combines data from the Survey of Income and Program Participation with the National Survey of Homeless Assistance Providers and Clients to estimate how well units of subsidized housing are targeted toward households at risk of being homeless. Additional funding for subsidized housing is a commonly proposed solution to the problem of homelessness. However, research on the effect of subsidized housing in reducing homelessness is far from conclusive. Using data from a 1987 study of the homeless, Early (1998) found nearly 95% of households in subsidized units would not be expected to be homeless if their subsidies were removed. Some have argued that those results are no longer valid since more recent selection criteria examine carefully a household's risk of being homeless.

The results presented here suggest that subsidized housing is still not targeted toward those most at risk of being homeless. Therefore, a simple expansion of existing housing programs will have little effect on the number of homeless. In fact, the estimates suggest that those in subsidized units in 1996 are even less likely to be homeless than the subsidized population in 1987.

Introduction

Since homelessness, by definition, results from a lack of housing, arguing for additional housing subsidies to help reduce the problem seems reasonable. In fact, a call for additional subsidies is not uncommon [Interagency Council on the Homeless, 1994; Burt, 1992; Appelbaum, et al., 1991; Wright and Lam, 1987; Carliner, 1987]. In addition, it has been suggested that a loss of subsidized units would push many households into a state of homelessness. The U.S. Department of Housing and Urban Development (HUD) proposed renewing contracts on 1.8 million subsidized units that would otherwise expire at the end of 1998 [HUD, 1997]. One argument in support of renewing these units focused on their role in keeping families currently enrolled in the program from becoming homeless: HUD argues that if these subsidies are not renewed, the U.S. would see "an unprecedented explosion of homelessness" [HUD, 1997]. Advocates have also supported this argument [National Coalition for the Homeless, 1997; National Low Income Housing Coalition, 1997]. The claim that subsidized housing is an important tool in the fight against homelessness is based on the assumption that these units are being occupied by households with a high risk of being homeless.

However, a study looking at the characteristics of those in subsidized housing in 1987 found few were likely to be homeless in the absence of their subsidy [Early, 1998]. These findings have been attacked by some who argue that current selection criteria do a better job at targeting aid to households with a high probability of being homeless. This article examines whether the subsidized population in 1996 is more

likely to be homeless than those who were in subsidized housing in the late 1980s. In other words, are housing authorities doing a better job of targeting aid toward those likely to be homeless today compared with a decade ago. In particular, this study estimates the fraction of the subsidized population that would be homeless in the absence of their subsidy. If only a small fraction of the subsidized population is estimated to be homeless without their subsidy, then housing programs have not targeted those households most at risk of becoming homeless. In addition, comparing the results of a model predicting the probability of homelessness using data from the mid-1980s with the results predicting causes of homelessness in the mid-1990s will determine whether the causes of homelessness have changed over time. This is possible since the same methodology was used to find the causes of homelessness during these two time periods.

Prior Research

Using data from a 1987 study of homeless households and data on the housed from the American Housing Survey, Early [1998] estimated the determinants of homelessness. Using the coefficient estimates from a logit regression explaining the causes of homelessness, an estimate of the fraction of the subsidized population that would be homeless if their subsidies were removed was found. The results of this simulation suggested that less than 5 percent (4.53) of the subsidized population is expected to be homeless if subsidies were removed, indicating that housing authorities were not targeting aid toward high risk households [Early, 1998, p. 694]. This study

uses the same technique to determine whether the fraction of subsidized households likely to be homeless has increased over the last decade.

Only a few other empirical studies look specifically at the role subsidized housing plays in reducing homelessness. Troutman, et al. [1999] and Tucker [1989, 1987] use HUD's estimate of the number of homeless in 60 U.S. cities in 1984 [HUD, 1984] to estimate the effect subsidized housing has on reducing homelessness. The estimated number of homeless divided by the population of the city is used as a dependent variable in an ordinary least squares regression with several variables hypothesized to affect the rate of homelessness used as explanatory variables. These studies found that additional housing assistance does not reduce the rate of homelessness. Burt [1992] finds that more subsidized housing per capita is associated with higher rates of homelessness when the rate of homelessness is measured as the number of beds in emergency shelters divided by the population of the city. Early and Olsen [2001] use data from the 1990 Decennial Census to estimate the causes of variations in rates of homelessness across urban areas. They focus on the availability of subsidized housing and how well this aid was targeted toward the very poor. No statistically significant relationships between the availability of subsidized housing and the rate of homelessness was detected. However, the results indicate that targeting aid toward the very poor (those with income less than $5,000 in 1990) decreased the rate of homelessness.

Using time-series data for New York City, Cragg and O'Flaherty [1999] study why families enter and leave homeless shelters. They argue that offering sheltered

families quicker access to long-term housing aid induced some families to enter the shelter system. However, they find that as more homeless families are moved into subsidized housing the total number of homeless families will fall.

Statistical Model and Data

To estimate the determinants of homelessness, this study combines micro-data on the homeless with micro-data from a separate survey of the housed population. A logit regression is used to estimate the probability of being homeless as a function of household characteristics and the characteristics of the city in which the household resides.[1] Using the results of the logit regression explaining whether a household is homeless allows for an estimate of the fraction of subsidized households who would be homeless in the absence of their survey.

Since only the poor living in unsubsidized rental housing are likely to become homeless, the population for this study is restricted to homeless households and poor households in unsubsidized rental housing. Observations on the homeless come from the 1996 Survey of Homeless Assistance Providers and Clients (NSHAPC). A person is considered homeless if he or she is sleeping on the streets or any other public area not intended as housing or in an emergency shelter. Observations on the housed come from the 1996 Survey of Income and Program Participation (SIPP).

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[1] Due to confidentiality concerns, the NSHAPC survey does not give the metropolitan area of the homeless clients or service providers. However, metropolitan area size and region are reported. Future versions of this paper will use nonpublic access data that does contain metropolitan area codes for the clients and assistance providers. Until those data are available little confidence should be placed on the coefficient estimates of the metropolitan area specific variables.

The NSHAPC collected data in 76 MSA and non-MSA areas, and 25 of the metropolitan areas were also surveyed in the SIPP. Therefore, this study will use observations in those 25 MSAs.[2] After dropping observations with missing data, the analysis uses 1,810 observations on the homeless and 9,143 observations on the poor housed in unsubsidized housing.[3]

Table 1 gives the definitions, sources and descriptive statistics of the variables used in the estimations. The descriptive statistics are presented separately for the homeless, the housed, and for families in subsidized housing. Since the probability of a household being homeless reflects in part their demand for housing, variables that are commonly included in housing demand equations are also included in this analysis. The reasons for including variables that are specific to the study of homelessness will be discussed below.

The lowest level of rental housing available will also be a determinant of the probability of homelessness. O'Flaherty [1996] shows that operating costs, including the forgone earnings of the asset in the next best alternative, will prevent the lowest levels of rental housing from being offered in the market. When enforced, stringent occupancy codes can increase the minimum level of housing available. Occupancy

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[2] These areas are Atlanta, Birmingham, Boston, Chicago, Cleveland, Dallas, Detroit, Houston, Indianapolis, Kansas City, Los Angeles, Miami, New York, Norfolk, Oakland, Oklahoma City, Philadelphia, Phoenix, Pittsburgh, Sacramento, St. Louis, Salt Lake City, San Diego, Seattle, Tampa, and Washington, D.C.

[3] The Census Bureau collected data on a greater proportion of the homeless population than SIPP collected on the housed population. Therefore, the homeless are oversampled in this data set. Since the selection process is a function of the dependent variable, the sample is choice-based. Using estimates of the proportion of the poor population homeless in 1996 from the Urban Institute [2000], this problem is handled employing procedures described in Manski and McFadden [1981].

Table 1. Means, standard deviations and description of variables.

	mean (standard deviation)			
Variable	Homeless	Housed	Subsidized	Description and source of data
Monthly Income	322.876 (337.267)	742.945 (456.213)	1285.939 (1207.868)	Monthly household income.
Price of nonhousing goods	108.552 (4.953)	109.478 (11.069)	111.109 (12.804)	Price of nonhousing goods [ACCRA, 1996].
Price of substandard rental housing	583.592 (74.721)	605.332 (127.806)	612.925 (122.324)	Price index of substandard rental housing. Calculated by the author using the American Housing Survey.
Real Monthly Income	2.977 (3.118)	6.848 (4.234)	11.702 (11.174)	Monthly income of the household divided by the price of nonhousing goods.
Real price of substandard rental housing	5.355 (0.460)	5.539 (1.128)	5.531 (1.053)	Price of substandard rental housing divided by the price of nonhousing goods.
Lowest Quality of Housing Available	197.189 (45.483)	209.324 (63.338)	214.072 (69.808)	Lowest level of housing available. Determined from hedonic regressions in each city using the American Housing Survey data.
Shelter occupancy rate	84.388 (3.862)	85.408 (5.600)	86.213 (5.675)	Average occupancy rate for homeless shelters. Derived by the author from the NSHAPC program data files.
Welfare	0.467 (0.499)	0.144 (0.351)	0.212 (0.409)	Household receives welfare benefits. (=1 is yes, 0 otherwise).
Persons	1.524 (1.258)	3.473 (2.095)	2.895 (1.883)	Number of persons in the household.
Female	0.315 (0.465)	0.425 (0.494)	0.619 (0.486)	Sex of the head of the household (= 1 if female, 0 otherwise).
African-American	0.463 (0.499)	0.244 (0.430)	0.391 (0.488)	Race of the head of the household. (= 1 if African-American, 0 otherwise).
Hispanic	0.121 (0.326)	0.274 (0.446)	0.188 (0.390)	Ethnicity of the head of the household (= 1 if Hispanic, 0 otherwise).

Table 1. Means, standard deviations and description of variables. (*continued*)

	mean (standard deviation)			
Variable	Homeless	Housed	Subsidized	Description and source of data
Less than 20 years old	0.047 (0.212)	0.044 (0.205)	0.047 (0.211)	Age of the head of the household is less than 20.
Age 20 - 29 years	0.172 (0.377)	0.225 (0.417)	0.232 (0.422)	Age of the head of the household is between 20 and 29.
Age 30 - 39 years	0.345 (0.476)	0.258 (0.438)	0.228 (0.420)	Age of the head of the household is between 30 and 39.
Age 40 - 49 years	0.290 (0.454)	0.163 (0.369)	0.120 (0.325)	Age of the head of the household is between 40 and 49.
Age 50 - 59 years	0.115 (0.319)	0.089 (0.285)	0.090 (0.286)	Age of the head of the household is between 50 and 59.
Age 60 - 69 years	0.026 (0.159)	0.090 (0.287)	0.099 (0.298)	Age of the head of the household is between 60 and 69.
Age70 years or above	0.005 (0.074)	0.131 (0.338)	0.185 (0.388)	Age of the head of the household is 70 or above.
Married	0.070 (0.255)	0.414 (0.493)	0.255 (0.436)	Household head is currently married.
High School	0.367 (0.482)	0.293 (0.455)	0.333 (0.471)	Household head has a high school diploma.
More than high school	0.271 (0.445)	0.289 (0.453)	0.253 (0.435)	Household head has more than a high school diploma.
Vietnam Veteran	0.103 (0.304)	0.016 (0.125)	0.010 (0.102)	Household head is a veteran of the Vietnam War.
Disabled	0.125 (0.331)	0.128 (0.334)	0.188 (0.391)	Household head has a disability that makes work difficult.
Temperature	50.634 (0.783)	52.085 (8.045)	50.345 (6.820)	Average low temperature during the month of the survey [National Climatic Data Center, 1996].
N	1,810	9,143	4,192	

codes are designed to improve the condition of the housing stock and increase households' consumption of housing by forcing landlords to provide units with a certain level of quality. However, an increase in the minimum level of housing available increases the rent needed to occupy a unit. This may push some households into homelessness. Some cite the loss of single-room occupancy hotels as a major cause of homelessness [Gladwell, 1993; Interagency Council on the Homeless, 1994]. Since these hotels provide the most modest housing available, their loss increases the minimum quality of housing available. A measure of the lowest level of housing available is included as an explanatory variable to capture these effects.

The choices facing a household are further complicated by the existence of emergency shelters for the homeless. Emergency shelters offer very low quality housing at no cost. O'Flaherty [1996] and Ellickson [1990] argue that an increase in the availability of shelters will draw families out of conventional housing. This would increase the probability of homelessness. The shelter occupancy rate is included as an explanatory variable to capture this relationship.

The effects of education on earnings should be captured by the coefficient on income in the logit regression. Education is included as an explanatory variable to capture characteristics of the household that are not captured by the income of the household. For example, education might be a good proxy for permanent income and ability.

In spite of having access to benefits due to their war time service, veterans are over represented in the homeless population. Furthermore, average incomes are

roughly the same between veterans and nonveterans and poverty rates, unemployment rates, and rate of marriage are not dissimilar between the two groups [Rosenheck, et al. 1994]. One explanation for the higher rates of homelessness among veterans may be the higher prevalence of substance abuse and other psychiatric disorders. A variable indicating service during the Vietnam War is included to capture the effect of veteran status holding other characteristics constant. In addition, a dummy variable indicating the presence of a disability that makes work difficult is included.

The next section describes the results of the logit regression explaining the probability of being homeless as a function of the characteristics of the family and of the metropolitan area. Once the relationship between the probability of homelessness and these characteristics is known, an estimated of the effectiveness of subsidized housing in reducing homelessness can be found.

Logit Results

The coefficient estimates of the logit regression, their standard errors, and levels of significance are reported in the second and third columns of table 2. Since this is not a linear probability model, the coefficients cannot be interpreted as the change in the probability of homeless given a change in the variable. Instead they give the change in the value of being homeless relative to being housed. However, the sign of the coefficient can be interpreted as the direction of the change in the probability of homelessness as the independent variable is increased. Standard errors and significance levels can be interpreted in the usual way.

Table 2. Results of the logit regression.

Dependent variable = 1 if homeless, 0 otherwise.

Variable	coefficient (standard error)	P(Z) > z
Constant	6.6331 (0.9569)	0.0000
Real Monthly Income	-0.1718 (0.0306)	0.0000
Real price of substandard rental housing	-0.0158 (0.0379)	0.6762
Lowest Quality of Housing Available	0.0001 (0.0008)	0.8751
Shelter occupancy rate	-0.0531 (0.0089)	0.0000
Welfare	2.3363 (0.1194)	0.0000
Persons	-1.0784 (0.1095)	0.0000
Female	-1.2317 (0.1231)	0.0000
African-American	0.7400 (0.1142	0.0000
Hispanic	-0.0181 (0.1722)	0.9162
Less than 20 years old	0.1671 (0.2420)	0.4899
Age 20 - 29 years	-0.7068 (0.1462)	0.0000
Age 40 - 49 years	-0.1675 (0.1364)	0.2194
Age 50 - 59 years	-0.6940 (0.1689)	0.0000
Age 60 - 69 years	-2.1117 (0.2607)	0.0000
Age 70 years or above	-4.3601 (0.5542)	0.0000

Table 2. Results of the logit regression. (*continued*)

Dependent variable = 1 if homeless, 0 otherwise.

Variable	coefficient (standard error)	P(Z) > z
Married	-1.0173 (0.2160)	0.0000
High School	-0.4107 (0.1299)	0.0016
More than high school	-1.0040 (0.1435)	0.0000
Vietnam Veteran	1.2732 (0.2315)	0.0000
Disabled	-0.9917 (0.1650)	0.0000
Temperature	-0.0128 (0.0051)	0.0113

Nearly all the coefficients were significant at the normal levels and the signs of the coefficients followed expectations for most the variables. Coefficient estimates suggest that being unmarried, low income, poorly educated, African-American, a Vietnam veteran or male increases the probability of being homeless. In addition, the probability of being homeless usually falls with age. Holding other characteristics constant, living in an area with a high occupancy rate in homeless shelters, indicating less availability of shelters, lowered the probability of being homeless. Counter to expectations, the results suggest that higher housing prices lowers the probability of being homeless.

The results presented here (determinants of homelessness using data from 1996) are consistent with those found for the mid-1980s. As is true in 1996, income, gender, race, and age played an important role in determining the probability of homeless in 1987. In addition, during both time periods, measures of the tightness of the housing market (price and lowest quality of housing available) were not important determinants of the probability of homelessness. The similarity of these results indicates that the root causes of homelessness did not changed much over this time period and that personal factors seem to play a larger role than housing related variables.

Importance of Individual Determinants of Homelessness

Table 2 gives the coefficient estimates of the logit regression explaining homelessness. However, estimates of the magnitude of these coefficients are needed

to determine which are important determinants of the probability of being homeless. Table 3 reports the change in the estimated probability of being homeless as several of these variables are changed. This allows for a measure of the consequence a movement in these variables will have on the number of homeless. A base probability is calculated for a white, unmarried, male, with less than a high school education. The remaining characteristics are set equal to the average characteristics of the homeless in the sample. At these levels the probability of being homeless is roughly 36 percent. Each variable is changed and the new probability of being homeless is derived as is the percentage change in the probability of being homeless.

As Table 3 indicates holding other characteristics constant, increasing monthly income by one standard deviation (roughly $337) lowers the probability of being homeless by more than 31 percent. Gender and race also play an important role in determining the probability of being homeless. The results suggest that women are nearly 61 percent less likely to be homeless and African-Americans are 50 percent more likely to be homeless. Additional benefits available to mothers with children may explain the lower probability of being homeless among women. In addition, being homeless could be considered more dangerous for women than men. Higher probabilities of being homeless for African-Americans may be due to their facing discrimination in the housing market or other barriers when looking for rental housing.

Table 3. Magnitude estimates: Changes in the probability of being homeless

Variable (movement)	new probability	% Ä in probability
Base probability	35.734	--------
Real Monthly Income (mean to mean + 1 standard deviation)	24.495	-31.452
Shelter occupancy rate (mean to mean + 1 standard deviation)	31.172	-12.768
Female (male to female)	13.960	-60.934
African-American (white to African-American)	53.820	50.612
Married (unmarried to married)	16.740	-53.155
High school (less than HS to high school)	26.942	-24.606
More than high school (less than high school to more than high school)	16.926	-52.635
Vietnam Veteran (nonVietnam veteran to Vietnam veteran)	66.513	86.131

Being married and having finished high school dramatically reduced the probability of homelessness. Holding other characteristics constant, high school graduates are 53 percent less likely to be homeless than those who have not finished high school. Although several demographic characteristics of the household alter greatly the probability of being homeless, the single largest determinant of homelessness is whether the head of the household is a Vietnam veteran. The results suggest that Vietnam veterans are more than 80 percent more likely to be homeless than similar nonVietnam veterans. With information regarding the importance of these characteristics in determining whether a household is homeless, the role subsidized housing plays in reducing the number of homeless can be estimated.

Subsidized Housing on Homelessness

Using data on the homeless in 1987, Early [1998] suggests that the selection criteria employed by housing authorities in 15 metropolitan areas were not targeting those households at high risk of being homeless. Of interest is whether the selection criteria have changed over the last decade to focus housing assistance to those households most in need.

An estimate of the effectiveness of subsidized housing in reducing homelessness is found by using the fitted values from the logit regression to estimate what fraction of the subsidized population would be homeless in the absence of their subsidies. The weighted average of these probabilities is the estimated fraction of households that would be homeless without the subsidy. These estimates suggest that

only 4.43 percent of the subsidized population would be homeless in the absence of their subsidy. This is remarkably similar to the results obtained a decade ago. Using the 1987 population in subsidized housing, Early [1998] estimated that 4.53 percent would be homeless if housing subsidies were removed. The notion that housing authorities are targeting aid toward high risk households, or that the selection criteria have been changing to target this aid better, is not supported by the results.

Conclusion

The conclusions reached in this study are similar to the conclusions found using data from the subsidized population in 1987. Expanding the current subsidized housing programs cannot be expected to have much effect on the number of homeless. If the current methods are used to select additional households for subsidized housing, an increase of one hundred subsidized housing units would reduce the number of homeless households by less than five. Without an unrealistic increase in the budgets of existing housing programs, the expansion of these programs in their current forms cannot eliminate homelessness because they are too poorly targeted on those households most at risk of becoming homeless. However, these programs could be modified to substantially reduce homelessness without any additional resources. For example, the subsidy at each income level could be reduced, eliminating from the programs the least poor of the currently eligible, and the savings used to provide subsidies to the poorest of the poor who are much more likely to become homeless. Alternatively, more weight could be given to income and other important determinants

of homelessness in selecting households from the waiting lists of housing programs.

Some lack of targeting of this aid is surely due to the decision to support women with children more than unaccompanied men. Since single men make up a large fraction of the homeless, housing aid designed to help families should not be expected to have a dramatic effect on the number of homeless. The results presented here do not suggest that we should move away from preferences toward women with children. However, the results do suggest that increases in housing assistance, as it is currently being implemented, will not be effective at reducing homelessness.

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