

## **Last in Line: Housing Assistance for Households with Children**

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### *Abstract*

This article examines the relationship between receipt of different types of rental housing assistance and housing outcomes for households with children. We rely on the 1989 American Housing Survey (AHS) and a special data supplement that attempted to accurately categorize every assisted renter-occupied address in the AHS sample as either public housing; privately owned, federally assisted housing; or certificates and vouchers. Housing outcomes examined are physical condition of the unit, crowding, affordability, perceived neighborhood quality, and crime. We analyze three research questions: (1) Do the characteristics of households enrolled in housing programs differ by program type? (2) Do housing outcomes differ with the type of assistance received? (3) Do differences in household characteristics account for observed differences in program outcomes?

The analysis suggests that the housing assistance system channels different types of households with children into different housing programs. The least disadvantaged households are most likely to end up in privately owned assisted stock, while the most disadvantaged end up in public housing. The most notable interprogram difference in housing outcomes relates to neighborhood quality. In contrast to other forms of rental assistance, residence in public housing is associated with a decline in neighborhood quality. This result holds even after controlling for household characteristics and geographic location of the unit.

### **Introduction**

The profile of households living in assisted housing<sup>1</sup> has changed dramatically and is moving increasingly toward serving the most disadvantaged. The following striking statistics from the past decade illustrate the magnitude of this change:

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<sup>1</sup> Includes public housing, Section 8, and other federal housing programs.

1. The proportion of assisted housing headed by females<sup>2</sup> has increased from 54 to 72 percent (U.S. Department of Commerce 1982, 1992).
2. The proportion of assisted housing with female heads employed full time has decreased from 34 to 16 percent (U.S. Department of Commerce 1982, 1993).
3. The poverty rate for households with children younger than 18 in assisted housing has increased from 61 to 77 percent (U.S. Department of Commerce 1982, 1992).
4. The proportion of households in assisted housing that also receive public assistance more than doubled in the 15-year period between 1966 and 1981 (from 25 to 54 percent) and has continued to rise (Newman and Schnare 1989, 1992; U.S. Department of Housing and Urban Development 1968, 1971, 1976).

Three significant shifts in housing policy have contributed to these changes. The income eligibility limit was effectively lowered from between 80 and 95 percent of the area median to 50 percent,<sup>3</sup> more narrowly targeting assisted-housing programs to poorer households. Rent-to-income ratios were increased from 25 to 30 percent, making assisted housing less competitive with market-rate housing for households at the higher end of the income eligibility spectrum. And new U.S. Department of Housing and Urban Development (HUD) preference rules—which give priority for assisted-housing units to those who pay more than 50 percent of their income for rent, who are homeless, or who live in seriously substandard housing—have increased the numbers of very poor households in assisted housing.

Economic and demographic trends beyond the control of housing policy have also played an important role. Economically, the recession has swelled the ranks of the poor and has meant that those at the bottom, with the lowest incomes and skills, have remained there. Demographically, the decline of husband-wife households, the group that is by far the least likely to be poor, has been particularly dramatic among African Americans and those in poverty (Bane 1986). Between 1970 and 1980, for example, the number of African-American children growing up in

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<sup>2</sup> Nonelderly, no husband present.

<sup>3</sup> See Nelson and Khadduri (1992) for a description of changes in federal housing law over time.

fatherless households increased by 41 percent (Wilson and Neckerman 1986). In 1991, 61 percent of all poverty households with children younger than 18 years of age were headed by a woman (U.S. Department of Commerce 1992). (This proportion is nearly identical whether or not elderly heads of households are included.)

Although many housing managers have attempted to meet the vast array of needs posed by their increasingly disadvantaged residents, the transformation in the composition of households living in assisted housing has not been matched by a transformation in assisted-housing programs. This inequity raises the fundamental question of how well traditional housing programs are working for this newly configured clientele and particularly for households with children under 18 years of age. Are assisted-housing programs achieving the goals of decent, safe, and sanitary housing and a suitable living environment for households with children?

Our earlier research on this question produced troubling results. While we found that housing assistance improves the physical condition of housing for households with children, this improvement appears to occur at the expense of neighborhood quality (Newman and Schnare 1992). Neighborhood conditions can play a critical role in determining access to education and jobs, and the absence of suitable role models in bad neighborhoods may discourage individual initiative and integration with the broader community. Thus, housing assistance may be hurting rather than helping the next generation's chances of achieving economic independence.

Translation of these findings into meaningful policy options is limited by the quality of the data used in the earlier analysis, however. Without reliable information on the type of housing assistance the household receives—public housing, project-based assistance, or tenant-based certificates or vouchers—it is impossible to determine whether the results pertain to *all* housing-assistance programs or whether the most serious problems are concentrated in particular types of housing programs.

The present research fills this data gap by using the 1989 American Housing Survey (AHS) and its Follow-On Study, a special data supplement. The purpose of the supplement was to accurately categorize every renter-occupied address in the AHS sample that is an assisted-housing unit into a specific assistance category: public housing; privately owned, federally assisted

housing;<sup>4</sup> or certificates and vouchers. Address lists for public housing and privately owned housing were provided by HUD to the Census Bureau and were matched clerically to the AHS renter-occupied address sample. Certificate and voucher addresses were matched in the field by checking all housing authority files maintained for persons who receive these two forms of subsidy. (Further details regarding matching procedures and the properties of the resulting data are provided in appendix A.)

The analysis presented here uses this special data set to address these four basic questions that relate to the outcomes of housing assistance for households with children:

1. Do the characteristics of households enrolled in housing programs differ by program type?
2. Do housing outcomes differ with the type of assistance received?
3. Do differences in household characteristics account for observed differences in program outcomes?
4. What are the implications of any program- or household-related differences for the formulation of housing policy?

The 1989 AHS and Follow-On Study provide a first opportunity to examine these questions. However, our ability to draw causal inferences about the relative impact of the different housing programs is limited by three factors. First, since the data are cross-sectional, we cannot examine changes over time. Second, while we can compare the outcomes of households enrolled in housing programs to “otherwise similar” families on welfare, this comparison is not equivalent to a randomly selected control group. And third, because of limitations in the data, the analysis cannot control for certain potentially important factors, such as the characteristics of the local housing market, that might influence program efficacy.

### **Do the characteristics of households enrolled in housing programs differ by program type?**

Some 1.8 million households with children currently live in assisted housing: 533,000 (30 percent) live in traditional public

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<sup>4</sup>This category, hereafter referred to as “private development” in tables, includes developments funded under the rent supplement, Section 221(d)(3),

housing; 615,000 (35 percent) live in privately owned assisted stock; and 634,000 (36 percent) use Section 8 certificates or vouchers<sup>5</sup> (see table 1).

*Table 1. Households with Children by Program*

Category	Number	Percent
Public housing	533,000	29.9
Private developments	615,000	34.5
Certificates/vouchers	634,000	35.6
Total assisted households with children	1,782,000	100.0

*Source:* Weighted estimates derived from a sample of 445 households with children 18 years or younger participating in one of these three housing programs as identified by the 1989 Follow-On Study.

While households with children are more or less evenly divided across the housing programs, their relative importance within each program differs (see table 2). Households with children represent almost 40 percent of all households receiving some form of project-based housing assistance, roughly the same share as elderly households. In contrast, they account for almost 60 percent of all certificate and voucher holders—almost three times the proportion of elderly participants. (Other nonelderly

*Table 2. Distribution of Household Types by Program*

Type	Public Housing (percent)	Private Developments (percent)	Certificates/Vouchers (percent)
Households with children	39.5	38.3	59.8
Elderly	37.8	40.3	22.5
Other	22.7	21.4	17.6
All households*	100.0	100.0	100.0

*Source:* 1989 American Housing Survey and Follow-On Study.

*Note:* Unweighted counts for each column: Public Housing = 218, Private Developments = 277, Certificates/Vouchers = 440.

\* Components may not add up to total due to rounding.

Section 202, Section 236, Section 8 (new construction, substantial and moderate rehabilitation), and some smaller programs. See Casey (1992).

<sup>5</sup> The definition of households with children used throughout this analysis includes any household containing at least one child 18 years of age or younger, whether or not the child is related to the householder.

households—primarily the physically or mentally disabled—represent about 20 percent of all participants under each of the different programs.)

The characteristics of households with children that are receiving housing assistance vary markedly by program type (see table 3). One of the most striking patterns relates to household income. Households with children living in privately owned assisted stock have average incomes (\$13,826) that are 45 to 50 percent higher than the incomes of households enrolled in public housing (\$9,142) or receiving certificates and vouchers (\$9,609). Households with children that live in privately owned assisted stock are also less likely to be on welfare. Only about

*Table 3. Characteristics of Households with Children by Program*

	Public Housing	Private Developments	Certificates/ Vouchers
Household income (\$)	\$9,142	\$13,826	\$9,609
Percent receiving welfare	62	30	55
Race/ethnicity of head (percent)			
White <sup>a</sup>	13	33	38
African American <sup>a</sup>	72	45	44
Hispanic	14	16	14
Other <sup>a</sup>	1	5	3
All households <sup>b</sup>	100	100	100
Number of children under 18 (percent)			
One	29	50	37
Two	38	32	33
Three or more	33	18	30
All households	100	100	100
Age of head (percent)			
Under 20	0	0	2
20 to 29	20	36	38
30 to 49	66	59	53
50 to 64	14	5	7
All households	100	100	100
Sex of head (percent)			
Female	88	61	78
Male	12	39	22
All households	100	100	100

**Table 3. Characteristics of Households with Children by Program** (continued)

	Public Housing	Private Developments	Certificates/ Vouchers
Education of head (percent)			
Grade school or less	13	7	9
Some high school	33	22	26
High school graduate	31	45	46
Some college	21	20	15
Four years plus of college	2	6	4
All households	100	100	100
Length of residence (percent)			
< 5 years	55	83	80
5–10 years	25	14	14
> 10 years	20	3	6
All households	100	100	100
Average number of years	6	3	3
Location (percent)			
Central city	75	55	50
Suburban	12	31	32
Nonmetro	13	14	18
All households	100	100	100

Source: 1989 American Housing Survey and Follow-On Study.

<sup>a</sup> Excludes households that classify themselves as Hispanic.

<sup>b</sup> Components may not add up to total due to rounding.

30 percent of all such households receive at least part of their income from Aid to Families with Dependent Children (AFDC), compared with 62 percent for public housing residents and 55 percent for certificate and voucher holders.<sup>6</sup>

A variety of explanations have been advanced to account for the higher incomes observed in privately owned developments. First, most of these programs were developed for a higher income clientele, typically 80 to 95 percent of the local median. Presumably, relatively low turnover rates within these developments could help to maintain above-average resident incomes. However, this hypothesis appears to have little merit, since the great majority of residents (83 percent) have been in their current units for less than five years.

<sup>6</sup> Similar differentials are found for other household types. See table B.1.

Second, while the lower income eligibility rules apply to all project-based Section 8 developments, they only apply to 221(d)(3) and 236 units that also have project-based Section 8 certificates or rent supplements. As a result, roughly 19 percent of the units in privately owned developments are not subject to the same income rules as other assisted housing (National Low Income Housing Preservation Commission 1988).

Finally, observed income patterns may also reflect an ongoing tendency to channel the upper end of the eligible population into privately owned assisted stock. Such channeling may be the direct result of the admission policies of private managers, who may be more stringent in screening applicants in comparison with public housing authority (PHA) screening for public housing.<sup>7</sup> It may also reflect the outcome of a process whereby households search for and secure assisted housing. Locating units in privately owned assisted stock may be relatively difficult since few, if any, communities maintain centralized referral services for such developments. It may be that the more disadvantaged the household, the lower the likelihood that it can search successfully for private housing. Finally, higher income eligible households may be less willing to seek assistance from the PHA, given the negative stereotypes associated with public assistance in general and public housing in particular. As a consequence, they may be more willing to expend the energy needed to be successful in the private market.

These same basic factors may also underlie differences observed between public housing residents and certificate and voucher holders. As noted above, the two groups are similar with respect to income and, to a lesser degree, welfare dependency. However, they differ in a number of important ways that suggest the two programs are in fact serving different clienteles. Evidently, the processes that channel lower income households into programs administered by the PHA continue to operate even after households have applied for assistance from the authority, and those less able or less willing to secure housing in the private market through the certificate or voucher program end up in public housing.

The most dramatic difference between public housing residents and certificate and voucher holders relates to race. According to our estimates, 72 percent of all households with children in public housing are African American, compared with 44 percent in the certificate and voucher programs and 45 percent in

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<sup>7</sup> PHAs handle admissions for the certificate and voucher programs, in addition to public housing.

privately owned assisted stock. While similar differences exist for other household types, they are less pronounced (table B.1). For example, 33 percent of the elderly households in public housing are African American, compared with 26 percent in the certificate and voucher programs and only 10 percent in privately owned assisted stock.

The concentration of African-American households with children in public housing undoubtedly reflects a host of complex factors, including discrimination. Numerous studies have documented the barriers encountered by African Americans in the market for both rental and owner-occupied housing.<sup>8</sup> Litigation against a number of PHAs across the country suggests that race continues to affect admissions and unit assignments in public housing as well. While the concentration of African Americans in public housing could also reflect the preferences of different racial and ethnic groups to live together, discrimination likely plays a major role.

Other characteristics that distinguish public housing residents from other recipients of housing assistance include the highest incidence of female-headed households (88 percent), the lowest educational levels (46 percent have not completed high school), and the greatest number of children younger than 18 years of age (71 percent have more than one). (These results are statistically significant at  $p < .05$ .) Heads of households in public housing are also older than other recipients of housing assistance, more heavily concentrated in central cities, and more likely to have lived in their units for a relatively long time. Thus, in many communities, public housing is serving more disadvantaged households compared with other types of housing assistance.

Any attempt to address the broader needs of households with children in public housing must take these factors into account. Since only about half of the heads of these households have completed high school, most will have few marketable skills. Since the great majority have two or more children, most will have sizable child care costs if they enroll in training programs or secure a full-time job. Since they are heavily concentrated in central cities, many will face limited employment opportunities because of the suburbanization of service jobs (Kain 1992). And

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<sup>8</sup> For an excellent summary see Galster (1992). A major exception is the work of Finkel and Kennedy (1992) who found no differences, on average, between African Americans and whites in success rates in using rental vouchers and certificates. This finding held for a sample of large urban public housing authorities, excluding New York City.

since the great majority of households are African American, many are likely to encounter discrimination in both the housing and employment markets. While these factors affect other recipients of housing assistance as well, the impact is likely to be more pronounced in public housing.

### **Do housing outcomes differ with the type of assistance received?**

The fact that different kinds of households tend to end up in different housing programs would mean little if each program were delivering roughly comparable benefits. This section looks for variations in housing outcomes by type of assistance received. The subsequent section examines the extent to which any variations are related to differences in the characteristics of the households served.

See table 4 for a comparison of the three different housing programs on a number of outcome measures including affordability, the physical condition of dwelling units, the extent of crowding, and the perceived quality of the neighborhood. Neighborhood quality is based on the household's assessment of the overall quality of its neighborhood (on a scale of 1 to 10) and whether or not certain factors, such as crime and public services, are perceived to be problems. All data in the chart refer to rental units occupied by households with children. (Comparable information for other household types is presented in table B.2.)

#### *Physical conditions*

When measured in terms of the percent of substandard units or the percent with moderate defects,<sup>9</sup> privately owned assisted

<sup>9</sup> The definition of severe and moderate defects follows that given in Hadden and Leger (1990). Generally, a unit is considered severely deficient if it (a) is lacking basic systems such as plumbing and electricity; (b) has nonfunctioning systems such as plumbing, heating, or electricity; (c) has five of six maintenance problems (leaks from outdoors, leaks from indoors, holes in the floor, holes or open cracks in the walls or ceilings, more than a square foot of peeling paint or plaster, or rats in the past 90 days); or (d) has all of the following four problems in public areas: no working light fixtures; loose or missing steps; loose or missing railings; and no elevator. A unit is considered moderately deficient if it has any of the following five problems: (a) all toilets broken down simultaneously, at least three times in the prior three months for at least six hours each time; (b) unvented heating systems; (c) any three of the six severe maintenance problems noted above; (d) any three of the four severe public-area problems noted above; or (e) no sink, range, or refrigerator available for the exclusive use of the unit.

Table 4. Housing Conditions of Households with Children by Program

	Public Housing	Private Developments	Certificates/ Vouchers
Physical conditions			
Percent substandard <sup>a</sup>	15	5	12
Percent with moderate defects <sup>b</sup>	15	4	10
Percent with severe defects <sup>c</sup>	6	4	5
Average number of defects	0.58	0.41	0.41
Crowding			
Average persons per room	0.85	0.72	0.76
Affordability			
Distribution of housing cost-to-income ratios (percent)			
<.25	45	45	40
.25-.30	21	14	14
.31-.40	15	14	18
.41-.50	2	12	9
.51+	17	14	19
All households (percent) <sup>d</sup>	100	100	100
Average housing cost-to-income ratio	0.32	0.34	0.35
Neighborhood quality			
Average neighborhood rating <sup>e</sup>	5.2	5.8	6.8
Percent reporting problem with:			
Crime	37	30	17
Undesirable neighbors	23	33	27
Noise	8	13	12
Traffic	8	6	9
Litter	11	4	7
Poor city services	4	1	1
Undesirable nonresidential use	1	1	2

Source: 1989 American Housing Survey and Follow-On Study.

<sup>a</sup> See text footnote 9.

<sup>b</sup> See text footnote 8.

<sup>c</sup> See text footnote 8.

<sup>d</sup> Components may not add up to total due to rounding.

<sup>e</sup> Scale ranges from 1 to 10 where 1 = worst and 10 = best.

stock is in better shape than public housing or the stock of privately owned housing occupied by certificate and voucher holders. The estimated proportion of substandard<sup>10</sup> units is lower in privately owned assisted stock than it is in public housing and

<sup>10</sup> Units are considered substandard if they have any of the following problems: (a) lack of complete plumbing; (b) lack of complete kitchen facilities; (c) two or more interior problems (leaking roof, leaking basement, open cracks or holes

voucher and certificate programs primarily because of the smaller fraction of units with moderate defects. However, the average number of defects in privately owned assisted stock, as well as the proportion of units with severe defects, is similar to that under the certificate and voucher programs.

In contrast, the physical condition of public housing appears to be worse than that of privately owned assisted stock or certificate and voucher dwellings particularly with respect to the average number of physical defects. However, the differences between public housing and certificate and voucher programs are fairly small with respect to the proportion of substandard units or the proportion of units with either severe or moderate defects. These patterns suggest that most units in public housing are in relatively good repair, but that those in need of repair have greater needs than the units needing repairs in other programs.

### *Persons per room*

Residents of privately owned stock also have more space, at least when measured by persons per room, than residents of public housing. However, these patterns largely reflect variations in household size across the different program types, as opposed to a systematic tendency toward over- (or under-) housing residents in one or the other programs. As shown earlier in table 3, privately owned assisted stock has the highest concentration of households with just one child (50 percent), while public housing has the lowest (29 percent). As will be discussed later, once one controls for variations in household size across programs, these program-related differences largely disappear.

### *Affordability*

Rent-to-income ratios are somewhat higher under the certificate and voucher programs, although the differences are not pronounced. On average, certificate and voucher holders devote

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in walls or ceilings, holes in floors, peeling paint or broken plaster over one square foot, evidence of mice or rats in the past 90 days); (d) two or more common-area problems (no working light fixtures in common hallway, broken stairs, broken stair railings, no elevator in buildings of four or more stories); (e) heated by unvented room heaters; (f) three or more toilet breakdowns lasting six or more hours in the past 90 days; (g) three or more heating breakdowns of six or more hours last winter; (h) one or more rooms without a working wall outlet; (i) fuses blown or circuit breakers tripped three or more times in the past 90 days; (j) exposed wiring.

about 35 percent of their incomes to housing, compared with 34 percent in privately owned assisted stock and 32 percent in public housing. In addition, roughly 46 percent of all certificate and voucher holders pay more than 30 percent of their incomes for housing, compared with 40 percent in privately owned assisted stock and 34 percent in public housing.

The relatively high rent-to-income ratios found in each of the programs may reflect problems with the survey data, for example, underreporting of household income or a tendency for respondents (other than public housing residents) to report their unit's contract rent as opposed to their rent contribution. However, the finding that certificate and voucher holders tend to have higher ratios on average is consistent with research on the Freestanding Housing Voucher Demonstration, which also reported a 35 percent average rent burden among voucher program participants (Leger and Kennedy 1990). The voucher program also does not restrict the tenants' rent-to-income ratio to 30 percent.

### *Neighborhood quality*

Neighborhood quality (as reported by survey respondents) appears to be lowest in public housing and highest in the certificate and voucher programs. For example, the overall rating of the neighborhood (on a scale of 1 to 10) averages 5.2 for public housing residents, 5.8 for residents of privately owned developments, and 6.8 for certificate and voucher holders. In addition, 37 percent of public housing residents with children report crime to be a significant problem in their neighborhoods, compared with 30 percent in privately owned developments and only 17 percent in the certificate and voucher programs. Public housing residents are less concerned about undesirable neighbors than are residents in the other two programs. Differences in the remaining neighborhood indicators reveal no consistent patterns.<sup>11</sup>

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<sup>11</sup> Two points about the elderly's responses in the AHS may allay concerns about the differential measurement error affecting their responses and those of younger households. (The elderly particularly tend to report higher levels of satisfaction than younger households and also to complain about problems with crime, and neither pattern can be accounted for by the elderly's objective circumstances.) First, elderly households and nonelderly households without children report similarly high levels of neighborhood satisfaction, which in both cases is substantially higher than that reported by households with children. Second, the elderly's complaints about crime are substantially lower than those of either of the other two nonelderly household groups.

## **Do differences in household characteristics account for observed differences in program outcomes?**

In our previous research, we found that housing programs work relatively well for elderly households, but are significantly less effective for households with children (Newman and Schnare 1992). In particular, while the receipt of housing assistance typically improves the physical condition of a welfare household's housing (compared with an otherwise similar household receiving income assistance but not housing assistance), this improvement often appears to come at the expense of neighborhood quality. Even the improvements in physical conditions are considerably less pronounced than the improvements experienced by elderly households who enroll in housing programs.

The remainder of this article examines the extent to which these outcomes vary with the type of housing assistance received. Our analysis is based on a series of regression equations that relate each of several housing outcomes to a variety of factors describing the household, the housing unit, and the specific type of housing assistance received. Separate regressions were derived for households with children, elderly households, and nonelderly households without children. The analysis compares households enrolled in housing programs to otherwise similar renter households receiving welfare but not housing assistance. While such comparisons suggest a number of hypotheses about the relative effectiveness of different housing programs, the data limitations noted earlier prevent us from attributing observed program differences to the effects of housing programs per se.

Our previous work suggested that housing programs are considerably less effective for welfare households with children. As a result, we initially included a series of dummy variables distinguishing between households with and without welfare assistance in each of the three different housing programs. However, differences between welfare and nonwelfare families disappeared for the most part when we controlled for the type of housing assistance received. (This result may simply reflect limited cell size. Stratifying families by both program variant and welfare receipt produces cells that range from a minimum of 26 observations for households with children living in public housing and not receiving welfare to a maximum of 147 households with children using certificates or vouchers and also receiving welfare.) Our final specification of the model dropped these distinctions and included just three different program dummies, one for each type of housing program.

See table 5 for a summary of the major findings of the regression analyses for households with children. (The full regression equations are presented in tables B.3, B.4, and B.5.) The figures in table 5 represent the estimated percent change in a particular housing outcome—for example, the number of physical defects—associated with participation in each of the three different housing programs for the average household with children.<sup>12</sup> In each case, the underlying standard of comparison is an otherwise similar renter household receiving welfare but not housing assistance. Our previous work also estimated a model that used the nonwelfare poor as the underlying control group. Based on that analysis, it appears that such households are systematically different from those that have sought assistance, whether from the welfare or housing systems or both. Although we experimented with this specification in preparing this article, the results are not substantially different from the findings of the basic model and hence are not presented here.

The regression analysis raises a number of hypotheses about the relative efficacy of different programs. Although the total

*Table 5. Estimated Impact of Housing Assistance on Households with Children*

Dependent Variable	Public Housing (percent)	Private Developments (percent)	Certificates/Vouchers (percent)
Physical defects	-41 <sup>a</sup>	-43 <sup>a</sup>	-44 <sup>a</sup>
Housing cost to income <sup>c</sup>	-53 <sup>a</sup>	-34 <sup>a</sup>	-45 <sup>a</sup>
Persons per room	-12 <sup>a</sup>	-15 <sup>a</sup>	-10 <sup>a</sup>
Neighborhood rating <sup>c</sup>	-16 <sup>a</sup>	- 8	+ 3
Crime problem	+21 <sup>a</sup>	+12 <sup>b</sup>	+ 2

*Source:* 1989 American Housing Survey and Follow-On Study.

*Note:* Figures are based on the estimated regression or logit coefficient for the three program dummies.

<sup>a</sup> Individual regression coefficients significant at the .01 level.

<sup>b</sup> Individual regression coefficient significant at the .05 level.

<sup>c</sup> Regression in which there are significant differences between the three program dummies at the .01 level. Not calculated for crime problem logit.

<sup>12</sup> The housing outcomes of the average household with and without housing assistance were derived by inserting the sample means of the independent variables into the estimated regression equations and setting the three program dummies to 0 or 1 to reflect the type of assistance received. These procedures allow us to estimate the outcomes that would be observed if household characteristics were unrelated to the type of assistance.

variance explained by the model is relatively low, enrollment in a housing program is associated with a significant reduction in the number of physical defects in the unit. The estimated coefficients of the program dummies differ somewhat in size, but the differences are not statistically significant. Evidently, after one controls for differences in the characteristics of the households served and the geographic location of the unit, differences revealed by the simple cross tabulations (table 4) largely disappear.

Thus, in terms of the physical condition of the dwelling unit, the three approaches to housing assistance yield roughly comparable results for otherwise similar households with children and, in all cases, results that are substantially better than those for households receiving welfare assistance only. This finding contradicts the negative stereotypes that have plagued so much of the public housing program but is generally consistent with other research, which has shown that the majority of public housing units are in relatively good repair (Schnare 1991).

A similar conclusion holds with respect to the relationship between housing assistance and crowding, as measured by the number of persons per room. Typically, enrollment in a housing program is associated with a decline in the number of persons per room for households with children. While the coefficient of each program dummy is highly significant, there do not appear to be statistically significant differences across program types. Thus, although occupancy standards differ both within and across programs, the different approaches are associated with roughly comparable rates for crowding.

The results for neighborhood quality are dramatically different. The estimated coefficient for the certificate and voucher programs is positive, although not statistically significant. The coefficient for privately owned assisted stock is negative but again not statistically significant. However, residence in public housing is associated with a program effect that is both negative and highly significant. The results for crime problems are similar, with a large and highly significant positive coefficient for public housing. In the case of crime, however, the effect of living in a privately owned development is also positive and significant, albeit at a more modest level relative to residence in public housing. One interpretation of the findings for crime is that project-based assistance is associated with poorer outcomes relative to certificates and vouchers, which give recipients the opportunity to seek safe places to live. Taken as a whole, at least for households with children, the receipt of housing

assistance appears to be associated with improvements in physical conditions at the expense of neighborhood quality, which is consistent with our earlier findings. It should be noted, however, that the variance explained by the neighborhood model is again relatively low.

Our analysis also reveals program-related differences with respect to affordability, although the findings are somewhat puzzling. As expected, housing assistance typically is related to a reduction in the household's rent-to-income ratio. However, the regressions also suggest that the certificate and voucher programs are associated with larger reductions in the ratios compared with residence in privately owned assisted stock. This result may reflect the fact that rents paid in private developments are not limited to 30 percent of income.

The results for households with children differ from those derived for other household types in several important ways (see table 6). Residence in public housing is not related to a reduction in neighborhood quality or an increase in perceived crime problems for elderly households or for nonelderly households without children. Indeed, none of the three programs appear to be associated with changes in the quality of participants' neighborhoods, in general, or with crime, in particular, for these groups—an outcome that stands in marked contrast to the

**Table 6. Estimated Impact of Housing Assistance for Elderly Households and Nonelderly Households without Children**

Dependent Variable	Public Housing (percent)	Private Developments (percent)	Certificates/ Vouchers (percent)
<b>Elderly</b>			
Physical defects	-70*	-40	-72*
Housing cost to income	-27*	-27*	-19*
Persons per room	+ 2	- 2	+ 7
Neighborhood rating	- 2	- 4	+ 1
Crime problem	+ 2	- 3	- 2
<b>Nonelderly without children</b>			
Number of defects	-86*	-76*	-79*
Housing cost to income	-38*	-40*	-32*
Persons per room	-18*	-26*	-19*
Neighborhood rating	+ 4	- 2	+ 4
Crime problem	- 6	- 5	- 6

Source: 1989 American Housing Survey and Follow-On Study.

Note: Figures are based on the estimated regression or logit coefficient for the three program dummies.

\* Individual regression coefficients significant at .01 level.

deterioration in neighborhood quality and increased problems with crime observed among households with children residing in public housing. In addition, residence in assisted housing is not associated with a decline in the number of persons per room for elderly households—an outcome that is not surprising given the fact that the majority of households (83 percent) have just one member.

Housing assistance also appears to be less effective at improving the physical condition of housing occupied by households with children in comparison with other groups—an outcome that is again consistent with our previous research. For example, our regressions suggest that enrollment in public housing is associated with a 41 percent reduction in the number of physical defects for the typical household with children, compared with a 70 percent reduction for the typical elderly household and an 86 percent reduction for the typical nonelderly household without children. On the other hand, housing assistance has a much greater effect on affordability for households with children than it does for elderly households (although the impact is comparable with that achieved for nonelderly households without children).

## Conclusions

The most striking finding of this research is that the system of housing assistance channels different types of households with children into different housing programs. Households with the highest incomes, lowest welfare dependency rates, highest educational achievement, fewest children, and smallest concentration of female heads are most likely to end up in privately owned assisted stock. Households applying for assistance directly to PHAs are likewise sorted into groups, and the most disadvantaged end up in public housing.

This channeling process is of particular concern since the type of housing assistance appears to affect outcomes. Although data limitations make it difficult to establish program impact, our analysis raises a number of hypotheses about the relative efficacy of housing programs. Contrary to popular perception, the programs appear to achieve roughly equivalent outcomes on traditional housing quality indicators such as overcrowding and physical defects. However, the programs seem to yield very different results with respect to neighborhood quality in general, and problems with crime in particular. Our analysis suggests that, at best, there is no association between enrollment in a

housing program and improvements in neighborhood quality.<sup>13</sup> And at worst—which is the case for public housing—neighborhood quality may actually decline. Thus, a “double jeopardy” situation may be produced, in which the most disadvantaged households with children are being channeled into the worst neighborhoods.

These results suggest that any future housing production programs need to pay more attention to neighborhood standards when approving sites. (Site and neighborhood standards governing HUD housing programs are described in the *Code of Federal Regulations* 1990.) For investments in assisted housing stock—be they in the form of public housing modernization or preservation of privately owned assisted stock under Title II of the Housing and Community Development Act of 1987 and Title VI of the National Affordable Housing Act of 1990—neighborhood conditions should be taken into account before proceeding with additional expenditures. Without concurrent efforts to improve the quality of the neighborhood, such investments may well be throwing good money after bad.

The process by which households are sorted into the different programs may also require reform. Our analysis suggests quite clearly that the current system may create inequities. But before a coherent policy response can be developed, more information is required on the underlying source of this problem. Is the problem caused by different approaches to tenant screening by PHAs as opposed to private-housing managers? Differences in the ability of households to find housing that best suits their needs? Different preferences? Or some combination of these factors? Depending on the answer, possible remedies might include requiring greater economic and racial integration of developments or centralizing the point of entry into the housing-assistance system. (The question of income mix is slated for consideration by the Occupancy Task Force, established by HUD in 1992.)

Finally, our results raise concern about the wisdom of current responses to the growing concentration of very poor households in assisted housing, particularly public housing. Although many housing managers have attempted to meet the new array of needs of these disadvantaged households by offering on-site social services, there is little reason to expect that even the best

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<sup>13</sup> These results are consistent with an analysis of the voucher program, which found that it did little to promote desegregation (Finkel and Kennedy 1992).

array of social services will lead to long-term benefits in these distressed environments. Broader strategies are called for that address the needs of these households not only for education, training, and other assistance, but also for a safe and secure environment in which to live, work, and raise children.<sup>14</sup> Accomplishing this goal will require a rethinking of the coordination between housing and community development activities, and true cooperative efforts between HUD and a host of domestic agencies including the U.S. Departments of Education, Justice, Labor, and Health and Human Services.

In the late 1970s, such an approach was tried in isolation. Known as the Neighborhood Strategy Areas program, or NSA, the explicit goal was to integrate housing and community development activities. HUD's Office of Housing made funding available for 50,000 units of housing under the Section 8 Substantial Rehabilitation Program. But instead of following the traditional approach for distributing these funds,<sup>15</sup> NSA placed control in the hands of city mayors. The quid pro quo for this shift in control was a requirement that the city's application specifically describe the community development activities that were under way in the neighborhoods that were to receive NSA funds. This program, then, required a link between housing and community development activities at the local level. HUD's Office of Housing was essentially saying to the cities, You have the right to spend your community development dollars anywhere you wish. But if you want access to NSA funds, you must show us that you are committing sufficient resources to the target neighborhoods to address their needs for both decent housing and a suitable living environment.

Much has changed since the short-lived NSA program. Drugs and crime, for example, were not nearly the problem then that they are now, and the Section 8 Substantial Rehabilitation Program no longer exists. But our results indicate that the time has come to test approaches that have the same basic goals of

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<sup>14</sup> Research on a family-oriented social service intervention in Baltimore, for example, reports limited effects across a wide range of outcomes including income, education, and social and behavioral characteristics. Since the evaluation was conducted early in the intervention, the question of longer term effects remains unanswered. See Shlay and Holupka (1991).

<sup>15</sup> Under the traditional approach, the HUD area office issues a Notice of Funds Availability (NOFA); developers from that jurisdiction submit proposals for those funds; and the area office makes the funding decisions. In the case of supply programs, these proposals typically have nothing to do with city community development activities in particular neighborhoods.

integrating housing and community development if we are to make any real progress in reversing the disadvantaged and dependent cycle. It will take time and rigorous evaluation to find out which program designs do the job best. But the time to start is surely now.

### *Appendix A*

#### *1989 National AHS Follow-On Study: Methodology and results<sup>1</sup>*

The purpose of the 1989 AHS Follow-On Study was to accurately identify all renter-occupied addresses (approximately 15,000) in the national AHS sample that were receiving federal housing assistance under the public housing, certificate or voucher, or project-based subsidy programs.<sup>2</sup> This identification was accomplished through two address-matching procedures.

In the case of public housing and project-based programs, HUD supplied the Housing Division of the Census Bureau with a listing of all unit addresses that HUD could identify in these two subsidy categories. HUD's data were obtained through its Form 951, which is sent to all addresses receiving either of these subsidies. Form 951 also asks sponsors and operators to provide addresses for all units in the development.

HUD estimates that 80 percent of the forms it sent out were returned.<sup>3</sup> The 80 percent—roughly 980,000 addresses—constituted the basis of the address match. Census then sorted both the HUD and AHS lists by ZIP code and performed the match clerically. Matches were not undertaken for units receiving Farmers Home Administration (FmHA) subsidies, or subsidies from any state or local programs.

In the case of certificates and vouchers, Census field representatives visited every public housing authority in the country and attempted to match the addresses of households living in renter-

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<sup>1</sup> This section is based heavily on Census Bureau and HUD memoranda and interviews with Census Bureau and HUD staff.

<sup>2</sup> The latter category includes privately owned, federally subsidized developments funded under the rent supplement, Section 221(d)(3), Section 236, Section 8 (new construction, substantial rehabilitation, moderate rehabilitation), and some smaller programs (Casey 1992).

<sup>3</sup> Some responses were missing individual addresses for all units in the development.

occupied units identified in the 1989 national AHS sample to households in housing authority files of recipients of vouchers or certificates. Only five housing authorities—two large and three small—refused to cooperate.<sup>4</sup> No estimates of the number of certificates and vouchers represented by these refusals are available.

The items used for matching included name, age, sex, race, address, and owner or resident manager's name and address. Each case was assigned one of three final dispositions: match, nonmatch, or other. A case was considered a match if the person's name and address on the Census list matched the name and address on the PHA list. A case was considered a nonmatch when the name and address on the Census roster did not match the PHA list, if the field representative was "reasonably sure that a similar name was not a match," if there were no names listed, or if "unknown" or "refused" was entered on the Census roster. The category "other" was used when the field representative was not sure if the name and address matched. Examples of this category include situations in which the names seem to match but the addresses, ages, or races did not. In these cases, the name of the possible match shown on the PHA list was noted, along with any additional information such as income and rent. Thirty cases were coded as other in the field but were ultimately resolved and assigned to the match category.

The total number of matched cases in each housing subsidy type was 221 in public housing, 298 in private developments, and 440 in certificates and vouchers. Three post-stratification weights were developed for each housing subsidy group. These weights were based on the following control totals provided by HUD of the actual numbers of units under payment for each subsidy program as of September 30, 1989, in the 50 states and the District of Columbia:

Public and Indian Housing	1,360,000 units
Private Developments	1,650,000 units
Vouchers and Certificates	1,060,000 units
Total	4,070,000 units

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<sup>4</sup> There are 3,060 PHAs in the nation.

The following two characteristics of the Follow-On Study should be borne in mind because they directly affect the quality of the resulting data:

1. *Incomplete representation of the assisted stock.* As previously noted, the HUD master address lists for public housing and private developments included approximately 80 percent of the stock in these two categories. No matches were performed for FmHA, state, or local housing subsidy programs. Analysis based on the Follow-On Study housing-assistance variables excludes housing in these categories. Therefore, some of the cases that could not be matched by Census might, in fact, be receiving a housing subsidy. Additionally, differences in results obtained with the Follow-On Study variables as opposed to AHS housing-assistance variables could be attributed to these exclusions. Unfortunately, without specific information on which AHS renters receive these other forms of housing assistance, it is impossible to determine the nature or extent of any bias in the Follow-On Study data, or of any inconsistencies between these data and AHS responses.
2. *Uncertainty regarding mismatches between AHS variables and Follow-On Study variables.* See table A.1 for the relationship between AHS assisted-housing variables and Follow-On Study variables. AHS cases fall into one of three categories: household reporters who identified themselves as (1) living in public housing, (2) receiving some other form of housing assistance, or (3) not receiving any housing assistance.

Assuming that the Follow-On Study is the valid measure of the type of assistance received, the good news in this table appears in the last column, which indicates that the large majority of respondents know when they are *not* getting any form of housing assistance: 97.6 percent of those who reported that they receive no housing assistance were not matched in the Follow-On Study.<sup>5</sup>

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<sup>5</sup> One plausible explanation for the mismatches of households that were actually receiving assistance but did not report it to AHS is that individuals living in some project-based developments (e.g., 221(d)(3), 236) and paying market rent for their unit may be unaware that the development is, in fact, receiving a federal housing subsidy. Individuals paying the basic rent may be more aware of the subsidy since their incomes must be certified annually. Those paying market rents, however, are not recertified.

By contrast, respondents living in public housing appear least able to accurately identify the type of housing assistance they receive. Roughly 30 percent of those who reported in the AHS that they lived in public housing actually appear to be receiving assistance in one of the other two forms (19.6 percent plus 10.0 percent). On the other hand, only 1.3 percent of those who reported that they were receiving some other type of housing assistance actually live in public housing. Roughly half of them were living in privately owned developments or were using certificates or vouchers (25.7 percent plus 24.3 percent).

This leaves us with the largest—and most puzzling—group, namely, those who reported that they were either living in public housing or were receiving housing assistance of some other type but for whom no matches could be made in the Follow-On Study. Presumably some of these cases are FmHA, state, and local housing subsidy recipients. Unfortunately, without independent estimates of the number of rental households in the nation receiving each of these additional types of assistance, it is impossible to determine how many nonmatches can be accounted for in this manner.<sup>6</sup>

Without knowing which source of information is right—the HUD/Census match or the AHS respondent—it is impossible to draw conclusions about any bias that may affect the results of this analysis. As previously discussed, there are strengths and weaknesses in both methodologies. On one hand, the HUD/Census match followed careful and systematic procedures, but both the public housing/private development list and the certificate and voucher lists are known to be missing valid instances of housing-assistance receipt. On the other hand, AHS respondents appear to have trouble sorting themselves into the correct category of housing assistance. It is not clear whether those who report that they receive assistance but whose addresses could not be matched by Census are mistaken.

While we cannot make any attributions of bias, we have run some simple comparisons to examine whether there are systematic differences in the characteristics of AHS cases who reported that they lived in assisted housing and could be matched versus those who reported that they lived in assisted housing but could not be matched (i.e., comparisons among cells 1, 2, 4, 5, 7, and 8 and cells 10 and 11 in table A.1). These results show few large differences between groups; overall, the unmatched group reporting receipt of assistance tends to be more affluent, nonminority,

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<sup>6</sup> A rough estimate of the number of units subsidized by FmHA is about 100,000.

living outside central cities, and not receiving welfare (see table A.2). Thus, again on the assumption that the Follow-On Study measures are valid, analyses that rely on AHS housing-assistance variables, including our own previous work, are likely to understate the economic and social disadvantage of the housing-assistance population.

Since HUD and the Census Bureau are conducting additional follow-on studies, it makes sense to consider ways in which their approach might be improved. One obvious suggestion is to augment the public housing and private development lists with addresses of properties receiving FmHA, state, or local housing subsidies. FmHA lists may be least problematic to generate; state and local lists would be much more difficult. Efforts to increase the Form 951 response rate beyond 80 percent and to correct inaccuracies in the listing of individual unit addresses would also improve the data.

In addition, a great deal could be learned both methodologically and substantively from an intensive personal interview with a small subsample of AHS renters. The goal of this interview would be to determine the cognitive processes the respondent uses in answering the housing-assistance receipt question. Simply stated, why do respondents think they get assistance when they don't or don't think they get assistance when they do; and how do they go about sorting themselves into housing-assistance categories? Such a study, of course, requires that the true answer be known in advance.

*Table A.1. Comparison of Housing-Assistance Measures: AHS Reporter vs. Follow-On Study*

Follow-On Study	American Housing Survey Reporter		
	Public Housing (percent)	Other Assistance (percent)	No Housing Assistance (percent)
Public housing	<sup>1)</sup> 35.3	<sup>2)</sup> 1.3	<sup>3)</sup> 0.3
Private developments	<sup>4)</sup> 19.6	<sup>5)</sup> 25.7	<sup>6)</sup> 1.4
Certificates/vouchers	<sup>7)</sup> 10.0	<sup>8)</sup> 24.3	<sup>9)</sup> 0.7
Nonmatches	<sup>10)</sup> 35.1	<sup>11)</sup> 48.7	<sup>12)</sup> 97.6
Total	100.0	100.0	100.0

*Source:* 1989 American Housing Survey and Follow-On Survey.

*Note:* Data cells are identified by numbers 1 through 12.

*Table A.2. Comparison of AHS and Follow-On Study:  
Matches vs. Nonmatches<sup>a</sup>*

	Matches	Nonmatches
<b>Race/ethnicity of head (percent)</b>		
White <sup>b</sup>	48	52
African American <sup>b</sup>	39	33
Hispanic	10	12
Other <sup>b</sup>	3	3
All households	100	100
<b>Income (percent)</b>		
<\$10,000	74	67
\$10,000–19,999	19	20
\$20,000–29,999	5	7
\$30,000–39,999	1	2
\$40,000 or more	0.7	4
All households <sup>c</sup>	100	100
Average income	\$8,304	\$11,255
<b>Household type (percent)</b>		
Households with children	49	48
Elderly	35	27
Other nonelderly	16	25
All households	100	100
<b>Household size (percent)</b>		
1 person	39	38
2 persons	22	20
3 persons	16	17
4 persons	12	14
5 or more persons	11	12
All households <sup>c</sup>	100	100
<b>Location (percent)</b>		
Central city	58	55
Suburban	27	25
Nonmetro	16	20
All households <sup>c</sup>	100	100
Average housing cost-to-income ratio	.34	.33
Percent receiving welfare	45	41

*Source:* 1989 American Housing Survey and Follow-On Study.

<sup>a</sup> Unweighted proportions.

<sup>b</sup> Excludes households that classify themselves as Hispanic.

<sup>c</sup> Components may not add up to total due to rounding.

*Appendix B*

*Table B.1. Characteristics of Elderly Households and Nonelderly Households without Children by Program*

Characteristic	Elderly			Nonelderly without Children		
	Public Housing	Private Developments	Certificates/Vouchers	Public Housing	Private Developments	Certificates/Vouchers
Household income (\$)	\$7,022	\$7,850	\$7,066	\$8,245	\$15,032	\$10,607
Percent receiving welfare	22	18	39	53	28	53
Race/ethnicity of head (percent)						
White <sup>a</sup>	58	83	63	31	53	48
African American <sup>a</sup>	33	10	26	52	39	44
Hispanic	8	4	9	15	7	7
Other <sup>a</sup>	1	3	2	2	2	1
All households	100	100	100	100	100	100
Number of children under 18 (percent)						
None	95	100	96	100	100	100
One	4	0	3	0	0	0
Two	1	0	1	0	0	0
Three or more	0	0	0	0	0	0
All households	100	100	100	100	100	100
Age of head (percent)						
Under 20	0	0	0	0	2	0
20 to 29	0	0	0	8	20	12
30 to 49	0	0	0	40	35	38
50 to 64	0	0	0	52	43	49

*Table B.1. Characteristics of Elderly Households and Nonelderly Households without Children by Program (continued)*

Characteristic	Elderly			Nonelderly without Children		
	Public Housing	Private Developments	Certificates/Vouchers	Public Housing	Private Developments	Certificates/Vouchers
65 and older	100	100	100	0	0	0
All households	100	100	100	100	100	100
Education of head (percent)						
Grade school or less	50	29	41	28	6	18
Some high school	23	27	20	21	18	22
High school graduate	23	34	25	36	45	34
Some college	2	6	9	11	17	12
Four years plus of college	2	3	5	5	13	13
All households <sup>b</sup>	100	100	100	100	100	100
Length of residence (percent)						
< 5 years	41	45	36	72	64	68
5–10 years	26	37	33	12	21	22
> 10 years	33	19	31	17	15	10
All households <sup>b</sup>	100	100	100	100	100	100
Average length of residence	9 years	6 years	9 years	7 years	5 years	5 years

**Table B.1. Characteristics of Elderly Households and Nonelderly Households without Children by Program (continued)**

Characteristic	Elderly			Nonelderly without Children		
	Public Housing	Private Developments	Certificates/Vouchers	Public Housing	Private Developments	Certificates/Voucher
Location (percent)						
Central city	63	49	56	69	66	40
Suburban	16	38	26	14	26	39
Nonmetro	21	13	18	17	8	21
All households	100	100	100	100	100	100

Source: 1989 American Housing Survey and Follow-On Study.

<sup>a</sup> Excludes households that classify themselves as Hispanic.

<sup>b</sup> Components may not add up to total due to rounding.

*Table B.2. Housing Conditions of Elderly Households and Nonelderly Households without Children by Program*

Housing Condition	Elderly			Nonelderly without Children		
	Public Housing	Private Developments	Certificates/Vouchers	Public Housing	Private Developments	Certificates/Vouchers
<b>Physical conditions</b>						
Percent substandard	7	6	6	5	7	7
Percent with moderate defects <sup>a</sup>	2	3	6	6	4	5
Percent with severe defects <sup>b</sup>	5	3	2	2	5	5
Average number of defects	0.15	0.18	0.16	0.24	0.18	0.20
<b>Crowding</b>						
Average persons per room	0.43	0.40	0.43	0.41	0.38	0.40
<b>Affordability</b>						
Distribution of housing cost-to-income ratios (percent)						
< .25	25	23	23	26	36	33
.25-.30	29	28	28	30	25	18
.31-.40	21	26	21	16	19	23
.41-.50	12	10	9	12	11	6
.51+	14	14	20	18	10	20
All households <sup>c</sup>	100	100	100	100	100	100
Average housing cost-to-income ratio	0.35	0.37	0.39	0.37	0.31	0.36

*Table B.2. Housing Conditions of Elderly Households and Nonelderly Households without Children by Program (continued)*

Housing Condition	Elderly			Nonelderly without Children		
	Public Housing	Private Developments	Certificates/Vouchers	Public Housing	Private Developments	Certificates/Vouchers
Neighborhood quality			7.9			7.6
Average neighborhood rating <sup>d</sup>	7.6	8.3	7.9	7.6	7.0	7.6
Percent reporting problem						
with crime	10	4	7	11	12	9
Undesirable neighbors	13	10	8	20	16	19
Noise	8	7	7	15	7	13
Traffic	3	1	3	2	4	10
Litter	3	1	6	6	4	1
Poor city services	0	1	0	3	0	2
Undesirable nonresidential use	1	0	2	0	1	0

*Source:* 1989 American Housing Survey and Follow-On Study.

<sup>a</sup> See text footnote 9.

<sup>b</sup> See text footnote 9.

<sup>c</sup> Components may not add up to total due to rounding.

<sup>d</sup> Scale ranges from 1 to 10 where 1 = worst and 10 = best.

Table B.3. Households with Children

Independent Variables	Dependent Variables				
	Number of Physical Defects	Housing Cost/Income	Persons/Room	Neighborhood Rating	Crime Problem
Hispanic	.16 <sup>b</sup>	.03	.13 <sup>a</sup>	.12	.13
African American	.25 <sup>a</sup>	.03	.03	-.27	.39
Central city	-.12	.07 <sup>a</sup>	-.07 <sup>a</sup>	-.61 <sup>b</sup>	1.39 <sup>a</sup>
Suburb	-.23 <sup>a</sup>	.08 <sup>a</sup>	-.06 <sup>b</sup>	.22	.61
Household size	.05 <sup>a</sup>	-.01	.17 <sup>a</sup>	.06	.07
Income	-.000002	-.00001 <sup>a</sup>	-.000002 <sup>a</sup>	.000002	.000007
Northeast	-.07	.05 <sup>b</sup>	-.06 <sup>b</sup>	-.41	.13
North Central	-.15 <sup>b</sup>	.02	-.04	-.52 <sup>b</sup>	.68 <sup>a</sup>
West	-.26 <sup>a</sup>	.06 <sup>a</sup>	.00	-.70 <sup>a</sup>	.69 <sup>a</sup>
2-9 units in structure	-.01	.02	.15 <sup>a</sup>	-.38	.51 <sup>a</sup>
10-49 units in structure	.03	.00	.22 <sup>a</sup>	-1.06 <sup>a</sup>	1.03 <sup>a</sup>
50-99 units in structure	.15	.12 <sup>b</sup>	.14 <sup>b</sup>	-.85	1.87 <sup>a</sup>
100+ units in structure	-.34	.02	.28 <sup>a</sup>	-.45	-.07
Public housing	-.29 <sup>a</sup>	-.30 <sup>a</sup>	-.11 <sup>a</sup>	-1.07 <sup>a</sup>	.94 <sup>a</sup>
Private development	-.31 <sup>a</sup>	-.20 <sup>a</sup>	-.14 <sup>a</sup>	-.53	.58 <sup>b</sup>

Table B.3. **Households with Children** (continued)

Independent Variables	Dependent Variables				
	Number of Physical Defects	Housing Cost/Income	Persons/Room	Neighborhood Rating	Crime Problem
Certificate/voucher	-.31 <sup>a</sup>	-.26 <sup>a</sup>	-.09 <sup>a</sup>	.19	.10
Female head	.13 <sup>b</sup>	.04 <sup>b</sup>	-.03	-.24	.20
Intercept	.56 <sup>a</sup>	.61 <sup>a</sup>	.23 <sup>a</sup>	7.66 <sup>a</sup>	-4.24 <sup>a</sup>
R squared (adjusted)	.08	.41	.58	.06	945.76 <sup>c</sup>
Number of observations	969	1,103	1,103	1,087	1,104

Source: 1989 National AHS and Follow-On Study.

<sup>a</sup>  $p < .01$

<sup>b</sup>  $p < .05$  (two-tailed tests)

<sup>c</sup>  $-2$  log likelihood

*Table B.4. Elderly*

Independent Variables	Dependent Variables				
	Number of Physical Defects	Housing Cost/Income	Persons/Room	Neighborhood Rating	Crime Problem
Hispanic	-.07	-.01	.01	-.02	.26
African American	.35 <sup>a</sup>	.002	-.01	-.63 <sup>b</sup>	.27
Central city	-.19	.10 <sup>a</sup>	.02	-.89 <sup>a</sup>	1.20
Suburb	-.16	.15 <sup>a</sup>	-.003	-.35	-.27
Household size	.14 <sup>a</sup>	-.01	.19 <sup>a</sup>	-.10	.13
Income	-.0001 <sup>b</sup>	-.00001 <sup>a</sup>	-.000009	-.000002	-.000007
Northeast	.03	.04	-.04	-.62	-.49
North Central	-.09	-.01	-.02	-.51	.01
West	.07	.01	.02	-.22	.38
2-9 units in structure	-.14	.08 <sup>s</sup>	.06 <sup>a</sup>	-.37	.94
10-49 units in structure	-.12	.09 <sup>b</sup>	.12 <sup>a</sup>	-.45	.20
50-99 units in structure	-.25	.09 <sup>b</sup>	.16 <sup>a</sup>	-.10	.53
100+ units in structure	-.08	.05	.15 <sup>a</sup>	.11	.43
Public housing	-.38 <sup>b</sup>	-.12 <sup>a</sup>	.01	-.16	.27
Private development	-.21	-.12 <sup>a</sup>	-.01	.31	-.49

Table B.4. Elderly (continued)

Independent Variables	Dependent Variables				
	Number of Physical Defects	Housing Cost/Income	Persons/Room	Neighborhood Rating	Crime Problem
Certificate/voucher	-.39 <sup>a</sup>	-.09 <sup>a</sup>	.03	.10	-.35
Intercept	.56 <sup>a</sup>	.39 <sup>a</sup>	.08 <sup>a</sup>	9.27 <sup>a</sup>	-3.88 <sup>a</sup>
R squared (adjusted)	.12	.16	.48	.03	217.57 <sup>c</sup>
Number of observations	334	475	475	452	476

Source: 1989 National AHS and Follow-On Study.

<sup>a</sup> *p* .01

<sup>b</sup> *p* .05 (two-tailed tests)

<sup>c</sup> -2 log likelihood

**Table B.5. Nonelderly Households without Children**

Independent Variables	Dependent Variables				
	Number of Physical Defects	Housing Cost/Income	Persons/Room	Neighborhood Rating	Crime Problem
Hispanic	.30 <sup>b</sup>	.04	-.05	.12	-.17
African American	.29 <sup>a</sup>	.04	-.05 <sup>b</sup>	-.05	.64 <sup>b</sup>
Central city	-.09	.08 <sup>b</sup>	.05	-.99 <sup>b</sup>	2.61 <sup>a</sup>
Suburb	-.27	.09 <sup>b</sup>	.03	.23	1.53
Household size	-.08	-.02	.18 <sup>a</sup>	-.07	.09
Income	-.000001	-.000009 <sup>a</sup>	-.000002 <sup>a</sup>	.000004	-.000006
Northeast	.03	.13 <sup>a</sup>	-.01	-.40	.20
North Central	-.10	.05	.00	-.54	-.65
West	-.17	.07	-.02	-.61	.67
2-9 units in structure	.13	.004	.12 <sup>a</sup>	-.33	.44
10-49 units in structure	.17	.003	.19 <sup>a</sup>	-.15	.40
50-99 units in structure	.31	.09	.21 <sup>a</sup>	-.56	.37
100+ units in structure	.12	-.05	.24 <sup>a</sup>	.51	.43

*Table B.5. Nonelderly Households without Children (continued)*

Independent Variables	Dependent Variables				
	Number of Physical Defects	Housing Cost/Income	Persons/Room	Neighborhood Rating	Crime Problem
Public housing	-.69 <sup>a</sup>	-.21 <sup>a</sup>	-.09 <sup>a</sup>	.27	-.48
Private development	-.62 <sup>a</sup>	-.22 <sup>a</sup>	-.13 <sup>a</sup>	-.13	-.39
Certificate/voucher	-.64 <sup>a</sup>	-.18 <sup>a</sup>	-.09 <sup>a</sup>	.27	-.49
Intercept	.88 <sup>a</sup>	.53 <sup>a</sup>	.11 <sup>a</sup>	8.19 <sup>a</sup>	-4.60 <sup>a</sup>
R squared (adjusted)	.13	.35	.32	.03	314.32 <sup>c</sup>
Number of observations	369	450	450	434	451

Source: 1989 National AHS and Follow-On Study.

<sup>a</sup> *p* .01

<sup>b</sup> *p* .05 (two-tailed tests)

<sup>c</sup> -2 log likelihood

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