

# Housing Allowance Demand Experiment

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## Preliminary Findings

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March 1978

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Submitted to  
Office of Policy Development and Research  
U.S. Department of Housing and Urban Development  
Washington, D.C.  
Contract H-2040R  
Task 3.5.4

PRELIMINARY FINDINGS FROM THE  
HOUSING ALLOWANCE DEMAND EXPERIMENT

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PRELIMINARY FINDINGS FROM THE  
HOUSING ALLOWANCE DEMAND EXPERIMENT<sup>1</sup>

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BACKGROUND

In recent decades American society has been concerned with at least two fundamental problems of housing for poor people: physically inadequate housing and housing costs that place too heavy a burden on meager incomes. Government responses to these problems have ranged from constructing and maintaining low-income housing to making cash payments to poor people.

Programs such as conventional public housing are designed to provide adequate shelter at reasonable cost to poor families. But critics claim that such programs create or perpetuate concentrations of poor and minority families and require excessive and inequitable subsidies. They argue that, with high costs of new construction and limited budgets, fewer eligible households are served at higher cost per household than might result from using the existing stock of private housing.

Direct income transfers such as welfare payments reduce the burden of housing costs for the poor by increasing their income. But direct income transfers often have been considered unlikely to affect the problem of physically inadequate housing. Payment amounts might be too small to have much impact on housing, especially if families chose to spend most of the extra income on other perceived needs.

Housing allowances, some features of which already appear in the recently established Section 8 Existing Leased Housing program, fall between the direct income transfer and conventional public housing approaches. A

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<sup>1</sup>The findings reported here reflect the work of all the Demand Experiment staff, particularly the authors of the technical reports on which this summary is based. William L. Hamilton, who directed the Administrative Agency Experiment at Abt Associates, provided a thoroughgoing review and suggestions for rewriting of this summary. Additional helpful ideas and criticisms were contributed by Stephen D. Kennedy, Project Director; Helen E. Bakeman, Deputy Project Director; Walter R. Stellwagen, Technical Reviewer; and Barbara C. Sampson, Manager of the Social Experimentation and Research Area, Abt Associates Inc. The author is responsible for errors remaining.

housing allowance is money given directly to individual low-income households to assist them in overcoming housing problems. Housing information and equal opportunity support are provided to facilitate households' use of the allowance in the local housing market.

The housing allowance is not as restrictive as public housing, because recipients choose for themselves how much to spend for housing and where to live. But it is more constrained than welfare, because the subsidy depends on the housing chosen. A housing allowance does not impose the kinds of geographic constraints for which public housing has been criticized, but neither does it provide any specific neighborhood or locational requirements to lessen concentrations of minority and low-income households.

The Demand Experiment provides a test of how a housing allowance strategy works. The experiment is one of three being conducted by the Department of Housing and Urban Development as part of the Experimental Housing Allowance Program (EHAP). Operated in Allegheny County, Pennsylvania (Pittsburgh), and Maricopa County, Arizona (Phoenix), the Demand Experiment offered renter households selected at random from among the potentially eligible households at each site one of several housing allowance plans.<sup>1</sup> (See Attachment 1 for a detailed layout of the plans.)

The basic plans, called "Housing Gap," offered payments large enough to bridge the gap between the cost of modest, existing standard housing and a reasonable fraction of income. The allowance payment was linked to housing by requiring recipients' housing to meet certain housing requirements. Variations in payment level and housing requirements were tested. "Minimum Standards" requirements involved specific physical conditions of recipients' housing, including bath and kitchen facilities, and an adequate number of rooms for the size of the family. The alternative type of requirement, "Minimum Rent," specified only that a household of a given size spend at least a minimum amount on housing. Households already

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<sup>1</sup>Households remained in the experimental program for three years after they were enrolled. During their third year households were offered help in transferring to on-going housing programs. The current findings are based on first-year experience; final analysis of program effects will be based on the data for two years.

living in adequate housing (as defined by the program's requirements) were allowed to use the allowance payment to reduce the burden of housing costs. Those not in adequate housing had to improve their current housing or move to a qualifying unit in order to receive the allowance. In either case, households electing to participate were provided resources to obtain decent, affordable housing.

Yet another experimental plan offered a payment in the same amount as the Housing Gap plans but had no housing requirement. This plan, called "Unconstrained," resembles welfare or other general income support programs except that the subsidy is determined by an expected need for housing expenditures rather than an expected need for all household expenses.

An alternative type of housing allowance plan, the "Percent of Rent" approach, offered a rent rebate. Allowance payments were a fixed fraction of monthly rent.

Control households, a final group enrolled in the experiment, did not receive a housing allowance but instead received a \$10 monthly payment for providing information.

The Demand Experiment thus provides a controlled experiment in housing allowance strategies and establishes an empirical basis for assessing a wide range of housing and income transfer policies. Evaluation of households' responses to the housing allowance offers was the major objective of the analyses of first-year experience of Demand Experiment enrollees. Findings from these investigations are outlined in the next section. The final section indicates analyses still to be undertaken and some possible applications of results.

#### FINDINGS FROM FIRST-YEAR DATA<sup>1</sup>

The following questions about housing allowances have been addressed in Demand Experiment research:

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<sup>1</sup>For a more extended summary and references to specific technical reports supporting the findings presented, see Bakeman, Kennedy, and Wallace, Draft Fourth Annual Report of the Demand Experiment, September 1977. Demand Experiment publications are listed in Attachment 2.

Housing Impact. How effective is a Housing Gap form of housing allowance in getting low-income renters into adequate housing at affordable rents?

Participation. What program features or household characteristics enhance or impair participation of eligible households in a Housing Gap housing allowance program?

Location. Does a housing allowance lead to less concentration of minority and low-income households?

Rent Discounts. Would low-income renters obtain better housing if they were offered a discount on their housing costs as in the Percent of Rent plans?

Findings on each of these four questions are presented below.

### Housing Impact<sup>1</sup>

First-year results show that a housing allowance can make housing more affordable for households that already live in adequate housing and facilitate housing improvement for households not already in adequate housing. Figure 1 identifies the key housing allowance impact groups. (The several Housing Gap plans are combined for purposes of this discussion.)

Households assigned to the Housing Gap plans could receive payments immediately upon enrollment if they already met their plan's housing requirement (Minimum Standards or Minimum Rent). One third of Housing Gap enrollees did so. Housing costs were a problem for this group before they received the allowance--on average they were paying 44 percent of their disposable income for rent. The allowance payments, averaging \$55 a month,<sup>2</sup> reduced the out-of-pocket expense for housing to 26 percent of income at the end of the first year.

Housing Gap households that did not already meet their requirements could receive allowance payments only if they upgraded their units or moved to an acceptable one. Of these households, only a third met their housing requirements by the end of their first year in the experiment. The households that met housing requirements after enrollment generally would be

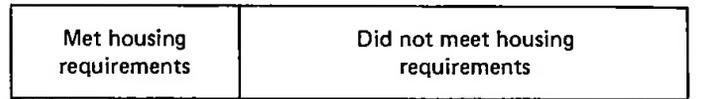
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<sup>1</sup>This section primarily draws upon the analyses and findings of the report on housing expenditure change by Friedman and Kennedy (1977).

<sup>2</sup>Dollar amounts reflect the 1974 period when the data were collected.

**Figure 1**  
**HOUSING IMPACT FOR HOUSING GAP ENROLLEES**

Status at enrollment:



Households that met requirements and received payments during first year:



Housing impact:

Housing made more affordable

Adequate, affordable housing achieved

expected to increase their housing expenditures in the course of meeting requirements, and they did. Starting at an average of a little over \$100 monthly, housing expenditures rose 37 percent by the end of the year.<sup>1</sup> Some of the increase in housing expenditures would have occurred even without the program because of inflation and the rent adjustments that often accompany a change of housing units.<sup>2</sup> Adjusting for these factors, a 19 percent increase may be attributed to the housing allowance program, as shown in Figure 2. This increase amounted to half the allowance payment.

Analysis of overall program effects must consider all households that became recipients, that is, both those that already met requirements at enrollment and those that only did so after enrollment. Households that already met requirements at enrollment generally showed little program-induced increase in housing expenditures. For all recipients combined then, the program-induced increases in housing expenditure averaged about 30 percent of the allowance payments.

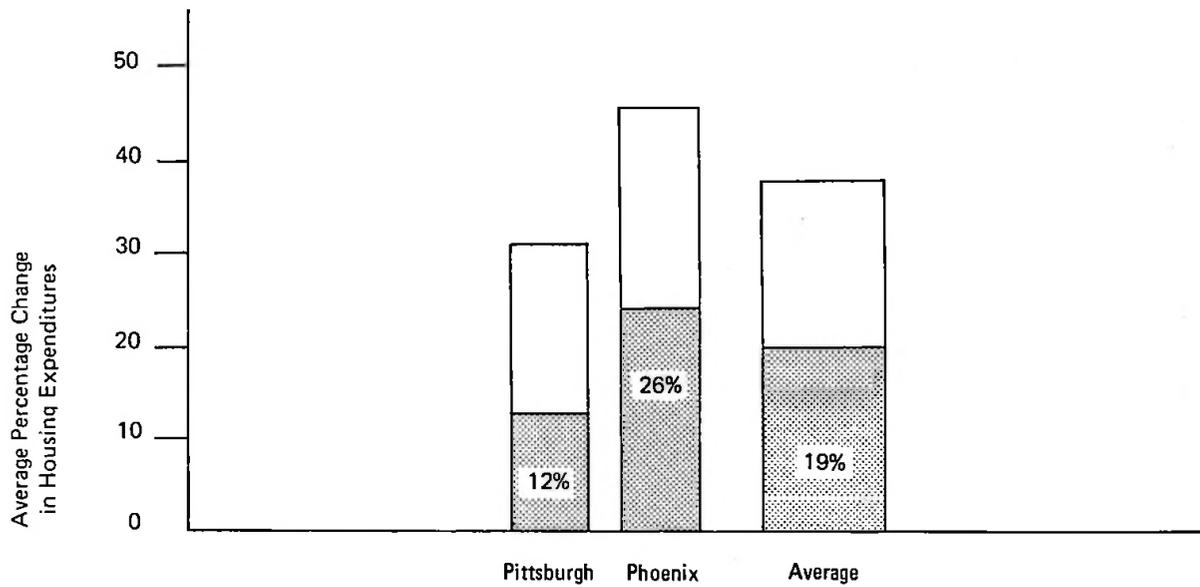
The results for Housing Gap recipients can be compared with the effect of direct income transfers by using the results for households in the Unconstrained plan. These households received payments without having to meet housing requirements. For the Unconstrained group, program-induced rent increases were only 10 percent of the allowance payment, in contrast with

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<sup>1</sup>These households also were paying a large proportion of their disposable income--38 percent--for housing, at enrollment. Even though they made large increases in housing expenditures in the course of meeting requirements, their allowance payments enabled them also to reduce their out-of-pocket expense for housing to 20 percent of income.

<sup>2</sup>The estimated effects of the allowance were obtained by using Control households to predict normal expenditures, given household characteristics. The difference between actual and predicted expenditures for Experimental households is the estimated experimental effect. The figures shown for program-induced change also include a correction for the bias of selecting only Experimental households that met requirements and thereby received payments in the first year. These procedures give more accurate estimates than simple comparisons of Experimental and Control households.

**Figure 2**  
**PERCENTAGE CHANGE IN HOUSING EXPENDITURES FOR**  
**HOUSEHOLDS THAT ONLY MET REQUIREMENTS AFTER ENROLLMENT**



Number of households  
 Initial Rent:

90	106
\$104	\$125

Key

	Normal Change
	Program-induced change

about 30 percent for all Housing Gap recipients, as shown in Figure 3.<sup>1</sup> The 10 percent figure for Unconstrained households should be regarded with caution; it is the average of fairly divergent results for the two sites as shown in Figure 3. It is not clear why there was essentially no program-induced rent increase for Pittsburgh Unconstrained households.

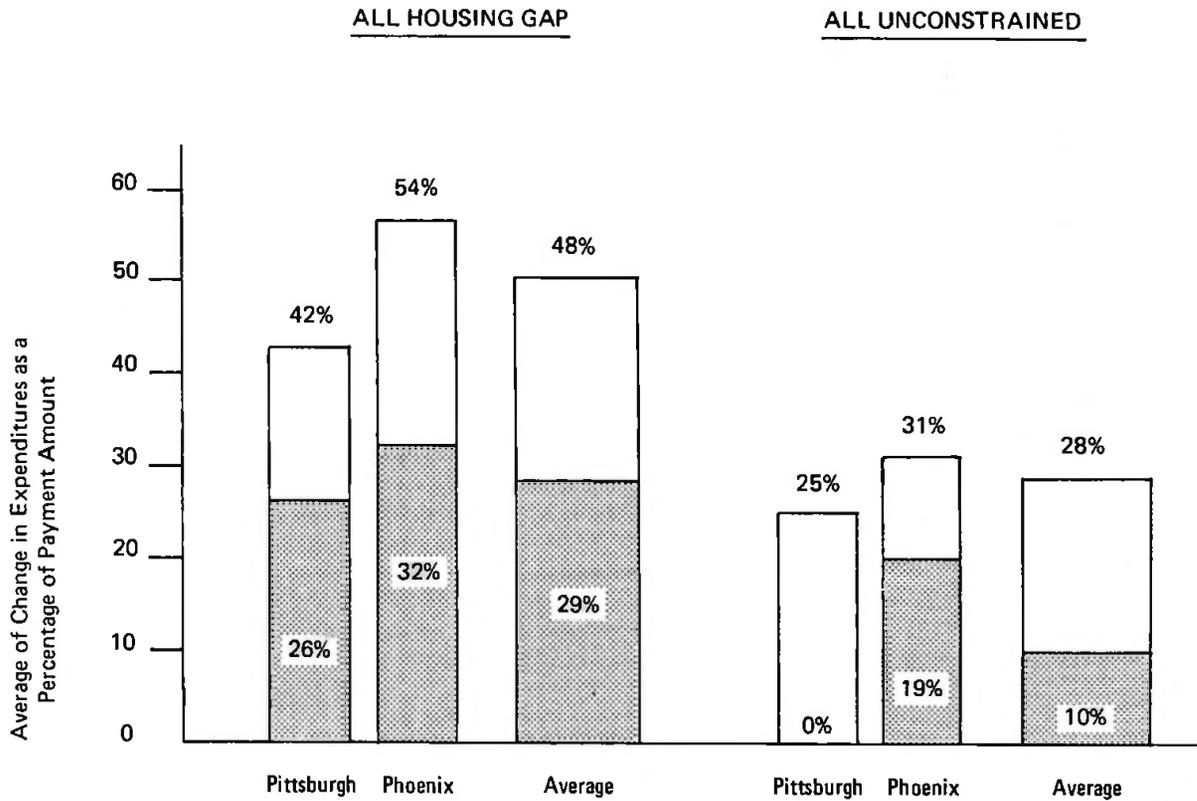
Households that moved during their first year in the experiment are a particularly interesting group. Substantial changes in housing generally require a move. Furthermore, to the extent that all households eventually move, first-year movers may foreshadow eventual response to the housing allowance by other households. On the average, Housing Gap households that moved in the first year spent roughly 40 percent of the allowance payment on program-induced housing expenditures. Again, households in the Unconstrained plan provide a means to separate the effect of the housing requirement from that of a pure income transfer. Unconstrained households that moved registered only a 10 percent program-induced increase. (See Figure 4.) This contrast for movers is larger than the three-to-one ratio observed for all recipients combined.

The foregoing findings apply to all the several Housing Gap plans combined. Variations in housing requirements naturally affected whether households already met requirements at enrollment. In addition, variations in payment level as well as variations in housing requirements affected both subsequent participation and changes in housing expenditure. These results suggest that program impact could be tailored, to some degree, toward desired housing and participation objectives by the selection of program features.

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<sup>1</sup>Figure 3 illustrates a common problem in program evaluations lacking a control group. A control group provides observations for estimating normal expenditure changes that occur in the absence of a program. The program-induced increase in housing expenditures for all Housing Gap households was 29 percent of the payment amount, but without a control group to use for subtracting out normal changes one might mistakenly calculate that the payment "caused" an increase in housing expenditures amounting to 48 percent of the payment.

**Figure 3**  
**CHANGE IN HOUSING EXPENDITURES AS A PERCENTAGE OF**  
**PAYMENT AMOUNT FOR RECIPIENTS**

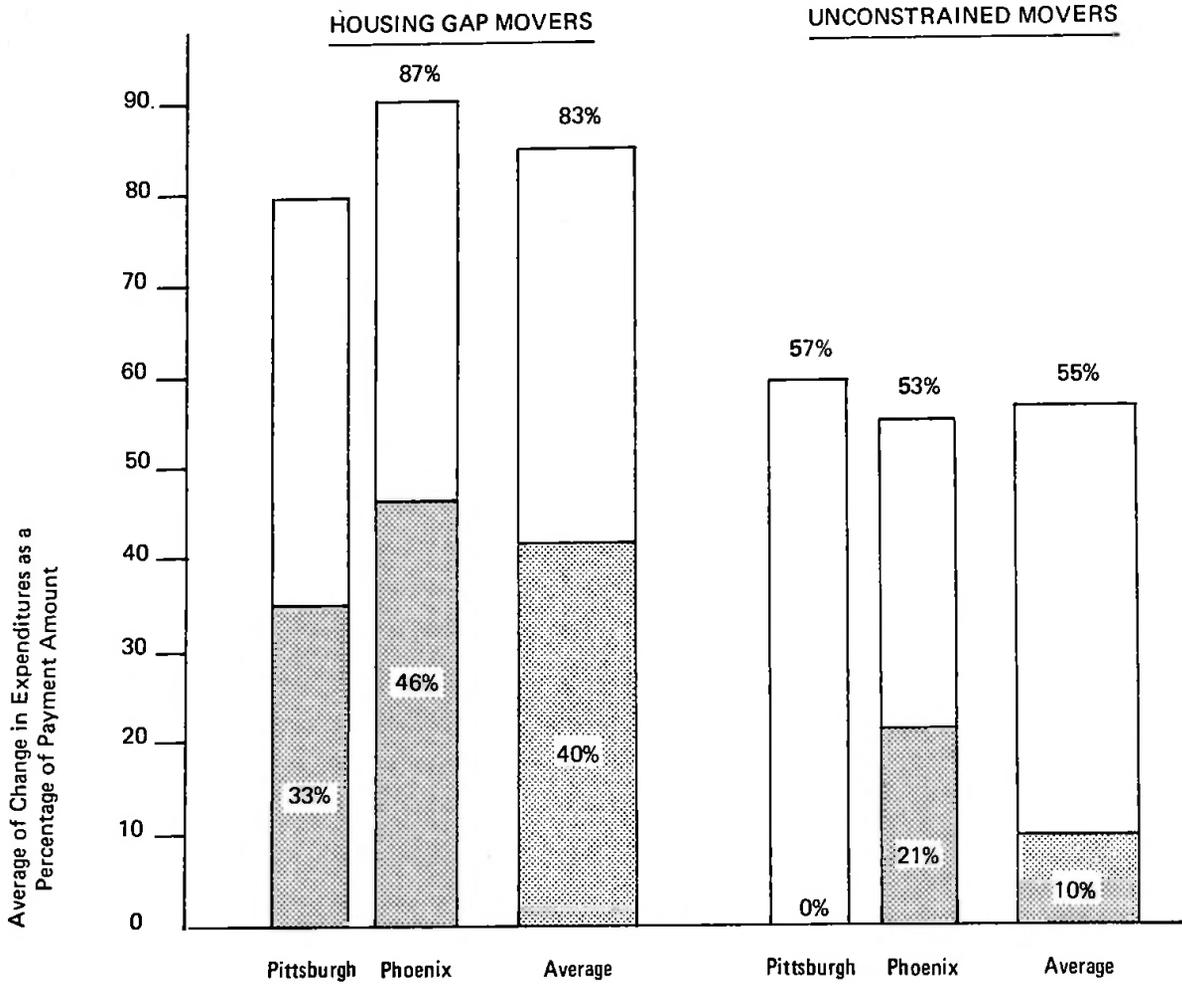


No. of households:	238	210	69	46
Avg. monthly payment:	\$50	\$80	\$50	\$77

**Key**

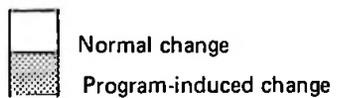
 Normal change  
 Program-induced change

**Figure 4**  
**CHANGE IN HOUSING EXPENDITURES AS A**  
**PERCENTAGE OF PAYMENT FOR MOVERS**



No. of households:	74	121	19	25
Avg. monthly payment:	\$51	\$92	\$58	\$83

Key



## Participation<sup>1</sup>

The impact of any program depends in part on how many households participate. Most of the eligible households in the Demand Experiment did not participate within the first year from the enrollment offers. Some refused to enroll; others, even though they enrolled in the experiment, did not meet their housing requirements during their first year.

The analysis of participation in the Demand Experiment was based on Housing Gap households that completed an enrollment interview. This interview provided information about the household's assigned plan, including the amount of money they could receive, housing requirements they had to meet, and information they had to provide. Having completed the enrollment interview, Housing Gap households had to take two steps in order to participate. They had to accept the offer to enroll, then they had to meet housing requirements in order to receive allowance payments. Figure 5 illustrates these steps.

About 80 percent of the households accepted the offer to enroll. Of those that enrolled and stayed in the experiment, about half actually participated in the allowance program--that is, met requirements and received allowance payments--during their first year. Thus the overall first-year participation rate was about 40 percent. Households already living in housing that met the requirements were more likely to participate, because they needed only to accept the enrollment offer in order to receive the allowance. Households with incomes near the upper end of the eligible range were more likely than those with lower incomes to live in housing already meeting the requirements, so relatively higher-income households were more likely to participate. Holding other factors constant, the estimated participation rate in Phoenix was 28 percentage points higher for households with incomes of \$7,000 than for those with \$2,000 incomes. (The difference in Pittsburgh was 12 percentage points, but not statistically significant.)

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<sup>1</sup>This section draws upon the analyses and findings of the report on participation by Kennedy, Kumar, and Weisbrod (1977) and the report on search and mobility by Weinberg et al. (1977).

**Figure 5  
PARTICIPATION**

Households that completed the enrollment interview

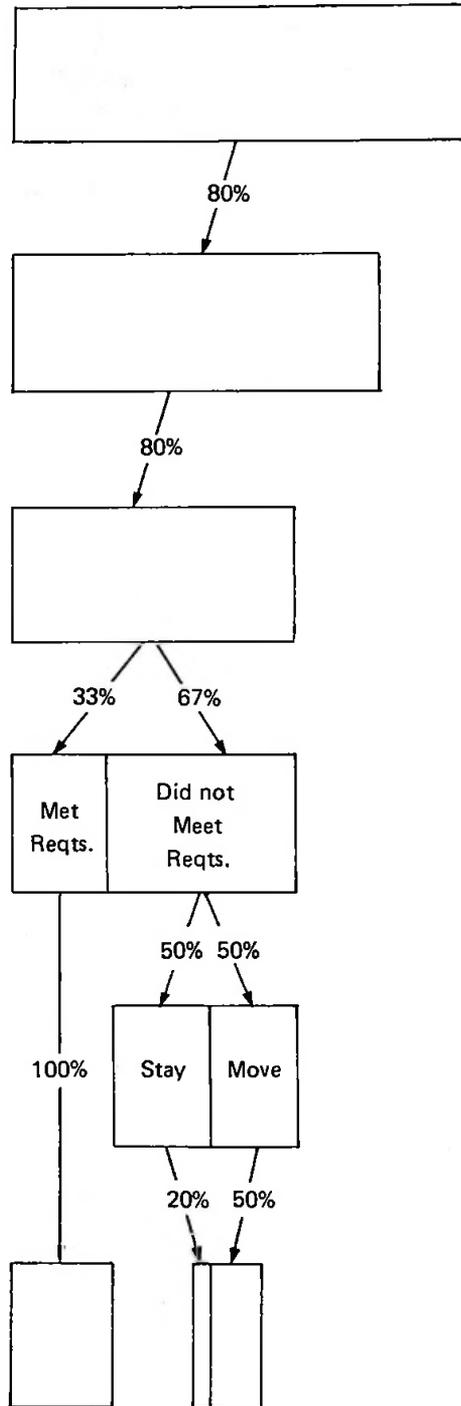
Step 1: Accepting the offer and enrolling

Households enrolled

Households that remained in the experiment for the first year

Status at enrollment of households that stayed in experiment

Households that met requirements and received payments during first year.



Step 2: Meeting the housing requirements

Participation rates were also related to the age and minority status of the head of household. Older households were less likely to participate, other things being equal. The estimated participation rate for households headed by 64-year-olds was about 15 percentage points lower than for households headed by 24-year-olds (17 percentage points in Phoenix and 12 in Pittsburgh). Although the end result was similar in Pittsburgh and Phoenix, the reasons appear to be different. In Pittsburgh, older households were less likely to accept enrollment, but those who accepted fared about the same as younger households in becoming recipients. In Phoenix, older and younger households were equally likely to enroll. But the older enrolled households were much less likely to become recipients, both because their pre-enrollment housing was less likely to meet requirements and because of an apparent reluctance to move. Given these two factors, older households were less likely to meet requirements after enrollment.

Minority households in Pittsburgh were somewhat more likely to enroll than nonminorities, while the opposite was true in Phoenix. Minorities' pre-enrollment housing at both sites was less likely to meet the requirements, so they were less likely to become recipients once enrolled. The net result was that minority households in Phoenix, most of whom were Spanish American, had an estimated participation rate 19 percentage points below nonminorities; in Pittsburgh, where most minority households were black, there was no significant difference between minority and nonminority participation.

As might be expected, higher payment levels (for a given income level and household size) led to higher overall participation rates.<sup>1</sup> The estimated difference in overall participation rates between the highest and lowest payment levels was about 17 percentage points (19 percentage points in Pittsburgh and 15 in Phoenix). Higher payment levels significantly increased both the probability of enrolling and the probability that a household not meeting requirements at enrollment would meet them during the first year.

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<sup>1</sup>Average payment offers in the high payment plans were \$69 a month in Pittsburgh, \$115 in Phoenix; offers in the low payment plans were \$34 and \$56 a month. (Differences between the cities reflected differences in the estimated cost of existing standard housing.)

The offer of an allowance payment did not guarantee that households not meeting housing requirements at enrollment would subsequently meet them and qualify for the payments. Among households that did not meet requirements at enrollment and whose allowance payments would have substantially exceeded the cost of meeting the requirements, less than half participated in the first year after enrolling.<sup>1</sup>

A key factor in households' ability to meet housing requirements was whether they moved. About half of the households that did not meet their housing requirements at enrollment and moved in the first year subsequently met the housing requirements. Of those that did not move, only about one-fifth modified their enrollment residence, met their requirements, and received payments.

Even though moving was a key factor in qualifying for payments, the program did not seem to induce many people to move.<sup>2</sup> Indeed, of the households that did not meet requirements at enrollment, about one-half in Pittsburgh and one-third in Phoenix did not even search for alternative housing. These findings led to further investigation of the role of housing search and the success of searchers as factors in program participation.

The decision to search for new housing was not dependent on program factors. Instead this decision was related to dissatisfaction with the neighborhood or dwelling unit, high previous mobility, and being a younger head of household. Participants' explanations for their reluctance to search appear to confirm the importance of place attachment--the idea that people do not want to consider leaving a place in which they are established, even if they are

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<sup>1</sup>The cost of meeting requirements is estimated by subtracting current rent from the Minimum Rent requirements for households in those plans and from the estimated "typical" cost of standard housing for households in the Minimum Standards plans. To the extent that the allowance exceeds this difference, the household presumably could meet the requirements and reduce its net housing cost. The analysis above is based on households whose allowance would exceed the cost of meeting requirements by \$40 or more per month.

<sup>2</sup>About the same proportion of both Housing Gap and Control households moved during the first year at each site (25 percent in Pittsburgh and 50 percent in Phoenix). However, preliminary analysis of the second-year data suggests that the program offers may have altered normal mobility.

dissatisfied with it. This psychological factor helps to explain why 20 percent of households that said they were dissatisfied with both their unit and their neighborhood did not search for different housing, even with the financial incentive of the allowance offer. These results suggest that there may be little chance to induce people to move through housing allowance program incentives.

Among those that did search, the ultimate decision to move may have been influenced more by what they could find in the housing market than by their satisfaction with or attachment to their current unit. Younger households and those dissatisfied with their housing were more likely to search, but these factors were not significantly related to the probability that a searcher would actually move. Large households that searched in Phoenix were less likely to move than small households; they may have been hampered by limited availability of larger units. Black searchers in Pittsburgh were less likely to move than otherwise similar white households, which may reflect more limited access to the market for minority households due to racial discrimination.

Black households often perceived racial discrimination in their search for housing or said they restricted their search in anticipation of discrimination. A substantial proportion of black searchers--28 percent in Pittsburgh and 16 percent in Phoenix--either indicated that they had encountered discrimination or said they had avoided certain neighborhoods because of expected discrimination. Overall, 18 percent of black searchers in Pittsburgh and 12 percent in Phoenix said they had experienced discrimination; 21 percent in Pittsburgh and 9 percent in Phoenix said that they avoided neighborhoods because they expected discrimination. However, these households were not less likely to move than other black households. At the same time, black households as a group were less likely to move than white households (controlling for other factors such as income, age, welfare status, education, and household size). This may suggest that discrimination was not perceived or reported accurately. It may also suggest that discrimination often acted indirectly. For example, there is evidence that friends and relatives are an important source of information about housing. Since black households are concentrated in restricted areas, their information from friends and relatives may be limited as well, thus reducing their chances of finding a suitable unit.

These results, while still unclear about the role of racial discrimination, nevertheless indicate that black households and large households find it difficult to move once engaged in a search for alternative housing. If these households simply take longer to move, there may be no need for program intervention. If lower rates of mobility among searchers and relatively poor initial housing indicate fundamental obstacles, then more assistance than was provided in the Demand Experiment may be needed to facilitate these groups' participation in a housing allowance program.

Participation is a complex phenomenon, but some important patterns emerge. Higher payment offers seem to increase both acceptance of the offers and the chances that a household will meet the housing requirements if it does not do so at enrollment. Moving is important in enabling participation in a housing allowance program, but a household's decision to move apparently is not strongly affected by the offer of allowance payments.

#### Location<sup>1</sup>

The allowance program offers imposed no requirements about neighborhood characteristics or location. When they moved, both Experimental and Control households tended to move to neighborhoods with relatively fewer poor people than the origin neighborhoods. The concentration of low-income households was measured by the percentage of households in a Census tract having total annual income under \$5,000 (based on the 1970 Census). The average low-income concentration declined about the same amount for Experimental and Control households that moved, indicating that the housing allowance program had little effect on breaking up "pockets of poverty." Surveys of participants' opinions about their neighborhood--including ratings of specific neighborhood features and overall satisfaction with the neighborhood--also showed no program effect. Almost all movers rated their new neighborhoods more favorably than the old.

The concentration of minority households has also been of policy concern, as segregated housing patterns may reflect or impose limitations in choice of housing and in access to employment or public services. At enrollment,

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<sup>1</sup>This section draws upon analyses and findings in the report on locational choice by Atkinson and Phipps (1977).

black households were concentrated in patterns typical of each site. For example, most black households in Pittsburgh (57 percent) lived in predominantly black Census tracts at enrollment, and most white enrollees (77 percent) lived in tracts with more than 95 percent white households. The overall patterns of moves by Experimental and Control households were too similar to suggest that a housing allowance program would reduce minority household concentration in the short term. However, while not statistically significant and based on a small sample of households, there is some indication at both sites that black Experimental households were slightly more likely than black Control households to move to neighborhoods of lower minority concentration. For white households there is no indication thus far that the allowance led to any increase in the abandonment of racially mixed areas.

In general, the analysis of the first-year data suggests that housing allowances do not have a major influence on the locational choices of participants or on the residential distribution of low-income or minority populations. These findings confirm those from early housing allowance demonstrations in Kansas City, Missouri and Wilmington, Delaware and from the Administrative Agency Experiment (another component of the Experimental Housing Allowance Program), which found that the locational patterns of allowance recipients were consistent with pre-existing trends in the local areas.

#### Rent Discounts<sup>1</sup>

The findings summarized thus far have focused mainly on households in the Housing Gap plans, because this form of housing allowance is presumed in most public discussion and is the form tested in the other housing allowance experiments. The Demand Experiment also included Percent of Rent plans, which made offers fundamentally different from Housing Gap.

Under the Percent of Rent plans, households received a cash rebate for a fixed percentage of the rent they paid. A 50 percent rebate, for example, meant that a \$150 apartment cost only \$75 after the rebate. The simple

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<sup>1</sup>This section draws upon the report by Mayo (1977) concerning the Percent of Rent plans.

plan tested in the Demand Experiment depended only on rent and had no housing requirement.

The Percent of Rent plans were included in the Demand Experiment primarily to estimate the relationship between housing expenditures of renters and the relative price of housing. For the recipients, the Percent of Rent rebate was equivalent to a reduction in rent. Recipients were expected to obtain more housing just as they would if housing prices were reduced.

First-year results for those enrolled in the Percent of Rent plans show that a housing subsidy paid through this rent discount scheme would result in greater increases in housing expenditure than would a pure income transfer of the same amount. Percent of Rent households increased their housing expenditures by about three times as much as the households receiving comparable amounts of money without housing requirements (i.e., the Unconstrained households). Housing Gap households, as mentioned earlier, also increased their expenditures about three times as much as the Unconstrained households receiving comparable payments. Because Percent of Rent plans allow greater discretion by the recipients than the Housing Gap plans, while encouraging greater use of the payments for housing than a pure income transfer program, housing incentives of the Percent of Rent type might be a useful element in a housing allowance program.

#### FUTURE ANALYSIS AND APPLICATIONS

Final results from the Demand Experiment will reflect the full analyses of housing allowance impact based on two years' experience of households in the experiment. They will also include direct comparisons of the housing allowance programs with conventional HUD-assisted housing programs at the two sites. Both areas of results offer important policy applications.

Using data on two years of participant experiences, the final analyses of housing allowance impact will include three primary extensions of what has been summarized here:

1. Analyzing housing improvement in terms of a direct quality index of attributes of dwelling units and neighborhoods, and in terms of participants' expressed satisfaction with their housing.

2. Identifying tradeoffs among program participation, housing impacts, and the type or stringency of housing requirements imposed.
3. Making more extensive comparisons of differences between the outcomes for various forms of allowance tested and those for unrestricted cash grants, or pure income transfers.

To enable comparisons of housing allowance results with other housing programs, data have been collected on participants and their housing in public housing, leased housing, and Section 236 interest-subsidized rental housing at both the experimental sites. Important comparisons to be made include housing conditions, housing cost burden, program participation, minority concentration, and program costs.

Results from the Demand Experiment could apply fairly directly to the Section 8 Existing Housing Program. This leased housing program, enacted in 1974 after the start of the Experimental Housing Allowance Program, incorporated some features of a housing allowance. It places greater responsibility on eligible households for finding suitable units and thereby permits greater freedom of choice than the original leased housing program. The similarities between Section 8 and the Demand Experiment mean that the results from the controlled variation in forms of an allowance can be used to predict the effects of various possible further changes in the leased housing program.

More generally, the experiment provides empirical evidence on the relative costs and benefits of housing allowances, other subsidized housing programs, and unrestricted cash grants--all relevant to the choice of welfare reform options. The experiment indicates the relative effectiveness of different programs for groups of special concern, such as minorities, the elderly, or large families. The results thus offer substantial improvement in our understanding of the housing situation of these families and in our assessment of the likely impacts of alternative programs.

# ATTACHMENT 1 DEMAND EXPERIMENT HOUSING ALLOWANCE PLANS AND SAMPLE SIZE AFTER TWO YEARS

**HOUSING GAP: ( $P = C - bY$ , where  $C$  is a multiple of  $C^*$ )**

b VALUE	C LEVEL	HOUSING REQUIREMENTS			
		Minimum Standards	Minimum Rent Low = $0.7C^*$	Minimum Rent High = $0.9C^*$	No Requirement
b = 0.15	$C^*$	Plan 10 PIT = 45 PHX = 36			
b = 0.25	$1.2C^*$	Plan 1 PIT = 33 PHX = 30	Plan 4 PIT = 34 PHX = 24	Plan 7 PIT = 30 PHX = 30	
	$C^*$	Plan 2 PIT = 42 PHX = 35	Plan 5 PIT = 50 PHX = 39	Plan 8 PIT = 44 PHX = 44	Plan 12 PIT = 63 PHX = 40
	$0.8C^*$	Plan 3 PIT = 43 PHX = 39	Plan 6 PIT = 44 PHX = 35	Plan 9 PIT = 43 PHX = 35	
b = 0.35	$C^*$	Plan 11 PIT = 41 PHX = 34			

Total Housing Gap: 512 households in Pittsburgh, 421 households in Phoenix.

Symbols: **b** = Rate at which the allowance decreases as the income increases.  
 **$C^*$**  = Basic payment level (varied by family size and also by site).

**PERCENT OF RENT ( $P = aR$ ) :**

a = 0.6	a = 0.5	a = 0.4	a = 0.3	a = 0.2
Plan 13 PIT = 28 PHX = 21	Plans 14 - 16 PIT = 109 PHX = 81	Plans 17 - 19 PIT = 113 PHX = 66	Plans 20 - 22 PIT = 92 PHX = 84	Plan 23 PIT = 65 PHX = 46

Total Percent of Rent: 407 households in Pittsburgh, 298 households in Phoenix.

**CONTROLS:**

With Housing Information	Without Housing Information
Plan 24 PIT = 159 PHX = 137	Plan 25 PIT = 162 PHX = 145

Total Controls: 321 households in Pittsburgh, 282 households in Phoenix.

**NOTE:** This sample includes households that were active, although not necessarily receiving payments, after two years of enrollment; households whose enrollment income was above the eligibility limits or that moved into subsidized housing or their own homes are excluded. While data on the excluded households may be useful for special analyses, particular analyses may also require the use of a still more restricted sample than the one shown here.

## ATTACHMENT 2

### DEMAND EXPERIMENT PUBLICATIONS

#### DESIGN AND OPERATIONS

Abt Associates Inc., Experimental Design and Analysis Plan of the Demand Experiment, Cambridge, Mass., August 1973.

Abt Associates Inc., Site Operating Procedures Handbook, April 1973, (operating rules of the experiment).

#### TECHNICAL REPORTS ON FIRST-YEAR DATA

Abt Associates Inc., Working Paper on Early Findings, Cambridge, Mass., January 1975, (description of enrolled households and their housing).

Atkinson, Reilly and Antony Phipps, Locational Choice, Part II: Neighborhood Change in the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., August 1977.

Friedman, Joseph and Stephen Kennedy, Housing Expenditures and Quality, Part II: Housing Expenditures Under a Housing Gap Housing Allowance, Cambridge, Mass., Abt Associates Inc., May 1977.

Kennedy, Stephen, Krishna Kumar, and Glen Weisbrod, Draft Report on Participation Under A Housing Gap Form of Housing Allowance, Cambridge, Mass., Abt Associates Inc., May 1977.

Mayo, Stephen, Housing Expenditures and Quality, Part I: Housing Expenditures Under a Percent of Rent Housing Allowance, Cambridge, Mass., Abt Associates Inc., January 1977.

Merrill, Sally, Housing Expenditures and Quality, Part III: Draft Report on Hedonic Indices as a Measure of Housing Quality, Cambridge, Mass., Abt Associates Inc., December 1977.

Weinberg, Daniel, Reilly Atkinson, Avis Vidal, James Wallace, and Glen Weisbrod, Locational Choice, Part I: Search and Mobility in the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., August 1977.

#### ANNUAL REPORTS

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