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Housing Allowance Demand Experiment

Locational Choice Part 1

Search and Mobility

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DEMAND EXPERIMENT

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ABSTRACT

This report addresses the first-year search and moving behavior of participants in the Housing Allowance Demand Experiment. The search decision and the moving behavior of searchers are analyzed separately, using both multivariate statistical techniques and examination of interview responses.

The primary focus of the report is on the impact of the program on the households' search and mobility processes. Investigation of the search decision involves the reasons cited for not searching, the effects of dissatisfaction and housing conditions on search, and household perceptions about the housing allowance program. Investigation of the moving behavior of searchers focuses on the search process and, in particular, on the problems households encountered in their search. Also examined are the relationships between the incidence of these problems and both household characteristics and the effect of search problems on moving rates.

Finally, the report indicates major directions for the continuing research to be based on the full two years of experimental data.

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SUMMARY

This report is one of a series on the first-year results of programs tested in the Housing Allowance Demand Experiment. The Demand Experiment is one of three experiments being conducted by the Department of Housing and Urban Development as a part of the Experimental Housing Allowance Program (EHAP). These experiments, authorized by Congress in the Housing Act of 1970, are designed to test the concept of direct cash assistance to low-income households to enable them to live in suitable housing. The purpose of the Demand Experiment is to provide information on how households use their allowances. The experiment, conducted in Pittsburgh, Pennsylvania, and Phoenix, Arizona, offered allowances to approximately 1,200 households selected at random from each area. The focus in this report is on the relationship of the program offers to the search and moving behavior of the low-income renters in the Demand Experiment.

The program tested in the Demand Experiment will be evaluated mainly on the basis of data from two years of program operations, although enrollees were offered three years of payment. Reports such as this one are intended to lay the groundwork for further analysis by identifying the first-year response to the experimental offers and by identifying key analytic issues. The findings here, therefore, must be regarded as partial and preliminary.

Residential mobility is a key factor in how a housing allowance program might work. Households unable to meet the housing requirements of an allowance program in their current residences must move to acceptable units or forego the allowance. For households already meeting the requirements, it is possible, of course, that the allowance payment might enable some households that might otherwise have moved to less expensive housing to remain in their current residences. In an allowance program including a rent discount feature, households would have to move to take fullest advantage of the fixed fractional rent rebate it incorporates. More generally, the presumed advantage of a housing allowance over such conventional forms of housing assistance as public housing is that the allowance payment is not tied to a particular dwelling unit or project. With the addition of the allowance to its income a household is free to make its own choice of housing and neighborhood, usually subject to some set of housing requirements.

Moving, then, can determine whether a household can participate in an allowance program with housing requirements and can allow a household to take advantage of the expanded housing choice that the allowance program makes possible. This report addresses only moving and factors leading to moves; other reports in this series discuss the results of moves in terms of meeting requirements, neighborhood choice, or housing improvement in general.

Two types of treatment formulas are tested in the Demand Experiment, Housing Gap and Percent of Rent. Under a Housing Gap allowance, eligible households receive allowance payments based on household size and income to assist them in obtaining decent housing. These payments are designed to make up the gap between the cost of modest, existing, standard housing and the fraction of its income that a household might reasonably be expected to devote to housing. Households receive allowance payments only if their rental housing meets program housing requirements. Under a Percent of Rent formula, sometimes called a rent discount, households receive a rebate equal to a fixed fraction of their monthly rent. The rebate in the Demand Experiment varies from 20 percent to 60 percent of monthly rent in increments of 10 percentage points. All Experimental households (both Housing Gap and Percent of Rent) were offered access to an equal opportunity lawyer and a Housing Information Program that provided information on the housing allowance, on the local housing market, and on landlord/tenant matters. A third category of households, Control households, received \$10 each month solely to provide comparative data.

The primary results describing the relationship between the program offers and search and moving behavior of households in the two experimental sites, Pittsburgh and Phoenix, are summarized below. Because of the exploratory nature of the analysis of the first-year observations, numerous related but secondary issues addressed in the report are not summarized here.

SUMMARY OF FINDINGS ON SEARCH AND MOBILITY

1. The allowance programs apparently had little overall effect on moving. Thus housing changes induced by the program appear to depend on normal moving behavior. Differences in overall mobility between the two experimental sites arise primarily from differences in the ability of searchers

to move.

The incidence of first-year moves for Experimental households is nearly the same as that for Control households. Furthermore, neither the overall incidence of searching for housing nor the overall incidence of moving by those that search is very different for Experimental or Control households. The overall mobility rates are apparently governed more by the normal behavior of renters at the two sites than by the program offers. (One must be wary, however, of inferring program effects on individual moving behavior from their effects on overall mobility because some households may have been induced not to move.) About half the households in the experiment searched for housing (50 percent in Pittsburgh and 62 percent in Phoenix). Pittsburgh households were much less likely to move, however, than those in Phoenix--overall mobility rates were 25 and 47 percent, respectively.

2. Households in the Housing Gap plans that did not meet housing requirements at enrollment may have been encouraged to look for other housing by the promise of the allowance payment. But this inducement, if it existed, appears to have been largely offset by a lower incidence of moving for these searchers relative to those that met the housing requirements at enrollment.

Housing Gap households not living in housing that met program requirements at enrollment had a significantly higher probability of searching than those that did meet the requirements. Of households that searched, however, those that did not meet the requirements at enrollment were less likely to move than those that did meet the requirements. The overall result of these opposing effects was that the probability of moving was nearly the same for Housing Gap households whether or not they met requirements at enrollment; further analysis is required to determine whether this connection holds when background characteristics associated with meeting requirements are controlled. (Even though many households cited the difficulty of finding a program-approvable unit, they were no less likely to move than those not citing this problem.)

3. The rent discount feature of the Percent of Rent offers apparently did not provide a strong inducement to move,

Variations in the percentage of rent offered as an allowance payment did not significantly affect rates of searching or of moving. There is some indication that lack of understanding of this form of housing subsidy may have inhibited response to it. The lack of significant effects on moving is consistent with the preliminary results already analyzed in the report on the analysis of the Percent of Rent offer. The issue of program understanding for both Percent of Rent and Housing Gap households must be investigated further.

The apparent lack of program inducements to move raises two issues about the possible impact of a housing subsidy provided in the form of a housing allowance. First, it means that normal local patterns and rates of mobility would determine the timing of response to such a program; for many households, participation in a Housing Gap program would not begin until they move. (Enrollees already meeting program housing requirements, of course, would immediately participate--that is, receive the allowance.) Understanding the determinants of moving is thus important for predicting the timing of participation; both the budgetary and program impact would initially tend to be lower among groups with low mobility rates, especially for those not meeting program housing requirements. Second, if it were desirable to facilitate moving for reasons of equity or to accelerate response to program offers, it would be important to distinguish households that choose not to move from those that would like to move but encounter barriers to moving, especially if the barriers are subject to at least partial remedy through government action. These issues are explored in this report.

4. A household's decision to search for housing is associated with certain household characteristics--the age of its head, previous mobility, and satisfaction with housing unit and neighborhood. Households that choose not to search for alternative housing apparently have reasons not likely to be affected by program design, although, as noted in point two above, those not meeting the housing requirements at enrollment were more likely to search for housing than those already meeting them.

Multivariate analysis indicates that the likelihood of searching for alternative rental housing is greater for younger heads of households and for households with higher recent mobility (as measured by number of previous moves); the likelihood of searching is also higher for those dissatisfied with either their housing units or neighborhoods. The importance of satisfaction in the search decision is corroborated by responses to survey questions on reasons for not searching. Respondents indicated their attachment to their current housing and neighborhood in a variety of ways. Roughly half of all respondents in explaining why they did not search indicated they thought they would not be able to find a place they would like as much as their present residence (50 percent in Pittsburgh and 43 percent in Phoenix) or that they found some aspects of their neighborhood desirable (65 percent in Pittsburgh and 61 percent in Phoenix). Many households simply felt they either could not move or did not want to move.

5. The actual moving decision of searchers is associated with household characteristics different from those associated with the decision to search, suggesting that certain kinds of households do encounter barriers to moving.

Of the household characteristics important for the decision to search, only previous mobility is associated with the likelihood of searchers to move. Analysis indicates that barriers to moving are encountered by some types of households; in particular black searchers in Pittsburgh and larger families that searched in Phoenix were significantly less likely to move than otherwise similar households.

6. Responses to interview questions about difficulty in search generally did not identify households less likely to move; that is, households indicating they had encountered some obstacle in their search were often as likely to move as those not indicating that problem.

The main obstacles reported by searchers were lack of knowledge about where to look, difficulties with access to transportation, problems for those with children, and expected difficulty in paying the anticipated rents. The only problem related to moving rates at both sites was financial difficulty--those searchers citing this problem were less likely to move than those not citing it. Those searchers reporting lack of knowledge about where to look were as likely to move as those not reporting this problem. Only in Pittsburgh were those citing transportation problems less likely to move than those not citing this problem. Households citing problems because of children (child care or perceived discrimination because of children) were as likely to move as those not citing these problems. Nevertheless, the low incidence of moving for black searchers or those with larger families suggests further investigation.

7. The only search problem apparently relieved by the offers tested was reported financial difficulty.

Percent of Rent households were less likely to report financial difficulty in search than were Control households. Housing Gap households apparently found the financial aid of the allowance payment offset by the need to meet housing requirements, so that their perception of financial difficulty was not appreciably different from Control households.

8. Black households often either perceived racial discrimination in their search for housing or restricted their search in anticipation of discrimination.

Survey responses from black searchers indicate that a substantial proportion--28 percent in Pittsburgh and 16 percent in Phoenix--

reported encountering discrimination or avoided neighborhoods in their housing search because of expected discrimination. Overall, 18 and 12 percent of black searchers in Pittsburgh and Phoenix, respectively, said that they had experienced discrimination; 21 and 9 percent of black searchers in Pittsburgh and Phoenix, respectively, said that they avoided neighborhoods because they expected discrimination. Though these survey responses do not identify those black searchers less likely to move, there is nevertheless some indication that these or other restrictions reduced the proportion of black searchers that moved (see point 5). The geographical extent of search will be further investigated in future analyses.

9. Further research on the linkages between participation in a housing allowance program, changes in housing consumption, and mobility is in progress.

A better understanding of the determinants of mobility would help identify which eligible households would eventually consider moving and therefore be responsive to an allowance offer. The analysis thus far suggests that the interview data will be of only limited value in developing models of the determinants of mobility. Because some households are relatively immobile for periods that are long compared to the two-year period of observations, the program outcomes (for example, ability to meet housing requirements) for those that do move during the experiment may be used to project eventual responses to a housing allowance program, assuming that the administration of such a program would be the same as that of the Demand Experiment. Information on program participation and its relationship to forms of program administration should also be available from the other major components of the Experimental Housing Allowance Program--the Administrative Agency Experiment and the Housing Allowance Supply Experiment.

Source of Statements

The following indicates the source in the text of the summary points made above.

1. For the overall search and moving rates, see Table 1-1 in Chapter 1.
2. For the effect of not meeting the housing requirements on search, moving given search, and moving behavior of Housing Gap households, see Table 2-18 in Section 2.5, Table 3-19 in Section 3.5, and Table 4-2 in Section 4.1, respectively, and their accompanying discussion. For the effect of difficulty in finding a program-approvable unit on moving, see Table 3-17 in Section 3.4.
3. For the effect of the rent discount and program understanding on the search, moving given search, and moving behavior of Percent of Rent households, see Table 2-19 in Section 2.5, Table 3-20 in Section 3.5, and Table 4-3 in Section 4.1, respectively, and their accompanying discussion.
4. For the multivariate analysis of search, see Table 2-2 in Section 2.1. Reasons cited for not searching are presented in Table 2-3 in Section 2.2.
5. For the multivariate analysis of the moving decision of searchers, see Table 3-1 in Section 3.1.
6. For the incidence of search problems, see Table 3-5 in Section 3.2. The relationship of search problems to moving rates is presented in Table 3-17 in Section 3.4. The low incidence of moving for the particular households noted is shown in Table 3-1 in Section 3.1.
7. For the effect of the allowance offer on financial difficulty, see Table 3-9 in Section 3.2.
8. For the incidence of perceived racial discrimination and avoidance of neighborhoods, see Figure 3-1 in Section 3.3 and the accompanying discussion. The lower likelihood of black searchers moving is shown in Table 3-1 in Section 3.1.
9. For a discussion of the implications for future analysis, see Section 4.2.

CHAPTER 1
INTRODUCTION

This report addresses the process of housing search and moving among households completing their first year in the Housing Allowance Demand Experiment, being conducted in two sites, Allegheny County, Pennsylvania (Pittsburgh), and Maricopa County, Arizona (Phoenix). This behavior is important to investigate not for its own sake but because moving may be necessary for some eligible households in order for them to take full advantage of the housing allowance plans offered. One of the presumed advantages of a housing allowance program as a housing policy alternative is the opportunity for eligible households to use their allowance payments to choose from a variety of existing standard housing. Presumably, this opportunity often would be exercised by moving to another residence with the help of the housing allowance payments. By moving, a household can leave substandard housing, get away from segregated neighborhoods, or obtain access to different public goods and services.

The incentives to move vary among the allowance plans considered and even within a given plan. Two basically different kinds of plans are tested in the Demand Experiment--Housing Gap and Percent of Rent.¹ The Housing Gap plans offer a monthly payment large enough to make up the gap between the cost of modest, existing standard housing and a reasonable fraction of household income, provided the household lives in or is willing to find housing meeting certain requirements. The Percent of Rent plans test the effectiveness of a fixed fractional monthly rent rebate in encouraging households to allocate more money to housing.

In the Housing Gap plans, if the households already occupy housing that meets the program requirements at enrollment, payments can begin immediately. These households may already be spending a large fraction of their income on rent; the allowance payment essentially reduces the burden of their housing costs. Indeed, some households that otherwise would have had to move to a less expensive dwelling may be enabled to stay with the

¹See Appendix I for details of the individual experimental plans tested.

help of the allowance payment. But the payment also constitutes additional income for households already meeting the requirements, and it is of some interest to assess how much of the payment goes into increased housing expenditures. Though low-income renters typically do not make very large proportional increases in rent for a given proportional increase in income, there would ordinarily be some incentive to spend more on housing. The timing of any additional expenditure is uncertain. Because these households do not have to move to receive their payments, they may not move immediately.

Housing Gap households that do not initially meet the program requirements, however, are in a very different situation. Until they meet the requirements they receive no money (except a monthly \$10 payment for fulfilling reporting requirements). Some may be able to meet the requirements without moving by upgrading the unit to meet the housing requirements.¹ Others, however, would not be able to meet the requirements and receive payments unless they moved--for example, a family with fewer rooms than required by an occupancy standard would need to move. Because the Housing Gap plans in most cases essentially offer to finance this change without requiring increased out-of-pocket expenditures for housing or even with a reduction in out-of-pocket housing expenses, one would expect that at least some households would move to take advantage of the offer. For households not meeting the housing requirements of the program, then, moving may determine whom the program will serve.

The incentive to move in the Percent of Rent plans is somewhat like that for Housing Gap households that meet requirements. As tested in this experiment, Percent of Rent households receive a payment proportional to their rent without having to do anything. There is no housing requirement to meet; they can simply accept the rent discount payment as additional income. Because the Percent of Rent offer means that households are guaranteed a price discount, a bargain, on essentially all rental housing in their local market, one would think that at least some households would respond to this offer by moving to better housing, even if a move had not been contemplated. It is also possible that some Percent of Rent households

¹Upgrading (meeting the housing requirements in place) is not addressed in this report. Future work will investigate the choice between upgrading and moving for those which initially did not meet requirements.

that would otherwise have moved to a less expensive unit could afford to stay in their current units.

In addition to these incentives created by the housing allowance program, many other factors may affect a household's decision to move or even to consider moving. The question remains: how important are the incentives of the housing allowance offers relative to other influences on the households involved?

The Demand Experiment was designed to address such questions by enrolling a group of Control households, drawn from the same population as those offered the various allowance plans; however, Control households were offered no allowance payment. These Control households provide a reference group against which to compare the behavior of households offered the allowance plans (termed Experimental households) in analyzing program effects. Another special reference group, Unconstrained households, was offered payment according to the basic Housing Gap formula but did not have to meet any housing requirement. The Unconstrained group provides a means for assessing the effect of the housing requirements.

The first-year experience shows that apparently little moving took place primarily in response to the inducements of the experimental housing allowance plans. The overall incidence of first-year moves for Experimental households is nearly the same as that for the Control households. Furthermore, neither the search rates nor the moving rates for searchers are very different for Experimental and Control households (see Table 1-1).¹

The relative lack of program-induced moves is important for understanding the limited response to the offers as observed thus far in the analysis of first-year data. Overall first-year changes in housing expenditures are relatively small both in the Housing Gap plans (see Friedman and Kennedy, 1977) and in the Percent of Rent plans (see Mayo, 1977). However, larger increases in housing expenditures are observed for households that move, especially if they moved to meet program requirements. Lack of mobility is also a factor linked to the modest rates of participation in the Housing

¹A more detailed breakdown by major experimental housing allowance plans (treatment groups)--Housing Gap Minimum Standards, Housing Gap Minimum Rent, Unconstrained, Percent of Rent and Control--reveals much the same pattern (see Appendix Table VI-3).

Table 1-1
 FIRST-YEAR SEARCH AND MOVING RATES FOR
 EXPERIMENTAL AND CONTROL HOUSEHOLDS
 (Sample Size in Parentheses)

HOUSEHOLD GROUP	PERCENTAGE SEARCHING	PERCENTAGE OF SEARCHERS MOVING	OVERALL PERCENTAGE MOVING
PITTSBURGH			
Experimental	50% (818)	53% (405)	26% (835)
Control	50 (259)	47 (130)	23 (263)
PHOENIX			
Experimental	62 (768)	77 (476)	47 (781)
Control	63 (308)	76 (188)	47 (305)

SAMPLE: Households active at one year (at the time of the Second Periodic Interview) not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: Baseline, First and Second Periodic Interviews.

NOTE: Chi-square statistic comparing Experimental and Control households not significant at the 0.05 level.

Gap plans, especially for households not initially meeting the housing requirements. Only about one-half of the eligible households met the requirements in the first year (see Kennedy, Kumar, and Weisbrod, 1977).

Although a household's willingness to consider a move may be dominated by background factors, its actual decision to move may result in the program's incentives taking effect through influencing its choice of housing, that is, by finding housing that meets program standards. Thus the eventual impact of a housing allowance program would depend upon program influences upon those households that move, whether or not the program itself induces those moves. A finding of no program inducement to move suggests that the timing and magnitude of response to a housing allowance program would depend on local mobility rates and the interaction between program housing requirements and the characteristics of the local housing market. Thus, understanding the normal determinants of moving might be required for distinguishing short-term and long-term response to a program and for estimating variations in response from area to area.

To assess the seriousness of the apparent lack of program-induced moves one needs to distinguish among several categories of households that did not move. There may be no essential policy interest in some households' moves; for households that already met the housing requirements, it may suffice for the payment to reduce their housing costs or rent burden. Some households simply may not wish to take advantage of the allowance if it requires a move; for example, a household may be overcrowded according to the housing requirement but have strong attachments to its current residence. Some households, whether they meet the housing requirements or not, may wish to take advantage of the housing allowance offer but encounter such obstacles as racial discrimination or inability to locate acceptable housing. Depending on the nature of these obstacles to moving, program design could incorporate features intended to reduce the severity of these barriers.

This report is a preliminary exploration of the normal influences involved in a household's decision to move and of ways in which housing allowance program features might alter, reinforce, or act against those influences. To do this, it explores the evidence from the experiment relating to the factors involved in the decision to search for housing and, for those that

search, it investigates the particular factors contributing to moving and those constituting barriers to moving. Given the apparent subtlety of program effects, a study of these background factors should help to identify the relative importance of the program inducements.

For the simple reason that a change in residence is usually preceded by some form of consideration of alternative residences, the investigation reported here pursues these steps sequentially. This logic was structured into the Periodic Interviews given to each household at approximately six months and one year after enrollment. Households were first asked whether or not they had searched or moved. Depending on their response, they were asked about their search or their reasons for not searching. Households in the experimental Housing Gap plans were also asked questions relating to their status with respect to their housing requirements, whether they thought they would have to move, and whether they had objections to meeting the requirements. Various interview questions sought to ascertain the types of difficulties households encountered either in deciding to look for or in moving to alternative housing. The explorations in this report often use the entire sample of both Experimental and Control households to achieve larger samples of observations, permitting finer distinctions in household characteristics and survey responses.

Because of the exploratory nature of this investigation many different issues are addressed, some in only the most limited way. Throughout the report the most direct approach is taken in seeking plausible explanations for behavior. In this exploratory spirit, discussion is not rigidly limited to effects that are statistically significant at a specified level. It seems important for the development of the ongoing analysis not to discard effects of potential importance. Although a conventional test level of 0.05 is used, results are sometimes discussed if the test statistic is nearly significant, especially if the apparent effect is large.

The decision to search for housing is investigated in Chapter 2. Following a preliminary multivariate analysis, which confirms the lack of an overall program effect on the decision to search, the remainder of the chapter investigates reasons households gave for not searching and relates these to possible program factors (as distinct from simple disinclinations to consider other housing). After a preliminary examination of the interview responses

relating directly to the Housing Gap offers, a multivariate analysis is used to explore separately specific treatment effects under the Housing Gap and Percent of Rent plans.

Chapter 3 follows a similar pattern in examining the decision of searchers to move. Its major concern is actually with searchers that did not move. Some may not exert the effort necessary to find a new place. Some may, of course, simply move later. However, impediments and barriers that may be subject to government action are already evident in the first year of observation. Chapter 3 explores the problems encountered by those attempting to move, again relates these problems to the experimental offers (particularly financial reasons and difficulty finding program-approvable housing), and assesses the apparent connection between perceived barriers and actual differences in ability to move.

Chapter 4 both offers a brief summary on overall mobility in the experiment and indicates the challenges ahead in linking the observations made here with the analysis of responses to the experimental offers. The results of the work reported here will be integrated with the related issues of program participation, housing improvement, and locational choice in the analysis of the second-year experience of households in the Demand Experiment proceeds. Important issues that remain to be addressed include possible cumulative effects of moves in the second year on the degree of response to the experimental programs, possible inhibitions introduced by the finite duration (three years) of the experimental program, and more specific indications as to whether the effectiveness of a housing allowance program would be constrained by its limited influence on the behavior of the eligible low-income population or whether it could be made more effective by reducing the barriers faced by households attempting to use the allowance to improve their housing.

Basic background information, including a description of the various housing allowance plans tested in the Demand Experiment, is provided in Appendix I. Appendix II provides the definitions of the major variables used in this analysis, including those indicating search status or moving within the first year, and indicates the basis for the samples used in the analysis.

A number of supporting analyses are given only summary mention in the main body of the report. They have been included as appendices to offer more

information on the supporting research; they also reflect the depth of data available for examining issues of the appeal, effectiveness, limitations, and areas of potential improvement of housing allowance programs.

Expressed satisfaction with housing (dwelling unit and neighborhood) is explored in Appendix III. Attention is given to shifts in satisfaction for searchers and movers and to the measurement properties of the interview questions used.

Appendix IV contains four special analyses: the relationship between expressed interest in moving at the Baseline Interview and actual moves in the first year, investigations of involuntary movers and of the possibility of chronic movers, a discussion of the incidence of perceived discrimination, and a brief discussion of the problems associated with measuring search and mobility.

The Housing Information Program and its possible associations with search and moving are discussed in Appendix V. Some simple contrasts are made between Control households offered the Housing Information Program and those not offered the program. The Demand Experiment offers little opportunity for directly assessing the effectiveness of supportive services in facilitating the use of housing allowances. There was no experimental variation in the provision of supportive services to Experimental households; all enrollees were offered access to an equal opportunity attorney and a standard initial series of sessions constituting the Housing Information Program. Because Control households were divided into two groups--one offered the Housing Information Program and one not offered the program--some analysis is possible on the effect of this program alone on search and moving. However, no direct analysis can be made of the possible interaction of this program with the experimental offers.¹

¹Within the variations observed in the Administrative Agency Experiment (AAE), the finding is that formal services to enrollees (such as the Housing Information Program offered Demand Experiment enrollees) are not particularly effective in enabling enrollees to reach recipient status, while responsive services to enrollees (especially black households) in tight housing markets can be markedly effective in helping them find housing adequate for them to reach recipient status (Holshouser, 1976). Responsive services in the AAE included such aids as rental listings, transportation for housing search, and assistance in negotiation with landlords.

Supportive data on bivariate relationships between search or moving and both household characteristics and treatment groups (allowance plans) is offered in Appendix VI. Finally, Appendix VII is a detailed survey of mobility research, used in part to guide the search for appropriate explanatory variables in the present research.

The actual locational outcomes of first-year moves are addressed in a related report (Atkinson and Phipps, 1977). That report examines neighborhood choices and indicates the extent to which these moves follow or alter existing patterns with respect to concentrations of minorities and low-income households. Outcomes of moves with respect to meeting housing requirements will be addressed in a future report.¹

¹Some evidence of the magnitude of change is available from the preliminary report on Housing Gap expenditures by Friedman and Kennedy (1977). About half the households not meeting requirements at enrollment but moving in the first year met the requirements as a result of moving. This success rate was almost two times the rate for Control households, none of whom, of course, had any requirement to meet but some of whom would have met the requirements imposed on Experimental households by moving anyway (see Appendix IV of that report).

REFERENCES

- Atkinson, Reilly and Antony Phipps, Locational Choice, Part II: Draft Report on Neighborhood Change in the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., April 1977.
- Friedman, Joseph and Stephen D. Kennedy, Housing Expenditures and Quality, Part II: Housing Expenditures Under a Housing Gap Housing Allowance, Cambridge, Mass., Abt Associates Inc., May 1977.
- Holshouser, William Jr., Supportive Services in a Housing Allowance Program, Vol. I, Cambridge, Mass., Abt Associates Inc., 1976.
- Kennedy, Stephen D., T. Krishna Kumar and Glen Weisbrod, Draft Report on Participation Under a Housing Gap Form of Housing Allowance, Cambridge, Mass., Abt Associates Inc., April 1977.
- Mayo, Stephen K., Housing Expenditures and Quality, Part I: Housing Expenditures Under a Percent of Rent Housing Allowance, Cambridge, Mass., Abt Associates Inc., January 1977.

CHAPTER 2
THE DECISION TO SEARCH

This chapter deals with the initial decision in the chain of events that leads to a move--the decision to search for new housing.¹ The investigation is exploratory and attempts to identify some of the major issues and variables that are important for understanding the housing search process, especially the reasons households give for not searching.² These reasons are provided by interview data, which also provide information about household perceptions of the housing allowance payment and requirements.

Though the allowance offers might be expected to induce some households to search, these inducements must compete with households' preexisting attitudes about their housing and their perceptions about the desirability of a change in their housing. Households may establish strong "place attachment" over time through personal investment in social networks, adaptation of their housing units to their own tastes, growing familiarity with the neighborhood and how to function successfully and easily there, or by developing a sense of belonging. The degree of place attachment would be expected to change both as a result of program inducements to move and for reasons other than the allowance offers. This chapter explores these competing forces as they result in the first step toward moving--the search for alternative housing.

Section 2.1 presents a multivariate model of search with explanatory variables suggested mainly by an examination of the mobility literature. Variables are chosen because they are expected to represent proxies for both moving costs and place attachment. Reasons cited by participants for not searching for housing are then discussed in Section 2.2 and show very clearly the importance of neighborhood ties and housing unit satisfaction. This discussion leads naturally to an examination of the roles of expressed

¹The split of moving behavior into the decision to search and the decision of searchers to move is recommended by Speare et al. (1974), among others.

²See Appendix II for a description of the sample and derivation of the search and mobility variables.

housing unit and neighborhood satisfaction and housing adequacy in the decision to search, presented in Section 2.3. Section 2.4 discusses household perceptions of the housing allowance program, and the effects of treatment variations are investigated in the context of the multivariate model in Section 2.5. Section 2.6 summarizes the major findings of the chapter.

2.1 MULTIVARIATE MODEL OF SEARCH

As the review of the mobility literature in Appendix VII indicates, demographic and other socioeconomic household characteristics are correlated with moving rates. As a preliminary step toward analysis of program effects, some of these basic normal relationships have been explored in a straightforward bivariate examination of search rates for households with different characteristics. The variables included in this analysis were chosen to serve as proxies for several aspects of search not directly measured--search and moving costs, place attachment, and knowledge of the housing market. Search and moving costs include not only out-of-pocket expenses but also the relinquishment of any discount received for lengthy tenure and any psychic costs associated with a move. These latter costs would be expected to vary with the degree of place attachment the household has. Households, over time, establish neighborhood and personal ties that are difficult and sometimes costly to break. Search costs would be less for households with a greater knowledge of alternate housing opportunities, for which education or degree of previous mobility might be proxy measures. Other variables, such as age of household head and household size, are proxies for life-cycle variables--that is, household types likely to have a change in the kind of housing that meets their needs.

The following findings from the bivariate analysis are basically consistent with findings in the literature on mobility.¹ Specifically:

Households with a history of moves were more likely to search than those without such a history.²

¹See Appendix Tables VI-1 and VI-2.

²The variable used, the number of moves in the three years prior to enrollment, also can be considered a proxy for place attachment, knowledge of the housing market, or even ability to overcome fear of the unknown. It is undoubtedly true that households that move frequently possess a set of (footnote continued on next page)

Younger households were more likely to search than the elderly.

Those on welfare or with lower per capita or higher household income were more likely to search than their counterparts.

Blacks in Pittsburgh were more likely to search than whites; there were large but not significant racial or ethnic differences in Phoenix.

Smaller households were less likely to search than larger households.¹

In addition, households expressing dissatisfaction with either their housing unit or neighborhood were more likely to search than satisfied households.²

It is difficult to assess the importance of these demographic variables because simple bivariate analysis does not control for interrelationships among them. Furthermore, it is of primary importance to identify program effects through appropriate comparisons of Experimental and Control households. To control for interrelationships and to increase the precision of estimates of program effect, a simple multivariate model of search has been constructed. The choice of household characteristics is based on this exploratory analysis, literature review, policy concerns, and judgment. The variables chosen for analysis are indicated in Table 2-1, including a dummy variable denoting Experimental households.³ The incentives and money provided by the Demand Experiment would be expected to increase the likelihood that households

(footnote continued from previous page)
characteristics or attitudes that lead to their high moving rate. Thus it may be somewhat circular to use the number of prior moves to explain mobility. In regression models, inclusion of a lagged dependent variable (such as prior mobility in an equation explaining moving) must be dealt with by using special statistical techniques that take account of the endogeneity and its implied error structure. Future investigation will examine such a procedure.

¹The lower incidence of searching for single-person households may simply reflect the fact that these were essentially all elderly persons. Program rules admitted single persons only if they were elderly or handicapped.

²See Appendix III which discusses satisfaction, especially Table III-2.

³A variable testing interaction between housing unit and neighborhood dissatisfaction was included in a preliminary analysis, but rejected because its coefficient was never significant.

Table 2-1
VARIABLES USED IN LOGIT ESTIMATION

VARIABLE ^a	VARIABLE DESCRIPTION
Number of Moves in Prior Three Years	Number of moves in the three years prior to the Baseline Interview
Education	Education level (years) of the household head minus 10
Income	Annual household income (\$100) minus 41.19 ^a
Age	Age (years) of household head minus 43.5 ^a
Black Head of Household	= 1 if household head is black = 0 if white (or Spanish American in Phoenix)
Spanish American Head of Household	= 1 if household head is Spanish American (Phoenix only) = 0 if black or white
Female Head of Household	= 1 if household head is female = 0 if household head is male
Welfare as Major Source of Income	= 1 if major source of income is welfare = 0 if otherwise
Household Size	Number of household members minus 3 ^a
Dissatisfied with Housing Unit	= 1 if household somewhat or very dissatisfied with its housing unit at the time of the Baseline Interview = 0 if otherwise
Dissatisfied with Neighborhood	= 1 if household somewhat or very dissatisfied with its neighborhood at the time of the Baseline Interview = 0 if otherwise
Experimental Household	= 1 if an Experimental household = 0 if a Control household

a. The constant term represents the following Control household type chosen to represent the mean Control household: a household headed by a white male 43.5 years old with 10 years of education, having an annual income of \$4,119, with three members, not reliant on welfare as their major source of income, having not moved in the three years prior to the Baseline Interview and somewhat or very satisfied with its housing unit and neighborhood.

searched. Because of the dichotomous nature of the search decision, the estimation method used is logit analysis using maximum likelihood techniques.¹

The primary test of the hypothesis of no experimental effect is whether the addition of the treatment variable adds significantly to the explanatory power of the estimated equation. The other tests involve the significance of individual parameter estimates.

Table 2-2 presents the coefficient estimates for all the independent variables as well as the asymptotic t-statistics associated with each coefficient, a partial derivative representing the change in the probability of search given a unit change in each independent variable,² a chi-square statistic measuring the significance of the inclusion of the experimental dummy (based on a likelihood ratio test)³ and a goodness-of-fit measure (ρ^2).⁴ The explanatory power of the set of independent variables chosen is not large; clearly, many reasons why households search are not captured by these variables.

¹Logit analysis is generally considered more appropriate in such a situation than Ordinary Least Squares (see Nerlove and Press, 1973). It should be noted that the sample used for this analysis differs from that used in the rest of the analysis in this chapter. First, forced movers were excluded. Forced moves are defined as those moves resulting from fire, demolition, or eviction. Because forced movers all search, including those households might bias the coefficients of the independent variables. There is no reason to think that forced movers were present in greater numbers among Experimental or Control households (see Appendix Section IV.2). Second, to avoid comparing groups with different income distributions, the sample used for the other analyses (see Appendix II) was limited to those households with incomes below the maximum limits for the lowest income treatment group. Because income differences are explicitly included as explanatory variables, households above this lower income eligibility limit but within the income eligibility limit for their treatment group were included in the sample used for the multivariate analysis.

²The effect of a unit change in an independent variable is computed using the attributes of the reference group (see Table 2-1) as a basis for the computed probabilities.

³When only one variable is added, the chi-square statistic and the t-statistic give the same level of significance asymptotically. The chi-square statistic is used for consistency with later analyses in this report.

⁴The goodness-of-fit measure is that developed by McFadden (1974) who derived a measure, analogous to the coefficient of determination (R^2) of a linear multivariate regression model, based on the ratios of the log likelihood functions under the null and the alternative hypotheses. This measure, ρ^2 , lies in the unit interval, with $\rho^2 = 1$ indicating a perfect fit.

Table 2-2
LOGIT ESTIMATION OF SEARCH FOR ALL HOUSEHOLDS

INDEPENDENT VARIABLE ^a	PITTSBURGH			PHOENIX		
	COEFFICIENT	ASYMPTOTIC t-STATISTIC	PARTIAL DERIVATIVE ^b	COEFFICIENT	ASYMPTOTIC t-STATISTIC	PARTIAL DERIVATIVE
Constant	-1.023	5.71**	NA ^c	-0.524	2.67**	NA
Number of moves in prior three years	0.279	4.27**	0.054	0.318	5.81**	0.074
Education (years)	-0.045	1.62	-0.009	-0.006	0.33	-0.001
Income (\$100s per year)	0.004	0.65	0.0008	-0.002	0.41	-0.0005
Age (years)	-0.031	6.08**	-0.006	-0.028	5.67**	-0.006
Black head of household	0.054	0.33	0.010	0.283	0.96	0.066
Spanish American head of household	NA	NA	NA	-0.055	0.29	-0.013
Female head of household	0.072	0.46	0.014	-0.133	0.80	-0.031
Welfare as major source of income	0.139	0.77	0.027	0.440	1.60	0.103
Household size (persons)	0.014	0.26	0.003	-0.007	0.14	-0.002
Dissatisfied with housing unit	1.099	7.26**	0.213	0.883	4.78**	0.207
Dissatisfied with neighborhood	0.606	3.74**	0.118	0.598	2.87**	0.148
Experimental household	0.038	0.25	0.007	-0.079	0.49	-0.018
Chi-square of treatment variables (significance)	0.07 With 1 degree of freedom (not significant)			0.24 With 1 degree of freedom (not significant)		
Sample size	(1168)			(969)		
Probability for reference group	0.264			0.372		
Coefficient of determination (ρ^2)	0.154			0.165		

SAMPLE: Households active at one year, excluding overincome households, "forced movers" (moves resulting from fire, demolition or eviction), households living in own or subsidized housing, and those that moved between the Baseline Interview and enrollment.

DATA SOURCES: Initial Household Report Form, monthly Household Report Form, Baseline, First and Second Periodic Interviews.

a. The constant term represents the following household type chosen to represent the mean Control household: a Control household headed by a white male 43.5 years old with 10 years of education, having an annual income of \$4,119, having three members, not reliant on welfare, having not moved in three years prior to the Baseline Interview and somewhat or very satisfied with its housing unit and neighborhood.

b. The partial derivative represents the change in the probability of search given a unit change in the independent variable (evaluated using the attributes of the reference group).

c. NA = not applicable.

* t-statistic significant at the 0.05 level.

** t-statistic significant at the 0.01 level.

There is no apparent overall experimental effect; the dummy variable indicating experimental status adds no additional explanatory power to the equation. When search rates are examined for different treatment groups, there is also no effect.¹ Several household characteristics do appear to be important, however. The greater the previous mobility of the household, the greater the likelihood of deciding to search. Elderly households are much less likely to search than younger ones.² Finally, a household's dissatisfaction both with its housing unit and its neighborhood at enrollment are strong motivating factors for search.

There appear to be strong factors at work in a household's decision whether to search that essentially are not altered by the allowance offers. To the extent that the allowance takes full effect only for movers it is important to distinguish among a number of possible reasons why households might choose not even to search. For example, households may be strongly attached to their current residence or they may feel that they cannot afford to move because alternative housing or even the process of moving itself is too costly. With respect to the costs of moving, including the rent in a new place, it is also important to assess whether households understood their status in the program or that their allowance payment was contingent upon their obtaining housing meeting the requirements. The rest of this chapter explores these possible factors as explanations for the apparent lack of influence of the housing allowance program on the decision to search.

2.2 REASONS FOR NOT SEARCHING

Overall, 50 percent of households in Pittsburgh and 62 percent of the households in Phoenix searched for housing during the first year. Households that had not searched for housing in the six-month periods before the First or Second Periodic Interviews were asked in those interviews to indicate

¹See Appendix Table VI-3.

²Households in the reference group (with age of head 43.5 years) have a probability of searching of 26.4 percent in Pittsburgh and 37.2 percent in Phoenix. Similar households with a head 20 years older have a probability of searching of 16.2 percent and 25.3 percent, respectively. Households with a head 20 years younger have a higher probability of searching, 40.1 percent in Pittsburgh and 50.9 percent in Phoenix.

from a list specific reasons for not having done so,¹ Because searchers were not asked why they searched, the most direct source of information on the reasons underlying participants' search behavior thus comes from analysis of these reasons.

The major conclusion that emerges is that most households chose not to search because of attachments to their current housing unit or neighborhood (see Table 2-3). In addition, a sizable proportion of the nonsearching households cited financial reasons as preventing their search. Because a housing allowance is intended to provide money for housing, these financial reasons receive special scrutiny later in this report.

The single most important reason cited was that participants felt that they would not find a place they would like as much as their present unit. There are at least two possible interpretations for this: the household was satisfied with its housing unit or the household was not satisfied with its unit but felt that it had made the best choice from the possible alternatives. Of those households indicating that they did not expect to find a better place, 87 percent in Pittsburgh and 88 percent in Phoenix also said they were somewhat or very satisfied with their present unit at the time of the Baseline Interview.² Thus the data suggest that the first interpretation--housing satisfaction--is plausible. The large percentage citing neighborhood-related reasons suggests that the respondents also had strong neighborhood attachments.³ Indeed, of those citing "Didn't want to leave the

¹Only the responses given on the Second Periodic Interview are used for the analysis of reasons for not searching, because they are considered the most recent sentiment of those that did not search for the entire year. Those searching in either period were classified as searchers (see Appendix II).

²To have complete comparable data for households from the Baseline and the Periodic Interviews, households that moved between the Baseline Interview and enrollment were excluded from the sample. Sixty households in Pittsburgh and 113 households in Phoenix were thus eliminated from the sample because questions on the Periodic Interviews referred only to the period since the first payment; the satisfaction questions asked on the Baseline Interview would not apply to the correct unit if the household had moved before enrollment. The relationship between housing unit and neighborhood satisfaction and search behavior is discussed in the next section.

³The percentage citing at least one neighborhood reason may be so high because six questions were included in this category.

Table 2-3
REASONS CITED FOR NOT SEARCHING BY EXPERIMENTAL AND CONTROL HOUSEHOLDS
(In Percentages)

REASON ^a	PITTSBURGH			PHOENIX		
	EXPERIMENTAL HOUSEHOLDS	CONTROL HOUSEHOLDS	ALL HOUSEHOLDS	EXPERIMENTAL HOUSEHOLDS	CONTROL HOUSEHOLDS	ALL HOUSEHOLDS
"Didn't Feel I'd Find A Place I'd Like As Much As Present Unit"	51 ^a	46 ^a	50 ^a	44 ^a	41 ^a	43 ^a
Reasons Connected With Neighborhood ^b	65	63	65	62	58	61
Didn't want to leave neighborhood	41	36	40	30	31	31
Present unit close to friends	26	27	26	17	10	15
Present unit close to relatives	24	27	25	17	18	17
Present unit close to schools	24	23	24	24	22	24
Present unit close to work	12	9	11	19	17	19
Convenient location of present unit ^c	9	9	9	4	4	4
Financial Reasons ^d	39	42	40	42	47	43
Expected moving expenses too high	24	27	25	25	28	26
Allowance payment not sufficient or other reasons ^e	23	20	22	24	25	25
Other Reasons Different From Those Cited Above ^f	19	19	19	21	13	19
Personal	7	6	7	4	2	3
Lease on present unit	4	8	5	3	3	3
Didn't want to sign a lease	3	2	3	7*	1	5
Expected discrimination	2	2	2	1	1	1
Good relationship with landlord	1	0	1	3	3	3
Other reasons	2	3	3	4	4	4
Sample Size	(413)	(129)	(542)	(292)	(112)	(404)

SAMPLE: Nonsearching households active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: Baseline, First and Second Periodic Interviews.

NOTE: Percentages add to more than 100 percent because of multiple responses.

a. Response to Second Periodic Interview question 46:

Here is a list of possible reasons why people might not want to look for another house or apartment. Were any of these reasons important in your decision not to look for another place:

- A. You didn't feel you would find one you like as much as present unit.
- B. You didn't feel the allowance payment was enough to get another apartment or house.
- C. A lease on your present house or apartment prevented your moving.
- D. You expected moving expenses would be high.
- E. Your present house or apartment is close to schools.
- F. Your present house or apartment is close to work.
- G. Your present house or apartment is close to relatives.
- H. Your present house or apartment is close to friends.
- I. You didn't want to leave the (neighborhood/area).
- J. You didn't want to have to sign a lease.
- K. You expected some sort of discrimination.
- L. Other (specify).

b. Percentage citing at least one neighborhood reason.

c. Response to open-ended probe (last response to Second Periodic Interview question 46).

d. Percentage citing at least one financial reason.

e. Control households were not asked about the allowance payment and cited financial reasons on an open-ended response.

f. Percentage citing at least one "other" reason.

* Chi-square statistic comparing Experimental and Control households significant at the .05 level.

neighborhood," 90 percent in Pittsburgh and 98 percent in Phoenix expressed satisfaction with their neighborhoods.¹

The only two items of note about the "other reason" category are both remarkable because of their low incidence. Few cited expected discrimination as a deterrent to search. Also, very few households were constrained in their decision to search by existing leases or by the prospect of signing new leases.²

In a sense, financial reasons are most interesting because one of the goals of the housing allowance payments was to reduce financial difficulty for participants. Experimental households appear less likely than Control households to have cited one or more financial reasons for not searching, though the difference is not significant.³

Whether a household was immediately eligible for an allowance payment at enrollment is also likely to make a difference. Pittsburgh households not receiving a full allowance payment were significantly more likely to cite at least one financial reason than those receiving a full payment (see Table 2-4). At both sites households not receiving a full payment were significantly more likely than those receiving full payments to cite an insufficient allowance payment (significant however in Pittsburgh at the 0.10 level).

Households were likely to give more than one type of reason for not searching (see Table 2-5). However, with the exception of the "other reason" category, the "financial reason" category was least likely to be cited by Experimental households as the sole reason for not searching. This suggests that even though financial barriers to search were present, larger allowance payments

¹See footnote 2, page 18.

²There was no program requirement for an approved lease in the Demand Experiment.

³Because Control households could only volunteer financial reasons in response to an open-ended probe, quite possibly more Control households might have given financial reasons if such reasons had been specifically included in the list; some Experimental households volunteered financial reasons in this way as well, but also responded to a specific question. The lower incidence of financial difficulty for Experimental households is thus important even though not statistically significant.

Table 2-4
HOUSEHOLDS CITING FINANCIAL REASONS FOR NOT SEARCHING BY ENROLLMENT STATUS
(In Percentages)

ENROLLMENT STATUS	PITTSBURGH		PHOENIX	
	ANY FINANCIAL REASON	INSUFFICIENT ALLOWANCE PAYMENT	ANY FINANCIAL REASON	INSUFFICIENT ALLOWANCE PAYMENT
Households That Received a Full Allowance Payment	35%	20%	41%	20%
Households That Did Not Receive a Full Allowance Payment	48*	29	43	32*
		(272)		(187)
		(132)		(104)

SAMPLE: Experimental nonsearching households active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.
DATA SOURCES: First and Second Periodic Interviews, payments file.
* Chi-square statistic comparing households receiving and not receiving the full allowance payment significant at the 0.05 level.

Table 2-5

SOLE REASONS FOR NOT SEARCHING BY EXPERIMENTAL AND CONTROL HOUSEHOLDS
(In Percentages)

REASON ^a	PITTSBURGH		PHOENIX	
	EXPERIMENTAL HOUSEHOLDS	CONTROL HOUSEHOLDS	EXPERIMENTAL HOUSEHOLDS	CONTROL HOUSEHOLDS
"Didn't Feel I'd Find A Place I'd Like As Much As Present Unit"	14%	9%	12%	10%
Reasons Connected With Neighborhood ^b	17	16	21	19
Financial Reasons ^c	8	11	10	15
Other Reasons ^d	4	7	6	8
Sample Size	(413)	(129)	(292)	(112)

SAMPLE SIZE: Nonsearching households active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: First and Second Periodic Interviews.

NOTE: Chi-square statistic comparing Experimental and Control households not significant at the 0.05 level. Percentages may add to more than 100 percent because of multiple responses.

- a. Response to Second Periodic Interview question 46: see footnote (a) in Table 2-3. Households included if they cited only one listed reason.
- b. Percentage citing at least one neighborhood-related reason.
- c. Percentage citing at least one financial reason.
- d. Percentage citing at least one "other" reason.

might well have had only a small effect on the number of households deciding to search for housing.

As well as providing financial assistance, another goal of a housing allowance payment is to enable recipients to leave inadequate housing. The likelihood of searching, given the household's objective housing situation as measured by program standards, provides an indication of the degree of agreement between household perceptions of their housing and the program measures of adequacy. The results thus far also suggest further exploration of place attachment as indicated by expressed satisfaction. Indeed, satisfaction with current residence may dominate the search decision more than the objective adequacy of a household's residence. These issues are explored in the next section.

2.3 SATISFACTION, HOUSING ADEQUACY, AND SEARCH

The analysis so far has focused upon the reasons for not searching for housing. Unfortunately, there were no comparable direct questions asked about reasons for searching.¹ Sections 2.1 and 2.2 both indicated the importance of satisfaction in determining search. Information on household satisfaction with its housing unit and neighborhood was obtained on the Baseline Interview, which was administered before the enrollment offer and thus independent from and prior to information on search.² This section investigates the role housing and neighborhood satisfaction plays in the search decision and explores the degree to which satisfaction and housing adequacy jointly contribute to the decision to search.

As shown in Table 2-6, search rates varied sharply with both the levels of satisfaction with the housing unit and the neighborhood. Search rates increase monotonically with both kinds of expressed dissatisfaction. The pattern of the relationship between the propensity to search and expressed

¹The only exception to this is information on forced moves (investigated in Appendix Section IV.2).

²Households moving between the Baseline Interview and enrollment are excluded because the questions asked about search in the Periodic Interviews referred to the enrollment housing unit and neighborhood, while the satisfaction questions used here are the ones asked in the Baseline Interview. The satisfaction measures themselves and changes in satisfaction over the first year of the Demand Experiment are discussed further in Appendix III.

Table 2-6
FIRST-YEAR SEARCH RATES BY INITIAL SATISFACTION LEVEL

SATISFACTION LEVEL	PITTSBURGH		PHOENIX	
	PERCENTAGE SEARCHING	SAMPLE SIZE	PERCENTAGE SEARCHING	SAMPLE SIZE
Housing Unit Satisfaction ^a				
Very Satisfied	32%	(382)	48%	(360)
Somewhat Satisfied	49	(335)	61	(330)
Somewhat Dissatisfied	60	(163)	75	(159)
Very Dissatisfied	82	(143)	75	(112)
Kendall's Tau	0.30**		0.20**	
Neighborhood Satisfaction ^b				
Very Satisfied	38	(468)	52	(452)
Somewhat Satisfied	52	(311)	64	(319)
Somewhat Dissatisfied	57	(122)	73	(113)
Very Dissatisfied	78	(120)	77	(78)
Kendall's Tau	0.23**		0.17**	

SAMPLE: Households active at one year, not living in own or subsidized housing, below the low-income eligiblity limit, and did not move between the Baseline Interview and enrollment.

DATA SOURCES: Baseline, First and Second Periodic Interviews.

a. Response to Baseline Interview question 2:

In general, how satisfied are you with the (house/apartment) you now live in--would you say very satisfied, somewhat dissatisfied, or very dissatisfied?

b. Response to Baseline Interview question 1:

In general, how satisfied or dissatisfied are you with this neighborhood as a place to live--would you say very satisfied, somewhat satisfied, somewhat dissatisfied, or very dissatisfied?

** Kendall's Tau significant at the 0.01 level.

satisfaction levels is intuitively very appealing because dissatisfaction is generally expected to represent a desire for change. The fact that satisfaction levels and search behavior are related has been previously proposed (see Rossi, 1955; Speare et al., 1974; Wild, 1976).

Housing unit dissatisfaction appears to be somewhat stronger than neighborhood dissatisfaction as a motivation for search as illustrated by the ordering of search rates presented in Figure 2-1.¹ This conjecture appears to be supported by the logit analysis in Section 2.1, where the change in the probability of search between those satisfied and those dissatisfied is stronger for housing unit satisfaction than it is for neighborhood satisfaction.²

Expressed dissatisfaction is far from a perfect predictor of search. Roughly 20 percent of fully dissatisfied households--that is, those dissatisfied with both their housing units and their neighborhoods--did not search. Furthermore, a considerable proportion of fully dissatisfied households express some form of attachment to their housing unit, their neighborhood, or both (see Table 2-7). These households cited financial and "other" reasons more often than all households, and neighborhood- and unit-related reasons less often (compare Tables 2-3 and 2-7), which suggests that they felt unable to make a change even though dissatisfied with both their housing and neighborhood.³

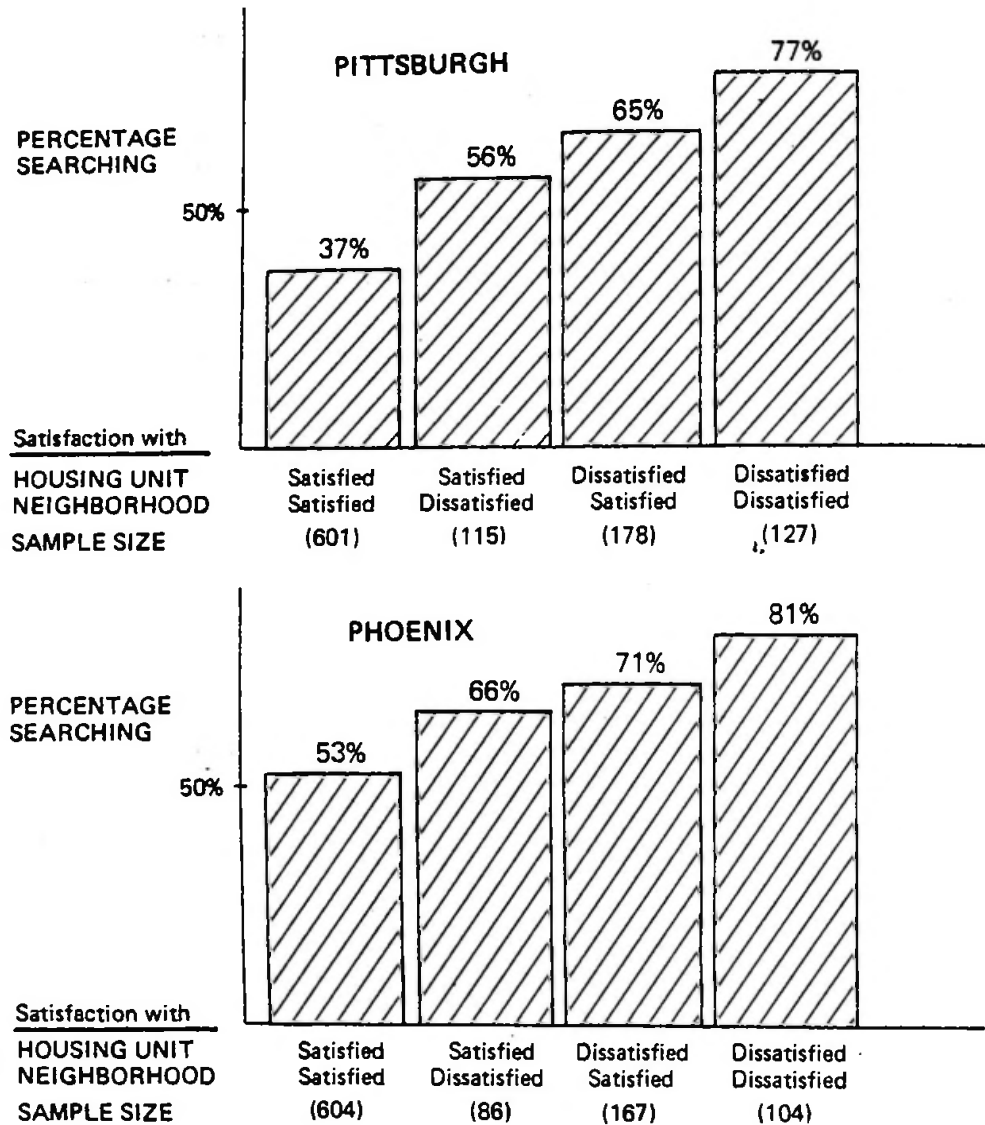
Housing policy considerations have traditionally focused on objective rather than subjective measures of housing. It is of substantial policy interest to know whether the housing allowance program provided incentives for households to leave inadequate units. The Demand Experiment used

¹For the joint analysis of housing unit and neighborhood satisfaction, the categories somewhat and very satisfied (dissatisfied) are collapsed into one category, satisfied (dissatisfied).

²However, it should be noted that the household's satisfaction with its housing unit and its neighborhood often agree--71 percent of households in Pittsburgh and 74 percent in Phoenix are either satisfied or dissatisfied with both their housing units and their neighborhoods.

³Sample sizes are too small to justify a further breakdown by experimental status.

**Figure 2 - 1
HOUSING SEARCH RATES
BY
HOUSING UNIT AND NEIGHBORHOOD
SATISFACTION**



SAMPLE: Households active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.
DATA SOURCES: Baseline, First and Second Periodic Interviews.
NOTE: Somewhat or Very Satisfied defined as Satisfied.
 Somewhat or Very Dissatisfied defined as Dissatisfied.

Table 2-7

REASONS CITED FOR NOT SEARCHING BY HOUSEHOLDS
DISSATISFIED WITH THEIR HOUSING UNIT AND NEIGHBORHOOD
(In Percentages)

REASON	PITTSBURGH	PHOENIX
"Didn't Feel I'd Find A Place I'd Like As Much As Present Unit"	38%	39%
Reasons Connected With Neighborhood	53	39*
Financial Reasons	53	52
Other Reasons	29	22
Total Responses	(34)	(23)

SAMPLE: Nonsearching households active at one year, somewhat or very dissatisfied with both housing unit and neighborhood (that is, fully dissatisfied) at the time of the Baseline Interview, not living in own or subsidized housing, were below the low-income eligibility limit and did not move between the Baseline Interview and enrollment.

DATA SOURCES: Baseline, First and Second Periodic Interviews.

NOTE: Percentages add to more than 100 percent because of multiple responses.

* Chi-square statistic comparing percentage citing reasons between households fully dissatisfied and all other households significant at the 0.05 level.

two measures of inadequacy--physical inadequacy and overcrowding. Overcrowded households are defined to be those with more than two persons per bedroom. Physically inadequate units are defined as those which fail to meet the physical requirements associated with the Minimum Standards portion of the experiment.¹ In the following analysis the Minimum Standards definition is applied to all households.

Table 2-8 shows that a higher percentage of those living in physically inadequate or overcrowded housing search than those not living in such housing. It is important for policy purposes to realize that households do not automatically consider moving just because they live in housing that is inadequate or overcrowded by program standards. Table 2-9 presents the reasons given for not searching by households in units not meeting program standards. Many of these households express some form of attachment to their current units.

A sizable fraction of all households were fully satisfied--satisfied with both their housing units and neighborhoods--yet lived in physically inadequate (38 percent in Pittsburgh and 40 percent in Phoenix) or overcrowded (9 percent in Pittsburgh and 14 percent in Phoenix) dwelling units. Approximately one-half of all households in such poor quality units were nevertheless fully satisfied with their units.² Housing adequacy did apparently make some difference, however--fully satisfied households in poor quality units were more likely to search than those not in such units (see Table 2-10).

One policy goal of interest was to induce households in poor quality units to search by providing additional money for housing. Table 2-11 presents the search rates for all Experimental households (stratified by whether they received or did not receive full allowance payments at enrollment) and

¹See Appendix Table II-4 for a listing of the Minimum Standards components.

²Fifty-four percent of households in physically inadequate units in Pittsburgh and 56 percent in Phoenix were fully satisfied. Of overcrowded households, the respective percentages were 46 and 48.

Table 2-8
SEARCH RATES BY HOUSING ADEQUACY

HOUSING ADEQUACY	PITTSBURGH		PHOENIX	
	PERCENTAGE SEARCHING	SAMPLE SIZE	PERCENTAGE SEARCHING	SAMPLE SIZE
Overcrowded ^a	65%	(185)	73%	(279)
Not Overcrowded	46**	(781)	57**	(684)
Living in Physically Inadequate Unit ^b	53	(755)	63	(751)
Living in Physically Adequate Unit	41**	(311)	57	(291)

SAMPLE: Households active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: Baseline, First and Second Periodic Interviews and Housing Evaluation Forms.

a. Overcrowded households are defined to be those with more than two persons per bedroom.

b. Physically inadequate units are defined to be those which fail to meet the physical requirements associated with the Minimum Standards portion of the experiment. Note that this latter definition is applied to all households, and not only to Minimum Standards households.

** Chi-square statistic comparing those living in overcrowded housing with not living in overcrowded housing (or physically inadequate housing with physically adequate housing), significant at the 0.01 level.

Table 2-9
 REASONS CITED FOR NOT SEARCHING BY HOUSING ADEQUACY
 (In Percentages)

HOUSING ADEQUACY	"DIDN'T FEEL I'D FIND A PLACE I'D LIKE AS MUCH AS PRESENT UNIT"	NEIGHBORHOOD- RELATED REASONS	FINANCIAL REASONS	OTHER REASONS	SAMPLE SIZE
PITTSBURGH					
Overcrowded ^a	39%	73%	41%	20%	(64)
Not Overcrowded	51	65	40	17	(420)
Living In Physically Inadequate Unit ^b	50	64	40	17	(358)
Living In Physically Adequate Unit	50	66	38	18	(184)
PHOENIX					
Overcrowded	31	66	45	15	(74)
Not Overcrowded	47	59	43	19	(297)
Living In Physically Inadequate Unit	40	62	44	15	(279)
Living In Physically Adequate Unit	51*	57	41	25*	(124)

SAMPLE: Nonsearching households active at one year, not living in own or subsidized housing and below the low-income eligibility limit.

DATA SOURCES: Baseline, First and Second Periodic Interviews, and Housing Evaluation Forms.

a. Overcrowded households are defined to be those with more than two persons per bedroom.

b. Physically inadequate units are defined to be those which fail to meet the physical requirements associated with the Minimum Standards portion of the experiment. Note that this latter definition is applied to all households, and not only to Minimum Standards households.

* Chi-square statistic comparing those living in overcrowded housing with those not living in overcrowded housing (or physically inadequate housing with physically adequate housing) significant at the 0.05 level.

Table 2-10

SEARCH RATES FOR HOUSEHOLDS INITIALLY FULLY SATISFIED
WITH THEIR HOUSING UNIT AND NEIGHBORHOOD
BY HOUSING ADEQUACY

HOUSING ADEQUACY	PITTSBURGH		PHOENIX	
	PERCENTAGE SEARCHING	SAMPLE SIZE	PERCENTAGE SEARCHING	SAMPLE SIZE
Overcrowded ^a	51%	(85)	65%	(130)
Not Overcrowded	36*	(458)	48*	(421)
Living In Physically Inadequate Unit ^b	40	(406)	54	(417)
Living In Physically Adequate Unit	31*	(220)	49	(181)

SAMPLE: Households active at one year, somewhat or very satisfied with both housing unit and neighborhood (that is, fully satisfied) at the time of the Baseline Interview, not living in own or subsidized housing, below the low-income eligibility limit and did not move between the Baseline Interview and enrollment.

DATA SOURCES: Baseline, First and Second Periodic Interviews, and Housing Evaluation Forms.

a. Overcrowded households are defined to be those with more than two persons per bedroom.

b. Physically inadequate units are defined to be those which fail to meet the physical requirements associated with the Minimum Standards portion of the experiment. Note that this latter definition is applied to all households, and not only to Minimum Standards households.

* Chi-square statistic comparing those living in overcrowded housing with those not living in overcrowded housing (or physically inadequate housing with physically adequate housing) significant at the 0.05 level.

Table 2-11
EFFECT OF HOUSING ALLOWANCE PAYMENT STATUS
ON SEARCH RATES BY HOUSING ADEQUACY

HOUSING ADEQUACY	PITTSBURGH		PHOENIX	
	PERCENTAGE SEARCHING	SAMPLE SIZE	PERCENTAGE SEARCHING	SAMPLE SIZE
Overcrowded^a				
Experimental households receiving a full payment at enrollment	58%	(72)	74%	(96)
Experimental households not receiving a full payment at enrollment	71	(63)	76	(97)
Control households	71	(45)	65	(75)
Not Overcrowded				
Experimental households receiving a full payment at enrollment	44	(390)	54	(323)
Experimental households not receiving a full payment at enrollment	48	(187)	59	(166)
Control households	48	(188)	59	(193)
Living In Physically Inadequate Unit^b				
Experimental households receiving a full payment at enrollment	51	(330)	62	(273)
Experimental households not receiving a full payment at enrollment	54	(232)	65	(258)
Control households	54	(178)	61	(218)
Living In Physically Adequate Unit				
Experimental households receiving a full payment at enrollment	40	(182)	53	(179)
Experimental households not receiving a full payment at enrollment	43	(46)	65	(37)
Control households	38	(77)	64	(73)

SAMPLE: Households active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: Baseline, First and Second Periodic Interviews, Housing Evaluation Forms, and payments file.

NOTE: Chi-square statistics comparing Experimental households receiving a full payment with Experimental households not receiving a full payment or with Control households, not significant at the 0.05 level.

a. Overcrowded households are defined to be those with more than two persons per bedroom.

b. Physically inadequate units are defined to be those which fail to meet the physical requirements associated with the Minimum Standards portion of the experiment. Note that this latter definition is applied to all households, and not only to Minimum Standards households.

for Control households.¹ Experimental households in poor quality units not receiving the full allowance payment were not significantly more likely to search than those receiving an allowance payment.²

Investigation of both satisfaction and housing adequacy measures has revealed that place attachment plays a very large role in the decision to search. Even dissatisfied households and households in poor quality units express a reluctance to seek alternatives to their current housing. (Further investigation would be required to distinguish the reasons for this reluctance among the various possible reasons including attachment to the current residence, satisfaction, and perceptions that other preferred housing would be too expensive.)

A more direct investigation of program influence on the decision to search deals with households' perceptions of the connection between the allowance payment and the necessity of moving. The next section uses interview responses to explore this issue.

2.4 SUBJECTIVE ASSESSMENT OF EXPERIMENTAL FACTORS

Several questions asked of participants about their expectations and their perceptions of the experimental requirements provide further evidence on potential program effects.³ Experimental households were asked on the First Periodic Interview (about six months after enrollment) about their

¹Households in the Percent of Rent and Unconstrained treatment groups could receive a full allowance payment even if their units were overcrowded or physically inadequate. They were not subjected to a housing requirement. In addition, Housing Gap households with a Minimum Rent requirement did not have to satisfy the crowding or physical adequacy requirements imposed on Minimum Standards households.

²However, the multivariate analysis presented in Table 2-18 suggests that Housing Gap households not meeting their housing requirements at enrollment were more likely to search than those that met their requirements at enrollment.

³These results must be interpreted cautiously; the questions were asked six months after enrollment (on the First Periodic Interview), during which time perceptions may have changed. In addition, households may not have understood the program or their status in the program at six months.

expectations about having to move in order to stay in the program,¹ and Housing Gap households were asked further about their objections to the specific housing requirements they faced.

Housing Gap households were significantly more likely than other Experimental households to think they would have to move (see Table 2-12). However, the number of Housing Gap households expecting to move is quite small (14 and 23 percent in Pittsburgh and Phoenix respectively), considering that roughly 65 percent of Housing Gap households did not meet the housing requirements at the time of enrollment.² Even though they failed to meet housing requirements at enrollment, 86 percent of these Housing Gap households in Pittsburgh and 77 percent in Phoenix did not think they would have to move. This finding suggests future exploration of the degree of understanding of program status, particularly of the nature of the housing requirements and of the financial incentives provided to meet them. Obviously, the feasibility of upgrading to meet the requirements is relevant to this issue as well.

Almost all the Housing Gap households that thought they would have to move did not meet the housing requirements at enrollment (84 percent in Pittsburgh and 93 percent in Phoenix). Those Housing Gap households initially not meeting the requirements that answered affirmatively were more likely to search than those answering negatively (see Table 2-13).³

Further evidence is available on the perceptions of Housing Gap Minimum Rent and Minimum Standards households; the former were asked about objections to paying a minimum rent and the latter about objections to finding a program-acceptable unit. Very few Minimum Rent households had objections, and a substantial proportion of those with objections did search for housing anyway—though Phoenix households with objections did search significantly less than those without objections (see Table 2-14). The

¹ The wording of the question causes some problems of interpretation. Technically, even Housing Gap households not meeting the requirements did not have to do anything to "stay in the program." Full participation, however, required some households to take some action to meet the housing requirements.

² Sixty-seven percent in Pittsburgh and 72 percent in Phoenix.

³ Upgrading, of course, was an option for households not meeting the requirements who did not expect to have to move.

Table 2-12

PERCENTAGE OF HOUSEHOLDS RESPONDING THEY
 WOULD HAVE TO MOVE IN ORDER TO STAY IN THE PROGRAM^a
 (Sample Size in Parentheses)

TREATMENT GROUP	PITTSBURGH	PHOENIX
Housing Gap	14% (420)	23% (425)
Unconstrained	3 (58)	9 (45)
Percent of Rent	6 (340)	8 (298)
Significance of Chi-square statistic ^b	0.01	0.01

SAMPLE: Experimental households active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: First Periodic Interview.

a. First Periodic Interview question 36:

At the time you enrolled, did you think you would have to move from the house or apartment you were living in then, in order to stay in the program?

b. Chi-square statistic tests whether the percentages are the same among treatment groups.

Table 2-13

SEARCH RATES FOR HOUSEHOLDS NOT MEETING HOUSING REQUIREMENTS
 AT ENROLLMENT BY PERCEPTION OF WHETHER THEY HAD TO MOVE TO STAY IN PROGRAM^a
 (Sample Size in Parentheses)

RESPONSE	PITTSBURGH	PHOENIX
Yes	76% (49)	82% (88)
No	47* (226)	59* (210)

SAMPLE: Housing Gap households active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: Baseline, First and Second Periodic Interviews, and payments file.

a. Response to First Periodic Interview question 36: see footnote (a) in Table 2-12.

* Chi-square statistic test comparing search rates significant at the 0.05 level.

Table 2-14

SEARCH RATES FOR MINIMUM RENT HOUSEHOLDS
BY OBJECTION TO PAYING A MINIMUM RENT^a

HOUSEHOLD TYPE	PITTSBURGH		PHOENIX	
	PERCENTAGE SEARCHING	SAMPLE SIZE	PERCENTAGE SEARCHING	SAMPLE SIZE
Households With Objections	50%	(24)	43%	(30)
Met Requirements At Enrollment	[50]	(4)	[50]	(2)
Did Not Meet Requirements At Enrollment	50	(20)	43	(28)
Households Without Objections	50	(203)	65*	(193)
Met Requirements At Enrollment	51	(98)	57	(79)
Did Not Meet Requirements At Enrollment	49	(105)	71	(114)

SAMPLE: Housing Gap Minimum Rent households active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: Baseline, First and Second Periodic Interviews, and payments file.

NOTE: Chi-square statistic comparing search rates for those meeting or not meeting requirements not significant at the 0.05 level. Brackets indicate entries based on 15 or fewer observations.

a. Response to First Periodic Interview question 40:

Did you have any objections to paying at least a certain amount of rent every month so that you could meet the program requirements and receive a monthly housing payment?

* Chi-square statistic comparing search rates for households with or without objections significant at the 0.05 level.

fact of ineligibility for payment because of not meeting the Minimum Rent requirements at enrollment generally does not appear to have induced those either with or without objections to the requirements to search more than households meeting the requirements.¹

In contrast, a sizable fraction of Housing Gap Minimum Standards households objected to finding another unit--46 percent in Pittsburgh and 36 percent in Phoenix.² Households without objections were consistently more likely to search (see Table 2-15). The effect of not meeting the requirements is important for all Minimum Standards households. The search rates for those not meeting the requirements were higher than for those meeting the requirements at enrollment. Thus, the incentive created by not meeting the Minimum Standards requirement appears strong enough to overcome objections to moving for at least some households and provides an extra boost for those without objections.

The Second Periodic Interview also obtained participants' specific objections to moving. Examination of those reasons confirms the importance of place attachment--over one-half liked some feature of their present housing enough to object to finding a different unit (see Table 2-16).³

The interview questions examined in this section confirm the findings of the previous sections--households attached to their present unit (that is, households with objections to moving) are less likely to search. The incentive to search created by the potential receipt of an allowance payment in return for meeting the housing requirements may be sufficiently strong, however, to induce some households to consider moving--even if they otherwise would not be inclined to move or if they would object

¹In Phoenix, among Minimum Rent households without objections, those not meeting the requirements at enrollment did search more (significant at the 0.06 level) than households without objections meeting the requirements.

²On the Second Periodic Interview, Housing Gap Minimum Standards households were asked (Question 27) whether they currently had objections to finding another unit. Compared to the First Periodic Interview, approximately the same percentage of Pittsburgh households and somewhat more Phoenix households had objections (43 and 45 percent, respectively).

³Sample sizes are too small to justify examining the difference in responses between those meeting and not meeting the requirements.

Table 2-15

SEARCH RATES FOR MINIMUM STANDARDS HOUSEHOLDS
BY OBJECTIONS TO FINDING PROGRAM-APPROVABLE HOUSING^a

HOUSEHOLD TYPE	PITTSBURGH		PHOENIX	
	PERCENTAGE SEARCHING	SAMPLE SIZE	PERCENTAGE SEARCHING	SAMPLE SIZE
Households With Objections	29%	(84)	32%	(68)
Met Requirements At Enrollment	[0]	(13)	[11]	(9)
Did Not Meet Requirements At Enrollment	34* ^b	(71)	36	(59)
Households Without Objections	73** ^c	(97)	78** ^c	(118)
Met Requirements At Enrollment	61	(18)	48	(25)
Did Not Meet Requirements At Enrollment	76	(79)	86** ^b	(93)

SAMPLE: Housing Gap Minimum Standards households active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: Baseline and First Periodic Interviews.

NOTE: Brackets indicate entries based on 15 or fewer observations.

a. Response to First Periodic Interview question 49:

Did you have any objections to finding another house or apartment that would meet the program requirements so that you could start receiving a monthly housing payment?

b. Chi-square statistic compares search rates for households meeting or not meeting the requirements.

c. Chi-square statistic compares search rates for households with or without objections.

* Chi-square statistic significant at the 0.05 level.

** Chi-square statistic significant at the 0.01 level.

Table 2-16

REASONS FOR OBJECTIONS TO FINDING PROGRAM-APPROVABLE HOUSING^a
(In Percentages)

REASON	PITTSBURGH	PHOENIX
Financial Reasons	21%	40%
High Rents	14	17
Other ^b	7	23
Features Of Present Unit	58	55
Like Dwelling Unit Or Neighborhood (Unspecified)	16	9
Like Dwelling Unit	12	13
Like Neighborhood	9	4
Convenient Location	19	23
Other Features	2	6
Don't Want To Move	19	13
Other Reasons	32	32
Infirm	16	4
No Suitable Place	5	2
Program Related Reasons	0	11
Other or "Don't Know"	11	15
Sample Size	(57)	(53)

SAMPLE: Housing Gap Minimum Standards households active at one year, not living in own or subsidized housing and below the low-income eligibility limit with objections to finding a house or apartment that would meet the program requirements at the time of the Second Periodic Interview.

DATA SOURCES: Second Periodic Interview.

a. Open-ended response to Second Periodic Interview question 27:

Do you have any objections to finding another house or apartment that would meet the requirements of the housing allowance program, so you could receive a full monthly housing allowance payment?

b. Other financial reasons including insufficient allowance payment.

to meeting specific housing requirements. However, most households did not think they would have to move to stay in the program.

2.5 THE EFFECTS OF TREATMENT VARIATIONS ON SEARCH

To test the effects of treatment variations on the decision to search, separate logit equations were estimated for Housing Gap and Percent of Rent households. Several treatment variables, defined to account for both the incentives and disincentives created by the program, are listed in Table 2-17. Each sample also includes Control households. The household characteristics are the same as those used in Section 2.1 (see Table 2-1).

For the Housing Gap equation, the reference group is chosen as Experimental households meeting the program requirements at enrollment in a treatment group at the center of the Housing Gap design: a household in an "average" Minimum Rent group--that is, in a Minimum Rent program with a basic payment level of C^* , "b" equal to 0.25, and a Minimum Rent requirement set at $0.8C^*$.¹ Households not meeting the program requirements at enrollment are expected to have a greater incentive to search than this reference group. Some households meeting the requirement may be induced to move by the additional income from the allowance; others may be induced to stay because the allowance is sufficient to allow them to remain in an expensive unit they were about to leave. Whether Control households should have a greater or lesser likelihood of search than the reference group is not clear.²

This choice of reference group permits the following kinds of interpretations for the coefficients on the treatment dummy variables: the control dummy variable provides a contrast between Housing Gap Minimum Rent

¹ Thus the payment received by these households is equal to C^* minus 0.25 times their income. The payment formula is discussed in more detail in Appendix I. This choice of treatment coding is similar to that used by Friedman and Kennedy (1977).

² Control households were not distinguished by whether they would have met the housing requirements at enrollment.

Table 2-17
TREATMENT VARIABLES

VARIABLE	REGRESSION TYPE ^a	DESCRIPTION
Control households	HG	= 1 if a Control household = 0 if an Experimental household
C* level	HG	= 1 if $C = 1.2C^*$ in the payment formula ^b = 0 if $C = C^*$ = -1 if $C = 0.8C^*$
Minimum Rent level	HG	= 1 if Minimum Rent High required = -1 if Minimum Rent Low required = 0 if otherwise
Minimum Standards households	HG	= 1 if Minimum Standards required = 0 if otherwise
Unconstrained households	HG	= 1 if Housing Gap households are unconstrained = 0 if otherwise
"b" level	HG	= 1 if "b" in the payment formula is 0.35 = 0 if "b" is 0.25 = -1 if "b" is 0.15
Housing requirements not met at enrollment	HG	= 1 if Housing Gap Constrained households did not live in program-acceptable housing at enrollment = 0 if otherwise
"a" level for households understanding program	PR	= subsidy rate "a" in the payment formula if a Percent of Rent household and the household understood the program ^c = 0 if otherwise
Households not understanding program	PR	= 1 if a Percent of Rent household and the household did not understand the program = 0 if otherwise

a. The two logit regressions are for Housing Gap and Control households (HG) and for Percent of Rent and Control households (PR). The reference group for the (HG) regression is a Housing Gap household with mean household characteristics (as defined in Table 2-1) that met the program requirements at enrollment and in a treatment group with a basic payment level of C^* , where "b" is equal to 0.25 and the Minimum Rent requirement is set at $0.8C^*$. In the (PR) regression the reference group is a Control household with the same mean household characteristics as defined in Table 2-1.

b. The payment formulas are illustrated in Appendix Tables I-1 and I-2.

c. Program understanding is based on responses to the First Periodic Interview question 13.2 and the Second Periodic Interview question 4.2:

What do you think would happen to your housing allowance payment if your landlord increased your rent by \$10 a month. . . would your payments go up, down, or stay the same?

Those in Percent of Rent treatment groups were considered to have understood the payment formula if their response was "go up." (See text for further discussion.)

households receiving a full payment and Control households with a negative coefficient indicating a positive program effect for Housing Gap Minimum Rent households; the C* level dummy variable indicates the effect of increasing the basic payment level by 20 percent for Minimum Rent households; the Minimum Rent dummy variable indicates the effect of increasing the Minimum Rent level from 0.7C* to 0.8C* or to 0.9C*; the Minimum Standards dummy variable indicates the effect of Minimum Standards relative to Minimum Rent; the Unconstrained dummy variable indicates the effect of relieving the Minimum Rent requirement entirely; the "b" level dummy variable indicates the effect of increasing "b" in the payment formula from 0.25 to 0.35; and the requirements-not-met dummy variable indicates the effect of not meeting requirements relative to Minimum Rent households that do meet the requirements.¹

Variations in the payment formula itself are expected to affect the propensity to search. Increasing the basic payment level (C*) or decreasing the marginal tax rate ("b") would increase the subsidy for a given level of income. Households with greater payments or prospect of greater payments are expected to be more likely to look for alternate dwelling units. Imposing various constraints is likely to have a dampening effect on search--increasing the Minimum Rent level would be likely to increase the difficulty of finding suitable housing. It is difficult to say whether the Minimum Standards requirement would be more difficult to meet than the Minimum Rent requirement of the reference group (0.8C*), so the expected sign of that variable is ambiguous.² Unconstrained households, on the other hand, have no housing requirements to fulfill and are therefore probably slightly more likely to search than households already meeting requirements at enrollment (that would have to worry about finding a unit that met the requirements).³

¹It is important to note that certain coefficients, though insignificant, may be important when the range of variation in the independent variable is considered.

²This is particularly true because the reference group chosen in the present analysis is households meeting the housing requirements.

³Of course, interaction effects--for example, between housing requirements and payment parameters--may also have an effect but are not investigated here.

Table 2-18 presents the result for the Housing Gap logit estimation. The addition of the set of treatment variables to the equation does not add significantly to its explanatory power.¹ The only significant effect present at both sites is the effect for households not meeting the housing requirements at enrollment--they are significantly more likely to search (12 percentage points in Pittsburgh and 15 percentage points in Phoenix) than are Housing Gap households already meeting the requirements.² This finding is consistent with those reported in earlier sections and confirms the importance of this distinction as an explanatory variable.

Two site-specific effects are noted. In Pittsburgh higher Minimum Rent level is associated with a lower likelihood of search, as expected. Almost significant is the coefficient for the control dummy variable in Phoenix--Control households have a greater probability of search than the Housing Gap households receiving a full payment in the reference group. This suggests that being on full payments actually inhibited search, although it seems unlikely that the incentive of added income is more than offset by inducements to stay in place with the help of the allowance rather than moving to less expensive housing. Further investigation and possible respecification of the treatment coding is needed to disentangle these treatment effects. Possible respecifications include interactions between

¹After rejecting an overall experimental effect for the addition of the group of treatment variables, it is technically inappropriate to proceed to test for effects of treatment variation. However, the future analysis of Demand Experiment results is critically affected by the existence of program effects on search and moving. Therefore, at this preliminary stage of analysis, further investigation is considered justifiable.

²This result should be interpreted with caution. Other household characteristics not controlled for in the equation may lie behind this apparent relation between housing requirement status and search. For example, in the Housing Gap expenditures analysis it was found to be important to classify Control households according to whether they would have met the housing requirements. Future investigation will attempt to control for these other characteristics to avoid mistakenly interpreting normal behavior as program response. (See Friedman and Kennedy, 1977.)

Table 2-18
LOGIT ESTIMATION OF SEARCH FOR HOUSING GAP AND CONTROL HOUSEHOLDS

INDEPENDENT VARIABLE ^a	PITTSBURGH			PHOENIX		
	COEFFICIENT	ASYMPTOTIC t-STATISTIC	PARTIAL DERIVATIVE	COEFFICIENT	ASYMPTOTIC t-STATISTIC	PARTIAL DERIVATIVE
Constant	-1.141	4.27**	NA ^b	-1.090	3.55**	NA
Number of moves in prior three years	0.301	3.68**	0.055	0.348	5.15*	0.065
Education (years)	-0.048	1.40	-0.009	-0.011	0.52	-0.002
Income (\$100s per year)	0.002	0.32	0.0004	-0.003	0.51	-0.0006
Age (years)	-0.033	5.21**	-0.006	-0.028	4.68**	-0.005
Black head of household	0.146	0.74	0.027	0.371	1.04	0.070
Spanish American head of household	NA	NA	NA	-0.017	0.08	-0.003
Female head of household	-0.169	0.84	-0.031	-0.100	0.50	-0.019
Welfare as a major source of income	0.268	1.20	0.049	0.144	0.43	0.027
Household size (persons)	-0.0009	0.01	-0.0002	-0.019	0.34	-0.003
Dissatisfied with housing unit	1.054	5.48**	0.193	0.989	4.30**	0.186
Dissatisfied with neighborhood	0.582	2.92**	0.106	0.475	1.94	0.089
Control household	0.174	0.71	0.032	0.543	1.95	0.102
C* level	0.126	0.76	0.023	0.081	0.45	0.015
Minimum Rent level	-0.327	2.03*	-0.060	0.052	0.30	0.010
Minimum Standards household	-0.115	0.48	-0.021	-0.203	0.78	-0.038
Unconstrained household	-0.031	0.08	-0.006	0.196	0.45	0.037
"b" level	0.040	0.15	0.007	0.274	0.97	0.051
Housing requirements not met at enrollment	0.653	2.43*	0.120	0.786	2.65**	0.148
Chi-square of treatment variables (significance)	10.53 with 7 degrees of freedom (not significant)			10.24 with 7 degrees of freedom (not significant)		
Sample size	(784)			(670)		
Probability for reference group	0.242			0.252		
Coefficient of determination (p^2)	0.173			0.172		

SAMPLE: Housing Gap and Control households active at one year excluding overincome households, "forced movers" (moves resulting from fire, demolition or eviction), households living in own or subsidized housing, and those that moved between the Baseline Interview and enrollment.

DATA SOURCES: Initial Household Report Form, monthly Household Report Form, Baseline, First and Second Periodic Interviews, and payments file.

a. See Tables 2-1 and 2-17 for a more complete description of the independent variables and the reference group.

b. NA = not applicable.

* t-statistic significant at the 0.05 level.

** t-statistic significant at the 0.01 level.

the treatment variables and the variable representing households not meeting at enrollment (see Section 4.2).

For the Percent of Rent analysis the reference group chosen is Control households. Percent of Rent households are divided into two groups-- those understanding and those not understanding the program.¹ Program understanding is important because households that do not understand the program are not likely to respond systematically to its incentives. Those understanding are assumed to respond to the price discount offered-- the higher the discount rate ("a" level), the greater the incentive to search. Households not understanding the program nevertheless receive payments and might be expected to respond to this extra income by searching; households moving during the first year might learn from the associated payment changes and be influenced to search again. Households not understanding the origins of their allowance payment might avoid moving, assuming that they would lose the payment as a result.

While complex and subject to much ambiguity, program understanding has been included here as an explanatory variable because of its apparent importance in explaining the change in housing expenditures in response to the Percent of Rent form of housing allowance (see Mayo, 1977).

¹A respondent was classified as having understood the program if the response was that the subsidy would "go up" when asked what would happen "if your landlord increased your rent by \$10 a month" on the First or Second Periodic Interview. Some Percent of Rent respondents who, for a variety of reasons, were not receiving full allowance payments may have altered their expectations accordingly and would therefore be more likely than respondents receiving full payments to have indicated that their payments would "remain the same." Independent of the reason why a particular response was given, the response "go up" was important because it reflected awareness of the possible incentives provided by the program. Data on program understanding are also available for Housing Gap households but have not yet been incorporated in analysis.

The results of the Percent of Rent logit estimation are presented in Table 2-19. Only in Pittsburgh do the treatment variables add significantly to the explanatory power of the equation (significance is at the 0.10 level in Phoenix) and then in an unexpected way. The coefficient on the rent discount level, "a," is not significant, but the significant negative coefficients for Percent of Rent households that do not understand the program (albeit at the 0.10 level in Phoenix) indicate that these households are less likely to search than Control households. One unexplored hypothesis is that they may be fearful that a move would jeopardize their payment, if they do not understand the reason for the payment. Another possibility is that moves themselves lead to understanding. Households not moving miss the opportunity to learn about the payment variation and to correct any misunderstanding.

There are obvious complexities in the issue of program understanding and in the analysis of its relationship to program responses, such as moving to take advantage of the rent discount. The analysis must be pursued further than it has been taken in this report. For example, the lack of understanding as measured by responses to an interview question may be systematically related to other independent variables already included in the logit equation.

Overall, then, there appear to be few strong treatment effects, excepting the increased probability of search for Housing Gap households not meeting the housing requirements at enrollment.

2.6 SUMMARY

The analysis of the decision to search for housing presented in this chapter has been largely exploratory. The multivariate analysis presented in Section 2.1 provided some leads about important determinants of search--the likelihood of searching is greater for younger households, for those with a number of recent moves, and for those dissatisfied with either their housing unit or neighborhood. This latter finding was confirmed by more direct investigation of the satisfaction measures, though dissatisfaction is by no means a perfect predictor of search. Nonsearching households dissatisfied with both their housing units and neighborhoods typically express a high degree of attachment to their neighborhoods or indicate that they

Table 2-19

LOGIT ESTIMATION OF SEARCH FOR PERCENT OF RENT AND CONTROL HOUSEHOLDS

INDEPENDENT VARIABLE ^a	PITTSBURGH			PHOENIX		
	COEFFICIENT	ASYMPTOTIC t-STATISTIC	PARTIAL DERIVATIVE	COEFFICIENT	ASYMPTOTIC t-STATISTIC	PARTIAL DERIVATIVE
Constant	-1.109	5.36**	NA ^b	-0.492	2.09*	NA
Number of moves in prior three years	0.355	4.05**	0.066	0.329	4.41**	0.077
Education (years)	-0.036	0.92	-0.007	-0.004	0.16	-0.0009
Income (\$100s per year)	0.008	1.04	0.001	-0.004	0.59	-0.0009
Age (years)	-0.031	4.77**	-0.006	-0.031	4.63**	-0.007
Black head of household	-0.084	0.40	-0.016	0.161	0.45	0.038
Spanish American head of household	NA	NA	NA	-0.234	0.94	-0.055
Female head of household	0.208	1.02	0.039	-0.060	-0.28	-0.014
Welfare as a major source of income	0.099	0.40	0.019	0.632	1.77	0.149
Household size (persons)	-0.032	0.42	-0.006	-0.028	0.46	-0.007
Dissatisfied with housing unit	1.113	5.62**	0.208	0.715	3.02**	0.168
Dissatisfied with neighborhood	0.574	2.70**	0.107	0.482	1.77	0.113
"a" level for households who understood program	0.091	0.21	0.017	0.376	0.78	0.088
Program not understood	-0.697	2.31*	-0.130	-0.717	1.93	-0.168
Chi-square of treatment variables (significance)	6.34 with 2 degrees of freedom (0.05)			5.37 with 2 degrees of freedom (0.10)		
Sample size	(700)			(581)		
Probability for reference group	0.248			0.379		
Coefficient of determination (ρ^2)	0.154			0.156		

SAMPLE: Percent of Rent and Control households active at one year excluding overincome households, "forced movers" (moves resulting from fire, demolition or eviction), households living in own or subsidized housing, and those that moved between the Baseline Interview and enrollment.

DATA SOURCES: Initial Household Report Form, monthly Household Report Form, Baseline, First and Second Periodic Interviews.

a. See Tables 2-1 and 2-17 for a more complete description of the independent variables and their reference group.

b. NA = not applicable.

* t-statistic significant at the 0.05 level.

** t-statistic significant at the 0.01 level.

did not expect to find places they would like as much as their current units. All these observations point to a category of households relatively attached to or resigned to their current residences and, therefore, less likely to be induced to move by the allowance offers.

The allowance payment does appear to reduce the percentage of households citing financial reasons for not searching, but apparently does not increase the percentage of households in physically inadequate or overcrowded housing that search. The reasons cited for not searching by households in poor quality housing reflect some degree of place attachment. Households apparently have a great deal of reluctance to move, even if their units are not of good quality.

Features of the allowance program itself apparently do affect household behavior. Though very few households objected to a Minimum Rent form of housing requirement, a sizable fraction objected to Minimum Standards requirements. On the other hand, Minimum Standards households not meeting the requirements at enrollment were more likely to search than those that met the requirements, even if they had objections. This general tendency--for those in housing not meeting the requirements to be more likely to search than those meeting the requirements--was confirmed by the multivariate analysis of treatment effects. The only other significant treatment effect was that Percent of Rent households that apparently did not understand the program were less likely to search than Control households.

Two major implications of the current analysis are important for future work both on search behavior and moving in general. Various specifications of the variables to be included in a logit analysis must be explored. In particular, interactions of household characteristics among each other and with treatment variables need to be investigated. For example, one should control for the household characteristics associated with not meeting the housing requirements at enrollment and compare this group to Control households living in housing that would not pass the program standards. Second, further work needs to be completed on the interpretation of program understanding and expectations. Study of available interview data on questions that probe participant

attitudes toward and perceptions of the experiment will be useful in testing the accuracy of households' understanding of the housing allowance offers, especially for the Housing Gap households. At various points in the two-year observation period, Housing Gap households were asked whether they met the housing requirements and, if not, what action they would have to take and what the resulting payments would be. The accuracy of these responses will be assessed as a possible explanatory variable in the decisions to search, move, and meet the housing requirements.

REFERENCES

- Friedman, Joseph and Stephen D. Kennedy, Housing Expenditures and Quality, Part II: Housing Expenditures Under a Housing Gap Housing Allowance, Cambridge, Mass., Abt Associates Inc., May 1977.
- Mayo, Stephen K., Housing Expenditures and Quality, Part I: Housing Expenditures Under a Percent of Rent Housing Allowance, Cambridge, Mass., Abt Associates Inc., January 1977.
- McFadden, Daniel, "Conditional Logit Analysis of Qualitative Choice Behavior," in Frontiers in Econometrics, Paul Zarembka ed., New York, Academic Press, 1974.
- Nerlove, Marc and S. James Press, Univariate and Multivariate Log-Linear and Logistic Models, Rand Report No. R1306-EDA/NIH, Santa Monica, Rand Corporation, December 1973.
- Rossi, Peter, Why Families Move, Glencoe, Ill., The Free Press, 1955.
- Speare, Alden Jr., Sidney Goldstein and William H. Frey, Residential Mobility, Migration and Metropolitan Change, Cambridge, Mass., Ballinger Press, 1974.
- Wild, Bradford, "Residential Movement Among Recipients in the Administrative Agency Experiment: An Analysis of Moving Intentions, Housing Search and Actual Moves," Appendix C in Supportive Services in A Housing Allowance Experiment, Vol. 2, Cambridge, Mass., Abt Associates Inc., 1976.

CHAPTER 3
MOVING BEHAVIOR OF SEARCHERS

As described in Chapter 1, moving is instrumental in the response of households to the housing allowance offer. Thus, it is vital to understand both the determinants of moving and why some searchers do not move (at least during the period of observation). Some searchers not moving during the first year of the experiment may, of course, move later.¹

There are two major reasons why households that consider moving might not change their residence:

Households might not expend the effort necessary to find another unit either because of a lack of motivation or constraints on their ability to search.

Households might encounter such obstacles as discrimination in their search that prevent them from finding a suitable unit.²

This chapter is organized around these two issues and their implications for moving behavior.

Section 3.1 uses the same multivariate model developed in Chapter 2 to investigate the first question: what are the determinants of moving, given search? Section 3.2 focuses on the relative importance of effort versus barriers in determining moving. It then examines in some detail the problems households faced while searching, focusing in particular on the relationship between the housing allowance program and the problems cited.

Section 3.3 examines the search problems reported by particular types of households and, in particular, discusses the incidence of discrimination.

¹See Appendix Section IV.4 for a further discussion of this point.

²A third possible reason is that households could become more satisfied over time with their current unit as a result of changes in their housing needs or desires or as a result of the information gathered during their search. However, households apparently did not cease searching because the added housing market information gathered during their search caused them to be more satisfied with their current housing. In fact, households that searched but did not move were less likely to be satisfied with their housing at the time of the Second Periodic Interview than at enrollment (see Appendix Table III-3).

The effect of these various search problems on the actual moving behavior of households is discussed in Section 3.4. Section 3.5 then uses the multivariate model to look at the effects of treatment variations on moving. The final section of the chapter is a brief summary.

Because of the preliminary and developmental nature of the analyses reported, results of seeming importance are discussed without rigid adherence to a rule of statistical significance.

3.1 MULTIVARIATE MODEL OF MOVING BEHAVIOR OF SEARCHERS

As in Chapter 2, a simple multivariate logit model has been used to control for household characteristics in assessing experimental effects. In this chapter, the model is applied to the moving behavior of searchers. Even though straightforward bivariate examination of moving rates of searchers with different household characteristics does not indicate many interesting results,¹ the same variables used in the logit analysis presented in Section 2.1 are included here to facilitate comparisons.²

The literature on mobility provides only limited guidance on the probable direction of influence for the independent variables because most researchers have studied all households, whereas in this chapter only the moving behavior of searchers is examined. Certain households are likely to encounter more trouble in the housing market and thus will be less likely to move. These include households with household heads on welfare, that are black or Spanish American, or with many household members. On the other hand, other households with more experience in the housing market are less likely to run into problems--the elderly and those which have moved fairly often. The effect of the experimental treatment is not clear. The additional income or price discount may reduce financial barriers, but the housing requirements limit the number of possible alternatives.

Table 3-1 presents the coefficient estimates for this model. The explanatory power of the set of independent variables is not large. Moreover, there are only a few significant household characteristics. The greater the

¹See Appendix Tables VI-1 and VI-2.

²See Table 2-1 for a complete description of the independent variables.

Table 3-1
LOGIT ESTIMATION OF MOVING BEHAVIOR OF SEARCHERS FOR ALL HOUSEHOLDS

INDEPENDENT VARIABLE ^a	PITTSBURGH			PHOENIX		
	COEFFICIENT	ASYMPTOTIC t-STATISTIC	PARTIAL DERIVATIVE	COEFFICIENT	ASYMPTOTIC t-STATISTIC	PARTIAL DERIVATIVE
Constant	-0.531	2.12*	NA ^b	0.509	1.91	NA
Number of Moves in Prior Three Years	0.240	3.12**	0.056	0.209	3.18**	0.004
Education (Years)	-0.054	1.28	-0.012	-0.017	0.48	-0.0007
Income (\$100 per year)	0.002	0.22	0.0005	-0.003	0.55	-0.0003
Age (Years)	-0.004	0.50	-0.0009	-0.012	1.73	-0.003
Black Head of Household	-0.630	2.81**	-0.147	-0.374	1.08	-0.087
Spanish American Head of Household	NA	NA	NA	-0.061	0.24	-0.014
Female Head of Household	0.117	0.51	0.027	0.210	0.89	0.049
Welfare as Major Source of Income	-0.081	0.31	-0.019	-0.062	0.18	-0.014
Household Size (Persons)	-0.113	1.41	-0.026	-0.135	2.24*	-0.031
Dissatisfied with Housing Unit	0.014	0.07	0.003	0.114	0.51	0.027
Dissatisfied with Neighborhood	-0.147	0.71	-0.034	0.058	0.24	0.136
Experimental Households	0.219	1.06	0.051	-0.040	0.19	-0.009
Chi-Square of Treatment Variables (Significance)	1.12 with 1 degree of freedom (Not Significant)			0.04 with 1 degree of freedom (Not Significant)		
Sample Size	(524)			(544)		
Probability for Reference Group	0.370			0.625		
Coefficient of Determination (ρ^2)	0.043			0.052		

SAMPLE: Households that searched and were active at one year, excluding overincome households, "forced movers" (moves resulting from fire, demolition, or eviction), households living in own or subsidized housing, and households that moved between the Baseline Interview and enrollment.

DATA SOURCES: Initial Household Report Form, monthly Household Report Form, Baseline, First and Second Periodic Interviews.

a. See Table 2-1 for a more complete description of the independent variables and the reference group.

b. NA = not applicable.

* t-statistic significant at the 0.05 level.

** t-statistic significant at the 0.01 level.

previous mobility, the greater the likelihood of searchers moving. Black searchers in Pittsburgh were estimated to be about 15 percentage points less likely to move than otherwise comparable white searchers;¹ ethnicity is not a significant factor in Phoenix. Larger households in Phoenix have a lower probability of moving given search, with a reduction of about three percentage points for each additional family member. Neither age nor dissatisfaction affects moving behavior, though both influence the decision to search.

Given that the impetus for change that households obtain from dissatisfaction has no effect on moving behavior, it is not surprising that there is no apparent overall experimental effect. When the moving rates of searchers are examined by treatment group, there is no effect either, with the possible exception of the Unconstrained Housing Gap households in Pittsburgh.² The fact that different household characteristics enter the search decision and the decision to move given search suggests the importance of examining the search process itself.

3.2 INCIDENCE OF SEARCH PROBLEMS

The decision to search for different housing involves a continuum of choice ranging from not searching at all to casually searching to engaging in a full-time search campaign. It is of interest in analyzing the Demand Experiment to find out whether the moving rate of searchers is related more to the effort expended in the search or to barriers to mobility encountered during search.³ It is important to know whether people attempt to use the allowance payment and are thwarted by barriers (that are perhaps vulnerable to program design) or whether they do not even try to use the payment. In evaluating the Housing Gap form of allowance, it is important to know if households

¹The partial derivative, $\partial p/\partial x$, represents the change in the probability, p , due to a change in the independent variable, x . In a logit regression, $\partial p/\partial x = p(1-p)b$ where b is the estimated coefficient of x . In the tables, the probability, p , used in the computation of the partial derivative is that for the reference group. If the probability were set equal to the sample mean, the partial derivative would be roughly twice as large.

²See Appendix Table IV-3. The high moving rate of Unconstrained Housing Gap households in Pittsburgh may be due to the small sample size and the fact that 44 percent of the movers in this plan were forced movers (see Appendix Table IV-7).

³Another issue, not investigated here, is the impact of the supply of suitable units on moving.

faced with housing requirements, in particular Minimum Standards households, have a particularly difficult time finding a unit meeting the requirements. This section looks first at a measure of search effort and then at the specific problems encountered by households in their search, examining as well the impact of the housing allowance program on the incidence of these problems.

Search Effort

The failure of some searchers to move might be attributable to a lack of effort. However, searchers that move do not in fact look at significantly more places than those that do not move (see Table 3-2). Moreover, some of these searchers not moving during the first year may move during the second year of the experiment.¹

Failure to move is apparently related more to difficulty encountered than to effort; Table 3-3 shows that the moving rate declines significantly for searchers experiencing greater difficulty in their search. This relationship could be evidence of post hoc rationalization, but searchers reporting difficulty and those not moving did in fact try at least as hard (measured by the number of units examined) as other households in their search efforts (see Table 3-4). With the exception of households that reported not looking at all, the frequency of reported search difficulty was weakly but positively related to search effort (the number of units examined).² The least difficulty was reported by those that looked inside only one or two units. While the relationship between the moving rate of searchers and search effort was not monotonic, those that looked at more than two units were less likely to move than those that looked at only one or two units.

¹See Appendix Section IV.4.

²Of those households that reported not looking inside any units, most did report having used other sources of information about potential housing. Nevertheless, it is hard to move without looking at any potential residences. This is evidenced by the level of difficulty reported by these households. The fact that some of these households succeeded in moving at all indicates that they did not count the home to which they moved in responding to the questions.

Table 3-2
SEARCH EFFORT OF MOVERS AND NONMOVERS

	PITTSBURGH		PHOENIX	
	MOVERS	NONMOVERS	MOVERS	NONMOVERS
Mean Number of Places Looked At ^a	7.2	5.6	6.1	7.1
Sample Size	(257)	(256)	(480)	(153)

SAMPLE: Searchers active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: Baseline, First and Second Periodic Interviews.

NOTE: t-statistic comparing movers and nonmovers not significant at the 0.05 level.

a. Response to First Periodic Interview question 65 and Second Periodic Interview question 52:

During the last six months, altogether how many different houses or apartments have you (or someone from your household) actually visited? By visited we mean actually go inside and look at.

Table 3-3

MOVING RATES FOR SEARCHERS BY GENERAL
LEVEL OF SEARCH DIFFICULTY
(Sample Size in Parentheses)

LEVEL OF DIFFICULTY ^a	PITTSBURGH	PHOENIX
Very Difficult	32% (223)	61% (223)
Somewhat Difficult	48 (144)	83 (184)
Not Difficult	73 (143)	85 (220)
Chi-Square Statistic Significance Level ^b	0.01	0.01

SAMPLE: Searchers active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: Baseline, First and Second Periodic Interviews.

a. Response to First Periodic Interview question 73 and Second Periodic Interview question 59:

With the extra money from the housing allowance, how difficult was it to find housing you liked and could afford? Was it very difficult, somewhat difficult, or not difficult at all?

b. Chi-square statistic tests differences in moving rates by search difficulty level.

Table 3-4

LEVEL OF DIFFICULTY IN FINDING HOUSING AND MOVING RATE
OF SEARCHERS BY NUMBER OF PLACES LOOKED AT
(In Percentages)

NUMBER OF PLACES LOOKED AT ^a	FOUND SEARCH VERY DIFFICULT ^b	SAMPLE SIZE	MOVED	SAMPLE SIZE
PITTSBURGH				
None	47%	(47)	27%	(48)
1-2 Places	36	(145)	63	(147)
3-5 Places	43	(142)	45	(144)
6-10 Places	49	(100)	48	(100)
11 or More Places	53	(74)	53	(74)
PHOENIX				
None	42	(36)	56	(36)
1-2 Places	26	(223)	83	(224)
3-5 Places	35	(171)	78	(172)
6-10 Places	43	(102)	69	(104)
11 or More Places	50	(95)	71	(97)

SAMPLE: Searchers active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: Baseline, First and Second Periodic Interviews.

NOTE: Chi-square statistic comparing the moving rate for searchers looking at three or more places with the moving rate for searchers looking at one or two places significant at the 0.01 level in Pittsburgh and the 0.05 level in Phoenix.

a. Response to First Periodic Interview question 65 and Second Periodic Interview question 52: see footnote (a) in Table 3-2.

b. Response to First Periodic Interview question 73 and Second Periodic Interview question 59: see footnote (a) in Table 3-3.

Problems Finding Housing

The ability of searchers to find acceptable housing may be impaired by factors that limit their search or that limit the availability of suitable units. The thoroughness of housing search may be limited by prior expectations of search difficulty, constraints on the time available for searching, or constraints on the geographic area that the searcher can cover. No matter how thoroughly a household searches, it may have difficulty finding a unit if the supply of available housing is limited because of discrimination, relative lack of affordable dwelling units of the type desired by a household, or the unavailability of a particular type of dwelling unit at a desired location.¹

Whether or not housing allowances could work depends in part on the impediment introduced by search problems and on the extent to which these problems can be relieved by program design; difficulties subject to remedy and those directly related to the operation of the program are of particular concern. Provision of child care could relieve problems with the care of children while searching. Transportation provided by a program could expand the area covered in a housing search for households without access to a car. Similarly, provision of information about available housing could expand housing choice. Equal opportunity support could also expand choice to the extent that search is directly limited by discrimination. In addition, the available supply of acceptable housing could be restricted by program requirements. Examples include landlords objecting to giving rent receipts or to allowing housing evaluations and households having difficulty in finding a dwelling unit that meets the housing requirements. This section focuses on the relative incidence of these search problems.

All households that reported searching for housing, regardless of whether they moved, were asked in the Periodic Interviews whether they had trouble finding a place because of: not knowing where to look, lack of transportation, lack of child care, landlord objections to providing rent receipts or to having housing evaluations conducted and, for Minimum Standards house-

¹Neither general housing market conditions nor prior expectations (except expectations of discrimination) are discussed here.

holds, finding a place meeting standards.¹ Households were also asked to volunteer other reasons for search difficulty. The predominant categories of responses given were financial reasons (especially finding rents too high), discrimination, and general difficulty in finding a suitable place.²

The relative frequency of each specific search problem is presented in Table 3-5 for both Experimental and Control households. The most frequently cited search problems for both groups were lack of knowledge about where to look, transportation, and financial problems. Next in frequency was discrimination against children in Pittsburgh and child care problems at both sites. Few households (no more than 3 percent of the searchers) reported problems because of landlord objections of housing evaluations or rent receipts or discrimination because of race, age, sex, marital status, or being a welfare recipient.³ Of Housing Gap Minimum Standards searchers, 26 percent in Pittsburgh and 21 percent in Phoenix reported difficulty finding a unit that would meet the program standards.

Knowledge about available units. Significantly more Experimental than Control searchers said they did not know where to search in Pittsburgh (see Table 3-5).⁴ This was the only significant difference between Experimental

¹The interview question asked respondents whether any of the problems encountered were reasons for trouble finding a place; additional households may have encountered these problems but did not acknowledge them because they did not consider them obstacles in searching.

²Some search problems may not have been reported by households because they were taken for granted--for example, the constraints on search time caused by jobs and working commitments.

³Three of the more important problems--financial difficulty, discrimination against children, and general difficulty in finding housing--were responses to open-ended probes. Thus it is likely that Table 3-5 understates their importance. For example, another set of questions in the Periodic Interviews asked households if they had encountered specific types of discrimination without linking it to trouble in finding a unit. The proportion of searchers reporting discrimination of any kind in response to those questions was more than triple the proportion volunteering discrimination as a problem in their housing search. The extent of discrimination as measured by responses to those alternative questions is examined in Section 3.3 and in Appendix Section IV.3.

⁴Control households were not asked about landlord objections to rent receipts and did not have any housing requirements.

Table 3-5
INCIDENCE OF SEARCH PROBLEMS
(In Percentages)

PROBLEM ^a	PITTSBURGH		PHOENIX	
	EXPERIMENTAL GROUP	CONTROL GROUP	EXPERIMENTAL GROUP	CONTROL GROUP
Did Not Know Where to Look	33%	23%*	21%	18%
Transportation Access	28	29	20	18
Could Not Find Program-Approvable Place ^b	26	NA ^e	21	NA
Financial Difficulty ^{c,d}	17	22	21	26
Discrimination Against Children ^c	15	13	4	6
Child Care	10	13	10	8
General Difficulty in Finding a Place ^c	9	8	3	2
Landlord Objections to Housing Evaluations	3	2	3	3
Landlord Objections to Rent Receipts	2	NA	2	NA
Other Forms of Discrimination ^c	3	3	1	1
Other Problems ^c	4	3	4	3
Sample Size	(390)	(122)	(448)	(180)

SAMPLE: Searchers active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: Baseline, First and Second Periodic Interview, and payments file.

NOTE: Percentages add to more than 100 percent because of multiple responses.

a. Response to First Periodic Interview question 60 and Second Periodic Interview question 47:

Did you have any trouble finding a place to live because: (yes/no)

- A. You didn't know where to look
- B. You didn't have access to transportation that would allow you to look for places
- C. You didn't have anyone to take care of your children while you looked
- D. Landlords objected to giving rent receipts
- E. Landlord objected to having housing evaluations done
- F. You couldn't find a place that the program office would approve
- G. Some other reason (specify).

b. Percentage based only on households in the Housing Gap Minimum Standards treatment group answering the question (86 in Pittsburgh, 111 in Phoenix).

c. Response G (open-ended probe).

d. The reason volunteered by almost all respondents was that rents were too high.

e. NA = not applicable.

* Chi-square statistic comparing Experimental and Control households significant at the 0.05 level.

and Control households in the incidence of any search problem. One possible reason for the difference is that Housing Gap Minimum Standards households had to live in housing meeting the program standards to receive payments; this requirement may have restricted their choice so much as to make it more difficult to find housing. Table 3-6 shows that Minimum Standards searchers in Pittsburgh were more likely to cite difficulty in knowing where to look than Control households, while Experimental households (other than those in the Minimum Standards treatment group) were no more likely to cite this problem. Thus, the Minimum Standards housing requirements themselves apparently added a degree of difficulty to search. Further evidence of this difficulty is indicated by the large fraction of Minimum Standards searchers at both sites (about one-fourth) having trouble finding a standard unit (see Table 3-7).

Financial problems. Table 3-5 shows further that Experimental households reported financial difficulty less frequently than did Control households, although the difference in frequency is not significant.¹ The importance of financial difficulty in search is further indicated by responses to an interview question on reasons for stopping search; lack of affordable housing was most frequently cited at both sites followed by difficulty finding available housing and general discouragement, as shown in Table 3-8. The issue of financial problems is critical to the workings of a housing allowance program and warrants deeper investigation.

One would expect that most households already receiving full payments (Percent of Rent households, Unconstrained households, and Housing Gap households meeting requirements) would have the least financial difficulty in choosing another place to live.² But Housing Gap households had to meet the housing requirements after moving to receive payments, whether or not they

¹Very few households cited any financial reasons other than their perception that rents were too high.

²Unconstrained households were those receiving a Housing Gap type of payment without having to meet housing requirements. Households not receiving a full payment were primarily Housing Gap households that did not meet the housing requirements at enrollment. A few Percent of Rent households or Housing Gap households that met the requirements at enrollment were nevertheless in this group because they had not submitted all the required information forms or rent receipts.

Table 3-6
HOUSEHOLDS CITING DIFFICULTY IN KNOWING WHERE TO LOOK

HOUSEHOLD GROUP	PITTSBURGH		PHOENIX	
	PERCENTAGE CITING DIFFICULTY ^a	SAMPLE SIZE	PERCENTAGE CITING DIFFICULTY	SAMPLE SIZE
Experimental households except Housing Gap Minimum Standards households	29%	(298)	20%	(333)
Housing Gap Minimum Standards households	46**	(92)	24	(114)
Control households	23	(122)	18	(180)

SAMPLE: Searchers active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: Baseline, First and Second Periodic Interviews.

a. Response to First Periodic Interview question 60 and Second Periodic Interview question 47, response (A): see footnote (a) in Table 3-5.

** Chi-square statistic comparing Housing Gap Minimum Standards households with Control households significant at the 0.01 level.

Table 3-7
 REPORTED TROUBLE FINDING STANDARD HOUSING

	PITTSBURGH		PHOENIX	
	PERCENTAGE REPORTING ^a	SAMPLE SIZE	PERCENTAGE REPORTING	SAMPLE SIZE
Housing Gap Minimum Standards	26%	(86)	20%	(110)
Met Requirements at Enrollment	[22]	(9)	[8]	(13)
Did Not Meet Requirements at Enrollment	26	(77)	22	(97)

SAMPLE: Housing Gap Minimum Standards searchers active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: Baseline, First and Second Periodic Interviews, and payments file.

NOTE: Chi-square statistic comparing households that met and did not meet the requirements not significant at the 0.05 level. Brackets indicate entries based on 15 or fewer observations.

a. Response to First Periodic Interview question 60 and Second Periodic Interview question 77, response (F): see footnote (a) in Table 3-5.

Table 3-8
REASONS FOR HAVING STOPPED SEARCHING^a

RESPONSE ^b	PITTSBURGH NUMBER OF HOUSEHOLDS REPORTING	PHOENIX NUMBER OF HOUSEHOLDS REPORTING
Couldn't Find Anything in Price Range	28	41
Got Discouraged	15	32
Couldn't Find Anything Available	17	18
Personal Reasons	6	10
Difficult to Get Out and Look	7	9
Discrimination	1	1
Other Reasons	8	13
Number of Households that Stopped Searching and were Asked Reasons	34	56

SAMPLE: Searchers that stopped looking for housing that were active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: Baseline, First and Second Periodic Interviews.

NOTE: Total responses exceed total number of households due to multiple responses.

a. Households that did not move and responded "no" to First Periodic Interview question 84:

Are you still looking for a house or apartment to move to?

b. Response to First Periodic Interview question 85 and Second Periodic Interview question 78:

Why did you stop looking? Was it because you (yes/no)

- A. Got discouraged
- B. Couldn't find anything in the price range
- C. Found it difficult to get out and look
- D. Were discriminated against
- E. Couldn't find anything available
- F. Had personal reasons--such as illness
- G. Had some other reason.

met the requirements before moving. Housing Gap households not meeting the requirements at enrollment might well sense financial difficulty, because the allowance payments could only be assured after moving to a unit meeting the standards. The form of allowance (Housing Gap or Percent of Rent) and initial status with respect to housing requirements would thus be expected to relate to perceived financial difficulty in search. In Pittsburgh it appears that Percent of Rent households were less likely to report financial difficulty than either Housing Gap households or Control households, although the differences are still not significant (see Table 3-9). The restricted nature of the Housing Gap offer appears to be a problem for searchers at both sites, even if they were initially meeting the housing requirements and receiving full payments. The incidence of financial problems for Housing Gap households is greater than that for Percent of Rent households while still less than that for Control households. These patterns, however, must be interpreted with caution as none of the differences are significant.

More direct tests have been attempted on the issue of whether or not the allowance offer reduced financial difficulty for Housing Gap households not meeting the housing requirements at enrollment. These households were divided into groups according to whether the calculated payment was enough to cover the difference between their rent in the enrollment residence and the rent required to meet the housing requirement. (By design, the offers systematically varied the payment level and the stringency of the housing requirement; therefore, households were not guaranteed that the payment would fully finance meeting the requirement.)¹ Unfortunately, the results are inconclusive (see Table 3-10). The sample sizes of the resulting groups of households are so small that only very large differences in the proportions of households expressing financial difficulty would be statistically significant. Even so, searchers in Phoenix with payments insufficient to bridge the difference between the initial and required rents apparently were

¹Minimum Rent households had to meet a specific rent requirement. For Minimum Standards households, the estimated cost of modest, existing, standard housing, C* (the basic payment level) has been used as an approximation for the cost of housing meeting Minimum Standards. The C* level was developed by a local panel of experts at each site (see Appendix Table II-4).

Table 3-9
INCIDENCE OF FINANCIAL DIFFICULTY
BY TREATMENT GROUP

TREATMENT GROUP	PITTSBURGH		PHOENIX	
	PERCENTAGE REPORTING ^a	SAMPLE SIZE	PERCENTAGE REPORTING ^a	SAMPLE SIZE
Percent of Rent	14%	(149)	18%	(171)
Unconstrained	8	(24)	23	(26)
Housing Gap	20	(204)	22	(250)
Received a full allowance payment at enrollment	22	(63)	19	(59)
Did not receive a full allowance payment at enrollment	19	(141)	23	(190)
Control	22	(121)	26	(180)

SAMPLE: Searchers active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: First and Second Periodic Interviews, and payments file.

NOTE: Chi-square statistic comparing any listed Experimental group with Control households not significant at the 0.05 level.

a. Open-ended response to First Periodic Interview question 60 and Second Periodic Interview question 47, response (G): see footnote (a) in Table 3-5.

Table 3-10

INCIDENCE OF FINANCIAL DIFFICULTY FOR HOUSING GAP HOUSEHOLDS
NOT MEETING REQUIREMENTS AS AFFECTED BY SUFFICIENCY OF PAYMENT

HOUSEHOLD GROUP	PITTSBURGH		PHOENIX	
	PERCENTAGE REPORTING ^a	SAMPLE SIZE	PERCENTAGE REPORTING	SAMPLE SIZE
Housing Gap Minimum Standards	26%	(80)	25%	(101)
Sufficient Payment ^b	28	(61)	20	(76)
Insufficient Payment	21	(19)	40	(25)
Housing Gap Minimum Rent	10	(61)	21	(89)
Sufficient Payment	11	(56)	19	(79)
Insufficient Payment	[0]	(5)	[40]	(10)

SAMPLE: Housing Gap Minimum Rent and Minimum Standards searchers not meeting housing requirements at enrollment active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: First and Second Periodic Interviews, and payments file.

NOTE: Chi-square statistic comparing households with sufficient and insufficient payments not significant at the 0.05 level. Brackets indicate entries based on 15 or fewer observations.

a. Open-ended response to First Periodic Interview question 60 and Second Periodic Interview question 47, response (G): see footnote (a) in Table 3-5.

b. Payment at the time of enrollment assuming housing requirements met. "Sufficiency" was determined by whether payment equaled or exceeded the difference between initial rent and the rent necessary to meet requirements. For Minimum Standards households, the amount was approximated by the basic payment level, C*, used as a rough proxy for the average rent of housing meeting Minimum Standards. Minimum Rent households were required to pay 0.7C* or 0.9C* for rent depending on their assignment.

much more likely to sense financial difficulty in moving than households with sufficient payments (significant at the 0.10 level).

The above observations on financial problems are often site-specific or are not statistically significant. They do, however, provide some indications about the extent to which the payments were perceived as relieving financial difficulty in moving. Households with truly unrestricted payment--Percent of Rent households (and Unconstrained households in Pittsburgh)--reported financial difficulty less frequently than Control households. Housing Gap households apparently found the financial aid of the allowance payment offset by the need to meet the housing requirements, so that their perception of financial difficulty was not appreciably different from Control households.

General difficulty. Program effects on housing search can be further explored using an interview question about the degree of difficulty in finding suitable housing. Experimental searchers in each major treatment group (Percent of Rent, Unconstrained, and Housing Gap) were significantly less likely to report it very difficult to find housing than Control searchers (see Table 3-11).¹ Table 3-11 also shows that the housing requirements made search more difficult for Housing Gap households relative to other Experimental households; they were significantly more likely (at the 0.05 level) to report that search was very difficult than either Percent of Rent households at both sites or Unconstrained households in Pittsburgh. Two further findings relate to the effect of the housing requirements. A significantly greater percentage of households not meeting the housing requirements found their search very difficult than did households meeting the requirements (significant in Pittsburgh only at the 0.07 level (see Table 3-11)). Significantly more Minimum Standards than Minimum Rent households found their search very difficult (see Table 3-12).

¹Although Control households were more likely to know where to search than Experimental households (see Table 3-5), they experienced sufficiently greater financial (or other) difficulty so that the result is a significantly greater proportion that found search very difficult.

Table 3-11

INCIDENCE OF GENERAL DIFFICULTY IN FINDING
SUITABLE HOUSING BY TREATMENT GROUP

TREATMENT GROUP	PITTSBURGH		PHOENIX	
	PERCENTAGE REPORTING VERY DIFFICULT ^a	SAMPLE SIZE	PERCENTAGE REPORTING VERY DIFFICULT	SAMPLE SIZE
Percent of Rent	31% ^{**}	(155)	21% ^{**}	(171)
Unconstrained	20 ^{**}	(25)	27 ^{**}	(26)
Housing Gap	43 ^{**}	(208)	32 ^{**}	(249)
Receiving a full allowance payment	32 ^{**}	(65)	14 ^{**}	(59)
Not receiving a full allowance payment	48 ^{**}	(143)	38 ^{**b}	(190)
All Experimental Households	37 ^{**}	(388)	28 ^{**}	(446)
Control Households	66	(122)	55	(180)

SAMPLE: Searchers active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: Baseline, First and Second Periodic Interviews.

a. Response to First Periodic Interview question 73 and Second Periodic Interview question 59:

With the extra money from the housing allowance, how difficult was it to find housing you liked and could afford? Was it very difficult, somewhat difficult, or not difficult at all?

b. Also significantly different from those receiving a full payment at the 0.01 level.

** Chi-square statistic comparing Experimental group with Control households significant at the 0.01 level.

Table 3-12
 INCIDENCE OF GENERAL DIFFICULTY IN FINDING
 SUITABLE HOUSING FOR HOUSING GAP SEARCHERS

TREATMENT GROUP	PITTSBURGH		PHOENIX	
	PERCENTAGE REPORTING VERY DIFFICULT ^a	SAMPLE SIZE	PERCENTAGE REPORTING VERY DIFFICULT	SAMPLE SIZE
Housing Gap Minimum Standards	55%	(92)	40%	(114)
Met housing requirements at enrollment	[36]	(11)	[23]	(13)
Did not meet housing requirements at enrollment	58	(81)	43	(101)
Housing Gap Minimum Rent	33** ^b	(116)	25* ^b	(135)
Met housing requirements at enrollment	31	(54)	11	(46)
Did not meet housing requirements at enrollment	34	(62)	33* ^c	(89)

SAMPLE: Housing Gap Minimum Rent and Minimum Standards searchers active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: Baseline, First and Second Periodic Interviews.

NOTE: Brackets indicate entries based on 15 or fewer observations.

a. Response to First Periodic Interview question 73 and Second Periodic Interview question 59: see footnote (a) in Table 3-11.

b. Chi-square statistic compares Minimum Standards and Minimum Rent households.

c. Chi-square statistic compares households that did not meet the requirements with those that did.

* Chi-square statistic significant at the 0.05 level.

** Chi-square statistic significant at the 0.01 level.

Summary. The competing elements of the Housing Gap offer--payments to households provided they meet housing requirements--can be seen in the responses discussed in this section. Minimum Standards households, especially those that did not meet the housing requirements, tended to find search very difficult (more so than Minimum Rent households), were more likely than Control households to feel they had trouble knowing where to look, and reported trouble finding standard housing. The primary impact of the allowance offers on the search process reflects the importance both of the payments and of the constraints attached to the payments as summarized below:

Receiving allowance payments appears to relieve expected financial difficulty in moving.

Difficulty in knowing where to search and the overall level of search difficulty appear to be related to the imposition of housing requirements.

More generally, the results reported in this section indicate that a household's inability to move does not stem from lack of effort but from various difficulties encountered while searching. The impacts of both the search difficulties directly addressed by the experimental allowance program (such as financial problems) and those not directly affected (such as those related to transportation or having children) are pursued further in the next two sections. Section 3.3 focuses on identifying the relationship between the incidence of difficulties and various household characteristics. These relationships indicate whether the use of an allowance is likely to be especially restricted for some households. Section 3.4 examines whether or not a household's perception of a search problem is actually related to its ability to move, and identifies the need for or potential usefulness of remedial action.

3.3 SEARCH PROBLEMS AND HOUSEHOLD CHARACTERISTICS

Household characteristics may affect moving behavior directly, or they may affect the incidence of search problems. It is important to know whether some search problems are experienced more by certain types of households than by others so that government action may be taken or programs can be designed to alleviate them. The logit analysis presented in Section 3.1 found little systematic relationship between household characteristics and moving behavior. Only the number of moves in the past three years, race,

and household size were significant in any analysis. Only those combinations of search problems and household characteristics of particular interest are examined here. The relationship between search problems and moving rates is investigated in Section 3.4.

Problems Related to Children

The incidence of discrimination against children was positively related to the number of children in the household, while child care problems were not (see Table 3-13). Child care problems are undoubtedly related to ages of the children--indeed, larger families are more likely to have an older child to babysit. The probability that households will at some time experience discrimination against children is increased if a limited supply of large housing units requires larger households to search more than smaller households to find suitable units. However, households with three or more children did not look at more units than households with fewer children. A limited supply of large units may well lead large households having trouble finding units to blame their trouble on discrimination against children.¹

Access Problems

Not surprisingly, households that could use their own automobiles for searching were far less likely to report access problems than those forced to use public or other methods of transportation in their search (see Table 3-14).

Difficulty Knowing Where to Look

This problem might be expected to be related to lack of education or to the inexperience associated with few previous moves, and to depend on the information sources used. As expected, the problem of not knowing where to look was greater for the less educated; those with up to 12 years of education had about twice the difficulty of those with some college education (see Table 3-15). While it would be expected that searchers with histories of previous moves would have a better knowledge of the housing market and how

¹Discrimination against families with children is discussed later in this section and in Appendix Section IV.3.

Table 3-13

INCIDENCE OF CHILD CARE PROBLEMS, DISCRIMINATION AGAINST CHILDREN,
AND NUMBER OF PLACES LOOKED AT (BY NUMBER OF CHILDREN IN HOUSEHOLD)

NUMBER OF CHILDREN	PERCENTAGE REPORTING CHILD CARE PROBLEMS ^a	PERCENTAGE VOLUNTEERING DISCRIMINATION AGAINST CHILDREN ^a		MEAN NUMBER OF PLACES LOOKED AT ^b	SAMPLE SIZE
		PERCENTAGE REPORTING CHILD CARE PROBLEMS ^a	PERCENTAGE VOLUNTEERING DISCRIMINATION AGAINST CHILDREN ^a		
PITTSBURGH					
0	NA ^c	NA	NA	4.8	(108)
1	9	11	11	5.8	(158)
2	15	17	17	7.8	(106)
3-4	18	24	24	7.3	(106)
5 or more	8	48	48	7.4	(36)
PHOENIX					
0	NA	NA	NA	5.8	(163)
1	11	4	4	6.6	(173)
2	14	2	2	7.1	(118)
3-4	12	8	8	6.3	(130)
5 or more	14	24	24	5.4	(49)

SAMPLE: Searchers active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: Baseline, First and Second Periodic Interviews.

a. Response to First Periodic Interview question 60 and Second Periodic Interview question 47, responses (C) and (G): see footnote (a) in Table 3-5.

b. Response to First Periodic Interview question 65 and Second Periodic Interview question 52: see footnote (a) in Table 3-2.

c. NA = not applicable.

Table 3-14

INCIDENCE OF TRANSPORTATION ACCESS PROBLEM
BY MODE OF TRANSPORTATION USED

MODE OF TRANSPORTATION USED ^a	PITTSBURGH		PHOENIX	
	PERCENTAGE REPORTING PROBLEM ^b	SAMPLE SIZE	PERCENTAGE REPORTING PROBLEM	SAMPLE SIZE
Own Car	8%	(154)	5%	(416)
Friend's Car	36	(211)	42	(163)
Taxi	45	(40)	[67]	(6)
Public Transportation	45	(186)	63	(30)
Walk	36	(289)	49	(168)

SAMPLE: Searchers active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: Baseline, First and Second Periodic Interviews.

NOTE: Brackets indicate entries based on a sample of 15 or fewer observations.

a. Response to First Periodic Interview question 64 and Second Periodic Interview question 51:

How did you usually get around to look at houses or apartments? Did you use (yes/no)

- A. Your own car
- B. A friend's or relative's car
- C. Taxi service or jitney
- D. Public transportation
- E. Walk
- F. Did you get around some other way (specify).

b. Response to First Periodic Interview question 60 and Second Periodic Interview question 47: see footnote (a) in Table 3-5.

Table 3-15
 INCIDENCE OF DIFFICULTY IN KNOWING WHERE TO LOOK BY EDUCATION,
 PRIOR MOBILITY AND INFORMATION SOURCES USED

	PITTSBURGH			PHOENIX		
	PERCENTAGE REPORTING DIFFICULTY IN KNOWING WHERE TO LOOK ^a	NUMBER OF HOUSEHOLDS	EFFECTIVENESS RATIO ^b	PERCENTAGE REPORTING DIFFICULTY IN KNOWING WHERE TO LOOK	NUMBER OF HOUSEHOLDS	EFFECTIVENESS RATIO
Education Level (Years)						
1-9	39%	(95)	NA ^d	24%	(181)	NA
9-11	30	(193)	NA	22	(155)	NA
12	30	(178)	NA	17	(181)	NA
13 or more	18	(40)	NA	11	(90)	NA
Information Source Used^c						
Newspapers	30	(321)	0.15	23	(326)	0.34
Vacancy Signs	14	(197)	0.05	25	(318)	0.26
Friends and Relatives	30	(341)	0.41	20	(318)	0.54
Real Estate Agents	15	(239)	0.10	23	(97)	0.09
Bulletin Boards	38	(64)	0.00	38	(63)	0.02
Number of Moves In Past Three Years						
0	33	(192)	NA	17	(103)	NA
1	31	(142)	NA	21	(154)	NA
2-3	29	(138)	NA	24	(224)	NA
4-7	24	(38)	NA	16	(146)	NA

SAMPLE: Searchers active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: Baseline, First and Second Periodic Interviews.

NOTE: Responses to the questions below were not mutually exclusive.

a. Response to First Periodic Interview question 60 and Second Periodic Interview question 47, response (A): see footnote (a) in Table 3-5.

b. Fraction of searchers using the information source that reported they found their new home through that source. Based on response to First Periodic Interview question 62 and Second Periodic Interview question 49 (see footnote (c)), with responses to First Periodic Interview question 33 and Second Periodic Interview question 31:

Which of these comes closest to describing how you or other members of your household first found out that this (house/apartment) was available

- A. Newspaper
- B. Real estate agency
- C. Neighborhood bulletin board
- D. Vacancy sign on building
- E. Friend or relative
- F. Social or family service worker
- G. Knew the people who moved out of this apartment
- H. Other (specify).

c. Response to First Periodic Interview question 62 and Second Periodic Interview question 49:

During the last 6 months, while looking for a new place to live, did you or your family find out about available houses or apartments from

- A. Newspapers
- B. Real estate agencies
- C. Neighborhood bulletin boards
- D. Vacancy signs on buildings
- E. Friends or relatives
- F. Social or family service workers
- G. Somewhere else (specify).

The last two sources were acknowledged by few households.

d. NA = not applicable.

to conduct a housing search than those with less moving experience, it is not clear that Phoenix searchers with greater prior mobility were any less likely to report the problem, though the relationship was in the expected direction in Pittsburgh.¹

The relative frequency of not knowing where to look was generally unaffected by the information sources used. Besides the survey question asking all searchers what sources they had used, a separate question asked those that moved to name the information source through which they found their new home. As Table 3-15 shows, although newspapers, real estate agents, vacancy signs, and friends and relatives were all frequently used as sources of housing information, computing the effectiveness ratios shows that friends and relatives appeared to pay off far more often than any of the other sources.² One source of general information about housing availability was the Housing Information Program. Apparently, though, neither the offer of housing information nor attendance at one or more of the housing information sessions seemed to have influenced searchers' moving rates.³ Thus personal contact appears much more effective than other sources of information.

Discrimination

Landlords may have acted in ways which restrict the choice of housing units available to certain households. Information about discrimination was obtained principally from Periodic Interview questions asked of households;

¹The probability of a searcher moving was, however, positively related to the number of moves in the previous three years (see Appendix Tables VI-1 and VI-2). This suggests that searchers with greater prior mobility were more likely to move due to reasons other than knowledge of where to look. The effect of search problems on moving is discussed in Section 3.4.

²The effectiveness ratio used here is the fraction of searchers using an information source that reported they found their new home through that source. Rossi (1955, p. 161) computed the effectiveness of several housing information channels in Philadelphia. Consistent with the findings in Table 3-15, he found that personal contact was far more effective than newspapers, real estate agents, or walking and riding around. Reliance on friends and relatives as the prime information source in finding alternative housing is also discussed in Lansing and Mueller (1967, p. 210).

³The impact of the program is investigated in a preliminary way in Appendix V.

this analysis therefore considers discrimination as it is perceived and reported by all households that searched.¹ Interview respondents were not asked solely about racial discrimination, but also about a wide range of other possible forms of discrimination, including discrimination because of age, sex, marital status, source of income, children, and receipt of a housing allowance. All forms of discrimination are referred to in this report as discrimination.² Household characteristics and the nature of the search process itself will influence whether a household encounters discrimination. Conversely, discrimination (or the expectation of discrimination) may shape the search for housing.

A substantial proportion of the households that moved or searched for housing during the first year of the experiment reported experiencing some kind of discrimination--56 percent of the searchers in Pittsburgh and 32 percent of the searchers in Phoenix (see Table 3-16).³ It is striking that the level of perceived discrimination is substantially higher in Pittsburgh than in Phoenix. One possible explanation is that the tighter housing market in Pittsburgh gives landlords greater latitude to choose among prospective tenants.⁴ Discrimination of a given kind is associated with the relevant household characteristics in the expected ways (see Figure 3-1).

Table 3-16 illustrates clearly that the most common form of reported discrimination at both sites was that against families with children--45 percent of Pittsburgh households and 24 percent of Phoenix households reported discrimination of this type. The incidence of this type of discrimination increased

¹ Because the interview question on which the analysis in this section is based was asked of all households that moved or searched during the six months prior to the interview, the level of discrimination reported here is higher than that reported in Section 3.2, which dealt only with a response of discrimination volunteered to an open-ended question on search problems.

² Because of its complexity, the detailed analysis of perceived discrimination is discussed in Appendix IV.3; only the major conclusions of that analysis are reported here.

³ Note that Appendix Table VI-1 shows black searchers in Pittsburgh much less likely to move than white searchers, but that Appendix Table VI-2 shows no effect of race/ethnicity in Phoenix.

⁴ In 1974, the rental vacancy rates were 5.1 percent in Pittsburgh and 14.4 percent in Phoenix (U.S. Department of Commerce, 1976). Similarly, the mean first-year search time of households in the Demand Experiment was higher in Pittsburgh (92 days) than in Phoenix (47 days).

Table 3-16
 TYPE OF DISCRIMINATION REPORTED
 (In Percentages)

TYPE OF DISCRIMINATION ^a	PITTSBURGH	PHOENIX
Age	13%	10%
Sex	8	2
Marital Status	20	6
Race/Ethnicity ^b	7	4
Sources of Income	30	8
Children	45	24
Housing Allowance	1	1
Any Type	56	32
Sample Size	(512)	(628)

SAMPLE: Searchers active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: Baseline, First and Second Periodic Interviews.

NOTE: Percentages do not add to 100 percent because households may have reported multiple types of discrimination or none.

a. Response to First Periodic Interview question 76 and Second Periodic Interview question 65:

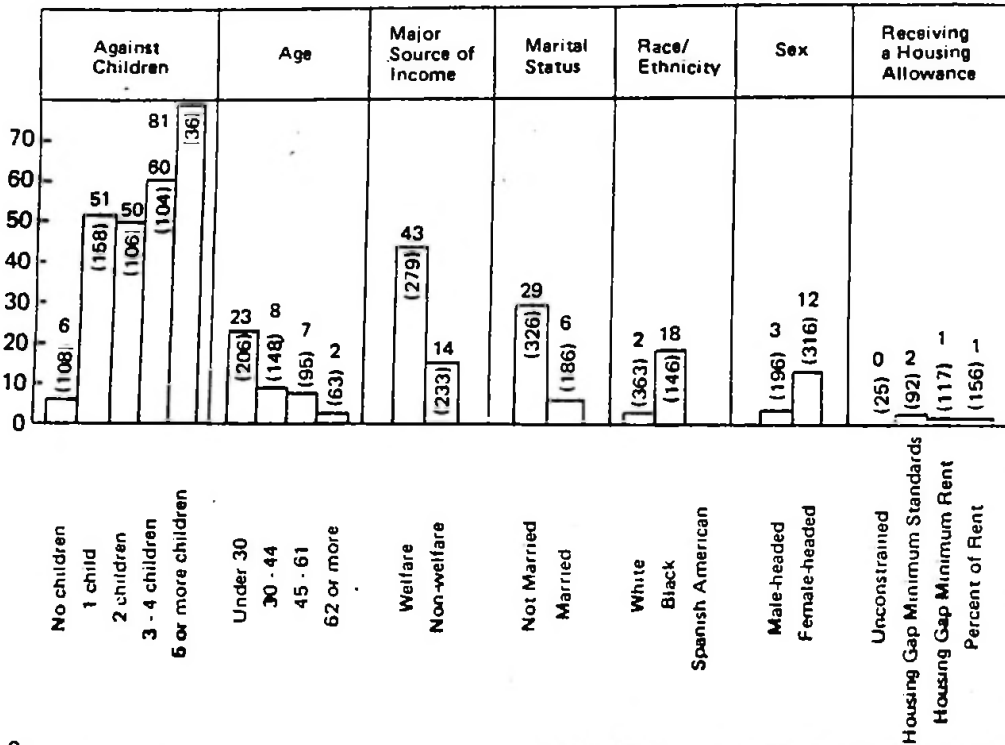
In looking for houses or apartments since you first enrolled in the program, do you feel you experienced any discrimination from landlords, superintendents or other people who rent apartments because of your or anyone in your household's

- A. Age
- B. Sex
- C. Marital status
- D. Race
- E. Nationality
- F. Sources of income
- G. Children
- H. Receiving a housing allowance.

b. Asked of all households. See Figure 3-1 for responses by racial/ethnic groups.

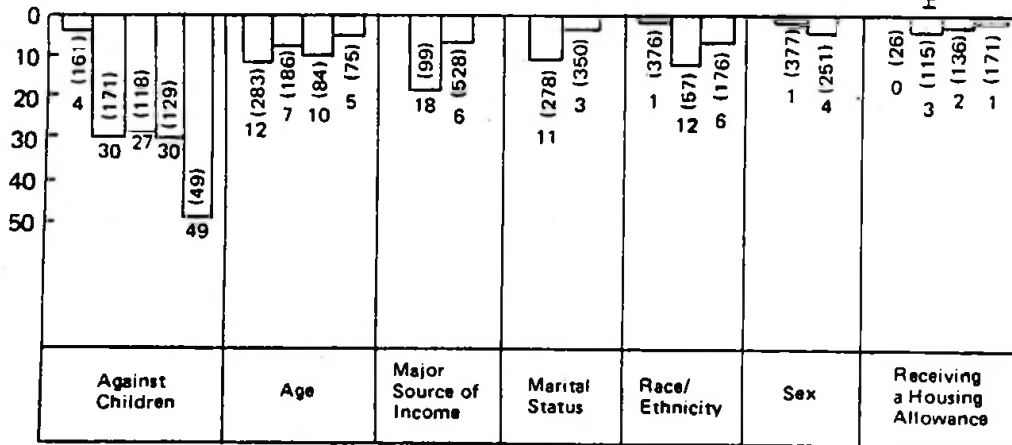
Figure 3 - 1
PERCENTAGE OF HOUSEHOLDS THAT EXPERIENCED DISCRIMINATION
IN LOOKING FOR A PLACE TO LIVE BY TYPE OF DISCRIMINATION^a
(SAMPLE SIZE IN PARENTHESES)

PITTSBURGH
PERCENTAGE
ENCOUNTERING
DISCRIMINATION



(628) SAMPLE SIZE (512)

PHOENIX
PERCENTAGE
ENCOUNTERING
DISCRIMINATION



SAMPLE: Searchers active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.
 DATA SOURCES: First and Second Periodic Interview, Initial Household Report Form.

^a Response to First Periodic Interview question 76 and Second Periodic Interview question 65: See footnote (a) in Table 3 - 16.

with the number of children (see Figure 3-1).¹ The relative importance of other types of discrimination varied slightly between the two sites, but source of income, marital status, and age were the next most common reasons for discrimination at both sites. The incidence of perceived discrimination directly tied to participation in the allowance experiment (for example, because rent receipts were required) was very low.

Racial or ethnic discrimination was reported by relatively few households.² This is partly because white households would not be expected to experience racial discrimination. When the incidence of perceived racial discrimination is examined stratified by the race or ethnicity of the household, the reported incidence is still lower than might be expected: of black searchers, 18 percent in Pittsburgh and 12 percent in Phoenix perceived racial discrimination, as did 6 percent of Spanish American searchers in Phoenix (see Figure 3-1).

Though the amount of reported racial discrimination was certainly not trivial, it was not so great as might have been expected given the extent of racial segregation in the housing market.³ Although a low level of discrimination is not necessarily inconsistent with the presence of housing segregation, minority households may either have adopted search patterns that enabled them to avoid encountering discrimination or been unwilling to report it. In fact, black searchers in Pittsburgh were more likely than whites to say they avoided other neighborhoods because they feared discrimination, whether they searched within or outside their original neighborhood (21 percent so indicated).⁴ In Phoenix, where reported discrimination was less prevalent, the three racial/ethnic groups were equally likely to expect discrim-

¹This relationship also held for those volunteering discrimination against children as a search problem (see above, Table 3-13).

²The low incidence of reported discrimination is consistent with the very small number of complaints about discrimination by households to the antidiscrimination lawyer whose services were available free to all households in the experiment. As the Demand Experiment was not designed to test the effectiveness of equal opportunity support, there was no experimental variation in the offer of support.

³For a discussion of the patterns of segregation in Pittsburgh and Phoenix, see Atkinson and Phipps, 1977.

⁴See Appendix Table IV-10.

ination.¹ Many black searchers either cited racial discrimination or avoided neighborhoods because of expected discrimination--28 percent of black searchers in Pittsburgh and 16 percent in Phoenix.²

The frequency with which households reported multiple types of discrimination, combined with the high incidence of discrimination against children and the comparatively low incidence of discrimination on racial or ethnic grounds, may suggest that discrimination against children may have been used by realtors and landlords to mask discrimination based on race. On the contrary, investigation of this question (see Appendix Section IV.3) suggests that discrimination against children was not used to camouflage discrimination based on race.

Many of these problems may not affect household moving behavior--Section 3.4 explores this possibility.

3.4 SEARCH PROBLEMS AND MOVING

Search problems can affect the process of searching in different ways. Some problems may affect the behavior of searchers but not their ultimate mobility; others may represent true obstacles to moving. In general, this section analyzes the mobility of households citing the most frequently-mentioned barriers to search. Search problems associated with race are included because of policy interest, because race was important in the logit estimates on moving, and because some black households did perceive discrimination or avoid neighborhoods because of discrimination. Three measures of impact are examined here: the effect of each major reported search barrier on the moving rate of searchers, on the number of places looked at, and on the geographic extent of search.

The most frequently encountered search problems were not necessarily the

¹ Only 9 percent of Phoenix black searchers avoided neighborhoods because they expected discrimination.

² This evidence suggests that expectations may be important in determining where households search, and that the expectation of discrimination may have led black households to search for housing primarily in black or "mixed" neighborhoods. (This possibility is not examined here.) Furthermore, if the households alternating their search patterns were successful in avoiding racial discrimination, the low reported incidence of racial discrimination understates its importance.

most serious barriers to mobility, as shown in Table 3-17, which presents the moving rate of searchers as well as the mean number of places examined for the most important search problems. The problem having the most impact on moving rates was financial difficulty--searchers citing that problem were significantly less likely to have moved than searchers not citing the problem. Households citing financial problems looked at more places as well (in Phoenix, significantly more). Pittsburgh searchers reporting problems in accessing transportation also had a significantly lower moving rate.

Households subject to the Minimum Standards requirement had to rent housing meeting specified criteria to receive an allowance payment. A limited supply of such units could thus constrain mobility. Table 3-17 shows that Minimum Standards searchers reporting difficulty finding a standard unit looked at significantly more units than those not reporting the problem. The incidence of moving, however, bears a paradoxical relationship to the presence of this problem. The moving rate for those that reported the problem was higher than for those that did not.

Two explanations for this paradox seem plausible. The first involves the possibility that households attempting to make use of the allowance payment searched more extensively and ultimately succeeded. In the course of that search, they became aware of the limited supply of standard housing and reported the problem. Alternatively, the extensive search could be in response to the difficulty they encountered. Households experiencing the problem could have intensified their search and as a result succeeded. Those not experiencing difficulty failed to move for other reasons. A more extensive analysis might be able to resolve this issue.

The same issue arises in the case of racial or ethnic discrimination. The logit estimates (Section 3.1) indicated black searchers were less likely to move than otherwise similar white searchers. If this arises from racial discrimination, it obviously is of policy concern and would be an issue in the feasibility of providing a housing allowance for black households. However, the interview data shown in Table 3-17 indicate that households reporting discrimination (or reporting they avoided neighborhoods because of expected discrimination) were actually more likely to move than those not so reporting (though the differences are not significant). This poses a dilemma, because one might assume lack of moving to be related to experiencing discrimination. Part of the explanation may be that those generally more persistent in search are more likely to encounter discrimination. Indeed, the households

Table 3-17

THE EFFECT OF SEARCH PROBLEMS ON THE MOVING RATE OF SEARCHERS AND THE NUMBER OF PLACES LOOKED AT

PROBLEM	PITTSBURGH			PHOENIX		
	MOVING RATE	MEAN NUMBER OF PLACES LOOKED AT	SAMPLE SIZE	MOVING RATE	MEAN NUMBER OF PLACES LOOKED AT	SAMPLE SIZE
Difficulty in Knowing Where to Look ^a						
Reported	48%	5.4	(157)	71%	6.2	(126)
Not Reported	50	6.9	(355)	77	6.4	(501)
Transportation Access ^a						
Reported	41	6.8	(145)	70	6.6	(122)
Not Reported	53**	6.3	(367)	77	6.3	(506)
Financial Difficulty ^a						
Volunteered	34	6.9	(91)	45	8.5	(139)
Not Volunteered	53**	6.3	(407)	84**	5.7**	(488)
All Searchers	50	6.4	(512)	76	6.3	(628)
Child Care ^a (Searchers with Children Only)						
Reported	53	7.1	(53)	84	7.3	(56)
Not Reported	48	6.8	(351)	74	6.4	(411)
Discrimination Against Children (Searchers with Children Only)						
Volunteered ^a	45	9.0	(74)	70	10.9	(30)
Not Volunteered	50	6.3*	(319)	76	6.2*	(436)
Perceived ^b	46	8.8	(223)	79	9.4	(146)
Not Perceived	51	4.5**	(179)	73	5.2**	(321)
All Searchers With Children	48	6.9	(404)	75	6.5	(467)
Difficulty in Finding a Program-Approvable Place ^a (Minimum Standards Searchers Only)						
Reported	64	10.1	(22)	83	8.7	(23)
Not Reported	42	5.6*	(64)	73	4.8*	(88)
All Minimum Standards Searchers	48	6.7	(86)	75	5.6	(111)
Racial/Ethnic Discrimination ^b (Black Searchers Only)						
Perceived	58	9.7	(26)	[71]	7.6	(7)
Not Perceived	37	4.5**	(120)	64	5.0	(50)
Expected Discrimination ^c (Black Searchers Only)						
Neighborhoods Avoided	43	6.0	(30)	[40]	9.4	(5)
Neighborhoods Not Avoided	41	5.3	(116)	67	5.0*	(51)
Racial/Ethnic Discrimination ^b and Neighborhoods Avoided ^c (Black Searchers Only)						
Either	51	7.4	(41)	[67]	7.7	(9)
Neither	37	4.7	(105)	64	4.9	(47)
All Black Searchers	41	5.4	(146)	65	5.3	(57)

SAMPLE: Searchers active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: Baseline, First and Second Periodic Interviews.

a. Response to First Periodic Interview question 60 and Second Periodic Interview question 47: see footnote (a) in Table 3-5.

b. Response to First Periodic Interview question 76 and Second Periodic Interview question 65: see footnote (a) in Table 3-16.

c. Response to First Periodic Interview question 63 and Second Periodic Interview question 50:

Since you have been in the program, have you avoided looking in certain neighborhoods because you expected some sort of discrimination? (yes/no)

* Chi-square statistic (for moving rate) or t-statistic (for places looked at) comparing those reporting or not reporting the problem significant at the 0.05 level.

** Chi-square statistic (for moving rate) or t-statistic (for places looked at) comparing those reporting or not reporting the problem significant at the 0.01 level.

reporting discrimination or avoiding neighborhoods also tended to look at more places (significantly so in Pittsburgh). Experiencing discrimination could also force a black household to search more before being able to visit enough available housing units. With these data, there is no apparent way to disentangle the connections between moving, persistence in search, and reported discrimination. It also appears that a substantial proportion of black searchers not reporting discrimination nevertheless had difficulty moving. The interview data obviously do not provide enough information on whether or not discrimination was also a factor for these households.

There was no evidence that searchers with children reporting a child care problem looked at fewer units or were any less likely to move than those that did not report the problem. Those indicating discrimination against children as a search problem looked at significantly more units but were generally slightly less likely to move than those not volunteering or perceiving the problem

Search barriers can be divided into two general categories: those which constrained households from searching and those which made it difficult for households that did search to find suitable units. These groupings suggest that searchers experiencing search-constraining problems (such as lack of child care, transportation difficulties, or not knowing where to look) would not have been able to find as many units as other households, while searchers confronted with such difficulties as discrimination and financial problems would have had to look at more places before finding a suitable one. In fact, as Table 3-17 shows, there was no evidence that households experiencing any of the search-constraining problems looked at fewer places than did other households, suggesting that while search-constraining problems may have raised search costs or otherwise made the search process more difficult, they did not ultimately prevent people from looking for housing. It also discounts the possibility that these search problems were merely offered as justifications by households that did not search very much.

Aside from the constraints put on the number of units looked at, it is possible that problems relating to transportation access and knowledge about where to look may have affected the geographic extent of search. Households reporting search difficulty because of not knowing where to look or lack of transportation, however, were not any less likely to have searched outside their

initial neighborhood than those not reporting such problems (see Table 3-18).¹ On the other hand, as indicated in Section 3.3 above, black searchers in Pittsburgh were more likely than white searchers to report they avoided neighborhoods because they feared discrimination.

Apparently some households had to look at more units because of barriers of moving. The positive relationship between number of places looked at and incidence of financial difficulty (Table 3-17) suggests that financial problems did cause households to search harder to find suitable housing. Similarly, those indicating they had experienced discrimination against children looked at significantly more dwelling units during their search than households not indicating that problem (see Table 3-17). This is consistent with the possibility that discrimination created difficulty for searchers. Unfortunately it is difficult to distinguish whether households encountering discrimination are forced to look at more units or households looking at more units increase the chances of encountering discrimination.

The question remains whether or not a housing allowance program could relieve some of the barriers households encountered. Financial difficulty, the problem affecting the moving rate most, appears to be somewhat alleviated by the housing allowance payment, especially when the payment is relatively unrestricted (see Section 3.2). The finding reported in Section 3.2 that Experimental households had about as much difficulty as Control households with child care, transportation, knowing where to search, and with discrimination against children indicates the existence of a number of problems in finding housing that were not directly addressed by the experimental program.

Several services might be provided to facilitate search--for example, transportation or child care assistance and a centralized listing of inspected and approved vacancies that includes information about the acceptability of children (or effective enforcement of local laws prohibiting discrimination because of children). It is not clear whether creating these services would affect the ability of households to move, although they might affect housing

¹Indeed, those households attempting to look outside their own neighborhood were more likely not to know where to look than those not searching outside. This evidence is consistent with the generally limited extent of intraurban search and movement (see Barrett, 1974; Butler et al., 1969; and McCracken, 1975).

Table 3-18
HOUSEHOLDS SEARCHING OUTSIDE OF ORIGINAL NEIGHBORHOOD^a

SEARCH PROBLEM ^b	PITTSBURGH		PHOENIX	
	PERCENTAGE SEARCHING OUTSIDE	SAMPLE SIZE	PERCENTAGE SEARCHING OUTSIDE	SAMPLE SIZE
Difficulty in Knowing Where to Look				
Reported	74%	(156)	86%	(126)
Not Reported	70	(352)	75**	(496)
Transportation Access				
Reported	76	(144)	76	(122)
Not Reported	69	(364)	77	(501)

SAMPLE: Searchers active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: Baseline, First and Second Periodic Interviews.

NOTE: Households that moved during the first year and reported moving outside their neighborhood of residence at enrollment are assumed to have searched outside that neighborhood.

a. Response to First Periodic Interview question 74 and Second Periodic Interview question 61:

Were any of the places you looked at, so far, outside of the neighborhood you are living in now? (yes/no)

b. Response to First Periodic Interview question 60 and Second Periodic Interview question 47, responses (A) and (B): see footnote (a) in Table 3-5.

** Chi-square statistic comparing those reporting and not reporting significant at the 0.01 level.

outcomes by expanding the range of choice. None of the cited problems that would be addressed by these services had any significant effect on the moving rate of searchers (with the exception of access to transportation in Pittsburgh), at least perceptions of these problems were not strongly correlated with moving behavior. However, no direct test of the actual effect of such services was made in the Demand Experiment, though provision could be made in a housing allowance program to attempt to alleviate some of these problems. Several housing agencies studied in the Administrative Agency Experiment (AAE) did offer responsive services; the AAE evaluation concluded that high levels of responsive services in tighter housing markets would contribute indirectly to improving housing quality among participants, especially black households. The responsive services offered by the AAE included transportation to search for a new unit, assistance in negotiating lease provisions or repairs with landlords, legal advice or representation, and agency intervention to prevent eviction (see Holshouser, 1976).

3.5 THE EFFECTS OF TREATMENT VARIATIONS ON THE MOVING BEHAVIOR OF SEARCHERS

Separate logit equations were estimated for Housing Gap and Percent of Rent households. The logit analysis uses the same independent variables and treatment coding used in the earlier equations (see Tables 2-1 and 2-18).

It is difficult to establish prior expectations for the direction of effect of the treatment variables on the moving behavior of searchers. Similarity of effects is not likely, however, because while certain aspects of the experimental offers may induce search, other aspects may impede the search process itself. The analyses in this chapter give no strong indications of treatment effects on the moving behavior of searchers. For example, even though Housing Gap Minimum Standards searchers were found to have had trouble finding a unit meeting the requirements, Table 3-7 and Table 3-17 showed that they were not less likely to move.

Table 3-19 presents the results of the Housing Gap logit estimation. Once again, the set of treatment variables does not add significantly to the explanatory power of the other independent variables. Indeed, the overall explanatory power of the equations is quite low. The only significant effect is that in Pittsburgh, increasing the marginal payment reduction rate

Table 3-19
LOGIT ESTIMATION OF MOVING BEHAVIOR OF SEARCHERS FOR HOUSING GAP AND CONTROL HOUSEHOLDS

INDEPENDENT VARIABLE ^a	PITTSBURGH			PHOENIX		
	COEFFICIENT	ASYMPTOTIC t-STATISTIC	PARTIAL DERIVATIVE	COEFFICIENT	ASYMPTOTIC t-STATISTIC	PARTIAL DERIVATIVE
Constant	-0.071	0.18	NA ^b	0.724	1.54	NA
Number of Moves in Prior Three Years	0.169	1.77	0.042	0.229	2.18**	0.050
Education (Years)	-0.077	1.39	-0.019	-0.017	0.40	-0.004
Income (\$100s per year)	-0.007	0.60	-0.002	-0.006	0.72	-0.001
Age (Years)	-0.008	0.84	-0.002	-0.013	1.48	0.003
Black Head of Household	-0.635	2.26*	0.159	-0.046	0.10	-0.010
Spanish American Head of Household	NA	NA	NA	0.063	0.20	0.014
Female Head of Household	0.191	0.66	0.048	0.241	0.83	0.053
Welfare as Major Source of Income	-0.063	0.19	-0.016	0.312	0.69	0.069
Household Size (Persons)	-0.013	0.13	-0.003	-0.137	1.80	-0.030
Dissatisfied with Housing Unit	0.079	0.32	0.020	0.018	0.06	0.004
Dissatisfied with Neighborhood	-0.462	1.74	-0.115	-0.085	0.28	-0.019
Control Households	-0.338	0.95	0.085	-0.298	0.69	-0.065
C* Level	0.004	0.40	0.023	0.444	1.78	0.098
Minimum Rent Level	0.359	1.51	0.090	0.397	1.52	0.087
Minimum Standards Households	-0.053	0.15	-0.013	-0.410	1.10	-0.090
Unconstrained Households	0.230	0.42	0.057	-0.485	0.76	-0.107
"b" Level	-0.853	2.10*	-0.213	-0.138	0.33	-0.030
Requirements not Met at Enrollment	-0.633	1.46	-0.158	-0.112	0.24	-0.025
Chi-square of Treatment Variables (significance)	10.231 with 7 degrees of freedom (not significant)			7.855 with 7 degrees of freedom (not significant)		
Sample Size	(363)			(373)		
Probability for Reference Group	0.482			0.673		
Coefficient of Determination (p ²)	0.062			0.080		

SAMPLE: Housing Gap and Control searchers active at one year, excluding overincome households, "forced movers" (moves resulting from fire, demolition, or eviction), households living in own or subsidized housing, and households that moved between the Baseline Interview and enrollment.

DATA SOURCES: Initial Household Report Form, monthly Household Report Form, Baseline, First and Second Periodic Interviews, payments file.

a. See Tables 2-1 and 2-17 for a more complete description of the independent variables and the reference group.

b. NA = not applicable.

* t-statistic significant at the 0.05 level.

** t-statistic significant at the 0.01 level.

("b" in the payment formula) by 0.1 leads to a 21-percentage point lower probability of moving given search than for the reference group. In Phoenix, the effect of raising the basic payment level (that is, the C* level in the payment formula) by 20 percent is to increase the probability of moving for searchers by almost 10 percentage points (significant only at the 0.10 level, however). Both observations are consistent with the finding reported in Section 3.2 that allowance payments led to reduced financial difficulty in moving. It is unclear why there is no effect in Pittsburgh of a variation in the C* level or why there is no effect in Phoenix of a variation in "b."¹ If payment amount is a factor in searchers' ability to move, one would expect both coefficients to be significant at both sites.

Table 3-20 presents the results for the Percent of Rent estimation. Again, the overall explanatory power of the equations is low, suggesting that many factors important for the ability of searchers to move are not reflected in the equations. The addition of the treatment variables is not significant, but in Pittsburgh, increasing the price discount ("a" in the payment formula) by 0.1 increases the probability of moving given search by about 3 percentage points for those that understood the program.

Parallel to the finding in Chapter 2 for the search decision, there appear to be few strong treatment effects on the moving decision of searchers.

3.6 SUMMARY

The evidence presented in this chapter suggests that failure to move was not due to lack of effort and that obstacles households perceived in the course of housing search did not necessarily inhibit moving. Searchers that did not move searched as hard as those that did move. The main barriers reported or volunteered by all searchers were insufficient knowledge about available housing, problems with access to transportation, problems related to children, and expected financial difficulty. For Minimum Standards households, difficulty finding a unit that met the program requirements was perceived as an important problem.

¹The current specification assumes no interaction between any of the treatment variables. Further investigation may reveal important interaction effects.

Table 3-20

LOGIT ESTIMATION OF MOVING BEHAVIOR OF SEARCHERS FOR PERCENT OF RENT AND CONTROL HOUSEHOLDS

INDEPENDENT VARIABLE ^a	PITTSBURGH			PHOENIX		
	COEFFICIENT	ASYMPTOTIC t-STATISTIC	PARTIAL DERIVATIVE	COEFFICIENT	ASYMPTOTIC t-STATISTIC	PARTIAL DERIVATIVE
Constant	-0.605	2.02*	NA ^b	0.374	1.19	NA
Number of Moves in Prior Three Years	0.362	3.54**	0.087	0.240	2.70**	0.058
Education (Years)	-0.070	1.15	-0.016	-0.051	1.07	-0.012
Income (\$100s per year)	0.0008	0.07	0.0002	-0.001	0.13	-0.0002
Age (Years)	0.004	0.42	0.0009	-0.014	1.44	-0.003
Black Head of Household	-0.723	2.27*	-0.165	-0.147	0.33	-0.035
Spanish American Head of Household	NA	NA	NA	-0.113	0.33	-0.027
Female Head of Household	0.165	0.53	0.038	0.332	1.09	0.080
Welfare as Major Source of Income	-0.302	0.81	-0.069	-0.049	0.11	-0.012
Household Size (Persons)	-0.086	0.78	-0.020	-0.145	1.76	-0.035
Dissatisfied with Housing Unit	-0.102	0.40	-0.023	0.016	0.06	0.004
Dissatisfied with Neighborhood	0.038	0.13	0.009	0.089	0.28	0.021
"a" Level for Households Understanding Program	1.235	1.95	0.282	0.166	0.27	0.040
Program Not Understood	0.562	1.18	0.128	-0.650	1.22	-0.157
Chi-square of Treatment Variables (significance)	4.404 with 2 degrees of freedom (not significant)			1.723 with 2 degrees of freedom (not significant)		
Sample Size	(307)			(331)		
Probability for Reference Group	0.353			0.592		
Coefficient of Determination (ρ^2)	0.073			0.051		

SAMPLE: Percent of Rent and Control searchers active at one year, excluding overincome households, "forced movers" (moves resulting from fire, demolition, or eviction), households living in own or subsidized housing, and households that moved between the Baseline Interview and enrollment.

DATA SOURCES: Initial Household Report Form, monthly Household Report Form, Baseline, First and Second Periodic Interviews.

- a. See Tables 2-1 and 2-17 for a more complete description of the independent variables and the reference group.
- b. NA = not applicable.
- * t-statistic significant at the 0.05 level.
- ** t-statistic significant at the 0.01 level.

Search problems were associated in predictable ways with household characteristics. For example, families with several children were more likely to experience discrimination against children, households without their own automobile were more likely to have transportation access problems, and households with less education were more likely to cite difficulty knowing where to search.

It is unclear whether including additional features designed to alleviate these problems in a housing allowance program would assist households in moving. Not all these perceived obstacles led to lower moving rates. Households not knowing where to search or reporting problems related to children, difficulty finding a standard unit, or racial discrimination were not less likely to move than those not so reporting. Only in Pittsburgh were those citing transportation problems less likely to move than those not citing the problem.

The only perceived search problem having a significant effect on moving rates at both sites was financial difficulty--searchers reporting the problem were less likely to move. This problem was also the only one apparently relieved by housing allowance payments. Some Experimental households receiving a full allowance payment were less likely to report financial difficulty as a barrier to moving than Experimental households not receiving a full payment or Control households. The multivariate logit analysis provides some indirect evidence on this issue--there are some indications that an increase in payment levels may increase the probability of moving.

The logit analysis does raise some questions, however, about the accuracy of the households' perceptions of search problems. Several conclusions reached by the analysis of interview questions are inconsistent with the logit analysis results, which suggests that more households may have had some kind of trouble than reported it.

First, households reporting problems related to children were as likely to move as those not so reporting. On the other hand, the probability of moving decreased with household size when estimated in a multivariate model. Because there exist households of a given size both with and without children, specification of the logit equation to include a variable measuring the number of children may resolve this issue; moving problems for large households may

have more to do with availability of housing than with discrimination because of children, per se.

Second, in Pittsburgh, the estimated probability of moving for black searchers is significantly less than that of otherwise similar white searchers but black searchers perceiving racial discrimination were more likely to move than those not so perceiving. Preliminary investigations reported in this chapter indicate that some black searchers do limit the geographical extent of their search. Further investigation of the search behavior of minority households is clearly needed.

Third, Minimum Standards households having trouble finding a place the program office would approve were more likely to move than those not reporting trouble. Households not meeting the requirements at enrollment, however, were estimated to have a lower probability of moving than those meeting the requirements. The net effect of the requirements may possibly be understood by more careful specification of the treatment variables with respect to those not meeting the requirements at enrollment.

The finding that Control households were more likely to experience general difficulty in their search but had about the same moving rate as Experimental households suggests that while the program did reduce financial difficulty it did not change moving behavior. The implications of this are twofold:

The constraints on the mobility of the low-income population are built into the operation of housing markets in such a way that they were not affected by the housing allowance program; intervention substantial enough to make an important difference may not be feasible (though, as cited earlier, the experience in the Administrative Agency Experiment indicates remedies may be effective in certain circumstances).

If mobility is indeed primarily unchanged by the program, then any housing allowance program should take that into account in estimating the extent and timing of participation.

REFERENCES

- Atkinson, Reilly and Antony Phipps, Locational Choice, Part II: Draft Report on Neighborhood Change in the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., April 1977.
- Barrett, Frank A., Residential Search Behavior: A Study of Intra-Urban Relocation in Toronto, Ontario, Canada, Atkinson College, York University, Department of Geography, 1974.
- Butler, Edgar W., Frank S. Chapin Jr., George C. Hemmens, Edward J. Kaiser, Michael A. Stegman and Shirley F. Weiss, Moving Behavior and Residential Choice, Report No. 81, Washington, D.C., National Cooperative Highway Research Program, 1969.
- Holshouser, William, Jr., Supportive Services in a Housing Allowance Program, Cambridge, Mass., Abt Associates Inc., 1976.
- Lansing, John B. and Eva Mueller, The Geographic Mobility of Labor, Ann Arbor, Institute for Social Research, Survey Research Center, 1967.
- McCracken, K. W. J., "Household Awareness and Intra-Urban Migration Search Behavior," The Professional Geographer, Vol. 27, No. 2, May 1975.
- Rossi, Peter, Why Families Move, Glencoe, Ill., The Free Press, 1955.
- U.S. Department of Commerce, Current Housing Reports, Series H-170-74-13, Washington, D.C., September 1976.

CHAPTER 4

OVERALL EFFECTS ON MOVING AND DIRECTIONS FOR FUTURE RESEARCH

The approach outlined in Chapter 1 provided a fruitful basis for research on the process of search and mobility in the Housing Allowance Demand Experiment. The process has been broken into two parts: (1) the decision to search and reasons for not searching, and (2) the search process itself, what barriers were encountered, and whether or not a move resulted. Housing allowance features and household characteristics have been found to influence differently the decision to search and the subsequent decision to move.

As a convenient summary of net effect for the combined process of searching and moving, Section 4.1 presents the results for a multivariate logit model of the same type as that used in Chapters 2 and 3. Both the multivariate analyses and the use of interview data on search and barriers to moving require further research. Section 4.2 outlines this future research, including both research to be conducted on additional data from the second year and the linkages to be made with related analyses, especially program participation.

4.1 NET EFFECTS OF MOBILITY

Following the approaches used in Chapters 2 and 3, a logit analysis of overall moving behavior (that is, the moving behavior of all households, not just of searchers) is presented as an empirical summary and preliminary approach to investigating overall experimental effects. In this case the probability of moving is estimated for all households regardless of their search activity. It is technically inconsistent to use a logit form to estimate the overall decision to move in addition to separate models of the decision to search and the subsequent decision to move. However, at this exploratory stage the overall model provides a more directly interpretable empirical description of net effects than attempting to combine the two partial models.

The sample and the variables used are the same as those used before (see Tables 2-1 and 2-17). Three separate equations are estimated: one for all Experimental and Control households, one for Housing Gap and Control households, and one for Percent of Rent and Control households. The household characteristics included explain substantially more of the variance in the decision to search than of the moving behavior of searchers--the ρ^2 statistics for the search equations are approximately three times as large as those for the equations on the mobility of searchers. Household characteristics were much more important in explaining decisions to search than in explaining the moving behavior of searchers. Therefore it is expected that the household characteristics important for search (previous mobility, age, dissatisfaction) would be important in explaining overall moving.

With respect to treatment effects, the earlier logit estimates and exploratory investigations suggest that the factors which may affect the search decision may well be different from those which may affect the moving decision of searchers. In particular, the apparent inducement to search, of failing to meet the requirements at enrollment (and thus failure to receive any payments) may be offset by the difficulty of satisfying the requirements simultaneously with the other needs of the household. Finally, the effect of larger payments for otherwise similar households should facilitate moving.

Tables 4-1 through 4-3 present the coefficient estimates and related statistics for all the independent variables. These overall estimates indicate that there was no gross program effect on moving (see Table 4-1). Also, none of the individual treatment categories had a significant net effect (see Tables 4-2 and 4-3), even though some appeared to influence either the decision to search or the decision of searchers to move.¹

¹The difference in chi-square for the addition of the treatment variables taken as a group is shown in Tables 4-2 and 4-3 for the separate Housing Gap and Percent of Rent equations. These chi-square differences indicate significance only at the 0.10 level and only in Phoenix for the separate equations.

Table 4-1
LOGIT ESTIMATION OF MOVING FOR ALL HOUSEHOLDS

INDEPENDENT VARIABLE ^a	PITTSBURGH			PHOENIX		
	COEFFICIENT	ASYMPTOTIC t-STATISTIC	PARTIAL DERIVATIVE	COEFFICIENT	ASYMPTOTIC t-STATISTIC	PARTIAL DERIVATIVE
Constant	-2.143	9.89**	NA ^b	-1.172	6.05**	NA
Number of Moves in Prior Three Years	0.316	4.73**	0.030	0.295	6.14**	0.053
Education (years)	-0.073	2.09*	-0.006	-0.011	0.54	-0.002
Income (\$100s per year)	0.003	0.48	0.0003	-0.003	0.74	-0.0005
Age (years)	-0.025	4.08**	-0.002	-0.027	5.40**	-0.005
Black Head of Household	-0.465	2.28*	-0.044	-0.093	0.33	-0.017
Spanish American Head of Household	NA	NA	NA	-0.046	0.25	-0.008
Female Head of Household	0.111	0.58	0.010	0.034	0.20	0.006
Welfare as a Major Source of Income	0.016	0.07	0.001	0.242	0.94	0.043
Household Size	-0.074	1.08	-0.007	-0.075	1.64	-0.013
Dissatisfied With Housing Unit	0.691	4.04**	0.065	0.660	3.83**	0.119
Dissatisfied With Neighborhood	0.200	1.09	0.019	0.367	1.95	0.066
Experimental Household	0.139	0.78	0.013	-0.104	0.66	-0.019
Chi-square of Treatment Variables (Significance)	0.61 with 1 degree of freedom (not significant)			0.43 with 1 degree of freedom (not significant)		
Sample Size	(1178)			(985)		
Probability for Reference Group	0.105			0.236		
Coefficient of Determination (ρ^2)	0.087			0.128		

SAMPLE: Households active at one year, excluding overincome households, "forced movers" (moves resulting from fire, demolition, or eviction), households living in own or subsidized housing, and households that moved between the Baseline Interview and enrollment.

DATA SOURCES: Initial Household Report Form, monthly Household Report Form, Baseline, First and Second Periodic Interviews.

a. See Tables 2-1 and 2-17 for a more complete description of the independent variables and the reference group.

b. NA = not applicable.

* t-statistic significant at the 0.05 level.

** t-statistic significant at the 0.01 level.

Table 4-2
LOGIT ESTIMATION OF MOVING FOR HOUSING GAP AND CONTROL HOUSEHOLDS

INDEPENDENT VARIABLE ^a	PITTSBURGH			PHOENIX		
	COEFFICIENT	ASYMPTOTIC t-STATISTIC	PARTIAL DERIVATIVE	COEFFICIENT	ASYMPTOTIC t-STATISTIC	PARTIAL DERIVATIVE
Constant	-1.963	6.21**	NA ^b	-1.530	4.92**	NA
Number of Moves in Prior 3 Years	0.275	3.26**	0.030	0.322	5.47**	0.047
Education (years)	-0.097	2.11*	-0.010	-0.013	0.53	-0.002
Income (\$100s per year)	-0.004	0.43	-0.0004	-0.0004	0.80	-0.0006
Age (years)	-0.030	3.71**	-0.003	-0.027	4.40**	-0.004
Black Head of Household	-0.455	1.77	-0.049	0.296	0.88	0.043
Spanish American Head of Household	NA	NA	NA	0.063	0.28	0.009
Female Head of Household	0.032	0.13	0.003	0.056	0.28	0.008
Welfare as a Major Source of Income	0.054	0.20	0.006	0.267	0.84	0.039
Household Size	-0.015	0.18	-0.002	-0.096	1.69	-0.014
Dissatisfied With Housing Unit	0.686	3.17**	0.074	0.666	3.10**	0.097
Dissatisfied With Neighborhood	-0.095	0.36	-0.009	0.234	1.02	0.034
Control Household	-0.018	0.06	-0.002	0.286	1.02	0.042
C* Level	*-0.002	0.01	-0.002	0.317	1.76	0.046
Minimum Rent Level	0.004	0.02	0.0004	0.162	0.94	0.024
Minimum Standards Household	-0.285	0.95	-0.031	-0.450	1.71	-0.066
Unconstrained Household	0.206	0.49	0.022	-0.133	0.31	-0.019
"b" Level	-0.610	1.84	-0.066	0.070	0.24	0.010
Requirements Not Met At Enrollment	0.095	0.29	0.010	0.533	1.77	0.078
Chi-square of Treatment Variables (Significance)	4.41 with 7 degrees of freedom (not significant)			12.06 with 7 degrees of freedom (0.10)		
Sample Size	(791)			(682)		
Probability For Reference Group	0.123			0.178		
Coefficient of Determination (R ²)	0.096			0.143		

SAMPLE: Households active at one year, excluding overincome households, "forced movers" (moves resulting from fire, demolition, or eviction), households living in own or subsidized housing; and households that moved between the Baseline Interview and enrollment.

DATA SOURCES: Initial Household Report Form, monthly Household Report Form, Baseline, First and Second Periodic Interviews, payments file.

a. See Tables 1-1 and 2-17 for a more complete description of the independent variables and the reference group.

b. NA = not applicable.

* t-statistic significant at the 0.05 level.

** t-statistic significant at the 0.01 level.

Table 4-3

LOGIT ESTIMATION OF MOVING FOR PERCENT OF RENT AND CONTROL HOUSEHOLDS

INDEPENDENT VARIABLE ^a	PITTSBURGH			PHOENIX		
	COEFFICIENT	ASYMPTOTIC t-STATISTIC	PARTIAL DERIVATIVE	COEFFICIENT	ASYMPTOTIC t-STATISTIC	PARTIAL DERIVATIVE
Constant	-2.281	9.08**	NA ^b	-1.171	5.02**	NA
Number of Moves in Prior 3 Years	0.442	4.99**	0.037	0.303	4.68**	0.055
Education (years)	-0.071	1.54	-0.006	-0.023	0.74	-0.004
Income (\$100s per year)	0.005	0.59	0.004	-0.005	0.90	-0.0009
Age (years)	-0.020	2.62**	-0.002	-0.031	4.39**	-0.006
Black Head of Household	-0.614	2.20*	-0.052	-0.124	0.35	-0.022
Spanish American Head of Household	NA	NA	NA	-0.217	0.88	-0.039
Female Head of Household	0.195	0.78	0.016	0.138	0.63	0.025
Welfare as a Major Source of Income	-0.123	0.41	-0.010	0.309	0.92	0.056
Household Size	-0.071	0.78	-0.006	-0.078	1.28	-0.014
Dissatisfied With Housing Unit	0.674	3.03**	0.057	0.507	2.27*	0.092
Dissatisfied With Neighborhood	0.324	1.34	0.027	0.338	1.36	0.061
"a" Level For Households Understanding	0.792	1.55	0.067	0.290	0.63	0.052
Program Not Understood	-0.019	0.05	-0.002	-0.751	1.92	-0.136
Chi-square of Treatment Variables (Significance)	2.67 with 2 degrees of freedom (not significant)			5.18 with 2 degrees of freedom (0.10)		
Sample Size	(705)			(590)		
Probability For Reference Group	0.093			0.237		
Coefficient of Determination (ρ^2)	0.103			0.128		

SAMPLE: Households active at one year, excluding overincome households, "forced movers" (moves resulting from fire, demolition, or eviction), households living in own or subsidized housing, and households that moved between the Baseline Interview and enrollment.

DATA SOURCES: Initial Household Report Form, monthly Household Report Form, Baseline, First and Second Periodic Interviews.

a. See Tables 2-1 and 2-17 for a more complete description of the independent variables and the reference group.

b. NA = not applicable.

* t-statistic significant at the 0.05 level.

** t-statistic significant at the 0.01 level.

Several treatment variables, however, have nearly significant effects (since the 0.05 significance level corresponds to a t-statistic of 1.96), so it would be premature to conclude that there are absolutely no program effects on mobility.¹ Given the exploratory nature of the report, those coefficients with fairly large t-statistics are commented on. Tables 4-4 through 4-6 present the coefficients estimated for each stage of the moving process.

In the Housing Gap equation for Pittsburgh, the positive incentive to search created by having to meet the housing requirements in order to receive payment was apparently offset by the difficulty searchers had in moving (see Table 4-5). But in Phoenix this incentive persisted, so that these households were more likely to move than households that initially met the requirements.² The disincentive to moving relative to the reference group created for Pittsburgh searchers by a higher "b" level, or payment reduction rate (effectively a lower payment level), led to a negative overall effect on mobility, though of smaller magnitude (Table 4-5). However, the search disincentive of increasing the Minimum Rent level in Pittsburgh did not show up for overall moving. In Phoenix a different kind of influence of payment level can be seen-- there was an overall effect on moving of the higher basic payment level (C level), just as there was on the moving of searchers. Again, one would have expected to see both "b" and C level effects at both sites, because they both represent effects of payment level.

In the Percent of Rent equation, for Pittsburgh households there was a positive relationship between the rental discount ("a" level) and the

¹More refined specification of mobility models of household behavior or analysis on the second-year observations might well uncover significant treatment effects. It is unlikely, however, that such refinements will indicate larger effects than those indicated by the current analysis.

²It remains to be seen whether this apparent inducement to move is an artifact of the reference group chosen; future analysis will attempt to make these comparisons with otherwise similar Control households.

Table 4-4
SUMMARY OF LOGIT COEFFICIENTS
ALL HOUSEHOLDS

INDEPENDENT VARIABLE ^a	PITTSBURGH			PHOENIX		
	DECISION TO SEARCH	SEARCHER'S DECISION TO MOVE	DECISION TO MOVE	DECISION TO SEARCH	SEARCHER'S DECISION TO MOVE	DECISION TO MOVE
Constant	-1.023	-0.531*	-2.143**	-0.524**	0.509	-1.172**
Number of Moves in Prior Three Years	0.279**	0.240**	0.316**	0.318**	0.209**	0.295**
Education (years)	-0.045	-0.054	-0.073*	-0.006	-0.017	-0.011
Income (\$100s per year)	0.004	0.002	0.003	-0.002	-0.003	-0.003
Age (years)	-0.031**	-0.004	-0.025**	-0.028**	-0.012	-0.027**
Black Head of Household	0.054	-0.630**	-0.465*	0.283	-0.374	-0.093
Spanish American Head of Household	NA ^b	NA	NA	-0.055	-0.061	-0.046
Female Head of Household	0.072	0.117	0.111	-0.133	0.210	0.034
Welfare as Major Source of Income	0.139	-0.081	0.016	0.440	-0.062	0.242
Household Size	0.014	-0.113	-0.074	-0.007	-0.135*	-0.075
Dissatisfied With Housing Unit	1.099**	0.014	0.691**	0.883**	0.114	0.660**
Dissatisfied With Neighborhood	0.606**	-0.147	0.200	0.598**	0.058	0.367
Experimental Households	0.038	0.219	0.139	-0.079	-0.940	-0.104
Sample Size	(1168)	(524)	(1178)	(969)	(544)	(985)

SAMPLE: Households active at one year, excluding overincome households, "forced movers" (moves resulting from fire, demolition, or eviction), households living in own or subsidized housing and households that moved between the Baseline Interview and enrollment.

DATA SOURCES: Initial Household Report Form, monthly Household Report Form, Baseline, First and Second Periodic Interviews, Tables 2-2, 3-1 and 4-1.

a. See Tables 2-1 and 2-17 for a more complete description of the independent variables and the reference group.

b. NA = not applicable.

* t-statistic significant at the 0.05 level.

** t-statistic significant at the 0.01 level.

Table 4-5
SUMMARY OF LOGIT COEFFICIENTS
HOUSING GAP AND CONTROL HOUSEHOLDS

INDEPENDENT VARIABLE ^a	PITTSBURGH			PHOENIX		
	DECISION TO SEARCH	SEARCHER'S DECISION TO MOVE	DECISION TO MOVE	DECISION TO SEARCH	SEARCHER'S DECISION TO MOVE	DECISION TO MOVE
Constant	-1.141**	-0.071	-1.963**	-1.090**	0.724	-1.530**
Number of Moves in Prior Three Years	0.301**	0.169	0.275**	0.348**	0.229**	0.322**
Education (years)	-0.048	-0.077	-0.097*	-0.011	-0.017	-0.013
Income (\$100s per year)	0.002	-0.007	-0.004	-0.003	-0.006	-0.004
Age (years)	-0.033**	-0.008	-0.030**	-0.028**	-0.013	-0.027**
Black Head of Household	0.146	-0.635*	-0.455	0.371	-0.046	0.296
Spanish American Head of Household	NA ^b	NA	NA	-0.017	0.063	0.063
Female Head of Household	-0.169	0.191	0.032	-0.100	0.241	0.056
Welfare as Major Source of Income	0.268	-0.063	0.054	0.144	0.312	0.267
Household Size	-0.0009	-0.013	-0.015	-0.019	-0.137	-0.096
Dissatisfied With Housing Unit	1.054**	0.079	0.686**	0.989**	0.018	0.666**
Dissatisfied With Neighborhood	0.582**	-0.462	-0.085	0.475	-0.085	0.234
Control Households	0.174	-0.338	-0.018	0.543	-0.298	0.286
C* Level	0.126	-0.004	-0.002	0.081	0.444	0.317
Minimum Rent Level	-0.327*	0.359	0.004	0.052	0.397	0.162
Minimum Standards Households	-0.115	-0.053	-0.285	-0.203	-0.410	-0.450
Unconstrained Households	-0.031	0.230	0.206	0.196	-0.485	-0.133
"b" Level	0.040	-0.853*	-0.610	0.274	-0.138	0.070
Requirements Not Met At Enrollment	0.653*	-0.633	0.015	0.786**	-0.112	0.533
Sample Size	(784)	(363)	(791)	(670)	(373)	(682)

SAMPLE: Households active at one year, excluding overincome households, "forced movers" (moves resulting from fire, demolition, or eviction), households living in own or subsidized housing and households that moved between the Baseline Interview and enrollment.

DATA SOURCES: Initial Household Report Form, monthly Household Report Form, Baseline, First and Second Periodic Interviews, payments file, Tables 2-18, 3-19, and 4-2.

a. See Tables 2-1 and 2-17 for a more complete description of the independent variables and the reference group.

b. NA = not applicable.

* t-statistic significant at the 0.05 level.

** t-statistic significant at the 0.01 level.

Table 4-6
SUMMARY OF LOGIT COEFFICIENTS
PERCENT OF RENT AND CONTROL HOUSEHOLDS

INDEPENDENT VARIABLE ^a	PITTSBURGH			PHOENIX		
	DECISION TO SEARCH	SEARCHER'S DECISION TO MOVE	DECISION TO MOVE	DECISION TO SEARCH	SEARCHER'S DECISION TO MOVE	DECISION TO MOVE
Constant	-1.109**	-0.605*	-2.281**	-0.492*	0.374	-1.171**
Number of Moves in Prior Three Years	0.355**	0.382**	0.442**	0.329**	0.240**	0.303**
Education	-0.036	-0.070	-0.071	-0.004	-0.051	-0.023
Income (\$100s per year)	0.008	0.0008	0.005	-0.004	-0.001	-0.005
Age (years)	-0.031**	0.004	-0.020**	-0.031**	-0.014	-0.031**
Black Head of Household	-0.084	-0.723*	-0.614*	0.161	-0.147	-0.124
Spanish American Head of Household	NA ^b	NA	NA	-0.234	-0.113	-0.217
Female Head of Household	0.208	0.165	0.195	-0.060	0.332	0.138
Welfare as Major Source of Income	0.099	-0.392	-0.123	0.632	-0.049	0.309
Household Size	-0.032	-0.086	-0.071	-0.028	-0.145	-0.078
Dissatisfied With Housing Unit	1.113**	-0.102	0.674**	0.715**	0.016	0.507*
Dissatisfied With Neighborhood	0.574**	0.038	0.324	0.482	0.089	0.338
"a" Level for Households Understanding	0.091	1.235	0.792	0.376	0.166	0.290
Program Not Understood	-0.697*	0.562	-0.019	-0.717	-0.650	-0.751
Sample Size	(700)	(307)	(705)	(581)	(331)	(590)

SAMPLE: Households active at one year, excluding overincome households, "forced movers" (moves resulting from fire, demolition, or eviction), households living in own or subsidized housing, and households that moved between the Baseline Interview and enrollment.

DATA SOURCES: Initial Household Report Form, monthly Household Report Form, Baseline, First and Second Periodic Interviews, Tables 2-19, 3-20, and 4-3.

a. See Tables 2-1 and 2-17 for a more complete description of the independent variables and the reference group.

b. NA = not applicable.

* t-statistic significant at the 0.05 level.

** t-statistic significant at the 0.01 level.

overall likelihood of moving for those that understood the program (see Table 4-3). This is consistent with a similar result for the mobility of Pittsburgh searchers (see Table 4-6). In Phoenix those not understanding the offer were apparently less likely to move,¹ but no differential effect of the discount rate was observed. This, too, is consistent with a similar result for the mobility of Phoenix searchers. Such site-specific results for these equations call for further investigation.

With respect to household characteristics, the coefficients indicate the overall effect of the two parts of the mobility process (see Table 4-1). In the separate equations, search was influenced by previous mobility, age of head of household, and satisfaction with both housing unit and neighborhood; for searchers, previous mobility was the only continuing influence on moving, but black households and larger families appeared to have difficulty moving (see Table 4-4). The overall mobility equations indicate how these diverse relationships combine.

Overall, it appears that housing unit dissatisfaction was a somewhat stronger influence on mobility than neighborhood dissatisfaction. The investigation of the search decision has found that both housing unit and neighborhood dissatisfaction increased the probability of search, while the analysis in Chapter 3 showed that neither type of dissatisfaction had a significant effect on the mobility of searchers.

Black households in Pittsburgh had an overall probability of moving that was about four to five percentage points lower than the probability for white households in the reference group. The two groups were about equally likely to search, but among Pittsburgh households that searched, blacks were less likely to move than whites.

¹As discussed in Chapter 2, those households not moving were unable to observe variations in their payment and may not have understood the payment formula as well as those that moved.

Older households were less likely to move than younger ones. Older heads of household were less likely to search for a new place to live, but age did not seem to affect the moving rate of households that searched.

The number of moves in the three years prior to the experiment was a strong positive correlate of overall mobility. Moving rates before entering the experiment were positively associated with both the likelihood of search during the first year and of the likelihood of a move after searching.

The probability of moving appeared to decrease somewhat with increasing levels of education. Although the education coefficient was significant only in Pittsburgh and only in this overall mobility equation, the finding is consistent with the pattern found for searchers and the moving rate of searchers in Chapters 2 and 3.

4.2 DIRECTIONS FOR FUTURE RESEARCH

The fact that some households choose not even to search when offered a housing allowance bears further investigation to assess the likely implications for program impact. Of particular interest are those households that do not meet program requirements yet choose not to search. In addition many households that do search encounter barriers when attempting to move; further investigation may help identify possible remedies. The tentative finding of no significant program effects on overall mobility should be further explored. If confirmed, the implication is clear--the timing of program responses requiring a move will be governed primarily by local patterns of mobility. Consequently, a better understanding of the determinants of mobility would help identify which eligible households would eventually consider moving and therefore be responsive to an allowance offer. Future work in each of these areas is indicated, and each is discussed briefly below.

This report has identified several factors relevant to program participation that depend on moving. It appears that some households may be relatively immobile at least for fairly long periods relative to the duration of the experiment. Unless they already meet housing requirements or are able to upgrade their current dwellings, a housing allowance

program would not affect them, at least in the short run. Second-year observations on search and moving are important especially for households that did not search or move in the first year. First-year nonsearchers that also do not search in the second year could be identified as relatively immobile households--that is, households that use the allowance primarily to reduce the fraction of income they spend on housing.

This group of households can be further investigated with additional interview data collected at the end of the second year and with second-year observations on search and moving. One objective of future research is to distinguish households that consciously choose not to respond from those which do not understand the nature of the offer. Interview questions will be used to assess the degree to which households not meeting the housing requirement realized their situation--whether they understood the nature of the requirements and whether they knew how much money they would receive upon meeting the requirements.

As indicated in Chapter 1 and supported throughout this report, responses to the housing allowance offers are heavily dominated by the normal local mobility patterns. If the second-year data also show that there are no program effects on moving, the remaining analysis can concentrate on estimating program impacts for movers. Indeed, it might be possible, by projecting future mobility, to estimate the longer run impact of the program for households that eventually move. But the work reported here suggests that more refined analysis could uncover program effects that are not statistically significant but are important enough to affect the remaining analysis. For example, there are indications that moving rates at one site or the other may be altered by several percentage points as a function of payment amount, imposition of the Minimum Standards as opposed to the Minimum Rent requirement, or by the fact of not initially meeting the housing requirements.¹ Should these indications be borne out, the analysis of impacts is considerably complicated by

¹There is, of course, the possibility that the housing allowance induced some households to stay though they otherwise might have moved to less expensive housing. Further development of a theoretical description of the incentives for mobility is underway. If possible, distinctions will be made between program inducements to stay in good housing and inducements to move from poor housing.

the need to consider simultaneously program impacts both on moving and on housing response for movers. In that event an alternative would be to suppress the role of moving, examine only the short-run overall response over the two-year period of analysis, and attempt no projections beyond that period.¹

Of those searching, households moving in neither the first nor second year presumably represent those encountering serious barriers. Further work on barriers to moving will center on three areas: extensions of current analyses using second-year data, further assessment of the Housing Information Program, and assembling the related pieces of evidence with respect to racial/ethnic discrimination.

Second-year data on search barriers will be examined to confirm or modify the observations reported here. Unless different patterns emerge, the interview data on search problems do not appear to be very helpful in identifying households with actual problems in moving, though they may help identify groups with greater likelihood of search difficulty. Program understanding requires further investigation to identify whether understanding the offer affected the decisions of searchers.

The role of the Housing Information Program offered to enrollees has been investigated in only the most preliminary way (see Appendix V).² In the Administrative Agency Experiment, formal information services at enrollment were found ineffective in helping enrollees to reach recipient status (see Holshouser, 1976).³ The Housing Information Program offered in the Demand

¹An additional complication of attempted projections is that they require the unrealistic assumption that the close, frequent, direct contact with eligible households by the program office continues as it did in the Demand Experiment.

²For example, data on attendance at specific sessions had not been entered into the data base at the time the analysis reported in Appendix V was done. Use of the data on specific session attendance may be of value in interpreting responses to the allowance offers.

³The Demand Experiment did not provide what the Administrative Agency Experiment analysis termed "responsive" services, except for the standing offer of the help of an equal opportunity lawyer. In the AAE responsive services such as rental listings, transportation for housing search, and assistance in negotiation with landlords were found to help disadvantaged enrollees (especially black enrollees) in tight housing markets find housing adequate for them to reach recipient status.

Experiment was of this type. To the extent possible, further analysis of the role of this program will be directed toward evaluating this Administrative Agency finding.

Because of the limited use of equal opportunity support (access to a lawyer) by participants in the Demand Experiment, it is unreasonable to expect a program effect on overcoming discrimination. It is important as a matter of policy, however, to use the data collected to assess the experience of minority households in the experiment. Even though there was little subjective perception of discrimination, there may have been de facto discrimination or search restrictions in anticipation of discrimination, as evidenced by the lower likelihood of moving by black searchers. Interview data are available on neighborhoods in which households searched. Comparisons of the search geography of black and white households may aid in investigating the possibility of racial restrictions. For example, a finding that black households systematically avoided particular neighborhoods might indicate avoidance of anticipated discrimination and offer a partial explanation for the low incidence of perceived overt racial discrimination despite the existence of racial segregation. If the areas in which black households searched typically have a low quality housing stock, the lower moving rate for blacks may result from restricted choice, especially for Housing Gap households.

In addition to direct attempts to investigate relatively immobile households and those with search barriers interfering with full use of the allowance offer, the multivariate analysis of mobility and of treatment effects on mobility needs to be extended. To these ends, the logit models used in this report can be refined both by increased reliance on economic as well as social psychological theories about searching and moving and by improvements in functional form. The nature of the sample and interactions among the various demographic characteristics including the household life-cycle and race should also be investigated carefully. As suggested in Chapter 2, perhaps the most important of these is the relationship between being elderly and several structural and socio-economic correlates, including family size, income, and education. The relationship between dwelling unit and neighborhood dissatisfaction and their possible interactions with the various household characteristics

should also be further explored. The evidence thus far of strong attachment for some households suggests a subsidiary analysis to identify those combinations of household characteristics and housing conditions that best explain expressed satisfaction or attachment to dwelling unit and neighborhood. This analysis would help to identify appropriate variables for inclusion in the logit estimates for search.

There may be important interactions between certain household characteristics and the experimental treatments. Log-linear contingency table analysis can be used to identify interactions that appear important enough to include in respecified logit equations. For those who consider moving, some economic considerations are likely to be helpful in relating the relevant household characteristics to the housing allowance offers. For example, transaction costs can be specified in terms of actual out-of-pocket moving expenses, search time required for various types of households, and losses involved in leaving a dwelling in which a lower than normal rent is currently paid. Also, utility theory would permit some estimates of the real income equivalent of the housing allowance, given the housing change required to meet program requirements.¹ If the payment amount after meeting the requirements is such that the real income equivalent net of transaction costs is positive (that is, the income equivalent of the additional housing and other goods less transactions costs) a household should have increased incentive to move.

Finally, alternative treatment codings can be tried, particularly to establish more firmly the behavior of Housing Gap households that initially do not meet the requirements. One way to do this is to classify Control households according to their initial status with respect to housing requirements in an attempt to remove correlation of program effects with background characteristics.

The most immediate applications of these extensions will be in the analysis of program participation. Households not able to meet requirements in their enrollment residence and unlikely to move obviously are less likely to participate in the program. If the economic considerations of

¹Even crude assumptions about utility functions might yield functional forms for factors likely to induce moves that would prove empirically useful.

households that do consider moving can be appropriately modeled, one might be able to predict not only the likelihood of moving but also the likelihood of meeting program housing requirements by moving.

The estimated relationships between household characteristics, treatment variables, and moving were developed using first-year data. If these relationships are able to identify households likely to move in the second year (especially for Control households) and if moving is found to be relatively independent of program effects, there is some prospect of using this analysis to estimate long-run participation in a housing allowance program.¹ It also is likely that the actual responses of first-year movers in terms of program objectives (such as meeting housing requirements) will have to be used in conjunction with predicted mobility to assess eventual program impact.² Though there is no guarantee of succeeding in the development of these extensions, they will be goals of the continuing research.

While not within the immediate purview of the Demand Experiment, the issue of generalizing the results to other cities is of obvious concern in considering a national program of housing allowances or alternative housing programs incorporating some of its features, such as the current

¹Note, however, that the Demand Experiment offers only part of the evidence on participation. Some definition of the administrative form of the program will be required for the synthesis of analysis from the three major components of the Experimental Housing Allowance Program. The Demand Experiment, unlike a plausible full-scale program, directly contacted eligible households and maintained contact with them over the two-year observation period, whether or not they became recipients. In the Administrative Agency Experiment applicants were required within a period of 60 to 90 days to take whatever steps were necessary to become recipients (see Abt Associates Inc., 1976). The Supply Experiment offers direct evidence on the timing of participation in an ongoing, community-wide program, at least during the five-year period of observation used there for analysis.

²The analysis by Mayo (1977) of the first-year responses to the Percent of Rent offers has already indicated that long-run response is likely to be quite dependent on the timing of moves and the timing of moves in turn to depend largely on local mobility rates.

Section 8 leasing program.¹ Participation in a housing allowance program involves a complex interaction between housing requirements, the condition of the local housing stock (especially the condition of the housing of the eligible population), and local patterns of mobility. Those who attempt to generalize from the Demand Experiment will require estimates of the incidence of moving required to meet the housing requirements, estimates of local mobility rates, and of the likelihood that movers will meet requirements. The work reported here and the subsequent extensions to be undertaken should be useful in such estimates with respect to the mobility of eligible groups. Even if the absolute magnitude of mobility cannot be predicted from characteristics of the eligible population, the estimates from the Demand Experiment could be combined with available data on overall mobility rates in a metropolitan area (for example, from Census or Annual Housing Survey data) to estimate variations for the eligible population in that area.²

¹Part of the Section 8 housing program enables households certified as eligible for public housing to locate their own housing in the private market within certain limits. The government then pays the difference between the rent and a specified fraction of the household's income. The subsidy amount is dependent on the rent, and, unlike the situation for Housing Gap households under the Minimum Standards requirement, for whom the subsidy is a fixed amount determined by income and family size, Section 8 also incorporates a "shopping incentive" for households obtaining housing below the rent limits. Section 8 also has a lease requirement (unlike the plans tested in the Demand Experiment). Nevertheless, findings on program participation in the experiment should be applicable in part to the Section 8 program.

²Moving rates for the eligible population in an area may well differ from rates reported in various publications although the rates for households in the Demand Experiment are remarkably similar to data from the Annual Housing Survey for the pertinent sections of the U.S. The Annual Housing Survey for 1973 reports the following numbers for a national sample of both renters and homeowners:

	<u>Percentage of Rental Units Occupied by Recent Movers</u>
United States	36.0%
Northeast	24.1
West	45.6

These comparisons are crude at best because of a number of possible differences between the Demand Experiment sample and that used in the Annual Housing Survey. For example, these data include intermetropolitan migrants whereas the Demand Experiment data represent only local movers. Moreover, all households enrolled in the experiment are renters.

Of all these areas of further research on search and mobility, barriers to moving is probably the most essential. In particular, the relationship between intensity of search, incidence of search problems and ability to move needs to be disentangled. It is of particular concern how well a housing allowance works for minority households and larger households and whether or not additional program features could improve the way an allowance would work for them.

REFERENCES

- Abt Associates Inc., Third Annual Report of the Demand Experiment, Cambridge, Mass., April 1976.
- Holshouser, William, Jr., Supportive Services in a Housing Allowance Program, Vol. I, Cambridge, Mass., Abt Associates Inc., 1976.
- Mayo, Stephen K., Housing Expenditures and Quality, Part I: Housing Expenditures Under a Percent of Rent Housing Allowance, Cambridge, Mass., Abt Associates Inc., January 1977.
- U.S. Department of Housing and Urban Development, Annual Housing Survey: 1973, part D, Washington, D.C., U.S. Bureau of the Census, 1975.



APPENDIX I
DESIGN OF THE DEMAND EXPERIMENT

This appendix presents a brief overview of the Demand Experiment's purpose, reports, data collection, experimental design, and sample allocation.

I.1 PURPOSE OF THE DEMAND EXPERIMENT

The Demand Experiment is one of three experiments established by the U.S. Department of Housing and Urban Development (HUD) as part of the Experimental Housing Allowance Program.¹ The purpose of these experiments is to test and refine the concept of housing allowances.

Under a housing allowance program, money (the allowance) is given directly to individual families in need to assist them in obtaining adequate housing. The allowance may be tied to housing by making the amount of the allowance depend on the amount of rent paid or by requiring that households meet certain housing requirements to receive the allowance payment. The initiative in using the allowance and the burden of meeting housing requirements are placed on the individual family rather than on developers, landlords, or the government.

The desirability, feasibility, and appropriate structure of a housing allowance program have not been established. Housing allowances could be less expensive than some other kinds of housing programs because they allow fuller utilization of existing sound housing; the allowance is not necessarily tied to new construction or to special classes of dwelling units. Housing allowances may also be more equitable. The allowance can be adjusted rapidly to changes in income without forcing the family to change units. Recipient families may, if they desire, use their own resources (by either paying higher rent or searching carefully) to obtain better housing than is required to receive the allowance. As long as program requirements are met, housing allowances permit families considerable choice in determining

¹The other two experiments are the Housing Allowance Supply Experiment and the Administrative Agency Experiment.

the housing they want--where they live (near schools, near work, near friends, or relatives), or the type of unit they live in (single-family or multi-family). Finally, housing allowances could be less costly to administer. Program requirements need not cover every detail of participant housing. The burden of specifying and administering details that are not essential to the government, and of obtaining housing that meets requirements that are essential, is shifted from program administrators to participants and the private market. Because the program is less visible (the action in the housing market rests with individual families and can be dispersed over the entire market), there may be less public pressure on the administering agency.

These potential advantages are not unquestioned. Critics of housing allowances have suggested that poor families may lack the necessary experience with and knowledge of the private market for better housing to use allowances effectively; that special groups such as the elderly will not be effectively served without direct intervention to change the supply of housing to meet their needs; that administrative costs could rise uncontrollably; and that increasing the demand for housing without direct support for construction of new units will result in a substantial inflation of housing costs.

If housing allowances are desirable, they could be implemented by means of many different program structures. There is a wide range of possible allowance formulas, housing requirements, nonfinancial support (such as counseling), and administrative practices which could substantially affect both the costs and impact of a housing allowance program.

The Demand Experiment addresses issues of feasibility, desirability, and appropriate structure in terms of how individuals (as opposed to the market or administering agencies) react to various allowance formulas and housing standards requirements. The analyses and reports are designed to answer six policy questions:

1. Participation

Who participates in a housing allowance program? How does the form of allowance affect the extent of participation for various households?

2. Housing Improvements

Do households receiving housing allowances in fact improve the quality of their housing? At what cost? How do households receiving a housing allowance seek to improve their housing-- by moving, by rehabilitation? With what success?

3. Locational Choice

For those participants who move, how do the locational choices of allowance recipients compare with existing residential patterns? Are there nonfinancial barriers to effective use of a housing allowance?

4. Administrative Issues

What administrative issues and associated costs are involved in the implementation of a housing allowance program?

5. Form of Allowance

How do the different forms of a housing allowance compare in terms of participation, housing quality achieved, locational choice, costs (including administrative costs), and equity?

6. Comparison with Other Programs

How do housing allowances compare with existing housing programs and with income maintenance in terms of participation, housing quality achieved, locational choice, costs (including administrative costs), and equity?

The first three policy questions ask about the results of a housing allowance program. Participation can substantially affect both program costs and program desirability. Income transfer programs ordinarily do not enroll all those who are eligible. This obviously affects their potential scale and costs. At the same time, if a program fails to reach such key groups as the very poor, it may fail in its purpose, no matter how successful it is for those who do participate.

The issue of participation is particularly important in a housing allowance program. Such a program does not simply offer more money to needy households. It generally requires that they meet certain housing requirements

to participate. The extent and nature of these requirements may make successful participation more or less difficult and desirable for various groups, such as the very poor, the elderly, or minorities.

The improvement in housing achieved under a housing allowance program is obviously central to judging its success. Housing improvement may be measured in terms of the change in the amount of housing purchased (essentially, the rent paid), achievement of certain specified quality levels in housing, or participant preferences and satisfaction with housing. Major issues include not only how these measures of housing change but what measures are most appropriate.

By providing poor households with a greater range of locational choice, a housing allowance may alter patterns of racial and socioeconomic segregation. In any case, the ability and interest of eligible households in searching for new housing can substantially affect their ultimate benefits from a housing allowance program. Examination of the degree of success with which households search for new housing may suggest the need for nonfinancial support, such as counseling, provision of vacancy lists, or equal opportunity support.

The fourth policy question concerns administrative issues. Although administrative issues are not a central concern of the Demand Experiment, analysis of the procedures used in the experiment may shed some light on selected issues, such as verification of participant income and household size, the need of providing housing information to participants, or appropriate coordination with other transfer programs.

The Demand Experiment studies a variety of potential housing allowance programs. It is designed to allow policymakers to make an informed choice among alternative forms of housing allowance programs. The fifth policy question asks how the effects of the allowance in terms of participation, housing change, locational choice, equity, and costs vary across different forms of housing allowance programs.

The last policy question asks how a housing allowance program compares with other housing programs or with income maintenance in terms of participation, housing quality achieved, locational choice, costs, and equity.

I.2 REPORTS

The first analytic reports from the Demand Experiment will be submitted in 1976 and early 1977. These reports will examine key analytic issues using data collected during the first year of participation. They are intended to test basic analytic models and concepts and to identify areas for further work. The topics for these reports are grouped around areas defined by the first three policy questions: participation, housing consumption, and location.

The final set of reports, to be submitted in 1977 and 1978, will be based on the full two years of experimental data and will represent the final analytic products of the experiment. These reports address each of the six policy questions in turn.

I.3 DATA COLLECTION

The Demand Experiment is conducted at two sites--Allegheny County, Pennsylvania (Pittsburgh), and Maricopa County, Arizona (Phoenix). Most of the information on participating households is collected from:

Baseline Interviews conducted by an independent survey operation before households are offered enrollment

Initial Household Report Forms and monthly Household Report Forms completed during and after enrollment to provide operating and analytic data on household size and income and on expenditures for housing

Supplements to the Household Report Forms completed after enrollment to provide data on assets, income from assets, actual taxes paid, income from self-employment, and extraordinary medical expenses

Housing Evaluation Forms completed by site office evaluators at least once each year for every dwelling unit occupied by participants, to provide information on the quality of participant housing

Periodic Interviews conducted approximately 6, 12, and 24 months after enrollment by an independent survey operation

Exit Interviews conducted by an independent survey operation for a sample of households that decline the enrollment offer or leave the program.

Surveys and housing evaluations are also administered to a sample of participants in existing housing programs.

The experimental programs in the Demand Experiment continue for three years after enrollment is completed. At the end of that time, eligible and interested allowance families will be aided in entering other housing programs, especially the Section 23 Leased Housing Program. Analysis will be based on data from only the first two years of participation. The experimental programs are continued for one additional year to avoid confusing participants' reactions to the ongoing experiment with their adjustments to the phaseout of the experiment.

I.4 ALLOWANCE PLANS USED IN THE DEMAND EXPERIMENT

The Demand Experiment directly tests three combinations of payment formulas and housing requirements and five to six variations within each of these combinations--a total of 17 variations. These 17 variations allow some possible program designs to be tested directly. More important, they allow estimation of key responses in terms of such basic program parameters as the level of allowances, the level and type of housing requirements, the minimum fraction of its own income which the family is expected to contribute toward housing, and the way in which allowances vary with family size, income, and rent. These response estimates can then be used to address the policy questions, not just for the program plans directly tested but for a much larger set of candidate program plans.¹

¹The basic design and analysis approach, as approved by the HUD Office of the Policy Development and Research, is presented in Abt Associates Inc., Experimental Design and Analysis Plan of the Demand Experiment, Cambridge, Mass., March 1973, revised August 1973, and in Abt Associates Inc., (footnote continued on next page)

Two payment formulas are used in the Demand Experiment--Housing Gap and Percent of Rent.

Under the Housing Gap formula, payments to families constitute the difference between a basic payment level, C, and some reasonable fraction of family income. The payment formula is

$$P = C - bY$$

where P is the payment amount, C is the basic payment level, "b" is the rate at which the allowance is reduced as income increases, and Y is the net family income.¹ In the experiment, the basic payment level, C, varies with household size and is proportional to C*, the estimated cost of modest, existing standard housing at each site, and varies by household size.² Thus, the payment in the Housing Gap formula can be interpreted as making up the difference between some fraction of the cost of decent housing and the fraction of its own income that a household should be expected to pay for housing.

Under the Percent of Rent formula, the payment is a percentage of the family's rent. Thus, the payment is determined by

$$P = aR$$

where R is rent and "a" is the fraction of rent paid by the allowance. The values of "a" remain constant once a family has been enrolled.³

(footnote continued from previous page)
Summary Evaluation Design, Cambridge, Mass., June 1973. Details of the operating rules of the Demand Experiment are contained in Abt Associates Inc., Site Operating Procedures Handbook, Cambridge, Mass., April 1973, updated periodically.

¹In addition, whatever the payment calculated by the formula, the actual payment cannot exceed the rent paid.

²For more detailed discussion regarding the derivation of C*, refer to Abt Associates Inc., Working Paper on Early Findings, Cambridge, Mass., January 1975, Appendix II.

³Five values of "a" are used in the Demand Experiment. Once a family is assigned its "a" value, the value generally stays constant in order to aid experimental analysis. In a national Percent of Rent program, "a" would probably vary with income and/or rent. Even in the experiment, if a family's income rises beyond a certain point, the "a" drops rapidly to zero. Similarly, the payment under Percent of Rent cannot exceed C* (the maximum payment under the modal Housing Gap plan); this effectively limits the rent subsidized to rents less than C*/a.

The Percent of Rent payment formula is directly tied to rent: a household's allowance payment is proportional to the total rent. Under the Housing Gap formula, however, two additional housing requirements are needed to tie the allowance to housing: Minimum Standards and Minimum Rent.

Under the Minimum Standards requirement, participants must occupy dwellings meeting certain standards to receive the allowance payment. Participants occupying units that do not meet these standards must either move or arrange to improve their current units to meet the standards. Participants already living in housing that meets standards may use the payment to pay for better housing or to reduce their rent burden (the fraction of income spent on rent) in their existing units.

If housing quality were broadly defined to include all residential services, and if rent levels were highly correlated with the level of services, then a straightforward housing requirement (one relatively inexpensive to administer) would be that recipients spend some minimum amount on rent. Minimum Rent is considered as an alternative to Minimum Standards in the Demand Experiment, so that differences in response and cost may be observed and the relative merits of the two types of requirements assessed. Although the design of the experiment uses a fixed minimum rent for each household size, a program for direct cash assistance could employ more flexible versions. Such versions could, for example, combine features of the Percent of Rent formula with the Minimum Rent requirement.¹ Thus, the three combinations of payment formulas and housing requirements used in the Demand Experiment are Housing Gap Minimum Standards, Housing Gap Minimum Rent, and Percent of Rent.

The Housing Gap allowance plans are shown in Table I-1 below. The first nine plans all have "b" equal to 0.25, and include three variations in the level of C (1.2C*, C*, and 0.8C*) and three variations in housing requirements (Minimum Standards, Minimum Rent Low (0.7C*) and Minimum Rent High (0.9C*)). The next two plans have the same level of C (C*) and the Minimum Standards Housing Requirement, but different levels of "b"--the tenth plan

¹For example, instead of receiving nothing if their rent is less than the Minimum Rent, households might be paid a fraction of their allowance depending on the fraction of Minimum Rent paid.

Table I-1
HOUSING GAP ALLOWANCE PLANS

Housing Gap Formula: $P = C - bY$ where C is a multiple of C^*

HOUSING REQUIREMENTS			
MINIMUM STANDARDS	MINIMUM RENT LOW = $0.7C^*$	MINIMUM RENT HIGH = $0.9C^*$	NO REQUIREMENT

b VALUE

b = .15
b = .25
b = .35

C LEVEL

C^*
$1.2C^*$
C^*
$0.8C^*$
C^*

Plan 10			
Plan 1	Plan 4	Plan 7	
Plan 2	Plan 5	Plan 8	Plan 12
Plan 3	Plan 6	Plan 9	
Plan 11			

Symbols:

b = Rate at which the allowance decreases as the income increases.

C^* = Basic payment level (varied by family size and also by site).

has "b" equal to 0.15 while the eleventh plan has "b" equal to 0.35. The twelfth plan has no housing requirement.

Eligible households that do not meet the housing requirement can still enroll. They receive full payments whenever they meet the requirements and may do so anytime during the three years of the experiment. Even before they meet the housing requirements, such households receive a payment of \$10 per month if they complete all reporting and interview requirements.

Within the Housing Gap design, the mean effects of changes in the allowance level and housing requirement can be estimated for all major responses.

In addition, interactions between allowance level and housing requirement can be assessed. Responses to variations in the allowance/income schedule (changes in "b") can be estimated for the basic combination of the Minimum Standards housing requirement and C*.

The Percent of Rent allowance plans consist of five variations in "a", the proportion of rent paid to the household, as shown in Table I-2 below.¹

Table I-2
PERCENT OF RENT ALLOWANCE PLANS

Percent of Rent Payment Formula: $P = aR$

Allowance Plan	13	14-16	17-19	20-22	23
Value of "a"	0.6	0.5	0.4	0.3	0.2

A demand function for housing will be estimated primarily from the Percent of Rent observations. This demand function should provide a powerful tool for analysis of alternative forms and parameter levels of housing allowance programs.

In addition to the various allowance plans, Control groups are necessary to establish a reference level for household responses, because a number of

¹Designation of multiple plans for certain "a" values reflects an early assignment convention and does not indicate that the households in these plans are different.

uncontrolled factors may also induce changes in family behavior during the course of the experiment. Control households receive a monthly cooperation payment of \$10. They report the same information required of households receiving allowance payments, including household composition and income; they permit housing evaluations; and they complete the Baseline Interview and the three Periodic Interviews. (Control households are paid an additional \$25 fee for each Periodic Interview.)

Two Control groups are used in the Demand Experiment. Members of one group (Plan 24) were offered a Housing Information Program when they joined the experiment, and were paid \$10 for each of five sessions attended. (This program was also offered to all households that were offered allowances, but these households were not paid for attending sessions.) The other Control group (Plan 25) was not offered the Housing Information Program.

All the households in the various allowance plans had to meet a basic modal income eligibility requirement. This was defined (approximately) by the income level at which the household would receive a zero payment under the Housing Gap formula:

$$P = C^* - 0.25Y.$$

In addition, households in plans with lower payment levels (Plans 3, 6, 9, and 11) had to have incomes low enough to receive payments under these plans. Finally, only households with incomes in the lower third of the eligible population were eligible for enrollment in Plan 13 and only those in the upper two thirds were eligible for Plan 23.

I.5 THE SAMPLE AFTER ONE YEAR

Much of the analysis of the impact of the housing allowance will be based on two years of experimental data. For this report and the other reports in this series the sample consists of only those households that were active in the experiment one year after enrollment. Table I-3 presents the sample sizes for households active at enrollment and after one year for each treatment plan.

Active households include both households receiving a full payment and those not receiving a full payment. Households receiving full payments meet all

Table I-3

SAMPLE SIZE AT ENROLLMENT AND ONE YEAR
AFTER ENROLLMENT BY ALLOWANCE PLANS

ALLOWANCE PLAN ^a	ENROLLMENT SAMPLE		ONE YEAR SAMPLE	
	PITTSBURGH	PHOENIX	PITTSBURGH	PHOENIX
TOTAL HOUSING GAP	701	765	607	589
1	43 ^b	48	37	36
2	59	74	51	49
3	62	66	53	50
4	43	42	36	34
5	62	70	58	54
6	61	63	49	48
7	45	43	37	40
8	67	78	59	59
9	67	70	53	54
10	57	64	51	53
11	60	77	50	53
12	75	70	73	59
TOTAL PERCENT OF RENT	510	490	467	407
13	34	32	33	28
14-16	121	114	116	106
17-19	145	120	129	93
20-22	118	140	111	112
23	92	84	78	68
TOTAL CONTROL ^b	434	525	393	394
24	210	262	187	194
25	224	263	206	200
TOTAL	1645	1780	1467	1390

SAMPLE: All enrolled households not above income eligibility limit.

DATA SOURCE: Payments file.

a. See Tables I-1 and I-2 for a description of the allowance plans.

b. Control households in plan 24 were offered the Housing Information Program, those in plan 25 were not.

requirements (including the housing requirements) and receive the full subsidy for which they are eligible given income, household size, and rent. Those not receiving a full payment receive only a monthly cooperation payment. Households fall in the latter group if they are homeowners, live in subsidized housing, have not met housing requirements, or have not turned in a rent receipt, but at the same time meet all other reporting and eligibility requirements. The numbers of households in each category after one year, together with reasons for not receiving a full payment, are presented in Table I-4.

Table I-4
NUMBER OF HOUSEHOLDS ONE YEAR AFTER ENROLLMENT

PAYMENT STATUS	PITTSBURGH	PHOENIX
Receiving a Full Payment	1,116	1,025
Not Receiving a Full Payment	351	365
Homeowners	29	100
Residing in Subsidized Housing	42	22
Missing a Rent Receipt	44	28
Not Meeting Housing Requirements	236	215

SAMPLE: Households active at one year.

DATA SOURCE: Payments file.

APPENDIX II
MAJOR VARIABLES USED IN THE ANALYSIS
AND SAMPLE DESCRIPTION

This appendix discusses the data sources (Section II.1) and analytical definitions (Sections II.2 through II.8) of the five different categories of variables, as well as the definition of the samples used in this report (Section II.9). These major categories are: (1) search and move variables; (2) household income, rent, and demographic characteristics; (3) program housing and occupancy standards; (4) satisfaction measures; and (5) program status.

II.1 DATA SOURCES

Table II-1 indicates the data sources used in the derivation of each variable. If a household's record was missing any of the data sources required for the derivation of a variable, that particular variable was assigned a missing value code and the household was excluded from any analysis involving that variable. Reasons for missing value codes include: nonresponses, "don't know" responses, and out of range responses. Definitions of the variables used in this report are discussed below.

II.2 SEARCH AND MOVE VARIABLES

Determination of a move was always based on the comparison of addresses rather than on the household's response to interview questions regarding moving. A household is classified as having moved during the first year of the experiment if the address on the Initial Household Report Form differed from the address on either the First or Second Periodic Interview.¹

To determine the search activity of a particular household over the whole year, information from both the First and Second Periodic Interviews was combined. If a move took place during the first year, or if the household

¹The First and Second Periodic Interviews were conducted after approximately six months and one year, respectively, of program participation. The Initial Household Report Form was completed as part of the enrollment process.

Table II-1

DATA SOURCES USED TO DERIVE KEY VARIABLES

VARIABLE	DATA SOURCES
<u>Search and Move Variables</u> First-year Move Behavior } First-year Search Behavior } Reasons for Not Searching } Search Process Characteristics } Search Problems } Perceived Discrimination }	Initial Household Report Form, Baseline, First and Second Periodic Interviews First and Second Periodic Interviews
<u>Household Characteristics</u> Household Size } Household Type } Sex of Head of Household } Age of Head of Household } Race/Ethnicity } Education of Head of Household } Prior Mobility }	Initial Household Report Form Baseline Interview
<u>Net Analytic Income</u>	Initial Household Report Form
<u>Rent</u>	Initial Household Report Form, Housing Evaluation Form (at enrollment), Baseline Interview
<u>Satisfaction</u> Housing Unit Satisfaction } Neighborhood Satisfaction }	Baseline Interview
<u>Program and Occupancy Standards</u> Minimum Standards Occupancy	Housing Evaluation Form (at enrollment) Initial Household Report Form, Housing Evaluation Form (at enrollment)
<u>Program Status</u> Current Status Income Eligibility Status Low-Income Eligibility Status Cost of Standard Housing, C*	Payments File Initial Household Report Form, Household Event List Initial Household Report Form Initial Household Report Form, Housing Evaluation Form

reported that it searched for alternative housing in either the First or Second Periodic Interviews, then the household was classified a searcher; only if it neither moved nor reported that it searched was the household considered not to have searched.

Descriptors of the search process itself and problems reported during searching were obtained from the periodic interview corresponding to the half-year that reflected the greatest mobility activity of the two half-years, in the hierarchy of "search and move," "search but not move," and "not search." In an attempt to take account of the most proximate causes, the descriptors of the search process and reported problems refer to the last completed move (if the household was classified a mover) or to the last reported search (if it was classified a searcher that did not move). If more than one move occurred during a half-year period, the interview question referred only to the last move in that period. If moves took place in both half-years or if the household did not move but searched in both half-years, the descriptors of the search process were taken from the Second Periodic Interview, describing the second half-year.

Because information on the search process itself was only available from households reporting that they had searched, there was no information on characteristics of the search process for those households that moved but did not report a search or otherwise did not answer to periodic interview questions about search characteristics (47 households in all). Because there was also no information on households that moved out of Allegheny County (Pittsburgh) or Maricopa County (Phoenix) during the first year, this study focuses on intrametropolitan residential search and mobility and not on migration between metropolitan areas.¹

II.3 HOUSEHOLD CHARACTERISTICS

In general, the household characteristics describe the household at the time of enrollment. Income, sex of head of household, household size, age of head of household, household type, and rent information was collected from the Initial Household Report Form (at enrollment), while race/ethnicity,

¹It was possible, though, for emigrants to return and rejoin the program.

education of head of household, and prior mobility information comes from the (pre-enrollment) Baseline Interview.

Household Size

The definition of household size includes all persons living with the household except roomers and boarders.

Household Type

The household type variable describes households on the basis of the marital status of head of household, the presence of children, and the presence of relatives. A son or daughter 18 years of age or older is considered a relative rather than a child.

Sex of Head of Household

The census convention is used. To establish the census head of household, the sex and relationship of each household member to the respondent who is designated head is checked. Unless the household has a single female head, it is classified as having a male head of household.

Age of Head of Household

Age at the time of enrollment is derived from date of birth information for the person determined as census head of household.

Race/Ethnicity

The following categories of racial or ethnic identification are used in this report:

Pittsburgh: white, black

Phoenix: white, black, Spanish American.

Race is based on interviewer observations of Baseline Interview respondents. There were relatively few American Indians, Orientals, and other nonwhites and they are not included in analyses involving race/ethnicity. Households were designated as Spanish American in Phoenix based on their surname according to census conventions; only households not classified as Spanish American were classified according to race.

Education of Head of Household

The educational attainment of the census head of household is measured as the number of years of school completed.

Prior Mobility

Prior mobility is measured by the number of moves that the household reported having made in the three years before the Baseline Interview.

II.4 INCOME

The only income variable used in this report is "Net Income for Analysis," a measure of disposable household income. "Net Income for Analysis" is an estimate of the annual income received by all household members age 18 or over; it is the sum of earned and other income net of taxes and alimony paid. A complete list of all income components included in the definition of net income and its relation to the income definition used to determine eligibility for the experimental programs and to that used by the census are given in Table II-2.

II.5 RENT

Analytic rent is basically defined as the monthly payment for an unfurnished dwelling unit including basic utilities. The adjustment formula is

$$\begin{aligned} \text{Adjusted Contract Rent} = & (\text{Furnishing Adjustment Factor}) \times (\text{Contract} \\ & \text{Rent} + \text{Utilities} + \text{Special Adjustments}) \\ & - (\text{Roomer Contribution Adjustment}). \end{aligned}$$

If reported contract rent includes furnishings, the adjusted gross rent is reduced by an amount equal to the estimated price of those furnishings.¹

If the costs of utilities are not included in the household's contract rent, utilities adjustments are added to contract rent. Adjustments are made via site-specific tables for electricity, gas, heat, water, and garbage and trash collection if a household reports paying for a specific utility and

¹For a more complete description of the furnishings adjustment, see Abt Associates Inc., Working Paper on Early Findings, Cambridge, Mass., January 1975, Appendix IV.

Table II-2
 COMPONENTS INCLUDED IN THE DEFINITION OF NET INCOME FOR ANALYSIS
 AND COMPARISON WITH CENSUS AND PROGRAM ELIGIBILITY DEFINITIONS

COMPONENTS	NET INCOME FOR ELIGIBILITY	NET INCOME FOR ANALYSIS	CENSUS (GROSS INCOME)
I. GROSS INCOME			
A. Earned Income			
1. Wages and Salaries	X	X	X
2. Net Business Income	X	X	X
B. Income-Conditioned Transfers			
1. Aid for Dependent Children	X	X	X
2. General Assistance	X	X	X
3. Other Welfare	X	X	X
4. Food Stamps Subsidy	-	X*	-
C. Other Transfers			
1. Supplemental Security Income (Old Age Assistance, Aid to the Blind, Aid to the Disabled)	X	X	X
2. Social Security	X	X	X
3. Unemployment Compensation	X	X	X
4. Workman's Compensation	X	X	X
5. Government Pensions	X	X	X
6. Private Pensions	X	X	X
7. Veterans Pensions	X	X	X
D. Other Income			
1. Education Grants	X	X	X
2. Regular Cash Payments	X	X	X
3. Other Regular Income	X	X	X
4. Alimony Received	X	X	X
5. Asset Income	X*	X	X
6. Income from Roomers and Boarders	-	-	X
II. GROSS EXPENSES			
A. Taxes			
1. Federal Tax Withheld	X*	X*	-
2. State Tax Withheld	X*	X*	-
3. FICA Tax Withheld	X*	X*	-
B. Work-Conditioned Expenses			
1. Child Care Expenses	X	-	-
2. Care of Sick at Home	X	-	-
3. Work Related Expenses	X*	-	-
C. Other Expenses			
1. Alimony Paid Out	X	X	-
2. Major Medical Expenses	X	-	-

*The amounts of these income and expense items are derived using data reported by the household. All other amounts are included in the income variables exactly as reported by the household.

if that payment is not included in contract rent. The amount of the adjustments depends on the number of rooms reported in the Housing Evaluation Form. No adjustment is made for any other utilities or services, such as parking.

Amounts by which contract rent is reduced by the landlord because a participant household works in lieu of rent or is related to the landlord are added to contract rent; these adjustments have not been added to income, although they should in theory be added.

Finally, the household expenditures and payment definitions of rent exclude contributions made to rent by roomers (net of board).

II.6 SATISFACTION VARIABLES

Both housing unit and neighborhood satisfaction are measured on a four point scale:

- Very Satisfied
- Somewhat Satisfied
- Somewhat Dissatisfied
- Very Dissatisfied.

For some of the analysis, the first two categories are combined into one category (Satisfied) and the last two are combined into a second category (Dissatisfied).

II.7 PROGRAM HOUSING AND OCCUPANCY STANDARDS

This section describes the housing and occupancy measures used in the analysis. These measures are based on the Minimum Standards housing requirements used in one part of the experiment. They were developed from elements of the American Public Health Association/Public Health Service, Recommended Housing Ordinance (1971).¹ Table II-3 lists the Minimum Standards housing requirements as they apply to the dwelling unit itself. The requirements are grouped into 15 components made up of related items.

Occupancy requirements are separate from the physical requirements listed in Table II-3. However, the requirements for light/ventilation, ceiling

¹See Abt Associates Inc., (1975) for more detail on the development of the Minimum Standards.

Table II-3
COMPONENTS OF MINIMUM STANDARDS
(Program Definition)

1. COMPLETE PLUMBING
Private toilet facilities, a shower or tub with hot and cold running water, and a washbasin with hot and cold running water will be present and in working condition.
2. COMPLETE KITCHEN FACILITIES
A cooking stove or range, refrigerator, and kitchen sink with hot and cold running water will be present and in working condition.
3. LIVING ROOM, BATHROOM, KITCHEN PRESENCE
A living room, bathroom, and kitchen will be present. (This represents the dwelling unit "core," which corresponds to an efficiency unit.)
4. LIGHT FIXTURES
A ceiling or wall-type fixture will be present and working in the bathroom and kitchen.
5. ELECTRICAL
At least one electric outlet will be present and operable in both the living room and kitchen. A working wall switch, pull-chain light switch, or additional electrical outlet will be present in the living room.^a
6. HEATING EQUIPMENT
Units with no heating equipment; with unvented room heaters which burn gas, oil, or kerosene; or which are heated mainly with portable electric room heaters will be unacceptable.

a. This housing standard is applied to bedrooms in determining the number of adequate bedrooms for the program occupancy standard.

Table II-3 - continued

7. ADEQUATE EXITS

There will be at least two exits from the dwelling unit leading to safe and open space at ground level (for multifamily building only). Effective November, 1973 (retroactive to program inception) this requirement was modified to permit override on case-by-case basis where it appears that fire safety is met despite lack of a second exit.

8. ROOM STRUCTURE

Ceiling structure or wall structure for all rooms must not be in condition requiring replacement (such as severe buckling or leaning).

9. ROOM SURFACE

Ceiling surface or wall surface for all rooms must not be in condition requiring replacement (such as surface material that is loose, containing large holes, or severely damaged).

10. CEILING HEIGHT

Living room, bathroom, and kitchen ceilings must be 7 feet (or higher) in at least one-half of the room area.^a

11. FLOOR STRUCTURE

Floor structure for all rooms must not be in condition requiring replacement (such as severe buckling or noticeable movement under walking stress).

12. FLOOR SURFACE

Floor surface for all rooms must not be in condition requiring replacement (such as large holes or missing parts).

13. ROOF STRUCTURE

The roof structure must be firm.

a. This housing standard is applied to bedrooms in determining the number of adequate bedrooms for the program occupancy standard.

Table II-3 - continued

14. EXTERIOR WALLS

The exterior wall structure or exterior wall surface must not need replacement. (For structure this would include such conditions as severe leaning, buckling or sagging and for surface conditions such as excessive cracks or holes.)

15. LIGHT/VENTILATION

The unit will have a 10 percent ratio of window area to floor area and at least one openable window in the living room, bathroom, and kitchen or the equivalent in the case of properly vented kitchens and/or bathrooms.^a

a. This housing standard is applied to bedrooms in determining the number of adequate bedrooms for the program occupancy standard.

height, and electrical service are applied to bedrooms in determining the number of adequate bedrooms for the program occupancy requirement as explained below.

The occupancy requirement sets a maximum of two persons for every adequate bedroom, regardless of age. A studio or efficiency apartment is counted as a bedroom for occupancy standards. An adequate bedroom is a room that can be completely closed off from other rooms and that meets the following program housing standards: ceiling height, light/ventilation, and electrical service. In addition, the room must meet the housing standards for the condition of room structure, room surface, floor structure, and floor surface. If the dwelling unit contains four or more adequate bedrooms, it is judged to meet occupancy standards.

Roomers and boarders are added to household size when determining whether a household meets occupancy standards, because all the rooms in the dwelling unit are taken into account.

II.8 PROGRAM STATUS VARIABLES

Current Status

Status of the household at the time of enrollment or at one year is defined as one of the following:

Active

 Full Payments

 Minimum Payments

Inactive, never reactivated in later cycles

Terminated.

Reasons for minimum payments are:

 Household owns home

 Household lives in subsidized housing

 Rent receipt missing

 Failure to meet housing requirement (Housing Gap Minimum Rent and Minimum Standards Groups only).

Reasons for inactive or terminated status are:

- Move out of county
- Ineligible household composition
- Residing in institution
- Cannot locate
- Periodic Interview refused
- Housing evaluation refused
- Missing Household Report Forms
- New household members refused to comply with requirements.

Additional reasons for termination are:

- Household deceased
- Ineligible split
- Fraud
- Received ineligible relocation benefits
- Termination other (conflict of interest)
- Reverification refused
- Quit (voluntary termination).

Income Eligibility Status at Enrollment

This variable represents income eligibility status of enrolled households based on income verification.

Data were collected in several ways. Experimental households that were verified as overincome were identified by the site offices. Control households with incomes above regular eligibility limits (termed "modal" in earlier reports) were identified from Household Event List data. Only a 20 percent sample of Control households went through income verification. Therefore the incomes for Control households reported on the Household Event List from which regular eligibility were determined were either the verified amount or that reported by the household on the Initial Household Report Form.

Low-Income Eligibility Status based on Eligibility Limits for the Low-Income Treatment Cells at Enrollment

This variable represents income eligibility status of all households, regardless of treatment, based on the limits for the Housing Gap Low C* cells

(cells 3, 6, 9). This variable is useful in defining a sample where income biases related to differing cell eligibility limits should be removed.

Cost of Standard Housing, C*

This variable is used in calculating the housing allowance payment in Housing Gap plans (Appendix I).

Allowance payments can be computed by applying the Housing Gap subsidy formula to data on household income, rental expenditures, and size.

$$(1) \quad \text{Payment} = \min[\max(C - b \frac{\text{NIE}}{12}, \$10.00), \text{program rent}].$$

NIE is "Net Income for Eligibility." The components of NIE are shown in Table II-2. Program rent is derived in the same fashion as analytical adjusted contract rent except that no adjustments for work in lieu of rent or relationship with landlord are made. See Table I-1 for the relevant values of the marginal payment reduction rate "b" and the basic payment level C. Table II-4 presents the values of C used in evaluating Equation (1).

Table II-4
MONTHLY COST OF STANDARD HOUSING VALUE USED IN
HOUSING GAP ALLOWANCE FORMULA

NUMBER OF MEMBERS IN HOUSEHOLD	1	2	3,4	5,6	7,8 or more
PITTSBURGH					
C = 0.8C* (TG 3,6,9)	\$ 84	\$ 96	\$112	\$128	\$152
C = 1.0C* (TG 2,5,8,10,11,12)	105	120	140	160	190
C = 1.2C* (TG 1,4,7)	126	144	168	192	228
PHOENIX					
C = 0.8C* (TG 3,6,9)	\$100	\$124	\$144	\$176	\$212
C = 1.0C* (TG 2,5,8,10,11,12)	125	155	180	220	265
C = 1.2C* (TG 1,4,7)	150	186	216	264	318

II.9 SAMPLE DESCRIPTION

The basic analysis sample of households used throughout this report consists of household active at one year (the time of the Second Periodic Interview) that were not living in subsidized housing or their own homes and did not have an income above the income eligibility limit for the low-income treatment groups. This sample comprises 1,154 households in Pittsburgh and 1,186 households in Phoenix. Whenever analysis of first-year search and mobility behavior is related to initial satisfaction or when analysis deals with interview references to the period since enrollment, households that moved between the time of the Baseline Interview and enrollment were excluded as well. This insures that analysis of search and moving between enrollment and the time of the Second Periodic Interview is based on household responses pertaining to the enrollment residence. Households excluded because of moves between the time of the Baseline Interview and enrollment number 60 in Pittsburgh and 113 in Phoenix.

The sample used for the multivariate logit analyses in Chapters 2, 3, and 4 is somewhat different. The sample consists of households active at one year that were not living in subsidized housing or their own home, did not have an income above the standard eligibility limits, were not forced to move and did not move between the time of the Baseline Interview and enrollment. The income restriction is less strict than that used for the rest of the analyses in the report because income is included as an explanatory variable in the equations. Forced movers were excluded because they had no decision to make; by definition they all searched and moved. Inclusion of such households might bias the coefficients of the independent variables. Relaxation of the income limit adds 296 households in Pittsburgh and 165 households in Phoenix but removal of households forced to move removes 85 and 73 households in Pittsburgh and Phoenix, respectively. Thus the basic analysis sample for the logit analyses is 1,305 households in Pittsburgh and 1,115 households in Phoenix. For specific analyses, households are subject to exclusion if there is missing data on their behavior. Thus, the numbers presented here must be viewed as upper bounds to the sample sizes.



APPENDIX III
HOUSING UNIT AND NEIGHBORHOOD SATISFACTION

The Demand Experiment has been designed to collect information on both subjective and objective measures of housing. In particular, participants were asked at several points in time to what degree they were satisfied or dissatisfied with their housing unit and their neighborhood. Chapter 2 of this report uses the satisfaction measures as important predictors of the decision to search for new housing.

Earlier reports presented data showing the relationship between satisfaction (housing unit and neighborhood) and various housing quality indicators and demographic characteristics.¹ This appendix relates expressed satisfaction to search and mobility and seeks to establish that the satisfaction measures are valid and reliable.

III.1 MEASURES OF SATISFACTION

The primary concern of this appendix is the validity and reliability of the responses to two questions asked of participants in the Baseline (pre-enrollment), First Periodic (six months), and Second Periodic (one year) Interviews:

In general, how satisfied or dissatisfied are you with this neighborhood as a place to live--would you say very satisfied, somewhat satisfied, somewhat dissatisfied, or very dissatisfied?

In general, how satisfied are you with the (house/apartment) you now live in--would you say very satisfied, somewhat satisfied, somewhat dissatisfied, or very dissatisfied?

This approach to obtaining global assessments of satisfaction is quite common in the social science literature. In the area of housing, in particular, similar scales have been used by Nelson and Winter (1975), Lawton and Cohen (1974), Weaver (1974), Sherman (1972), and Carp (1975), among others.

¹See Abt Associates Inc., (1975) Chapter 6 and (1976) Chapter 3.

The major alternative to a global assessment question is to compose a summative measure in which a full range of housing attributes are evaluated and the responses scored and combined to form a single scale. The primary problem with this approach is how to treat differences in the importance of the various attributes to different individuals (Andersen and Fishbein, 1967). By asking the global question, the idiosyncratic weighting of all the attributes is implicitly performed by the participant in arriving at a global satisfaction response.

The distributions of responses to the housing and neighborhood satisfaction items on the Baseline Interview are presented in Table III-1.¹ The distribution of responses over the entire scale show no substantial difference from the distribution obtained on similar items in comparable studies (Lansing, 1966, 1970; Wilson, 1962; Butler et al., 1968). Participants at both sites seem to have started off with approximately the same distribution of expressed satisfaction, but seem to be somewhat more satisfied with neighborhood than with housing. Furthermore, respondents in Phoenix seem to be slightly more satisfied with both their housing units and their neighborhood than do respondents in Pittsburgh.

III.2 SATISFACTION AND MOVING

In cases of housing and neighborhood satisfaction, one of the more generally accepted relational hypotheses is that dissatisfaction with housing conditions tends to lead to a change in residence or at least an attempt to change (Rossi, 1955; Speare, 1974; Speare et al, 1974). In this vein, Table III-2 indicates the first-year search and mobility behavior of respondents at each expressed level of housing and neighborhood satisfaction at the Baseline Interview. As can be seen, lack of an attempt to move is positively related to both housing unit and neighborhood satisfaction as measured at enrollment. The strength of the relationship is somewhat stronger for housing unit satisfaction than for neighborhood satisfaction and slightly stronger in Pittsburgh than in Phoenix. These

¹All enrolled households below the low-income eligibility limit are included in Table III-1. When other restrictions on the sample are made (as is true for the other tables in this appendix), the distribution of responses does not change appreciably.

Table III-1

PERCENTAGE OF HOUSEHOLDS EXPRESSING VARIOUS LEVELS OF SATISFACTION

LEVEL OF SATISFACTION	HOUSING UNIT SATISFACTION ^a		NEIGHBORHOOD SATISFACTION ^b	
	PITTSBURGH	PHOENIX	PITTSBURGH	PHOENIX
Very Satisfied	35%	36%	45%	47%
Somewhat Satisfied	33	35	31	33
Somewhat Dissatisfied	17	17	13	12
Very Dissatisfied	15	12	12	8
Sample Size	(1173)	(1204)	(1170)	(1205)
Mean	1.88	1.94	2.08	2.18
Standard Deviation	1.06	1.00	1.02	0.94

SAMPLE: Enrolled households below the low-income eligibility limit.

DATA SOURCE: Baseline Interview.

NOTE: Satisfaction is scored on a four-point scale ranging from very satisfied (4) to very dissatisfied (1).

a. Response to Baseline Interview question 2:

In general, how satisfied are you with the (house/apartment) you now live in--would you say very satisfied, somewhat satisfied, somewhat dissatisfied, or very dissatisfied?

b. Response to Baseline Interview question 1:

In general how satisfied or dissatisfied are you with this neighborhood as a place to live--would you say very satisfied, somewhat satisfied, somewhat dissatisfied, or very dissatisfied?

Table III-2
 PERCENTAGE OF HOUSEHOLDS STAYING, SEARCHING OR MOVING
 DURING THE FIRST YEAR BY LEVEL OF SATISFACTION

LEVEL OF SATISFACTION	PITTSBURGH				PHOENIX			
	STAYED WITHOUT SEARCH	STAYED BUT SEARCHED	MOVED	SAMPLE SIZE	STAYED WITHOUT SEARCH	STAYED BUT SEARCHED	MOVED	SAMPLE SIZE
Housing Unit								
Very Satisfied	68%	14%	18%	(382)	52%	13%	35%	(360)
Somewhat Satisfied	51	26	23	(335)	39	13	48	(330)
Somewhat Dissatisfied	40	29	31	(163)	25	20	55	(159)
Very Dissatisfied	18	43	39	(143)	25	18	57	(112)
Neighborhood								
Very Satisfied	62	19	19	(468)	48	13	39	(452)
Somewhat Satisfied	48	25	27	(311)	36	17	47	(319)
Somewhat Dissatisfied	43	29	28	(122)	27	19	54	(113)
Very Dissatisfied	22	39	38	(120)	23	14	63	(78)

SAMPLE: Households that were active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: Baseline, First and Second Periodic Interviews.

findings are in accord with the more extensive analyses of search and mobility presented in Chapters 2 and 4, where the relationship between housing unit and neighborhood dissatisfaction and search and moving behavior were examined in a multivariate context using a conditional logit model.

It has also been hypothesized that "the major function of mobility [is] the process by which families adjust their housing to the housing needs that are generated by the shifts in family composition that accompany life cycle changes" (Rossi, 1955, p. 9). This adjustment process is generally considered to reduce stress and meet felt needs, leading to the expectation that there should be a significant increase in satisfaction after a move.

Table III-3 presents the percentage satisfied at the time of the Baseline Interview and at the end of one year for three respondent groups: households that stayed in their original housing and did not search for new housing, households that searched for new housing but did not move, and households that moved.¹ The results conform to a priori expectations, in that movers have the largest change in the percentage expressing satisfaction with their housing unit and, to a lesser extent, with their neighborhood. Once again, the relationship is somewhat stronger for housing unit satisfaction than for neighborhood satisfaction and stronger in Pittsburgh than in Phoenix for both variables.

For searchers that did not move it is possible that the decrease in the percentage expressing satisfaction with their housing unit is an indication of frustration. The shifts in expressed neighborhood satisfaction for this group may be opposite in the two sites because of differences in neighborhood perceptions.² The changes for stayers that did not search probably reflect increased place attachment, as discussed in Chapter 2.

¹For both housing unit and neighborhood satisfaction, households were considered to be satisfied if their response to the survey question was either "very satisfied" or "somewhat satisfied."

²Informal observations suggest that Pittsburgh neighborhoods are both distinct and heterogeneous so that searchers there find other neighborhoods quite different and confirm their satisfaction with the one where they live. Phoenix searchers may find other neighborhoods not especially different but nevertheless express their frustration in not being able to move.

Table III-3

PERCENTAGE OF HOUSING UNIT AND NEIGHBORHOOD SATISFACTION
BY SEARCH/MOVE STATUS DURING FIRST YEAR^a

MOVE STATUS	HOUSING UNIT SATISFACTION			NEIGHBORHOOD SATISFACTION				
	Baseline Interview	One Year	Percentage Point Change	Sample Size	Baseline Interview	One Year	Percentage Point Change	Sample Size
	PITTSBURGH							
Stayers that did not search	83%	86%	+ 3*	(537)	84%	90%	+ 6**	(536)
Searchers that did not move	56	43	-13**	(245)	67	75	+ 8*	(245)
Movers	58	84	+26**	(269)	69	84	+15**	(267)
	PHOENIX							
Stayers that did not search	82	86	+ 4*	(391)	87	87	0	(390)
Searchers that did not move	63	51	-12*	(140)	78	68	-10*	(140)
Movers	66	83	+17**	(456)	75	81	+ 6*	(457)

SAMPLE: Households active at one year, not living in own or subsidized housing, below the low-income eligibility limit, and not moving between the Baseline Interview and enrollment.

DATA SOURCES: Baseline and Second Periodic Interviews.

a. "Somewhat satisfied" and "very satisfied" are combined.

* Chi-square tests significant at the 0.05 level.

** Chi-square tests significant at the 0.01 level.

(Tests of significance are based on McNemar test of the significance of the difference between two proportions based on the same sample.) (McNemar 1947)

III.3 VALIDITY AND RELIABILITY OF THE SATISFACTION MEASURES

In a very general sense, a measuring instrument is valid if it accurately measures what it intends to measure. In the social and behavioral sciences, validation of measuring instruments usually proceeds through empirical investigation of correlations between the variable in question and other variables that would be expected to display some relation to the variable of interest on the basis of past empirical work, common sense, or theoretical grounds (Nunnally, 1967, p. 78). In cases where the measure is subjective or abstract in nature, a strong form of validation is to replicate established relationships between that measure and other measures which are objective in form. The data presented in the previous section and in Chapter 4 on the relationships between search and moving and housing unit and neighborhood satisfaction provide this kind of affirmation of the validity of the housing unit and neighborhood satisfaction measures.

As a second means of assessing the validity of the global housing unit and neighborhood satisfaction measures, Pearson's correlation coefficients were computed between each of these two variables and a variety of other variables expected on the basis of common sense to be related to them. In the case of the housing satisfaction measure, essentially two types of correlates have been examined: objective ratings by outside evaluators of physical quality and subjective perceptions of household occupants of various aspects of their dwelling unit.¹ The correlations between these variables and overall housing satisfaction are presented in Table III-4.

In general, the subjective ratings by the occupants correlate much more highly with overall housing satisfaction than do the objective ratings by evaluators. Of the objective ratings, plumbing, heating, room surface, and floor surface have the highest correlations with the overall housing

¹The objective ratings used here are those for the 15 major components of the program Minimum Standards applied as a requirement for certain households in the Housing Gap plans. See Appendix Table II-4 for a description of the Minimum Standards.

Table III-4
CORRELATIONS BETWEEN HOUSING-RELATED VARIABLES
AND HOUSING UNIT SATISFACTION (BOTH SITES)

OBJECTIVE RATING	PEARSON'S r	SAMPLE SIZE
Presence of Adequate: ^a		
Plumbing	0.14**	(2660)
Kitchen	0.04	(2622)
Core	0.05	(2622)
Lighting	0.12**	(2622)
Electricity	0.10**	(2622)
Heat	0.14**	(2622)
Room Structure	0.09**	(2622)
Room Surface	0.18**	(2622)
Ceiling Height	0.06*	(2622)
Floor Structure	0.07*	(2622)
Floor Surface	0.14**	(2622)
Roof	0.09**	(2622)
Wall Exterior	0.09**	(2622)
Lighting and Ventilation	0.11**	(2622)
Adequate Exit	-0.03	(2622)
Occupants/Bedroom	-0.07*	(2660)
Incremental R ²	0.056** with 16/920 degrees of freedom	
OCCUPANT RATING	PEARSON'S r	SAMPLE SIZE
General repair and painting of outside of house ^b	0.44**	(2005)
Heating system ^c	0.34**	(2313)
Satisfaction with landlord repairs ^d	0.40**	(1750)
Enough rooms ^e	0.33**	(2660)
Large enough rooms ^f	0.31**	(2655)
Cleaning and maintenance of yard and grounds ^b	0.36**	(1452)
Working condition of toilets ^b	0.29**	(2557)
Roof, ceilings, or walls leak when it rains ^a	-0.26**	(2582)
Signs of rats or mice ^a	-0.21**	(2657)
Roaches ^a	-0.22**	(2660)
Number of additional bedrooms needed	-0.30**	(2660)
Enough electrical outlets ^e	0.33**	(2660)
Enough closets ^e	0.34**	(2658)
Enough storage space ^e	0.36**	(2658)
Enough ventilation ^e	0.26**	(2658)
Incremental R ²	0.338*** with 15/905 degrees of freedom	
Total R ²	0.394*** with 31/905 degrees of freedom	

SAMPLE: Enrolled households that did not move between the Baseline Interview and the Initial Household Report Form, and below the low-income eligibility limit.

DATA SOURCES: Baseline Interview, Housing Evaluation Form.

NOTE: Positive Pearson's r indicates greater satisfaction is associated with higher quality of item. All correlations are simple zero-order.

- a. Variables coded as: Adequate (1), Inadequate (0).
b. Variables coded as: Good (3), Fair (2), Poor (1).
c. Variables coded as: Good (4), Fair (3), Poor (2), Not Working (1).
d. Variables coded as: Very Satisfied (4), Somewhat Satisfied (3), Somewhat Dissatisfied (2), Very Dissatisfied (1).
e. Variables coded as: Yes (2), No (1).
f. Variables coded as: Satisfied with All (2), Satisfied with Some or All (1).

* Pearson's r significant at the 0.05 level.

** Pearson's r significant at the 0.01 level.

*** F-test significant at the 0.01 level.

satisfaction variable. The multiple R^2 for the objective ratings as a set is only 0.056 (though this is significant at the 0.01 level).

The relationship between the occupant's subjective ratings of household features and their overall housing satisfaction is somewhat different. The simple correlations ranged from 0.21 to 0.44, all of which are highly significant. Repair and painting of the house, satisfaction with landlord repairs, and the heating system rank highest. The increment in the multiple R^2 beyond that contributed by the objective ratings is 0.338 (which is highly significant). All significant correlation coefficients have the expected sign.¹

Correlational investigations similar to those used for housing satisfaction were undertaken for neighborhood satisfaction as well. Once again essentially two types of variables have been used as correlates: Census tract measures and subjective participant perceptions of various aspects of their neighborhood. The coefficients of correlation between the predictor variables and overall neighborhood satisfaction are presented in Table III-5.

As in housing satisfaction, the subjective ratings of neighborhood items by participants correlate much more highly with the dependent variable (neighborhood satisfaction) than do the Census tract ratings.²

The highest zero-order correlation between a census variable and overall neighborhood satisfaction is only 0.12. The multiple R^2 of Census tract variables considered as a set is 0.027, statistically significant at the 0.01 level but clearly not containing much of material significance.

Occupant ratings of neighborhood features correlate much more highly with overall neighborhood satisfaction than do the census variables. Perceived crime in the area, noise in the area, and the presence of drugs and drug users have the highest negative correlations. Correlation coefficients

¹The only variable having the unexpected sign was objective evaluation of adequate exits.

²Neighborhood characteristics may vary substantially within a Census tract, thus leading to reduced correlations.

Table III-5
CORRELATIONS BETWEEN NEIGHBORHOOD-RELATED VARIABLES
AND NEIGHBORHOOD SATISFACTION (BOTH SITES)

CENSY TRACT MEASURES	PEARSON'S R	SAMPLE SIZE
Percentage of units above C ^a	0 .11**	(2592)
Percentage of households with income less than \$5,000	-0 .11**	(2658)
Percentage of households with income greater than \$10,000	0 .13**	(2658)
Percentage of Black households	-0 .12**	(2658)
Percentage of Spanish American households	0 .01	(2658)
Percentage of standard units	0 .08*	(2658)
Median Gross Rent	0 .12**	(2658)
Median Dwelling Unit Age	-0 .08**	(2658)
Incremental R ²	0.027** with 8/1799 degrees of freedom	
NEIGHBORHOOD RATING	PEARSON'S R	SAMPLE SIZE
Parking ^b	0 .18**	(2629)
Street lighting ^b	0 .13**	(2650)
Convenience to grocery shopping ^b	0 .13**	(2646)
Garbage collection ^b	0 .16**	(2646)
Speed with which fire department comes ^b	0 .10**	(2310)
Police protection ^b	0 .23**	(2551)
Public transportation ^b	0 .01	(2568)
Trees and grass and flowers ^b	0 .24**	(2639)
Convenience to places of worship ^b	0 .28**	(2604)
Medical care ^b	0 .08**	(2600)
Recreation facilities for adults ^b	0 .20**	(2420)
Recreation places for teenagers ^b	0 .18**	(2372)
Play areas for children under twelve ^b	0 .14**	(2485)
Day care facilities ^b	0 .08**	(2017)
Elementary schools ^b	0 .10**	(2475)
Junior high schools ^b	0 .06*	(2325)
Senior high schools ^b	0 .06*	(2366)
Streets in poor repair ^c	-0 .15**	(2638)
Noise in the area ^c	-0 .31**	(2654)
Litter and trash in the streets ^c	-0 .29**	(2649)
Heavy traffic in the streets ^c	-0 .18**	(2649)
Presence of drugs and drug users ^c	-0 .38**	(2341)
Crimes in the area ^c	-0 .33**	(2544)
Abandoned houses or other empty buildings ^c	-0 .22**	(2523)
Vacant lots filled with trash and junk ^c	-0 .34	(2633)
How many neighbors known well enough to talk to ^d	0 .35	(2657)
Incremental R ²	0.211** with 26/1773 degrees of freedom	
Total R ²	0.238** with 14/1773 degrees of freedom	

SAMPLE: Enrolled households that did not move between the Baseline Interview and the Initial Household Report Form, and below the low-income eligibility limit.

DATA SOURCE: Baseline Interview, Housing Evaluation Form.

NOTE: Neighborhood satisfaction coded as: Very Satisfied (4), Somewhat Satisfied (3), Somewhat Dissatisfied (2), Very Dissatisfied (1). All correlations are simple zero-order.

a. C^a is the estimated cost of modest, existing, standard housing at each site according to household size. For additional details on the derivation of C^a, see Abt Associates Inc., Working Paper on Early Findings, Appendix II., Cambridge, Mass., January 1975.

b. Variables coded as: Good (4), Fair (3), Poor (2), Not Available (1).

c. Variables coded as: Big Problem (3), Somewhat of a Problem (2), Not a Problem (1).

d. Variables coded as: All (4), Most (3), Some (2), None (1).

* t-test significant at the 0.05 level.

** t-test significant at the 0.01 level.

** F-test significant at the 0.01 level.

for all predictors have the expected sign. The increment in the multiple R^2 added by the subjective ratings beyond that accounted for by the census variables is 0.211, somewhat lower than the 0.384 achieved for housing satisfaction.

In summary, both the housing unit and the neighborhood satisfaction measures have the expected relationship with a variety of objective and subjective measures of housing quality. This can be taken as evidence that they are valid indicators of the psychological phenomena they aim to measure.

Reliability

Reliability of a measure refers to the dependability or stability with which a score represents the status of an individual on whatever aspect he or she is being evaluated (Cronbach et al., 1972). The investigator measuring a psychological phenomenon such as housing satisfaction more than once is likely to obtain some scores that differ for the same individual even though there is no objective reason to expect such a change in score. The extent to which such inexplicable inconsistencies in scores occur is viewed as evidence of the presence of measurement error.

It is generally reasonable to assume that most scores, especially those involving subjective perceptions and attitudes, are fallible. The most common way of formalizing the notion of reliability has been to separate the observed score, X_o , into two summative components, a true component, X_t , and error component, X_e . In notational form, this yields $X_o = X_t + X_e$. There are several ways of defining the true component or true score. One is to say that X_t is the score this individual would have obtained under ideal conditions with a perfect measuring instrument. A second way of looking at the situation is to view X_t , the true score, as the mean score that would be obtained from a very large number of administrations of the same question to a particular respondent. The error component then is a positive or negative increment to the observed score that may be viewed as a function of conditions prevailing at the time of questionnaire administration.

Given the above model, the notion of reliability has generally been formalized in terms of indices that indicate the amount of true score variance relative to observed score variance. This can be expressed as $r_{tt} = T_t^2/T_0^2$, where r_{tt} is the coefficient of reliability, T_t^2 is the true score variance, and T_0^2 is the variance of the observed scores.

The theory of measurement error traditionally has been the province of psychometricians who have oriented much of their theory of reliability of measurement toward tests or instruments in which there are multiple items and for which there may be equivalent forms (Lord and Novick, 1968). The resulting techniques of assessing reliability (internal consistency measures, cross-form correlations) are generally of little use when key variables have been measured by a single question, such as is the case with the housing and neighborhood satisfaction questions in the Demand Experiment interviews. In cases like these, it is more appropriate to turn to test-retest correlations to assess reliabilities.

Unfortunately, a simple test-retest correlation may not measure true reliability because it is affected by temporal changes or instability in true scores as well as by errors of measurement. The potential for changes in the true housing and neighborhood satisfaction scores of respondents during the intervals between interviews is hardly negligible. First, many of the participants have moved during the intervals between interviews. Hence, changes in their observed satisfaction scores may be functions of changes in their housing and neighborhood conditions and not due to unreliability in the measures. Second, even nonmoving participants may experience some real change in their housing unit or may alter their perceptions of their housing conditions even in the absence of an objective change. Therefore, temporal instability of true scores must be taken into account when using test-retest correlations, even for participants who have not moved. Finally, the very process of enrollment, involving housing evaluations and offers tied to housing, may itself alter perceptions about housing. Fortunately, Coleman (1968) and Heise (1969) have demonstrated that a procedure exists for analyzing test-retest correlations so that the effects of measurement errors and true-score instability can be separated analytically as long as one has gathered data at three points in time rather than two, and the data meet

certain assumptions. According to the Coleman/Heise model, the reliability coefficient for housing unit or neighborhood satisfaction should be calculated as follows:

$$r_{tt} = \frac{r_{t_0-t_1} r_{t_1-t_2}}{r_{t_0-t_2}},$$

where r_{tt} , as before, indicates the proportion of true variance in the observed score variance and the subscripts t_0 , t_1 , t_2 represent the three points in time for the Demand Experiment interviews (Baseline, First Periodic, and Second Periodic Interviews, respectively).

In addition to reliability coefficients, the model also produces what Heise terms true score stability coefficients. These are estimates of the correlation between true scores at each end of a given time interval. Thus, in a sense, they are indices of the true amount of change occurring over a particular interval in the respondents' positions on the variable in question. Heise's formulas for stability coefficients are given here without proof:

$$s_{t_0-t_1} = r_{t_0-t_2} / r_{t_1-t_2}$$

$$s_{t_1-t_2} = r_{t_0-t_2} / r_{t_0-t_1}$$

$$s_{t_0-t_2} = r_{t_0-t_2}^2 / r_{t_0-t_1} r_{t_1-t_2}.$$

Five basic assumptions underlie the model: the variable is measured on an interval scale, the relationship between the true score and the observed score is constant over time, errors are uncorrelated with true scores, measurement errors at different times are uncorrelated, and changes in the true score that occur over time are uncorrelated with the initial values of the true score. With regard to the validity of these five assumptions, the following observations are offered:

Assumption 1. Although attributing interval level measurement properties to the housing and neighborhood satisfaction ratings is obviously questionable, Labovitz (1967, 1970) has shown that, as long as a monotonic relationship is assumed between the measurement scale and the underlying psychological scale, the application of standard parametric procedures and related tests of significance yield results that are not seriously aberrant. Other authors come to the same conclusion regarding the robustness of techniques designed for interval level data but applied to ordinal level measures (see Baker et al., 1966; Burke, 1953; Senders, 1953; Borgatta, 1968, 1970; Jacobson, 1970; Boyle, 1970; and Bohrnstedt and Carter, 1971).

Assumption 2. Because of increased experience in filling out interviews and most likely greater awareness of how they actually feel about their house and neighborhood because of the stimulation to think about them more, respondents' observed scores probably move closer to their true scores over time, in contradiction to this second assumption. For example, the values of the t_1-t_2 correlations are uniformly higher than when compared with the t_0-t_1 correlations. Since the Coleman/Heise model assumes that the relationship between observed scores and true scores is constant over time, it follows that in comparison with a model which does not assume such constancy, it inflates the reliability estimate of the satisfaction measures for the initial interview and deflates the reliability estimate for later interviews.

Assumption 3. The assumption that errors are uncorrelated with true scores may be problematic because of the bounded nature of the satisfaction ratings. If a respondent's satisfaction rating is at or near the top, his observed score cannot contain a large positive error, but it can contain a large negative error. Reverse logic holds for ratings at or near the bottom of the scale. The failure of the Coleman/Heise model to take into account the likely negative correlation of the error and true scores leads to a slightly lower reliability estimate than would be obtained if the model did take such correlation into account.

Assumption 4. The assumptions that measurement errors at different times are uncorrelated may be violated when respondents recall earlier answers and try to be consistent in their responses. In such cases, errors in measurement will tend to be serially correlated. Violation of this assumption results in a higher estimate of reliability in comparison to the estimate that would be obtained from a model which compensated for the serial correlation.

Assumption 5. The assumption that changes in the true score that occur over time are uncorrelated with the initial values of the true score may also be problematic in that respondents with low true scores at the Baseline Interview will be more motivated to move and hence raise their true score than respondents who are already satisfied. Furthermore, since true satisfaction scores are bounded both at the top and the bottom, a negative serial correlation of true scores is likely to occur. Hence, the stability estimates obtained from the Coleman/Heise model are likely to be smaller relative to a model which incorporated the negative serial correlation of true scores in its computation.

In summary, the housing unit and neighborhood satisfaction ratings are likely to violate each of the assumptions underlying the Coleman/Heise measurement model to some extent. The effect of these violations on the resulting estimates of reliability and stability coefficients is not known precisely, although the direction of the impact can generally be inferred. Since some of the likely biases are in opposite directions, some counterbalancing of errors of estimation may fortuitously occur. Nonetheless, any estimates of reliability generated by the model must be regarded with some skepticism, since no firm conclusion as to the seriousness of the violations by the data can be made. The model should, however, provide better estimates of reliability than simple test-retest correlations, which are subject to even more serious problems in terms of the assumptions they must invoke but do not meet when used to estimate the reliability of such measures taken at points widely separated in time.

Table III-6 presents the Pearson product moment correlation coefficients for both housing unit and neighborhood satisfaction scores as elicited at the Baseline, First Periodic, and Second Periodic Interviews. Estimates of

Table III-6

RELIABILITY AND STABILITY COEFFICIENTS OF THE SATISFACTION
MEASURES COMPUTED FOR STAYERS (BOTH SITES)

TIME INTERVAL	PEARSON'S r	RELIABILITY	STABILITY
HOUSING UNIT SATISFACTION			
First Six Months	0.505	0.66	0.77
Second Six Months	0.614		0.93
First Year	0.472		0.72
Sample Size	(992)		
NEIGHBORHOOD SATISFACTION			
First Six Months	0.475	0.63	0.76
Second Six Months	0.676		1.08
First Year	0.511		0.81
Sample Size	(992)		

SAMPLE: Households active at one year, below the low-income eligibility limit, and did not move between the Baseline Interview and one year.

DATA SOURCES: Baseline, First and Second Periodic Interviews.

NOTE: See text for definitions of reliability and stability.

the reliability and stability coefficients derived using the Coleman/Heise model described above are presented as well. All calculations are based on the subsample of respondents who did not move at all between the Baseline and the Second Periodic Interviews. The computed reliability coefficients are 0.66 for housing unit satisfaction and 0.63 for neighborhood satisfaction. This indicates that approximately 30 to 40 percent of the observed variance in the housing unit and neighborhood satisfaction measures is attributable to measurement error. The presence of this degree of error of measurement in the satisfaction variables is not so severe as to preclude their analytic use. On the other hand, the error variance is large enough to reduce both the correlations between the satisfaction measures and other variables as well as the regression coefficients of the satisfaction measures when they are used as independent variables in a regression model. The introduction of possible bias because of this problem should be given further consideration.

The stability coefficients are interesting in that they point to markedly greater stability of "true" satisfaction scores in the interval between the First and Second Periodic Interviews than what is observed for the stability of the "true" housing and neighborhood satisfaction measures in the earlier interval between the Baseline and First Periodic Interviews.¹ This is not surprising because, as pointed out earlier, Baseline Interview responses were given prior to enrollment and the experience of participating in the experiment may have drawn enrollees' attention to their housing conditions and possibly altered their perceptions of their housing situation. Stabilization of the reassessment process over time is a reasonable expectation.

¹One coefficient for the First Periodic to Second Periodic Interview exceeds 1.0, the theoretical maximum. The attainment of these coefficients which lie outside their theoretical limits can be attributed to sampling errors in the estimates of the correlation coefficients from which they were derived or to deviations of the data obtained from the assumptions they are supposed to fulfill as required by the Coleman/Heise model.

III.4 HOUSEHOLD CHARACTERISTICS AND SATISFACTION

This section briefly examines the bivariate relationships between satisfaction and several socioeconomic and demographic variables. These relationships indicate classes of households that may be dissatisfied with their housing and neighborhoods because they are unable to obtain adequate housing. This situation might arise as a result of discrimination or because a household's income or other characteristics limit its choice of units. Tables III-7 through III-10 present the percentage of households satisfied for each category of characteristics. These data must be interpreted with care because there is some correlation among characteristics. Most notably, elderly households tend to also be single households (in this sample) and have lower incomes and less education. Some of the more interesting patterns of association are mentioned here.

The elderly tend to be more satisfied than other age groups with both housing unit and neighborhood.

Satisfaction with both housing unit and neighborhood tends to increase as per capita income increases. Net annual income, on the other hand, does not follow this pattern of relationship to satisfaction.

Black households are substantially less satisfied than white households except with respect to neighborhood satisfaction in Pittsburgh. The latter could be an indication of strong neighborhood ties among black households in Pittsburgh.

There is an inverse relationship between household size and housing unit satisfaction with larger households expressing greater dissatisfaction, perhaps resulting from their inability to find or afford large units.

Households without children consistently express greater satisfaction than households with children, a fact which is not surprising given the finding on household size.

In summary, greater dissatisfaction is expressed by nonelderly households, households with lower per capita incomes, black households, large households, and families with children.

Table III-7
HOUSING UNIT SATISFACTION AT ENROLLMENT
BY HOUSEHOLD CHARACTERISTICS: PITTSBURGH

CATEGORY	PERCENTAGE OF HOUSEHOLDS SATISFIED	SAMPLE SIZE
Number of Prior Moves		
0	68*	(493)
1	71	(325)
2-3	73	(231)
4 or more	69	(54)
Age of Head of Household (Years)		
16-29	69	(323)
30-44	63	(297)
45-61	67	(198)
62 or more	80	(287)
Net Annual Income		
\$1,000 - 1,999	67	(94)
\$2,000 - 3,999	72	(577)
\$4,000 - 5,999	68	(373)
\$6,000 or more	58	(52)
Major Source of Income		
Welfare	64	(488)
Other	75	(617)
Per Capita Income		
\$0 - 1,000	62	(276)
\$1,001 - 2,000	68	(619)
\$2,001 - 3,000	83	(153)
\$3,001 or more	89	(57)
Race/Ethnicity		
White	74	(822)
Black	58	(274)
Household Size (Persons)		
1	81	(204)
2	72	(282)
3-4	68	(413)
5-6	63	(150)
7-14	50	(56)
Household Type		
Unmarried, No Children	80	(230)
Unmarried, Children	65	(499)
Married, No Children	82	(104)
Married, Children	66	(272)
Education (Years)		
1-8	74	(280)
9-11	67	(375)
12	68	(352)
13-20	72	(78)
Sex of Head of Household		
Male	72	(432)
Female	69	(673)
Total Sample Size		(1105)

SAMPLE: Households active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: Baseline Interview, Initial Household Report Form.

* Chi-square significant at the 0.05 level.

** Chi-square significant at the 0.01 level.

Table III-8
HOUSING UNIT SATISFACTION AT ENROLLMENT
BY HOUSEHOLD CHARACTERISTICS: PHOENIX

CATEGORY	PERCENTAGE OF HOUSEHOLDS SATISFIED	SAMPLE SIZE
Number of Prior Moves		
0	65*	(263)
1	74	(299)
2-3	71	(345)
4 or more	68	(193)
Age of Head of Household (Years)		
16-29	66	(379)
30-44	66	(302)
45-61	69	(176)
62 or more	82	(244)
Net Annual Income		
\$1,000 - 1,999	77	(100)
\$2,000 - 3,999	71	(340)
\$4,000 - 5,999	65	(391)
\$6,000 or more	73	(256)
Major Source of Income		
Welfare	64	(147)
Other	71	(953)
Per Capita Income		
\$0 - 1,000	59	(279)
\$1,001 - 2,000	71	(438)
\$2,001 - 3,000	76	(251)
\$3,001 or more	87	(83)
Race/Ethnicity		
White	74	(686)
Black	49	(85)
Spanish American	68	(301)
Household Size (Persons)		
1	83	(161)
2	77	(268)
3-4	67	(401)
5-6	63	(174)
7-14	53	(97)
Household Type		
Unmarried, No Children	82	(185)
Unmarried, Children	64	(350)
Married, No Children	82	(148)
Married, Children	65	(418)
Education (Years)		
1-8	69	(359)
9-11	64	(255)
12	73	(294)
13-20	77	(144)
Sex of Head of Household		
Male	71	(637)
Female	69	(464)
Total Sample Size		(1101)

SAMPLE: All households active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: Baseline Interview, Initial Household Report Form.

* Chi-square significant at the 0.05 level.

** Chi-square significant at the 0.01 level.

Table III-9
NEIGHBORHOOD SATISFACTION BY HOUSEHOLD
CHARACTERISTICS: PITTSBURGH

CATEGORY	PERCENTAGE OF HOUSEHOLDS SATISFIED	SAMPLE SIZE
Number of Prior Moves		
0	74*	(492)
1	80	(324)
2-3	75	(231)
4 or more	74	(54)
Age of Head of Household (Years)		
	**	
16-29	76	(321)
30-44	75	(297)
45-61	71	(197)
62 or more	81	(287)
Net Annual Income		
\$1,000 - 1,999	76	(94)
\$2,000 - 3,999	77	(575)
\$4,000 - 5,999	76	(372)
\$6,000 or more	69	(52)
Major Source of Income		
	**	
Welfare	73	(486)
Other	79	(616)
Per Capita Income		
	*	
\$0 - 1,000	75	(275)
\$1,001 - 2,000	75	(617)
\$2,001 - 3,000	81	(153)
\$3,001 or more	82	(57)
Race/Ethnicity		
White	76	(819)
Black	75	(274)
Household Size (Persons)		
	**	
1	82	(204)
2	75	(281)
3-4	75	(411)
5-6	75	(150)
7-14	78	(56)
Household Type		
	*	
Unmarried, No Children	81	(230)
Unmarried, Children	73	(498)
Married, No Children	81	(103)
Married, Children	76	(271)
Education (Years)		
1-8	81	(279)
9-11	72	(375)
12	76	(352)
13-20	82	(76)
Sex of Head of Household		
Male	79	(430)
Female	75	(672)
Total Sample Size		(1105)

SAMPLE: All households active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: Baseline Interview, Initial Household Report Form.

* Chi-square significant at the 0.05 level.

** Chi-square significant at the 0.01 level.

Table III-10
NEIGHBORHOOD SATISFACTION BY HOUSEHOLD
CHARACTERISTICS: PHOENIX

CATEGORY	PERCENTAGE OF HOUSEHOLDS SATISFIED	SAMPLE SIZE
Number of Prior Moves		
0	79*	(263)
1	85	(299)
2-3	75	(345)
4 or more	76	(194)
Age of Head of Household (Years)		
16-29	75	(379)
30-44	79	(303)
45-61	81	(176)
62 or more	82	(244)
Net Annual Income		
	**	
\$1,000 - 1,999	80	(100)
\$2,000 - 3,999	81	(341)
\$4,000 - 5,999	79	(391)
\$6,000 or more	64	(256)
Major Source of Income		
Welfare	76	(147)
Other	79	(954)
Per Capita Income		
\$0 - 1,000	75	(274)
\$1,001 - 2,000	78	(489)
\$2,001 - 3,000	81	(251)
\$3,001 or more	84	(83)
Race/Ethnicity		
	**	
White	78	(687)
Black	68	(85)
Spanish American	83	(301)
Household Size (Persons)		
	**	
1	83	(161)
2	83	(269)
3-4	78	(401)
5-6	77	(174)
7-14	71	(97)
Household Type		
	**	
Unmarried, No Children	82	(185)
Unmarried, Children	76	(351)
Married, No Children	85	(148)
Married, Children	77	(418)
Education (Years)		
	**	
1-8	83	(359)
9-11	75	(255)
12	77	(294)
13-20	80	(145)
Sex of Head of Household		
Male	79	(637)
Female	78	(465)
Total Sample Size		(1101)

SAMPLE: All households active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: Baseline Interview, Initial Household Report Form.

* Chi-square significant at the 0.05 level.

** Chi-square significant at the 0.01 level.

III.5 DIRECTIONS FOR FUTURE RESEARCH

Future research efforts will assess the impact of the housing allowance program on the expressed satisfaction of participants with their housing unit and neighborhood. Such an analysis addresses the effect of housing allowances on the dwelling conditions of low-income households in terms of the household's own evaluation of their housing.

Traditionally, housing analysts and government planners have used objective measures of housing as the yardstick for determining housing needs and improvement of the nation's housing stock. The habitability of a house is influenced, however, not only by objective engineering elements, but also by social, cultural, and behavioral aspects of the dwelling environment and the occupants of the house (Michelson, 1970; Philips, 1976; Gans, 1962; Raven, 1962; Onibokun, 1974). What constitutes habitability varies according to these surrounding circumstances and the relative reaction to them by the inhabitants. Attitude and perceptions of the household members themselves constitute a complement to more objectively oriented evaluations. The grim experience of Pruitt-Igoe in St. Louis (Rainwater, 1970) suggests that housing judged decent by objective measures is, by itself, not the answer to solving the nation's housing problems. Housing that is truly decent must meet the perceived needs of the inhabitants as well as fulfill objective standards of quality. For these reasons, assessing the degree of improvement in the satisfaction of experimental participants with their housing is viewed as a potentially valuable component of the evaluation of the Demand Experiment.

Preliminary empirical investigations of possible program effects on expressed satisfaction have been inconclusive; findings of program effects have been highly dependent on specification of the analytic model, particularly with respect to the role of moving, and have been inconsistent between the two experimental sites.¹ Satisfaction appears to be associated strongly

¹Application of techniques designed specifically for ordinal level dependent variables (McKelvey, and Zavoina, 1975) may prove superior to the techniques used thus far (that is, log-linear contingency table analysis and analysis of covariance), which treat the satisfaction measures as either of nominal or interval scale.

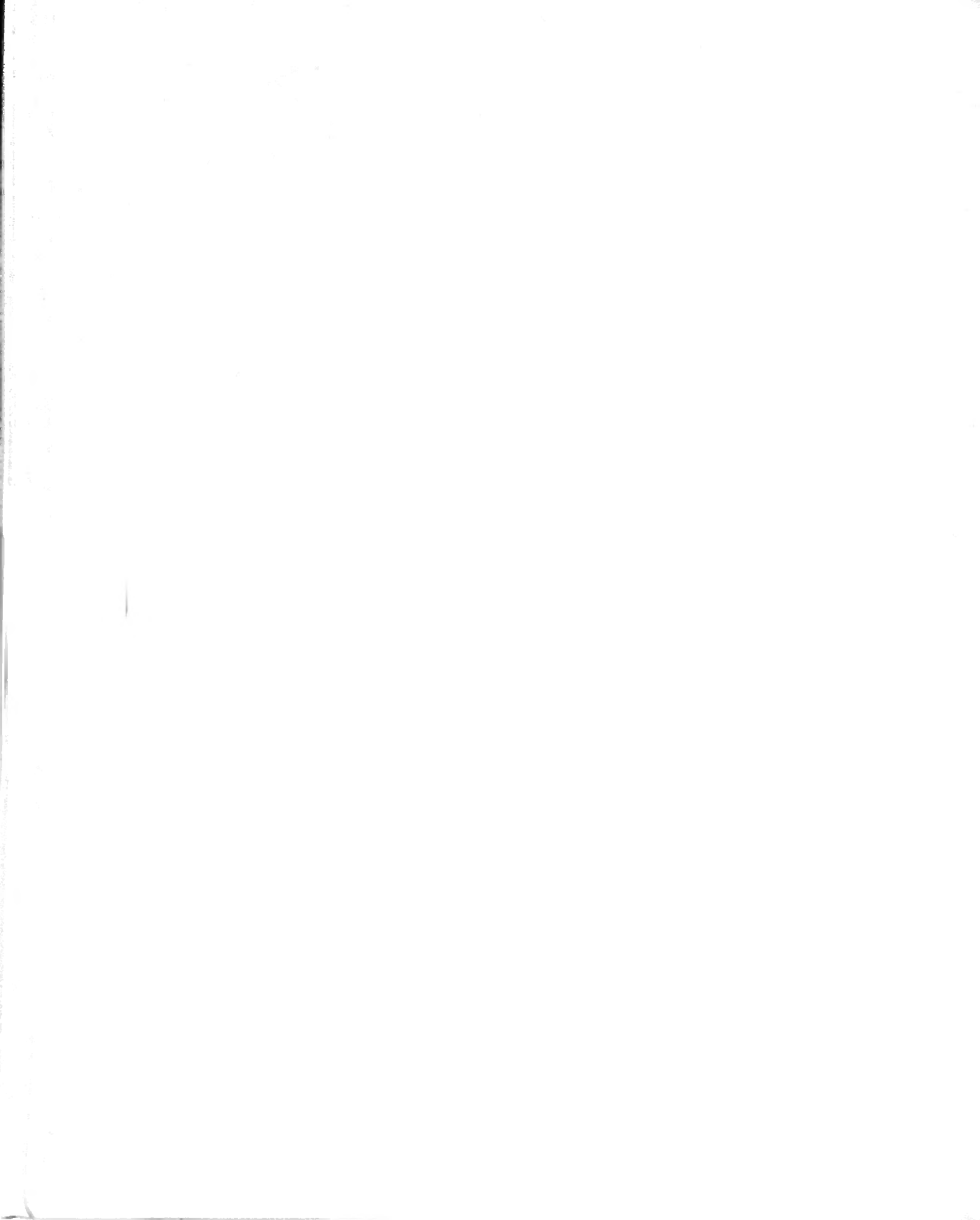
with moving but not with a household's being enrolled in one of the experimental housing allowance plans. Given the current results, one must be cautious about the prospects for conclusive findings regarding program effects.

REFERENCES

- Abt Associates Inc., Third Annual Report of the Demand Experiment, Cambridge, Mass., April 1976.
- Abt Associates Inc., Working Paper on Early Findings, Cambridge, Mass., January 1975.
- Anderson, L. R. and M. Fishbein, "Prediction of Attitude from the Number, Strength, and Evaluative Aspect of Beliefs about the Attitude Object: A Comparison of Summation and Congruity Theories," in Readings in Attitude Theory and Measurement, M. Fishbein, ed., New York, John Wiley and Sons, 1967.
- Baker, B. D., C. Hardyck and L. Petrinovich, "Weak Measurements vs. Strong Statistics: An Empirical Critique of S. S. Stevens's Proscriptions on Statistics," Educational and Psychological Measurement, Vol. 26, 1966.
- Bohrnstedt, G. W. and T. M. Carter, "Robustness in Regression Analysis," in Sociological Methodology, H. L. Costner, ed., San Francisco, Jossey-Bass, 1971.
- Borgatta, E. F., "My Student the Purist: A Lament," Sociological Quarterly, Vol. 9, 1968.
- Borgatta, E. G., "Reply to Jacobson: A Dirty Handkerchief is not What I Always Really Wanted," Sociological Quarterly, Vol. 11, 1970.
- Boyle, R. P., "Path Analysis and Ordinal Data," American Journal of Sociology, Vol. 75, 1970.
- Burke, C. J., "Aptitude Scales and Statistics," Psychological Review, Vol. 60, 1953.
- Butler, Edgar, et al., Moving Behavior and Residential Choice, National Cooperative Highway Research Program Report No. 81, 1969.
- Carp, F. M., "Long-Range Satisfaction with Housing," The Gerontologist, 1975.
- Coleman, J. S., "The Mathematical Study of Change," in Methodology in Social Research, H. M. Blalock and A. B. Blalock, eds., New York, McGraw Hill, 1968.
- Cronbach, L. J., G. C. Gleser, H. Nand, and N. Rajaratram, The Dependability of Behavioral Measurement, New York, John Wiley and Sons, 1972.
- Gans, H., The Urban Villagers, New York, The Free Press, 1962.
- Heise, D. R., "Separating Reliability and Stability in Test-Retest Correlation," American Sociological Review, Vol. 34, 1969.

- Jacobson, P. E., "Some Comment to Console Edgar F. Borgatta," Sociological Quarterly, Vol. 11, 1970.
- Labovitz, S., "Some Observations on Measurement and Statistics," Social Forces, Vol. 46, 1967.
- Labovitz, S., "The Assignment of Numbers to Rank Order Categories," American Sociological Review, Vol. 35, 1970.
- Lansing, John B., Planned Residential Environments, prepared for the U.S. Department of Transportation, Bureau of Public Roads, Ann Arbor, Institute for Social Research, Survey Research Center, University of Michigan, 1970.
- Lansing, John B., Residential Location and Urban Mobility: The Second Wave of Interviews, Ann Arbor, Institute for Social Research, University of Michigan, 1966.
- Lawton, M. P. and J. Cohen, "Environment and the Well-Being of Elderly Inner-City Residents," Environment and Behavior, Vol. 6, 1974.
- Lord, F. M. and M. R. Novick, Statistical Theories of Mental Test Scores, Reading, Mass., Addison-Wesley, 1968.
- McKelvey, Richard D. and William Zavoina, "A Statistical Model for the Analysis of Ordinal Level Dependent Variables," Journal of Mathematical Sociology, Vol. 4, 1975.
- McNemar, Q., "Note on the Sampling Error of the Differences Between Correlated Proportions or Percentages," Psychometrika, Vol. 12, 1947.
- Michaelson, W., Man and His Urban Environment: A Sociological Approach, Reading, Mass., Addison-Wesley, 1970.
- Nelson, L. M. and M. Winter, "Life Disruption, Independence, Satisfaction and the Consideration of Moving," The Gerontologist, 1975.
- Nunnally, J. C., Psychometric Theory, New York, McGraw-Hill, 1967.
- Onibokun, A. G., "Evaluating Consumers' Satisfaction with Housing: Application of a Systems Approach," Journal of the American Institute of Planners, 1974.
- Philips, D. R. H., "Comfort in Home," Royal Society of Health Journal, Vol. 87, 1967.
- Rainwater, Lee, Behind Ghetto Walls, Chicago, Aldine Publishing Co., 1970.
- Raven, J., "Sociological Evidence on Housing: The Home Environment," The Architectural Review, Vol. 142, 1962.
- Rossi, Peter, Why Families Move, Glencoe, Ill., The Free Press, 1955.

- Senders, V. L., "A Comment on Burke's Additive Series and Statistics," Psychological Review, Vol. 60, 1953.
- Sherman, S. R., "Satisfaction with Retirement Housing: Attitudes, Recommendations and Moves," Aging and Human Development, Vol. 3, 1972.
- Speare, Alden Jr., Sidney Goldstein and William H. Frey, Residential Mobility, Migration and Metropolitan Change, Cambridge, Mass., Ballinger, 1974.
- Speare, Alden Jr., "Residential Satisfaction as an Intervening Variable in Residential Mobility," Demography, Vol. 11, No. 2, May 1974.
- Weaver, C. N., "Correlates of Job Satisfaction: Some Evidence from the National Surveys," Academy of Management Journal, Vol. 17, 1974.
- Wilson, Robert L., "Livability of the City: Attitudes and Urban Development," in Growth Dynamics, F. Stuart Chapin Jr. and Shirley F. Weiss, eds., New York, John Wiley and Sons, 1962.



APPENDIX IV
SPECIAL ANALYSES OF MOVERS

IV.1 PREFERENCES FOR MOVING

To obtain a pre-enrollment indication of whether households would move if they had a housing allowance payment the following question was asked on the Baseline Interview: "If you had \$50 or more to spend on rent every month, would you move from this (house/apartment) or have the landlord improve this (house/apartment) for a higher rent?"¹ Responses are shown in Table IV-1. The pattern of responses was approximately the same across sites; most households preferred to move from their present units, about one-quarter preferred to stay and improve their present units, and about one-sixth preferred to stay without improving. Table IV-2 indicates that there was no significant difference between the responses of Experimental and Control households nor between Housing Gap and Percent of Rent households; this provides assurance that these major treatment groups are not biased with respect to pre-enrollment responses to this question.

Table IV-2 also shows the relationship between responses to this \$50 inducement question and various household characteristics. The elderly had a much lower preference to move than other age groups. There is also evidence of a positive relationship between preference to move and income, household size, and perhaps education (in Pittsburgh). Moore (1972) notes that blacks, often trapped in lower quality neighborhoods, frequently express a greater desire to move than other racial groups. The data in Table IV-2 show only a slightly higher incidence of preference to move for black households.

Table IV-3 and IV-4 present the relationship between expressed preference at the time of the Baseline Interview and actual behavior during the first

¹The cash stipend specified in this question is approximately equal to the actual subsidy received on average by Experimental households. Among households enrolled using the modal income eligibility limits and still active at the end of the first year of the experiment, mean monthly payment to Housing Gap households was \$43 in Pittsburgh and \$65 in Phoenix; mean payments to Percent of Rent households were \$44 and \$53, respectively.

Table IV-1
 PREFERENCE TO MOVE OR STAY GIVEN A \$50
 CASH INCREMENT FOR RENT^a

PREFERENCE	PITTSBURGH		PHOENIX	
	PERCENTAGE CITING PREFERENCE	SAMPLE SIZE	PERCENTAGE CITING PREFERENCE	SAMPLE SIZE
Move From This Unit	53%	(584)	56%	(623)
Stay and Improve	28	(310)	21	(231)
Stay (No Improvement Necessary)	14	(154)	16	(172)
Other or Don't Know	5	(57)	7	(77)

SAMPLE: Households active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCE: Baseline Interview.

a. Response to Baseline Interview question 77:

If you had \$50 or more to spend on rent every month, would you move from this (house/apartment) or have the landlord improve this (house/apartment) for a higher rent?

Table IV-2

PREFERENCE TO MOVE, STAY AND IMPROVE, OR STAY
WITH NO IMPROVEMENTS BY HOUSEHOLD CHARACTERISTICS: PITTSBURGH

HOUSEHOLD CHARACTERISTIC	MOVE	STAY AND IMPROVE	STAY (NO IMPROVEMENTS)	SAMPLE SIZE	SIGNIFICANCE OF CHI-SQUARE STATISTIC ^a
Age (Years)					
16-29	64%	28%	8%	(312)	0.01
30-44	65	26	9	(279)	
45-61	52	35	13	(190)	
62 or more	39	31	30	(267)	
Income					
\$1,000 - 2,000	52	28	20	(86)	0.05
\$2,001 - 4,000	52	31	16	(548)	
\$4,001 - 6,000	60	29	11	(358)	
\$6,001 or more	70	19	11	(47)	
Race					
White	55	29	17	(782)	(Not Significant)
Black	59	32	9	(257)	
Education (Years)					
1-8	48	33	19	(275)	0.05
9-11	60	27	13	(363)	
12	55	32	13	(332)	
13-20	68	21	12	(78)	
Household Size (Persons)					
1	40	26	34	(190)	0.01
2	53	31	15	(264)	
3-4	62	29	10	(399)	
5-6	59	37	4	(140)	
7-14	71	18	11	(55)	
Treatment Group					
Control Households	59	26	15	(252)	(Not Significant)
Experimental Households	55	31	15	(796)	
Housing Gap Households	54	31	15	(472)	
Percent of Rent Households	55	31	14	(324)	

Table IV-2--continued
 PREFERENCE TO MOVE, STAY AND IMPROVE, OR STAY
 WITH NO IMPROVEMENTS BY HOUSEHOLD CHARACTERISTICS: PHOENIX

HOUSEHOLD CHARACTERISTIC	MOVE	STAY AND IMPROVE	STAY (NO IMPROVEMENTS)	SAMPLE SIZE	SIGNIFICANCE OF CHI-SQUARE STATISTIC ^a
Age (Years)					
16-29	72%	19%	9%	(363)	0.01
30-44	64	25	11	(280)	
45-61	62	25	13	(158)	
62 or more	37	24	39	(225)	
Income					
\$1,000 - 2,000	49	27	24	(88)	0.05
\$2,001 - 4,000	56	23	21	(319)	
\$4,001 - 6,000	66	20	14	(374)	
\$6,001 or more	62	25	12	(232)	
Race					
White	59	21	21	(629)	0.01
Black	66	28	6	(82)	
Spanish American	63	25	12	(287)	
Education (Years)					
1-8	58	25	18	(375)	(Not Significant)
9-11	61	22	17	(233)	
12	67	19	14	(273)	
13-20	57	24	19	(145)	
Household Size (Persons)					
1	35	21	44	(146)	0.01
2	58	23	19	(246)	
3-4	67	22	12	(373)	
5-6	68	23	9	(166)	
7-14	71	25	4	(95)	
Treatment Group					
Control Households	62	23	15	(289)	(Not Significant)
Experimental Households	60	22	17	(737)	
Housing Gap Households	60	24	16	(451)	
Percent of Rent Households	60	20	20	(286)	

SAMPLE: Households active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCE: Baseline Interview.

a. The chi-square statistic measures the significance of the relationship of each household characteristic to the preference to move, stay/improve and stay/not improve.

Table IV-3

PREFERENCE TO MOVE OR STAY BY ACTUAL FIRST-YEAR
MOVING BEHAVIOR BY EXPERIMENTAL AND CONTROL HOUSEHOLDS

PREFERENCE	EXPERIMENTAL				CONTROL			
	Move	Search But No Move	Stay	Sample Size	Move	Search But No Move	Stay	Sample Size
PITTSBURGH								
Would Move	40%	31%	29%	(427)	33%	32%	34%	(148)
Would Stay and Improve	19	17	64	(235)	14	21	65	(63)
Would Stay (No Improvement Necessary)	14	2	84	(112)	11	14	76	(37)
PHOENIX								
Would Move	63	15	23	(421)	60	18	23	(171)
Would Stay and Improve	38	16	46	(160)	39	5	56	(66)
Would Stay (No Improvement Necessary)	30	7	63	(124)	27	16	57	(44)

SAMPLE: Households active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: Baseline, First and Second Periodic Interviews.

Table IV-4

PREFERENCE TO MOVE OR STAY BY ACTUAL FIRST-YEAR
MOVING BEHAVIOR OF EXPERIMENTAL HOUSEHOLDS

PREFERENCE	HOUSING GAP				PERCENT OF RENT			
	Move	Search But No Move	Stay	Sample Size	Move	Search But No Move	Stay	Sample Size
PITTSBURGH								
Would Move	37%	36%	27%	(250)	45%	24%	31%	(177)
Would Stay and Improve	20	17	63	(138)	18	16	66	(97)
Would Stay (No Improvement Necessary)	13	1	85	(67)	16	2	82	(45)
PHOENIX								
Would Move	64	13	23	(255)	61	17	22	(166)
Would Stay and Improve	40	16	44	(105)	35	15	51	(55)
Would Stay (No Improvement Necessary)	31	7	61	(70)	28	7	65	(54)

SAMPLE: Experimental households active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: Baseline, First and Second Periodic Interviews.

year. Households that stated a preference to move were in fact more likely to have moved than those that expressed a preference to stay in their present units. The higher Phoenix overall moving rate is reflected in the fact that Phoenix households were much more likely to move given a preference to move than were Pittsburgh households, and they were also less likely to stay given a preference for staying.

The expression of interest in moving with \$50 more to spend on housing each month seems to relate better to search in Pittsburgh than to moving--about as many of these households searched without moving as actually moved, unlike Phoenix where most of the households saying they would like to move did move. This may indicate that fewer housing units of a given type are available over a one-year period in Pittsburgh than in Phoenix. There were no large differences in the behavior of Percent of Rent and Housing Gap households.

IV.2 CHRONIC AND FORCED MOVERS

Some of the literature on moving suggests that there may be subgroups of movers whose behavior is distinctive. In particular, the literature refers to "chronic" or "repeated" movers and to "forced" or "involuntary" movers.¹ The analyses in this report have not discussed these two groups separately; rather, they have been treated like all other participant subsamples in the experimental design. The only exception to this approach is in the logit estimations in which forced movers were excluded to avoid the possibility of biased estimates for the coefficients. Because including chronic and forced movers in analytic samples tends to yield higher moving rates than if such cases were not included, some analysis has been done to determine whether either of these groups should be treated separately in future work. The results of that analysis, presented below, indicate that stratification of these two groups is not likely to be required, at least with respect to comparisons of moving behavior of Experimental and Control households.

¹ For a discussion of the literature on these topics see Appendix VII.

The Influence of Previous Mobility (Chronic Movers)

A major theme in the research on moving behavior is that previous mobility is a good predictor of future mobility. This report replicates that finding. As described in Chapters 3 and 4, households were more likely to move during the first year of the experiment if they had moved frequently during the three years prior to enrollment.

The same kinds of households that showed a propensity to move during the experiment (see Appendix Tables VI-1 and VI-2) were more likely to have moved frequently before joining the program (see Table IV-5). As is the case for moving during the first year, the negative association between previous mobility and age is clear, but a simple relationship between previous mobility and either race/ethnicity or income is not apparent. Table IV-5 also indicates that there is no systematic bias among treatment groups; households with a relatively high propensity to move were apparently distributed evenly across the experimental design.¹

A separate group of "chronic" movers has not been distinguished in this analysis. Instead, the number of moves during the three years prior to enrollment has been treated as a continuous measure of the propensity to move. This approach is consistent with the one followed in the literature, which suggests the existence of "chronic" movers but never operationally defines such a group. It is also consistent with the sample data. Figure IV-1 illustrates that the distribution of households by number of moves prior to enrollment is continuous. Similarly, Figure IV-2 indicates that the percentage of households moving during the first year rises continuously as the number of moves prior to enrollment increases. Any attempt to define a behaviorally distinct group of "chronic" movers would be arbitrary.

¹The enrollment process may nevertheless have selected those households more likely to move as evidenced by a positive association of acceptance rates (for Experimental and Control households combined) with a stated preference to move in the Baseline Interview and with the number of moves in the three years preceding the Baseline Interview (see Abt Associates Inc., 1975, pp. 50, 51).

Table IV-5
 NUMBER OF MOVES PRIOR TO ENROLLMENT
 BY SELECTED HOUSEHOLD CHARACTERISTICS: PITTSBURGH

HOUSEHOLD CHARACTERISTIC	NUMBER OF MOVES IN THREE YEARS PRIOR TO BASELINE INTERVIEW				SAMPLE SIZE
	0	1	2-3	4 or more	
Age of Head of Household (Years)					
16-29	16%	30%	42%	12%	(313)
30-44	47	33	18	3	(294)
45-61	55	35	9	2	(197)
62 or more	67	23	9	0	(281)
Race/Ethnicity					
White	44	30	21	5	(808)
Black	48	28	22	3	(268)
Income					
\$1,000 - 1,999	60	25	13	1	(91)
\$2,000 - 3,999	45	30	19	6	(562)
\$4,000 - 5,999	39	31	25	5	(373)
\$6,000 or more	55	27	16	2	(51)
Treatment Group					
Housing Gap Minimum Standards	48	28	20	4	(185)
Housing Gap Minimum Rent	45	30	19	6	(240)
Unconstrained	47	28	19	7	(58)
Percent of Rent	45	30	21	4	(342)
Control	41	32	23	4	(260)

Table IV-5--continued

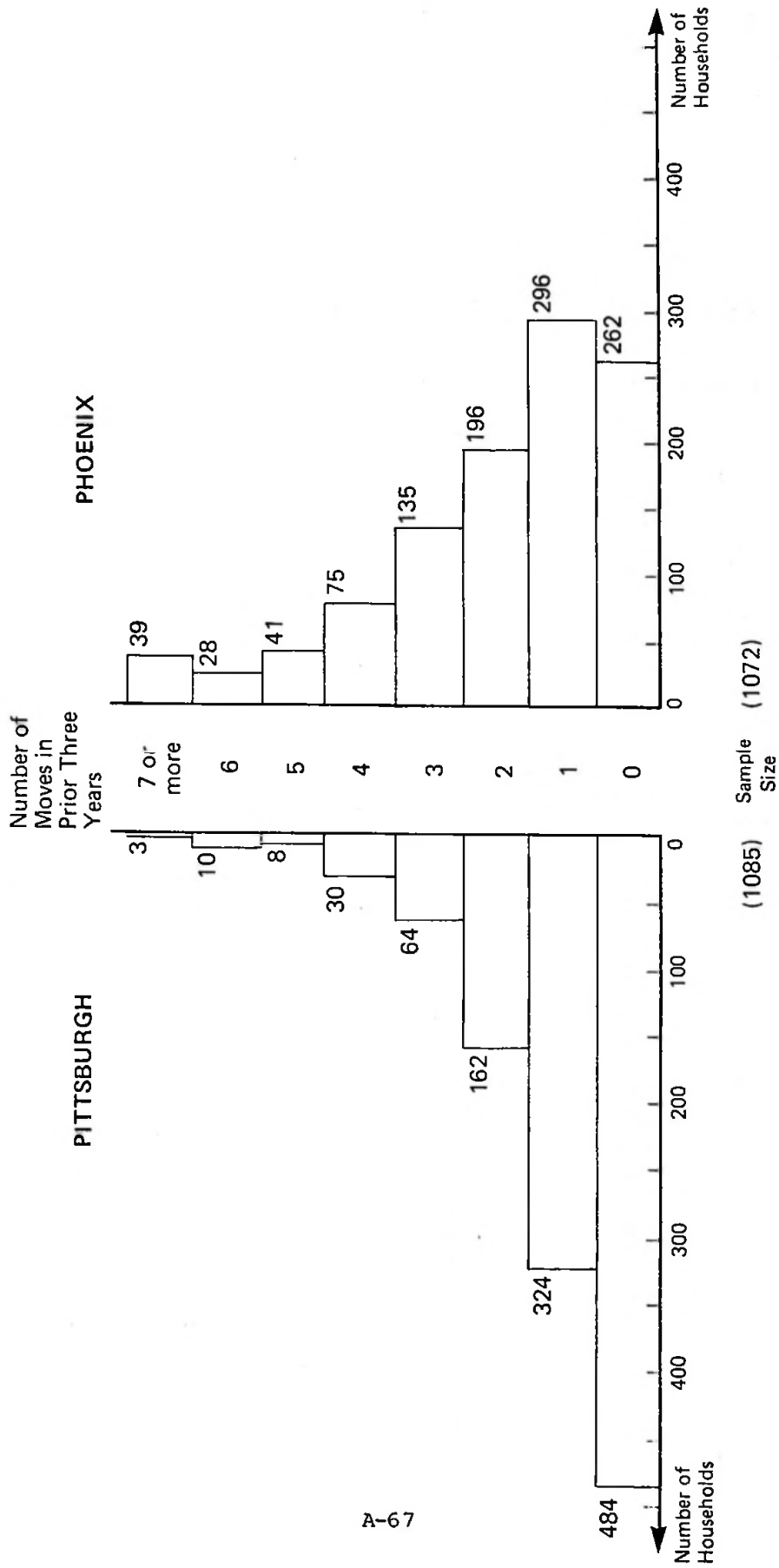
NUMBER OF MOVES PRIOR TO ENROLLMENT
BY SELECTED HOUSEHOLD CHARACTERISTICS: PHOENIX

HOUSEHOLD CHARACTERISTIC	NUMBER OF MOVES IN THREE YEARS PRIOR TO BASELINE INTERVIEW				SAMPLE SIZE
	0	1	2-3	4 or more	
Age of Head of Household (Years)					
16-29	6%	20%	40%	34%	(366)
30-44	21	31	35	13	(294)
45-61	36	31	26	7	(174)
62 or more	48	34	15	3	(238)
Race/Ethnicity					
White	23	26	31	21	(664)
Black	26	39	31	5	(85)
Spanish American	27	29	32	12	(296)
Income					
\$1,000 - 1,999	38	32	19	11	(96)
\$2,000 - 3,999	29	29	30	11	(333)
\$4,000 - 5,999	21	26	32	21	(380)
\$6,000 or more	18	26	35	21	(249)
Treatment Group					
Housing Gap Minimum Standards	25	31	26	18	(193)
Housing Gap Minimum Rent	27	23	33	18	(234)
Unconstrained	18	33	24	24	(45)
Percent of Rent	21	24	36	18	(299)
Control	26	32	28	14	(301)

SAMPLE: Households active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

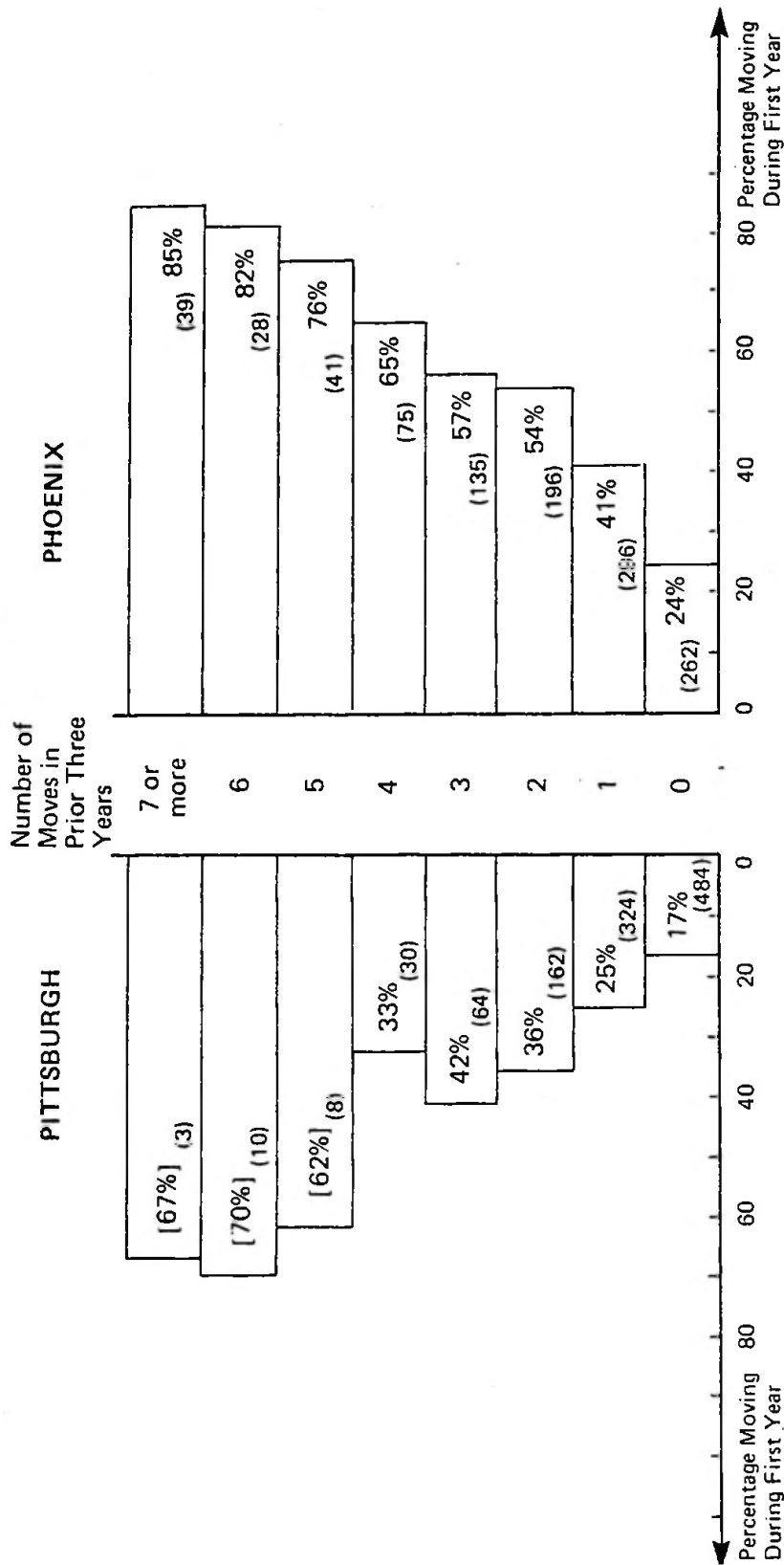
DATA SOURCE: Baseline Interview.

Figure IV - 1
 HOUSEHOLDS BY NUMBER OF MOVES DURING THREE YEARS
 PRIOR TO BASELINE INTERVIEW



SAMPLE: Households active at one year, not living in own or subsidized housing and below the low-income eligibility limit.
 DATA SOURCE: Baseline Interview.

Figure IV - 2
**PERCENTAGE OF HOUSEHOLDS THAT MOVED DURING FIRST YEAR BY
 NUMBER OF MOVES DURING THREE YEARS PRIOR TO
 BASELINE INTERVIEW**
 (SAMPLE SIZE IN PARENTHESIS)



SAMPLE: Households active at one year, not living in own or subsidized housing and below the low-income eligibility limit.
 DATA SOURCES: Baseline, First and Second Periodic Interviews.
 NOTE: Brackets indicate entries based on 15 or fewer observations.

Forced Movers

The published research on moving behavior contains a wide variety of definitions of a forced or involuntary move (see Appendix VII). In this report, households have been considered forced movers (and therefore deleted from the logit estimations) if they were required to leave their dwelling by a landlord, a public official, or by natural disaster.

Moves made for reasons such as changed income or household characteristics--for example, the birth or departure of children--have not been considered forced moves; they have been treated like all other moves resulting from altered household circumstances.

Six percent of the participating households (26 percent and 15 percent of all movers in Pittsburgh and Phoenix) were forced to move during the first year of the experiment, according to their responses to survey questions.¹ Over one-half of these households reported that they either were not allowed to renew their leases or were evicted (Table IV-6). Other reasons given by households forced to move were the sale of the building in which they resided, condemnation of the building, and destruction of the building by fire or disaster.

Some households labeled here as forced movers may have moved for reasons not completely beyond their control. For example, to the extent that tenant behavior (heavy wear and tear on property, noise, failure to pay rent) led to landlord insistence that a tenant leave (eviction or nonrenewal of lease), a move reported as forced may not have been fully beyond the tenant's control.

¹Responses A, B, D, and E to First Periodic Interview Question 57 or responses 1, 2, 3, 5, and 6 to Second Periodic Interview Question 44, "Sometimes people have to move from their house or apartment even though they really don't want to. Here are some reasons why people are forced to move. Please tell me if you had to move from your last house or apartment for any of these reasons. (1) The house or apartment was taken over because of a government program, such as urban renewal or highway construction [not on First Periodic Interview]. (2) The house or apartment was being condemned or torn down by Health or Building Dept. officials. (3) The house or apartment was destroyed by fire, flood, or other disaster. (4) You were unable to pay the rent. (5) The landlord wanted you to move--include eviction and nonrenewal of lease. (6) The building was being sold. (7) None of the above reasons."

Table IV-6
 NUMBER OF FORCED MOVES DURING THE FIRST YEAR
 BY REASONS GIVEN FOR MOVING

REASON FOR MOVING	PITTSBURGH	PHOENIX
Building Taken Over or Condemned by Public Officials	26	13
Building Destroyed by Fire or Disaster	5	4
Eviction or Nonrenewal of Lease	41	53
Building Sold	17	43
Total Number of Reasons	89	113
Total Number of Households ^a	76	95

SAMPLE: Households active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: First and Second Periodic Interviews.

a. Total is not equal to the number of forced movers because households may have been forced to move more than once, and may have been forced to move for more than one reason.

The numbers of forced movers presented here may include some whose moves were induced by their own behavior and should therefore be considered only as estimates of the numbers of truly involuntary movers.

The households that were forced to move do not appear to have come from any distinctive demographic group, and they were apparently spread approximately evenly across the design space (see Table IV-7). Some exceptions do appear; however, elderly households at both sites and higher income households in Pittsburgh were less likely than others to have been forced movers, while households in the Unconstrained plan appear more likely than others to have been forced movers.

Forced movers did not differ from other households in any simple way with respect to characteristics that tended to induce search or moving. In Phoenix forced moves were not related to moving behavior during the three years prior to the experiment and were also independent of the level of satisfaction at enrollment. On the other hand in Pittsburgh households that were very dissatisfied with their dwelling unit or neighborhood or had a history of several previous moves were more likely than other households to have been forced movers.

The relative independence of forced moving and key variables whose effect on moving behavior has been analyzed suggests that the analysis in the text of this report is not seriously confounded by the behavior of households forced to move for reasons beyond their control. There are enough indications of possible correlations between forced moving and household characteristics, however, to warrant continued attention to this issue in future analysis. The important point to recognize in predictions of searching or moving is the relatively involuntary nature of these moves; the behavior of households forced to move is nevertheless a real part of the response to be investigated (for example, with respect to whether these households meet the housing requirements when they move).

IV.3 INCIDENCE OF PERCEIVED DISCRIMINATION

Discrimination in the private housing market could limit access to program-approvable housing and more generally limit choice in the context of a housing allowance program. It would thus subvert one possible advantage of giving housing subsidies to eligible households, that is, avoidance of problems

Table IV-7

PERCENTAGE OF HOUSEHOLDS THAT WERE FORCED MOVERS,
BY DEMOGRAPHIC CHARACTERISTICS, TREATMENT GROUP AND MOBILITY STATUS

DEMOGRAPHIC CHARACTERISTIC	PITTSBURGH		PHOENIX	
	PERCENTAGE OF FORCED MOVERS	SAMPLE SIZE	PERCENTAGE OF FORCED MOVERS	SAMPLE SIZE
Age of Head of Household (Years)				
16-29	9%	(300)	8%	(340)
30-44	7	(283)	9	(275)
45-61	7	(188)	4	(163)
62 or more	3	(271)	3	(227)
Race/Ethnicity				
White	6	(772)	6	(626)
Black	7	(261)	9	(79)
Spanish American	NA ^a		8	(274)
Income				
\$1,000 - 1,999	7	(88)	6	(86)
\$2,000 - 3,999	7	(540)	7	(314)
\$4,000 - 5,999	6	(359)	6	(351)
\$6,000 or more	2	(47)	7	(241)
Treatment Group				
Housing Gap				
Minimum Standards	6	(176)	8	(181)
Housing Gap				
Minimum Rent	7	(232)	6	(217)
Unconstrained	12	(57)	10	(42)
Percent of Rent	6	(327)	4	(275)
Control	5	(250)	7	(290)
Number of Years in Three Years Prior to Enrollment				
0	4	(469)	3	(253)
1	6	(305)	8	(277)
2-3	9	(212)	9	(306)
4 or more	14	(50)	5	(169)
Neighborhood Satisfaction				
Very Satisfied	5	(476)	6	(458)
Somewhat Satisfied	6	(310)	7	(323)
Somewhat Dissatisfied	5	(121)	5	(100)
Very Dissatisfied	14	(105)	7	(69)
Dwelling Unit Satisfaction				
Very Satisfied	6	(366)	7	(350)
Somewhat Satisfied	3	(316)	6	(342)
Somewhat Dissatisfied	7	(187)	8	(144)
Very Dissatisfied	13	(144)	5	(114)

SAMPLE: Households active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: First and Second Periodic Interviews.

a. NA = not applicable.

like exclusion of subsidized housing projects by suburbs. Even though the Demand Experiment included no tests for effectiveness of equal opportunity support, it is important as a matter of policy to observe the type and degree of discrimination encountered by households during the experiment.

Discrimination is widely believed to be one of the most important problems affecting households' search for housing. The problems posed by discrimination have been defined largely in terms of the hypothesized role of discriminatory behavior by landlords, realtors, and others in maintaining racially segregated housing patterns, lowering the quantity and quality of housing for minority households, and/or raising the price of housing for such households (see Kain and Quigley, 1975; King and Mieszkowski, 1973; Merrill, 1976; Yinger, 1975). More generally, discrimination is important insofar as it impedes the ability of households to locate and obtain the housing that comes closest to meeting their preferences at prices they are willing and able to pay.

The perceived negative effects of discrimination on housing choice and the possibility of overcoming these negative effects through public action have made equal opportunity a critical issue in housing policy. Federal law prohibits discrimination on grounds of race, color, religion, and national origin; legislation in many states and localities has made discrimination on other grounds illegal as well.

In a housing allowance program, legal remedies could be supplemented in a variety of ways. Two such supplements--free legal counsel and supportive services for recipients that encountered discrimination, and information and counseling services to help recipients recognize and counteract discrimination--were made available to households in the Demand Experiment.¹ Other policy measures could also be designed, such as a service to assist households in locating and gaining access to potentially suitable housing or more systematic equal opportunity enforcement to alter patterns of discrimination.

¹The Housing Information Program was offered to all Experimental households and to one of the two Control groups. One session was devoted exclusively to discrimination issues. See Appendix V for further discussion.

Discrimination affects the search for housing in a complex manner. Household characteristics and the nature of the search process itself influence whether a household encounters discrimination. Conversely, discrimination (or the expectation of discrimination) may affect the search for housing. Household characteristics, attributes of the search process, and the supply of available units all combine to influence whether and where a household moves.

Information about discrimination has been obtained principally through interviews; this analysis therefore considers discrimination as it is perceived and reported by all households in the experiment that sought rental units.¹ Interview respondents were asked both about racial discrimination and about a wide range of other possible forms of discrimination; all these forms are referred to in this report as discrimination.² Racial discrimination is discussed separately at some points because of its particular policy salience.³ Given its low incidence, however, other patterns are discussed first.

Using households' perceptions as a measure of discrimination introduces two possible types of measurement error. On the one hand, discrimination may occur but go unnoticed or unreported. In the context of the experiment, there is no way to determine the extent to which this type of error exists.

¹The interview question discussed here was asked directly of all households that moved or searched during the six months prior to the interview. The level of discrimination reported here is higher than that reported in Section 3.2, which deals only with interview responses to an open-ended question on search problems asked of the same set of households.

²This section does not discuss separately discrimination because of nationality. Determining the relationship between this type of discrimination and racial discrimination poses a difficult problem which has not been addressed because of the low incidence of reported discrimination based on nationality.

³It is possible, however, to see whether housing market outcomes are consistent with the hypothesis that some households were discriminated against in their search for housing. This type of analysis has been done by numerous researchers investigating the relationship between race and housing consumption. (See, for example, Kain and Quigley, 1975). The relationship between race and housing quality for households in the Demand Experiment is discussed in Merrill (1976). She found that, in Pittsburgh, black households living in neighborhoods that were more than 50 percent black paid a premium for housing, especially for better quality housing.

On the other hand, households may mistakenly report discrimination when none occurred. This type of error is particularly likely if households expect to encounter discrimination.

Perceived discrimination represents more than a confirmation of household expectations. The perception (independent of the fact) of discrimination may directly affect a household's search for housing. In addition, perceived discrimination may lead a household to expect discrimination in the future, and this expectation may also cause the household to alter its search behavior. Most households reporting discrimination did not report that they restricted their search because they expected discrimination. Less than one-quarter of the households reporting discrimination (only 21 percent in Pittsburgh and 19 percent in Phoenix) said they had avoided certain neighborhoods because they expected discrimination.

Incidence of Discrimination

A substantial proportion of the households that moved or searched for housing during the first year of the experiment reported experiencing some kind of discrimination--56 percent of searchers in Pittsburgh and 32 percent of searchers in Phoenix. Table IV-8 illustrates clearly that the most common form of reported discrimination in both cities was against families with children--45 percent of Pittsburgh households and 24 percent of Phoenix households reported discrimination of this type. The relative importance of other types of discrimination varied slightly between the two sites, but source of income, marital status, and age were the next most common reasons for discrimination at both sites.

Racial discrimination is experienced by relatively few households. This is partly because white households would not be expected to experience racial discrimination. Yet when the incidence of perceived racial discrimination is examined stratified by the race of the household (see below, Figure IV-3), the reported incidence remains lower than might be expected. Of black searchers, 18 percent in Pittsburgh and 12 percent in Phoenix reported experiencing racial or ethnic discrimination. Black searchers reporting either that they experienced racial discrimination or avoided neighborhoods because they expected discrimination amounted to 28 percent in Pittsburgh and 16 percent in Phoenix. Thus, black searchers reporting both that they

Table IV-8
TYPE OF DISCRIMINATION REPORTED

TYPE OF DISCRIMINATION ^a	PITTSBURGH PERCENTAGE REPORTING	PHOENIX PERCENTAGE REPORTING
Age	13%	10%
Sex	8	2
Marital Status	20	6
Race ^b	7	4
Source of Income	30	8
Children	45	24
Housing Allowance	1	1
Any Type	56	32
Sample Size	(512)	(628)

SAMPLE: Searchers active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: First and Second Periodic Interviews.

NOTE: Percentages may add to more than 100 percent because of multiple responses.

a. Response to First Periodic Interview question 76 and Second Periodic Interview question 65:

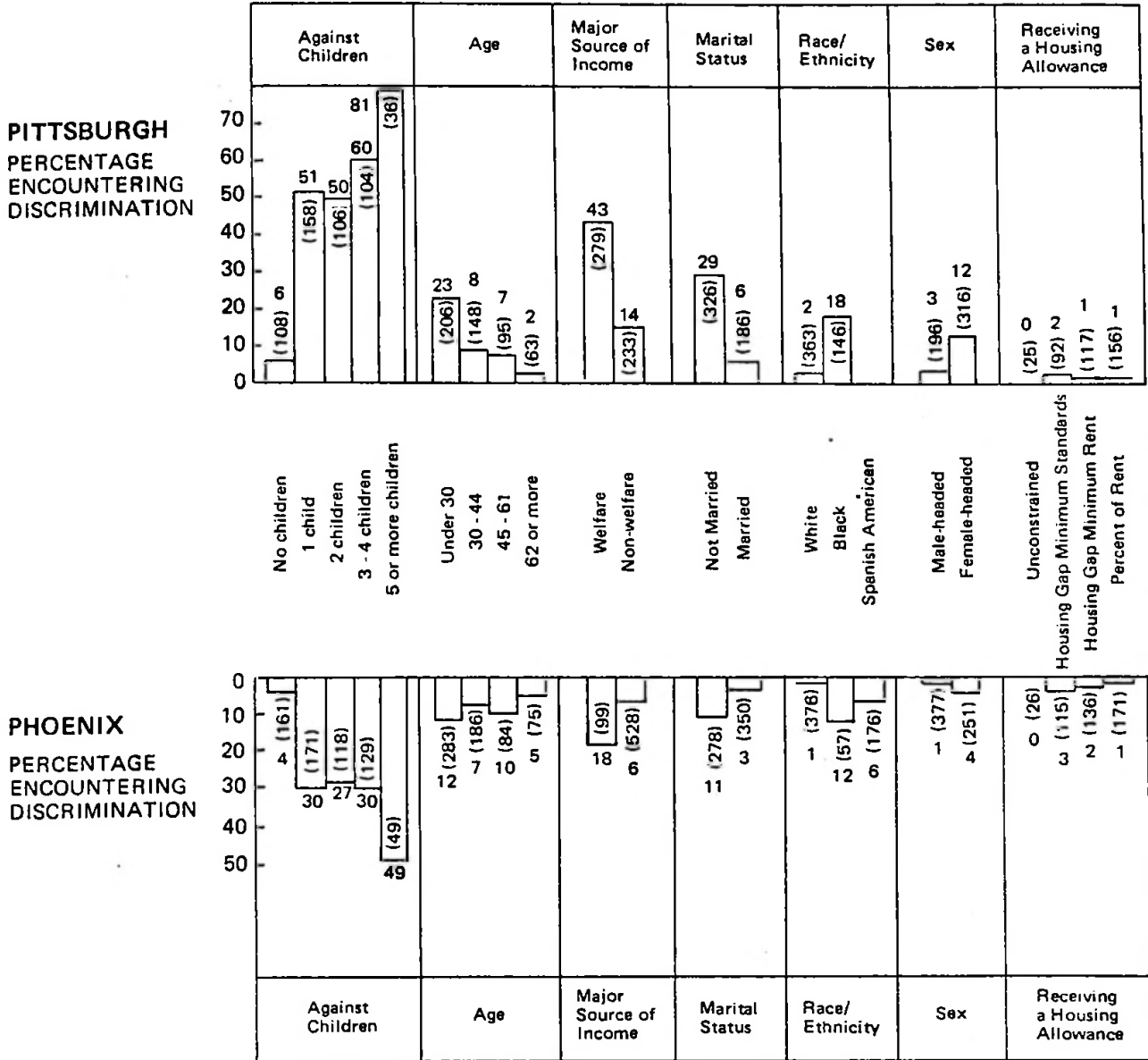
In looking for houses or apartments in the last six months do you feel you experienced any discrimination from landlords, superintendents, or other people who rent apartments because of your or anyone in your household's (yes/no)

- A. Age
- B. Sex
- C. Marital status
- D. Race
- E. Nationality
- F. Sources of income
- G. Children
- H. Receiving a housing allowance?

b. This was asked of all households; see Figure IV-3 for responses by racial/ethnic groups.

Figure IV - 3
PERCENTAGE OF HOUSEHOLDS THAT EXPERIENCED DISCRIMINATION
IN LOOKING FOR A PLACE TO LIVE BY TYPE OF DISCRIMINATION^a

(SAMPLE SIZE IN PARENTHESES)



(628) SAMPLE SIZE (512)

SAMPLE: Searchers active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.
DATA SOURCES: First and Second Periodic Interview, Initial Household Report Form.

^a Response to First Periodic Interview question 76 and Second Periodic Interview question 65: See footnote (a) in Table IV - 8.

experienced discrimination and avoided neighborhoods amounted to 11 percent and 5 percent in Pittsburgh and Phoenix, respectively. Other minority searchers in Phoenix were somewhat less likely to report racial or ethnic discrimination--only 6 percent of Spanish American households and 13 percent of Indian households did so.

The incidence of discrimination directly tied to participation in the allowance experiment (for example, because rent receipts were required for Percent of Rent households) was very low.¹

A household's chances of encountering specific types of discrimination were greater if it had children, if it depended on welfare as its major source of income, if it belonged to a racial or ethnic minority, or if it was headed by an individual who was single, female, or under thirty years of age (see Figure IV-3). This basic pattern of discrimination is very similar to the one reported by enrolled households for the three-year period immediately preceding the Baseline Interview (see Abt Associates Inc., 1975, pp. 218-22). The incidence of discrimination is greater during the first year of the experiment, however. This is not surprising, as respondents would be expected to have better recall when asked about their experiences during a six-month (rather than a three-year) period.² The experiment itself may have contributed to the increased level of reported discrimination, however. That is, the Housing Information Program session on discrimination might have increased participants' awareness of forms of discrimination that had previously gone unnoticed--for example, realtors' attempts to "steer" households to particular neighborhoods or houses.³ It is also possible that program participants

¹The pattern of responses referred to in Table IV-8 is very similar to the one found in the Administrative Agency Experiment (AAE) in Jacksonville, Florida, except for discrimination associated with the housing allowance experiment itself. Twenty-four percent of Jacksonville searchers reported this type of discrimination, probably because the housing requirements that were enforced were quite stringent given the availability of suitable units, especially for black households confined to certain areas of the city (see Wolfe and Hamilton, 1976).

²The First and Second Periodic Interviews were conducted at approximately six-month intervals during the first year of the experiment; each interview asked about household experiences during the preceding six-month period.

³The effect on search behavior of attendance at Housing Information Program sessions concerning discrimination is explored in a preliminary way in Appendix V.

searched in neighborhoods that they had avoided before the experiment, and that this change in their search behavior led them to encounter discrimination more frequently.¹

The first of three striking facts about the pattern of reported discrimination is the very high level of discrimination against families with children, especially among large households.² Of course, landlords may have had plausible reasons for wishing to exclude tenants with children--for example the desire to avoid complaints about noise from other tenants in a multifamily structure, or fear of damage to property, especially if the household was large relative to the size of the dwelling unit.

Second, it is striking that the level of perceived discrimination is substantially higher in Pittsburgh than in Phoenix. Insofar as this difference exists with respect to discrimination against children, it may be partially accounted for by the fact that the proportion of the available single-family rental units (which are presumably better able to accommodate children) is greater in Phoenix.³ The difference may also be partially ascribed to the difference in state discrimination legislation. Discrimination against children is not illegal in Pennsylvania whereas it is specifically prohibited by law in Arizona.

The difference between the two sites is not limited to the incidence of discrimination against children. All types of discrimination based on demographic and income characteristics were less frequently reported in Phoenix than in Pittsburgh, and all groups commonly discriminated against (large

¹A direct answer to this question cannot be given because information is not available on neighborhoods in which households searched for housing prior to the experiment. Those attending at least one session were more likely to indicate that they took actions when faced with discrimination (see Table V-13).

²The fact that several households without children reported experiencing discrimination against children suggests that the question may not have been perfectly understood. Another possibility is that these households encountered landlords who discriminated against children and they reported that occurrence.

³Single-family units comprise 48 percent of all renter-occupied units in Phoenix, but only 33 percent of renter-occupied units in Pittsburgh (U.S. Bureau of the Census, 1970). Similarly, of the households initially enrolled in the experiment, 18 percent in Pittsburgh and 46 percent in Phoenix lived in single-family detached houses and 34 and 48 percent, respectively lived in any single-family unit.

households, welfare recipients, blacks) reported discrimination more frequently in Pittsburgh. The difference in overall rates of discrimination is attributable, in part, to differences in the composition of the samples at the two sites.¹ However, sample composition cannot explain the lower rates of specific types of discrimination within demographic groups. It does not explain why blacks encountered less racial discrimination and welfare-dependent households met less discrimination because of their source of income in Phoenix than in Pittsburgh. One possible explanation is that the tighter housing market in Pittsburgh gives landlords greater latitude to choose among prospective tenants.²

The third point of interest about the pattern of discrimination is the relatively low incidence of racial discrimination reported by black and Spanish American households.³ Though the amount of racial discrimination reported was certainly not trivial, it was not so great as might have been expected given the extent of racial segregation in the housing market.⁴ Although a low level of discrimination is not necessarily inconsistent with the presence

¹The proportion of households in the samples that were black, welfare-dependent, female-headed, or headed by a single parent with children was greater in Pittsburgh than in Phoenix (Abt Associates Inc., 1975, p. 9).

²The mean number of days spent searching for new housing (by enrolled households that moved during the first year) was 92 in Pittsburgh but only 47 in Phoenix. Of households that indicated a desire to move at the time of enrollment, about twice as many actually did move during the first year in Phoenix as moved in Pittsburgh (see Appendix IV.1). Both these facts suggest the relative tightness of the Pittsburgh housing market.

³The low incidence of reported discrimination is consistent with the very small number of complaints about discrimination to the anti-discrimination lawyer whose services were available free of charge to all households in the experiment. During the period from the beginning of the Demand Experiment in mid-1973 to the end of the calendar year 1975, the equal opportunity lawyer in Pittsburgh received calls from only seven households about possible instances of discrimination; the attorney in Phoenix received calls from only five households during this same period; each household complained of only a single alleged instance of discrimination. Of the households discussed in this appendix, the household heads of only three in Pittsburgh and of only one in Phoenix said they had reported an instance of discrimination to the anti-discrimination lawyer. In no case was enough evidence of discrimination available to support the filing of any type of legal action.

⁴For a discussion of segregation patterns in Pittsburgh and Phoenix, see Atkinson and Phipps, 1977.

of housing segregation,¹ minority households may either have adopted search patterns that enabled them to avoid encountering discrimination or been unwilling to report it.

Two kinds of evidence suggest that black households may search for housing in ways that reduce the likelihood that they will meet discrimination. First, the literature on attitudes toward integrated housing indicates that while a sizable majority of blacks say they would prefer to live in integrated neighborhoods, a relatively small proportion wish to live in neighborhoods that are predominantly white (Pettigrew, 1973, pp. 43-58). On the basis of this attitudinal literature, one would not expect many blacks to search for housing in white neighborhoods unless they expected the racial composition of the area to change.

More direct evidence on discrimination-avoidance in searching indicates that at least some black households altered what would otherwise have been their pattern of search because they feared discrimination. Among households that searched, minority households were as likely as or more likely than white households to have searched outside the neighborhood in which they lived at the time of enrollment (see Table IV-9). In Pittsburgh, however, black households were more likely than white households to report that the geographic extent of their search had been narrowed because they expected discrimination. Black searchers in Pittsburgh were more likely than whites to say they avoided other neighborhoods because they feared discrimination, whether they searched within or outside their original neighborhood (see Table IV-10). In Phoenix, where reported discrimination was less prevalent, the three racial/ethnic groups were equally likely to avoid neighborhoods. This evidence suggests that expectations may be important in determining where households search and that the expectation of discrimination may have led blacks to search for housing primarily in black or "mixed" neighborhoods.²

¹Schelling (1969) has demonstrated, albeit under a fairly restrictive set of assumptions, that a modest preference for segregated housing on the part of whites can lead to a high degree of segregation even in the complete absence of discrimination.

²Furthermore, if the households altering their search patterns were successful in avoiding racial discrimination, the low reported incidence of racial discrimination understates its importance.

Table IV-9

PERCENTAGE OF HOUSEHOLDS SEARCHING OUTSIDE
THEIR ENROLLMENT NEIGHBORHOOD BY RACE/ETHNICITY

RACE/ETHNICITY	PITTSBURGH		PHOENIX	
	PERCENTAGE SEARCHING OUTSIDE NEIGHBORHOOD ^a	SAMPLE SIZE	PERCENTAGE SEARCHING OUTSIDE NEIGHBORHOOD	SAMPLE SIZE
White	72%	(360)	74%	(374)
Black	69	(145)	86	(56)
Spanish American	NA ^b	NA	79	(175)
Total	71	(505)	77	(605)

SAMPLE: Searchers active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: Baseline, First and Second Periodic Interviews.

NOTES: Households that moved during the first year and reported moving outside their neighborhood of residence at the time of enrollment are assumed to have searched outside that neighborhood.

Chi-square statistic comparing search rates among racial/ethnic groups not significant at the 0.05 level.

a. Response to First Periodic Interview question 74 and Second Periodic Interview question 61:

Were any of the places you looked at, so far, outside of the neighborhood you are living in now? (yes/no)

b. NA = not applicable.

Table IV-10

PERCENTAGE OF HOUSEHOLDS THAT AVOIDED SEARCHING IN SOME NEIGHBORHOODS
BECAUSE THEY EXPECTED DISCRIMINATION BY RACE/ETHNICITY AND EXTENT OF SEARCH

RACE/ETHNICITY	SEARCHED OUTSIDE NEIGHBORHOOD OF RESIDENCE AT ENROLLMENT		DID NOT SEARCH OUTSIDE NEIGHBORHOOD OF RESIDENCE AT ENROLLMENT		TOTAL	
	Percentage Avoiding Some Neighborhoods ^a	Sample Size	Percentage Avoiding Some Neighborhoods	Sample Size	Percentage Avoiding Some Neighborhoods	Sample Size
	PITTSBURGH					
White	12%	(257)	5%	(102)	10%	(359)
Black	20	(100)	22**	(45)	21**	(145)
Total	15	(357)	10	(147)	13	(504)
	PHOENIX					
White	10	(277)	9	(95)	10	(372)
Black	10	(48)	[0]	(7)	9	(55)
Spanish American	9	(138)	11	(37)	9	(175)
Total	10	(463)	9	(139)	9	(602)

SAMPLE: Searchers active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: Baseline, First and Second Periodic Interviews.

NOTE: Households that moved during the first year and reported moving outside their neighborhood of residence at enrollment are assumed to have searched outside that neighborhood.

Brackets indicate entries based on 15 or fewer observations.

a. Response to First Periodic Interview question 63 and Second Periodic Interview question 50:

Since you have been in the program, have you avoided looking at certain neighborhoods because you expected some sort of discrimination? (yes/no)

** Chi-square statistic comparing the percentages cited by each racial/ethnic group significantly different at the 0.01 level.

Investigation of the characteristics of the neighborhoods in which households actually searched will help determine the validity of these hypotheses. Such findings will be presented in a later report.

Incidence of Multiple Types of Discrimination

A substantial number of households had several demographic and income characteristics that might have caused them to encounter discrimination. As a result, households sometimes reported having experienced more than one type of discrimination. Discrimination against children was the least likely to be associated with discrimination for other reasons; however, as Table IV-11 indicates, over one-half of the complaints about such discrimination were made by households that also encountered at least one other type of discrimination. The possible importance of multiple reasons for discrimination is even more striking considering the other commonly reported reasons for discrimination: source of income, age, and marital status. At least three-fourths of all complaints about discrimination for one of these reasons were accompanied by reported discrimination for at least one other reason.

Discrimination against children is pervasive enough, however, to noticeably increase the incidence of multiple forms of discrimination. When discrimination for reasons other than children is taken into account, the relative importance of discrimination for a single remaining reason is greater--in particular, discrimination only because of age, marital status, and income source is substantially more important, and in Phoenix the incidence of discrimination only on grounds of race is also higher (see Table IV-12).

The frequency with which households reported multiple types of discrimination, combined with the high incidence of discrimination against children and the comparatively low incidence of discrimination on racial grounds, suggests that discrimination against children may have been used by realtors and landlords to mask discrimination based on race. If this had been the base, one could hypothesize that among households with children, minority households would have reported discrimination against children more frequently than white households, and that among minority households with children, the incidence of perceived racial discrimination would have been lower among those reporting discrimination against children than among those not doing so. On the contrary, as Table IV-13 indicates, white households

Table IV-11

PERCENTAGE OF HOUSEHOLDS THAT REPORTED DISCRIMINATION
BY NUMBER OF TYPES OF DISCRIMINATION

TYPE OF DISCRIMINATION	NUMBER OF TYPES OF DISCRIMINATION			SAMPLE SIZE	MEAN NUMBER OF TYPES OF DISCRIMINATION
	1	2	3 or more		
PITTSBURGH					
Age	0%	29%	71%	(68)	3.5
Sex	0	5	95	(43)	4.3
Marital Status	8	16	76	(104)	3.4
Race	21	9	71	(34)	3.4
Source of Income	14	24	61	(153)	3.0
Children	33	24	42	(230)	2.4
Housing Allowance	[25]	[0]	[75]	(4)	2.8
Total	22	13	20	(512) ^a	2.2 ^c
PHOENIX					
Age	3	52	45	(60)	2.6
Sex	[0]	[0]	[100]	(14)	4.1
Marital Status	18	22	60	(40)	2.9
Race	24	24	52	(25)	2.8
Source of Income	24	30	46	(50)	2.5
Children	46	29	24	(153)	1.9
Housing Allowance	[0]	[44]	[56]	(9)	2.7
Total	16	9	7	(628) ^b	1.8 ^c

SAMPLE: Searchers active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: First and Second Periodic Interviews.

NOTE: Percentages may not add to 100 percent because of rounding. Brackets indicate entries based on 15 or fewer observations.

a. Only 56 percent of this base number of households reported discrimination.

b. Only 32 percent of this base number of households reported discrimination.

c. Only for households reporting some kind of discrimination.

Table IV-12

PERCENTAGE OF HOUSEHOLDS THAT REPORTED DISCRIMINATION
FOR REASONS OTHER THAN CHILDREN BY NUMBER OF TYPES OF DISCRIMINATION

TYPE OF DISCRIMINATION	NUMBER OF TYPES OF DISCRIMINATION			SAMPLE SIZE	MEAN NUMBER OF TYPES OF DISCRIMINATION
	1	2	3 or more		
PITTSBURGH					
Age	25%	25%	50%	(68)	2.6
Sex	2	9	88	(43)	3.3
Marital Status	17	35	48	(104)	2.5
Race	29	24	47	(34)	2.5
Source of Income	32	33	35	(153)	2.2
Housing Allowance	[25]	[25]	[50]	(4)	2.2
Total	18	11	11	(512) ^a	1.9 ^c
PHOENIX					
Age	53	27	20	(60)	1.7
Sex	[0]	[21]	[79]	(14)	2.9
Marital Status	35	22	33	(40)	2.2
Race	48	24	28	(25)	1.9
Source of Income	42	32	26	(50)	1.9
Housing Allowance	[0]	[67]	[33]	(9)	2.4
Total	12	4	3	(628) ^b	1.6 ^c

SAMPLE: Searchers active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: First and Second Periodic Interviews.

NOTE: Percentages may not add to 100 percent because of rounding. Brackets indicate entries based on 15 or fewer observations.

a. Only 40 percent of this base number of households reported discrimination.

b. Only 20 percent of this base number of households reported discrimination.

c. Only for households reporting some kind of discrimination for reasons other than children.

Table IV-13

PERCENTAGE OF HOUSEHOLDS WITH CHILDREN
REPORTING DISCRIMINATION BECAUSE OF CHILDREN BY RACE

RACE/ETHNICITY	PITTSBURGH		PHOENIX	
	PERCENTAGE REPORTING DISCRIMINATION BECAUSE OF CHILDREN	SAMPLE SIZE	PERCENTAGE REPORTING DISCRIMINATION BECAUSE OF CHILDREN	SAMPLE SIZE
White	56%	(281)	34%	(256)
Black	53	(120)	15	(41)
Spanish American	NA ^a	NA	30	(157)
Significance of Chi-Square Statistic	(Not Significant)		(0.05)	

SAMPLE: Households with children active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: First and Second Periodic Interviews.

NOTE: Chi-square statistic comparing percentage reporting discrimination among racial/ethnic groups.

a. NA = not applicable.

were more likely than black or Spanish American households with children to report discrimination against children. Furthermore, as shown in Table IV-14, racial discrimination against blacks (in Pittsburgh) and against Spanish Americans (in Phoenix) was not less likely to occur among households that experienced discrimination against children. Both these reported facts, while not conclusive, suggest that discrimination against children was not being used to camouflage racial discrimination.

IV.4 MEASURING MOBILITY

Comparing moving rates for participant households directly with rates for households outside the Housing Allowance Demand Experiment must be done with caution. In particular, households were eligible for the Demand Experiment only within certain income bounds for each household size at each site, and non-elderly single-person households, homeowners, and residents of subsidized housing were excluded. These factors would affect overall moving rates. Also, because participation (receiving full allowance payments) often required moving, there may have been some self-selection in the process of enrollment. That is, households that accepted the enrollment offer might have been those predisposed to move in the near future. Indeed, as reported in the Working Paper on Early Findings (Abt Associates Inc., 1975), acceptance rates increased with prior mobility--that is, increasing number of moves within the three-year period before the Baseline Interview.¹ It is possible that households intending to move perceived the Housing Allowance Demand Experiment as a means of facilitating the move they might have made anyway. On the other hand, the fact that only movers could leave the program area and thus become ineligible for benefits could tend to reduce the overall mobility rates of the remaining participants relative to that of other households. The lack of experimental effects on moving, however, suggests that these factors may not have been very important in the analysis of direct program

¹The analysis reported there was not multivariate and the correlation of acceptance rates with previous mobility may be due to other influences such as age. Since various researchers have found mobility rates to increase with prior mobility (Morrison, 1972), there is a possibility that participants will move more often than the population as a whole. A brief analysis of household intentions to move suggests that this is not a major problem (see Appendix Section IV.1).

Table IV-14

PERCENTAGE OF MINORITY HOUSEHOLDS WITH CHILDREN REPORTING RACIAL DISCRIMINATION
BY INCIDENCE OF REPORTED DISCRIMINATION BECAUSE OF CHILDREN

RACE/ETHNICITY	DID HOUSEHOLD REPORT DISCRIMINATION BECAUSE OF CHILDREN	PITTSBURGH		PHOENIX	
		PERCENTAGE REPORTING RACIAL DISCRIMINATION	SAMPLE SIZE	PERCENTAGE REPORTING RACIAL DISCRIMINATION	SAMPLE SIZE
Black	Yes	23%	(64)	[0%]	(6)
	No	16	(56)	17	(35)
Spanish American	Yes	NA ^a	NA	11*	(47)
	No	NA	NA	3	(110)

SAMPLE: Black and Spanish American households with children active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: First and Second Periodic Interviews.

NOTE: Brackets indicate entries based on 15 or fewer observations.

a. NA = not applicable.

* Chi-square statistic comparing percentage reporting racial discrimination between those reporting or not reporting discrimination against children significant at the 0.05 level.

effects. They become important in attempts to project long-run responses for the entire eligible population and for possible programs not having geographic limitations.

The first-year moving rate of searchers does not reflect the ultimate rate of success in finding alternative housing since it fails to account for the possibility that some households did not move within the period simply because they had begun searching late in the year and were still actively searching at the close of the year of observation. This problem is inherent in the measurement of the moving behavior of searchers over any limited period. The use of a longer period for observing the moving behavior of those that searched in the first year would capture more of the eventual moves of searchers and raise the measured moving rate to some extent. Nevertheless, the measure used in this report can reflect experimental effects on the ability of searchers to find alternative housing as long as the one-year period of observation is long enough for some households to have had time to respond to the experiment by searching and moving. In fact, the mean length of search among those that moved in the first year was 92 days in Pittsburgh and 47 days in Phoenix, both far shorter than the one year accounting period for observing the moving behavior of searchers.

For the 258 Pittsburgh and 153 Phoenix households that searched but did not move in the first year, information is available on their situation at the end of the year. Questions asked in the Second Periodic Interview separate such households into several categories: those that reported they had given up and had stopped searching, those that reported they found a place they expected to move to soon, and those that reported they were still searching. Of Pittsburgh households that searched but did not move in the first year, 14 percent said that they had given up searching, 11 percent claimed to have found a place they expected to move to, and the remaining 75 percent reported they were still looking. In Phoenix, 37 percent reported that they had given up searching, 4 percent claimed to have located a place they expected to move to, and 59 percent were still looking. These categories represent only stated intentions of households at the end of the initial year; actual search behavior of these households in the second year may differ markedly from these reports.

REFERENCES

- Abt Associates Inc., Working Paper on Early Findings, Cambridge, Mass., January 1975.
- Atkinson, Reilly and Antony Phipps, Locational Choice, Part II: Draft Report on Neighborhood Change in the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., April 1977.
- Kain, John F. and John M. Quigley, Housing Markets and Racial Discrimination, New York, National Bureau of Economic Research, 1975.
- King, Thomas and Peter Mieszkowski, "Racial Discrimination, Segregation, and the Price of Housing," Journal of Political Economy, May/June 1973.
- Merrill, Sally, Housing Expenditures and Quality, Part III, Hedonic Indices as a Measure of Housing Quality, Cambridge, Mass., Abt Associates Inc., 1976.
- Moore, Eric, Residential Mobility in the City, Resource Paper No. 13, Washington, D.C., Association of American Geographers, 1972.
- Morrison, Peter, "Population Movements and the Shape of Urban Growth: Implications for Public Policy," Report WN-7497-LCPG, Santa Monica, RAND Corporation, February 1972.
- Pettigrew, Thomas F., "Attitudes on Race and Housing: A Social-Psychological View," Segregation in Residential Areas, Washington, D.C., National Academy of Sciences, 1973.
- Schelling, Thomas C., "Models of Segregation," American Economic Review, May 1969.
- U.S. Department of Commerce, Bureau of the Census, Census of Housing, 1970.
- Wolfe, Marian F. and William L. Hamilton, "Evidence of Discrimination," Appendix I in Abt Associates Inc., Jacksonville: Administering a Housing Allowance Program in a Difficult Environment, 1976.
- Yinger, John, "An Analysis of Discrimination by Real Estate Brokers," Discussion Paper 252-75, Madison, University of Wisconsin, Institute for Poverty Research, February 1975.



APPENDIX V
THE HOUSING INFORMATION PROGRAM

This appendix reports participants' reactions to the Housing Information Program, based on data collected in the First Periodic Interview. In order to obtain all possible responses regarding the effectiveness of the Housing Information Program, the sample used for these analyses includes all enrolled households that completed the First Periodic Interview, whether or not they were active.¹

In contrast to other analyses in this report, the analyses in this appendix are not limited to households that meet the lower income eligibility limits. Furthermore, the data presented on participant behavior is based on six months participation in the program rather than one year (as in the rest of the report).

Section V.1 provides background on the program and how it was administered, as well as an explanation of the significance of these analyses and some of their limitations. Section V.2 discusses attendance at the Housing Information Program. Section V.3 presents the participants' evaluation of the program and its usefulness. Section V.4 evaluates the actual impact of attendance both on the search/move behavior of all households and on the ability of Housing Gap households to meet housing requirements during the first six months of the experiment. The last section summarizes the major conclusions.

V.1 DESCRIPTION OF THE PROGRAM AND LIMITATIONS OF THE ANALYSIS

The Housing Information Program provided nonfinancial services to enrollees, including the dissemination of housing information and the provision of Equal Opportunity support. Although the term "Housing Information Program" included ongoing Equal Opportunity and referral services, this section is

¹Only half the Control households (those in treatment cell 24) were invited to attend Housing Information Program sessions. Therefore, the analyses of attendance and participant evaluation of the program exclude the Control households that were not invited to the sessions.

limited to the series of housing information sessions offered at enrollment.¹

The housing information sessions had three objectives:

to familiarize enrollees with the general background and purpose of the experiment,

to provide enrollees with information to assist them in making housing choices and obtaining maximum benefit from the experiment, and

to provide enrollees with information to help them deal effectively with discrimination in the housing market.

Participants were invited to attend a series of group housing information sessions soon after enrollment. The sessions were organized as follows:

Session I: Introduction to the experiment, including the functions of site office staff, participants' rights and responsibilities, and a preview of future housing information sessions.

Session II: Discussion of housing and neighborhood choice.

Session III: Discussion of landlord/tenant relations and presentation of Equal Opportunity information, including an explanation of the anti-discrimination services offered participants.

Session IV: Discussion of the family budget, moving and packing, and hints on home maintenance.

Session V: Summary and review.

The sessions were held weekly for four weeks with a break of about a month between the fourth and fifth sessions. Written notice of each session was sent to participants, and, when possible, was followed up with a telephone call. Households that did not attend any of the sessions were recontacted when another series of sessions began and encouraged to attend.

Throughout the sessions, Control households met separately from Experimental households. For the first session only, Experimental households were divided into four treatment group categories to avoid confusion due to different program rules. For later sessions, they were divided into groups by location.²

¹The terms "Housing Information Program" and "housing information sessions" are used interchangeably to refer to the sessions throughout this Appendix.

²For additional information on the operation of the housing information sessions see Abt Associates Inc. (1975), Chapter 10.

Attendance at the sessions was not mandatory. To encourage attendance, however, participants were reimbursed for transportation and child care costs associated with attending the sessions. In addition, the Control households were paid \$10 for each session attended.¹

A major decision in developing a national housing allowance program would be the allocation of resources between such services as housing information and allowance payments. It is, therefore, important to know what effect the provision of services might have on participants. One of the primary purposes of this appendix is to give a preliminary assessment of the extent to which data from the Demand Experiment can be used to estimate whether the offer of housing information or attendance at the housing information sessions influenced key participant actions, such as moving or meeting housing requirements. (Problems involved in making this assessment are discussed in Section V.4.) Another purpose of the appendix is to describe participants' evaluation of the housing information sessions. This is of interest because the experiment represents one approach to the provision of housing information that could be adopted in a national program.

The analyses are based on data that were collected in the First Periodic Interview concerning participants' attendance at the housing information sessions.² Since the data included information on the number of sessions attended but not on which particular sessions were attended, responses to a question related to a specific session may be biased by the opinions of households that did not attend that session. For example, analysis of responses to a question about the helpfulness of information provided on how to choose a new neighborhood (Session II) is not limited to households that attended that session.

V.2 ATTENDANCE

This section describes overall attendance at the housing information sessions, reasons given for not attending the sessions, and attendance in terms of

¹This additional inducement introduces another source of caution in interpretation of Experimental/Control comparisons.

²Data on exactly which sessions in the series were attended by a household were kept in site records, and will be used in future analyses if needed.

treatment group, initial housing requirement status, and key demographic characteristics.

Attendance at the sessions may be defined as attending at least one session, attending all five sessions, or attending any number in between. As would be expected, the attendance rate drops as the definition of attendance includes more sessions attended. Throughout this section, attendance at the Housing Information Program is defined as attending at least one housing information session (unless specified otherwise). Rates of attendance are shown in Figure V-1. In Pittsburgh, 56 percent of the enrolled households that were offered the Housing Information Program attended at least one session, while only 20 percent attended all five sessions. In Phoenix, the percentages were 46 percent and 14 percent, respectively. However, few households attended just one or two sessions. Indeed, over half the households that attended one session attended at least four sessions. It appears that the sessions themselves were of enough interest to encourage households that attended one session to come back for more.

In the First Periodic Interview, households that were invited but did not attend any housing information session were asked

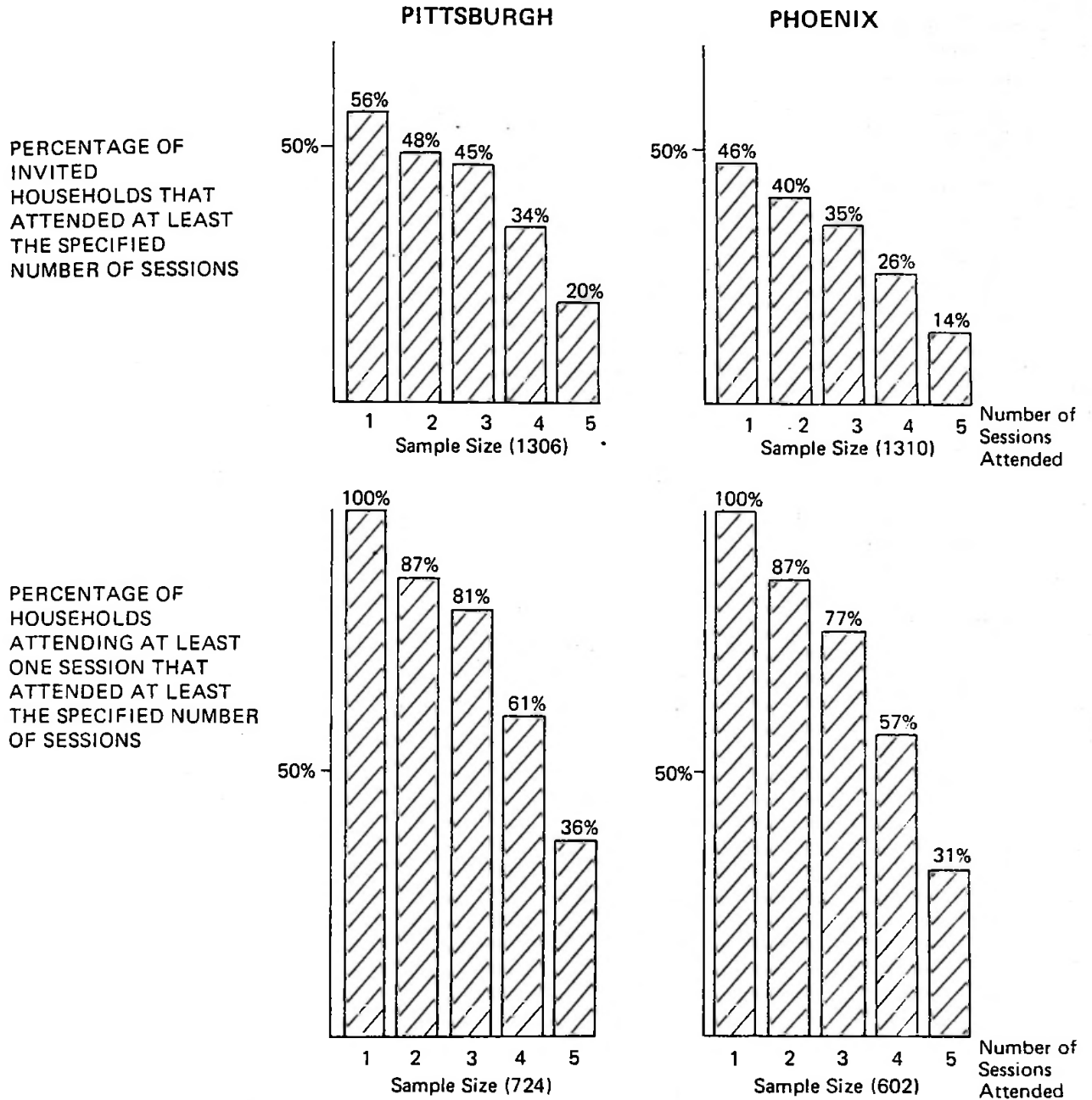
Here is a list of reasons why some people may not have attended the sessions. Which of these reasons comes closest to explaining why no one from your household went to any of the sessions?

The responses are shown in Table V-1.

Although it is uncertain whether respondents felt it necessary to make excuses for not attending the sessions or whether they answered openly, the large percentage citing illness as the reason for not attending makes one suspect that participants did feel it necessary to give the interviewer an excuse. Only a small percentage at both sites indicated that they did not want to attend the sessions. The most frequent reason given for not attending was that the sessions were held at an inconvenient time. A number of households said they did not attend because they could not get a babysitter or transportation, even though payment for both these services was offered.

Table V-2 shows attendance rates at both sites by treatment group and housing requirement status at enrollment, while Table V-3 shows the same by selected

Figure V - 1
PERCENTAGE OF INVITED HOUSEHOLDS BY LEVEL OF PARTICIPATION IN THE HOUSING INFORMATION PROGRAM



SAMPLE: Households in treatment cells 1-24 that completed the First Periodic Interview.
 DATA SOURCE: First Periodic Interview.

Table V-1

REASONS FOR NOT ATTENDING ANY HOUSING
INFORMATION PROGRAM SESSIONS

REASON ^a	PITTSBURGH	PHOENIX
Could not get a babysitter	19%	9%
Could not get transportation	14	16
Sessions were held at an inconvenient time	46	45
Did not want to go	9	8
Did not know when sessions were being held	6	17
Illness prevented attendance	40	25
Other reasons	7	6
Number of households	(579)	(706)

SAMPLE: Households in treatment cells 1-24 that completed the First Periodic Interview.

DATA SOURCE: First Periodic Interview.

NOTE: Percentages add to more than 100 percent because of multiple responses.

a. Respondents to First Periodic Interview question 3 (asked only of households that did not attend any sessions) were handed a printed card listing the above reasons.

Table V-2

HOUSING INFORMATION PROGRAM ATTENDANCE BY
TREATMENT GROUP AND INITIAL HOUSING REQUIREMENT STATUS

TREATMENT GROUP (Cell Numbers in Parentheses)	PITTSBURGH						PHOENIX					
	HOUSEHOLDS INVITED			HOUSEHOLDS ATTENDING AT LEAST ONE SESSION			HOUSEHOLDS INVITED			HOUSEHOLDS ATTENDING AT LEAST ONE SESSION		
	Attended At Least One Session	Attended All Five Sessions	Sample Size	Attended All Five Sessions	Sample Size	Sample Size	Attended All Five Sessions	Sample Size	Attended All Five Sessions	Sample Size	Attended All Five Sessions	Sample Size
All Households	55%	20%	(1306)	36%	(724)		46%	14%	(1310)	31%	(602)	
Housing Gap Minimum Standards With modal income limit (1, 2, 10)	55	18	(140)	33	(76)		43	12	(151)	28	(64)	
With low-income limit (3, 11)	50	14	(105)	22	(51)		31	6	(120)	19	(37)	
Housing Gap Minimum Rent With modal income limit (4, 5, 7, 8)	45	15	(195)	34	(89)		38	10	(201)	26	(76)	
With low-income limit (6, 9)	50	16	(117)	32	(59)		35	6	(109)	16	(38)	
Unsubsidized (12)	62	14	(74)	22	(46)		48	16	(58)	32	(28)	
Percent of Rent (15-23)	59	21	(460)	36	(284)		51	14	(442)	27	(224)	
Control (24) ^a	61	31	(195)	50	(119)		59	28	(229)	47	(135)	
Net Requirements At Enrollment ^b	56	18	(196)	33	(108)		40	9	(179)	23	(71)	
Did Not Meet Requirements At Enrollment ^b	47	15	(363)	32	(167)		37	9	(399)	24	(144)	

SAMPLE: Households in treatment cells 1-24 that completed the First Periodic Interview.

LATA SOURCE: First Periodic Interview, payments file.

a. Only Control households in treatment cell 24 were invited to attend the Housing Information Program sessions.

b. Applies only to Controlled Housing Gap treatment groups.

demographic characteristics. In general, the attendance rates by group do not differ very much from the overall attendance rates.

There is some variation in attendance rates by treatment group, though it is generally not large. At both sites Control households, which received \$10 for each session attended, had higher than average attendance rates and had the largest percentage attending all five sessions. The reasons for the somewhat higher attendance rate for Percent of Rent households and the lower rates for the Minimum Rent and Housing Gap low-income households are not clear.

Although it would seem possible that Minimum Standards and Minimum Rent households not meeting their housing requirements initially might have been more motivated to attend the housing information sessions than those that did meet the requirements, in Pittsburgh the opposite appears to have been the case.

Demographic characteristics seem unrelated to attendance rates except in a few cases (see Table V-3). Although a higher percentage of black than of white households in Pittsburgh attended at least one session, the percentages attending all five sessions were the same for both groups. In Phoenix, a somewhat lower proportion of Spanish American households than other households participated in the program, and a still lower proportion attended all five sessions. The housing information staff in Phoenix did include two Spanish Americans as well as another member who spoke Spanish. Efforts were made to group Spanish American households for the sessions, and all sessions were attended by at least one Spanish-speaking housing information specialist, so that the effect is presumably not due to a language barrier.

Attendance rates varied more with the age of head of household than with other demographic factors. At both sites the youngest households (those where the head of household was under 30) had the lowest attendance rates, while those with the head of household aged 45-61 had the highest rates.

Attendance rates were also tabulated for other demographic characteristics, as well as previous mobility and initial housing quality. They are not presented here because they do not add new information or reveal any clear patterns.

Table V-3
HOUSING INFORMATION PROGRAM ATTENDANCE BY SELECTED HOUSEHOLD CHARACTERISTICS

	PITTSBURGH				PHOENIX			
	HOUSEHOLDS INVITED		HOUSEHOLDS ATTENDING AT LEAST ONE SESSION		HOUSEHOLDS INVITED		HOUSEHOLDS ATTENDING AT LEAST ONE SESSION	
	Attended Least One Session	Attended All Five Sessions	Attended All Five Sessions	Sample Size	Attended Least One Session	Attended All Five Sessions	Attended All Five Sessions	Sample Size
ALL HOUSEHOLDS	55%	20%	36%	(1,306)	46%	14%	31%	(602)
RACE/ETHNICITY								
White	54	20	38	(985)	47	16	34	(396)
Black	61	20	33	(311)	47	13	28	(46)
Spanish American	NA ^a	NA	NA	NA	42	10	23	(141)
AGE OF HOUSEHOLD HEAD (Years)								
18-29	50	17	34	(419)	37	9	24	(210)
30-44	56	20	36	(305)	50	12	24	(141)
45-59	65	25	40	(244)	58	20	35	(113)
60+	55	20	36	(337)	53	24	45	(138)
NET ANNUAL HOUSEHOLD INCOME								
\$1-3,000	54	20	38	(362)	44	13	29	(128)
\$3,001-5,000	57	20	35	(743)	49	16	33	(294)
\$5,001 or more	55	22	40	(174)	44	12	28	(176)

SAMPLE: Households in treatment cells 1-24 that completed the First Periodic Interview.
 DATA SOURCES: Baseline Interview, Initial Household Report Form, First Periodic Interview.
 a. NA = not applicable.

V.3 PARTICIPANTS' EVALUATION

Although evaluation of the Housing Information Program was not an objective of the experiment, participants' assessment of the program is of interest because the program represents one approach to the provision of housing information. This section presents participants' responses, drawn from the First Periodic Interview, concerning certain aspects of the program.

In that interview, households that attended at least two housing information sessions were asked to rate the helpfulness ("very," "somewhat," or "not at all") of each of the 14 topics covered by the sessions. From their responses, an overall rating of the sessions' helpfulness was made by averaging the helpfulness ratings by topic. The overall rating and the ratings of individual topics, as well as the rank order for each topic are presented in Table V-4. The overall average row presents the average percentage giving each response. Because the individual topic distributions are quite similar the overall average can be interpreted in terms of generalized popularity.

Seventy-seven percent of the households in Pittsburgh and 70 percent in Phoenix felt that the information presented at the sessions was very helpful, while 16 and 23 percent, respectively, considered the information somewhat helpful. At both sites there was little variation in the "very helpful" ratings by topic or by session: most ratings fell quite near the overall rating.

The ratings in Pittsburgh were consistently higher than those in Phoenix. Although further investigation is required to determine the reasons for this variation, it may have resulted from differences in the approach taken by the housing information staff, in the context of the sessions, or in other site-specific influences, such as differences between the housing markets at the two sites. Though both sites used the same detailed syllabus for the sessions, the question/answer period, which was an important part of each session, varied.

Although the percentage of households rating a particular topic as "very helpful" was always higher in Pittsburgh than in Phoenix, there were few differences between the two sites in the ranking of the 14 topics. The six topics considered most helpful at both sites are shown in Table V-5.

Table V-4
HELPFULNESS RATINGS OF INDIVIDUAL TOPICS

TOPIC ^a	PITTSBURGH						PHOENIX					
	PERCENTAGE OF HOUSEHOLDS BY HELPFULNESS RATING						PERCENTAGE OF HOUSEHOLDS BY HELPFULNESS RATING					
	Topic Rank	Very Helpful	Somewhat Helpful	Not At All Helpful	Already Knew	Number of Responses	Topic Rank	Very Helpful	Somewhat Helpful	Not At All Helpful	Already Knew	Number of Responses
OVERALL AVERAGE (1-14)		77%	16%	3%	4%	(7808)		70%	23%	4%	3%	(6143)
How the housing allowance program operates	7	78	19	2	1	(600)	11	63	34	2	2	(488)
How to find a new place if you decide to move	8	75	28	4	3	(578)	9	65	25	4	5	(480)
How to choose a new neighborhood	12	70	22	5	3	(588)	9	65	25	5	5	(481)
How much rents are in different neighborhoods	10	72	22	3	2	(500)	11	63	28	6	3	(389)
Which neighborhoods have houses and apartments for rent	14	69	23	7	1	(478)	14	58	32	8	1	(377)
What to look for in selecting a new house or apartment	3	81	14	2	3	(597)	4	74	21	4	1	(497)
What to do if you encounter discrimination	2	85	10	3	2	(594)	1	83	13	3	2	(498)
What you should know about leases	1	87	10	2	2	(602)	2	79	17	3	1	(481)
What your legal obligations are in making rent payments	4	80	13	2	5	(577)	5	72	21	3	4	(450)
What conditions are necessary for a landlord to evict a tenant	4	80	16	2	2	(542)	5	72	23	4	2	(417)
What to do to get the landlord to fix things that go wrong	4	80	16	3	2	(586)	3	75	20	3	2	(478)
What things have to be done in moving to a new place	8	75	16	3	6	(559)	8	67	25	4	5	(451)
How to take care of your house or apartment	12	70	18	3	9	(546)	11	63	28	3	6	(411)
How to maintain good credit and avoid budget problems	11	71	17	4	9	(501)	7	68	22	5	5	(387)

SAMPLE: Households in treatment cells 1-24 that completed the First Periodic Interview.

DATA SOURCE: First Periodic Interview.

a. Response to First Periodic Interview question 34.

Did the information about (given topic) seem very helpful, somewhat helpful or not helpful or not helpful at all to you or your household?

This question was asked only of households that attended two or more sessions. The topics listed in this table were read to the respondent one by one. The question was asked only if the respondent recalled receiving information on the given topic. The number of responses varies accordingly.

Table V-5
TOPICS RANKED MOST HELPFUL BY PARTICIPANTS

TOPIC	PITTSBURGH		PHOENIX	
	PERCENTAGE RESPONDING VERY HELPFUL	RANK	PERCENTAGE RESPONDING VERY HELPFUL	RANK
What you should know about leases	87%	1	79%	2
What to do if you encounter discrimination	85	2	83	1
What to look for in selecting a new house or apartment	81	3	74	4
What to do to get the landlord to fix things that go wrong	80	4	75	3
What your legal obligations are in making rent payments	80	4	72	5
What conditions are necessary for a landlord to evict a tenant	80	4	72	5

SAMPLE: Households in treatment cells 1-24 that completed the First Periodic Interview.

DATA SOURCE: First Periodic Interview.

NOTE: This table is extracted from Table V-4.

For both sites the topic that fell at the bottom of the ranking, but which was still considered by more than half the households to be "very helpful," was "Which neighborhoods have houses and apartments available for rent." The greatest differences in ranking between the two sites occurred in relation to the three topics displayed in Table V-6.

Another way of assessing the housing information sessions is to look at the number of households that responded to an open-ended question asking them what kinds of things they would have liked to learn about that were not covered in the sessions. (This question was asked of all households that attended at least two sessions.) In Pittsburgh, 77 percent of the households responded that everything was covered. In Phoenix, 62 percent gave this response. The percentages for households attending all five sessions were not essentially different from those percentages for households attending at least two sessions.

Table V-7 shows the topics suggested by the households that responded that not everything was covered (23 percent in Pittsburgh and 38 percent in Phoenix). Each of these topics had actually been included to some extent in the sessions. It is not clear whether the respondent wanted more information or did not attend the particular session at which it was discussed. However, since a number of households suggesting additional topics did attend all five sessions, it can probably be assumed that more detailed information was desired.

In Phoenix, the topic requested most often, "More information about the Housing Allowance Program" corresponds to "How the Housing Allowance Program operates," one of the session topics ranked lower on the helpfulness ratings at that site. "Specifically where to go to find houses and apartments," one of the new topics suggested most often at both sites, is similar to, "Which neighborhoods have houses and apartments available for rent," the session topic which ranked lowest at both sites in the helpfulness ratings.

As shown in Table V-8, most households attending the Housing Information Program thought they would be able to make a better choice of house or apartment because of what they had learned at the sessions. The percentage responding positively tended to increase with the number of sessions attended. A larger percentage of minority than of nonminority households

Table V-6

TOPICS SHOWING GREATEST VARIANCE IN HELPFULNESS
RANKING BETWEEN THE TWO SITES

TOPIC	PITTSBURGH		PHOENIX	
	PERCENTAGE RESPONDING VERY HELPFUL	RANK	PERCENTAGE RESPONDING VERY HELPFUL	RANK
How the housing allowance program operates	78%	7	63%	11
How to choose a new neighborhood	70	12	65	9
How to maintain good credit and avoid budget problems	71	11	68	7

SAMPLE: Households in treatment cells 1-24 that completed the First Periodic Interview.

DATA SOURCE: First Periodic Interview.

NOTE: This table is extracted from Table V-4.

Table V-7
 TOPICS SUGGESTED BY HOUSEHOLDS ATTENDING
 HOUSING INFORMATION PROGRAM SESSIONS

TOPICS SUGGESTED ^a	PERCENTAGE OF HOUSEHOLDS ATTENDING TWO OR MORE SESSIONS THAT SUGGESTED TOPIC	
	<u>PITTSBURGH</u>	<u>PHOENIX</u>
More information about Housing Allowance Program	4%	8%
Landlord/tenant interaction	2	7
Specifically where to go to find houses and apartments	5	7
How to obtain, good, inexpensive houses	1	2
Information about legal, court or lease requirements	2	4
Maintenance of dwelling unit; how to get place fixed up	2	2
Budget or credit problems	1	2
Specific neighborhood information	1	1
Other	4	7
Number of households	(632)	(525)

SAMPLE: Households in treatment cells 1-24 that completed the First Periodic Interview.

DATA SOURCE: First Periodic Interview.

NOTE: Percentages add to less than 100 percent because not all households suggested other topics.

a. Responses to First Periodic Interview question 6:

What kinds of things would you have liked to learn about
that were not covered in the housing information sessions?

This question was asked only of households that attended two or more sessions.

Table V-8

PERCENTAGE OF HOUSEHOLDS THAT INDICATED ABILITY TO MAKE A BETTER HOUSING CHOICE
BECAUSE OF HOUSING INFORMATION PROGRAM

	PITTSBURGH	PHOENIX
	PERCENTAGE INDICATING	PERCENTAGE INDICATING
	SAMPLE SIZE	SAMPLE SIZE
ALL HOUSEHOLDS	91%	83%
	(710)	(598)
NUMBER OF SESSIONS ATTENDED		
Only 1 session	73	66
Only 2 sessions	92	77
Only 3 sessions	91	88
Only 4 sessions	93	85
All 5 sessions	94	86
	(88)	(74)
	(49)	(61)
	(139)	(120)
	(179)	(157)
	(254)	(185)
RACE/ETHNICITY		
White	88	79
Black	98	89
Spanish American	NA ^a	91
	(514)	(393)
	(192)	(46)
	NA	(141)
SEARCH STATUS DURING THE FIRST SIX MONTHS		
Looked	94	85
Did not look	88	80
	(303)	(284)
	(400)	(293)
MOVE STATUS DURING THE FIRST SIX MONTHS		
Moved	93	83
Did not move	94	90
	(131)	(195)
	(172)	(89)

SAMPLE: Households in treatment cells 1-24 that completed the First Periodic Interview.
DATA SOURCES: Baseline, First Periodic Interview, Initial Household Report Form.
NOTE: Response to First Periodic Interview question 11:

Compared with what you knew before, do you think that you would be able to make a better choice of house or apartment because of what you learned at the housing information sessions? (yes/no)

This question was asked only of households that attended one or more sessions. Brackets indicate entries based on 15 or fewer observations.

a. NA = not applicable.

responded positively, a possible correlation with the high "very helpful" ratings given to the topics covered during the session on Equal Opportunity. Households that looked for another place to live during the first six months responded more positively than households that did not look. Oddly enough, in Phoenix, of households that looked, those that did not in fact move responded positively more often than those that did move.

Table V-9 shows the responses of households to a question about whether the discussions of neighborhood choice influenced their feelings about where they wanted to live. (Households replying that they did not attend sessions on neighborhood choice are not included.) About one-fourth of the households responded that they had been influenced a great deal, while a slightly greater percentage said that they had been influenced somewhat.

Almost half the households responding said they had not been influenced at all. This seems a rather high proportion when one considers the "very helpful" ratings discussed previously. Even though the topics concerning neighborhood choice ranked lower than most other topics (see Table V-4), a large proportion of the households at both sites considered the information very helpful. Thus, even though discussions on neighborhood choice were considered helpful, they apparently had a limited effect on attitudes and feelings.

The percentage of households that were influenced a great deal by the discussion of neighborhood choice tended to increase with the number of sessions attended, and the percentage responding "not at all" tended to decrease. A larger percentage of households looking for another place than households not searching responded that they had been influenced a great deal, while a smaller percentage responded "not at all."

Another way to assess participants' evaluation of the Housing Information Program is to note the number of households attending the program that mentioned it as one of the things they liked best about the housing allowance program. (This open-ended question, for which up to three responses were coded for each respondent, was limited to Experimental households.) Twenty-one percent in Pittsburgh and 18 percent in Phoenix mentioned the Housing Information Program. (It is not surprising that the most frequent response was "the money.") In response to a similar open-ended question

Table V-9

PERCENTAGE OF HOUSEHOLDS INFLUENCED BY DISCUSSIONS OF NEIGHBORHOOD CHOICE

	PITTSBURGH				PHOENIX			
	EXTENT OF INFLUENCE		NUMBER OF HOUSEHOLDS ATTENDING		EXTENT OF INFLUENCE		NUMBER OF HOUSEHOLDS ATTENDING	
	A Great Deal	Some	None		A Great Deal	Some	None	
ALL HOUSEHOLDS	25%	28%	47%	(607)	24%	31%	45%	(505)
NUMBER OF SESSIONS ATTENDED								
Only 2 sessions	16	30	54	(43)	30	21	48	(56)
Only 3 sessions	21	27	52	(131)	18	35	47	(114)
Only 4 sessions	25	25	51	(178)	22	31	47	(151)
All 5 sessions	28	31	40	(255)	27	32	42	(184)
SEARCH STATUS DURING THE FIRST SIX MONTHS								
Looked	27	34	42	(258)	29	32	39	(239)
Did not look	24	25	52	(344)	19	30	51	(249)
MOVE STATUS DURING THE FIRST SIX MONTHS								
Moved	24	34	41	(111)	29	30	41	(163)
Did not move	29	33	38	(147)	29	37	34	(76)

SAMPLE: Households in treatment cells 1-24 that completed the First Periodic Interview.
 DATA SOURCES: Initial Household Report Form, First Periodic Interview.
 NOTE: Response to First Periodic Interview question 9:

Do you think that the discussions of neighborhood choice in the meetings influenced your feelings about where you wanted to live a great deal, somewhat, or not at all?

This question was asked only of households that attended two or more sessions. Households replying that they did not attend sessions on neighborhood choice are not included.

about the things liked least about the housing allowance program, only 4 percent of those attending in Pittsburgh and 9 percent in Phoenix cited the Housing Information Program.¹

In summary, households attending the housing information sessions assessed the sessions positively. Overall, about three-fourths of the households considered the sessions very helpful. Relatively few households suggested additional topics that they felt should have been covered by the sessions, and most of the topics suggested were already covered to some extent. Most households felt that they would be able to make a better choice of house or apartment because of what they had learned. However, these results should be interpreted with some caution. It is quite possible that interview respondents felt that they were expected to comment positively on the sessions.²

V.4 IMPACT ON BEHAVIOR

This section examines the impact of the Housing Information Program on actual behavior, specifically on search/move behavior and the ability to meet housing requirements.

Search/Move Behavior

One of the primary aims of the Housing Information Program was to provide information on housing and neighborhood choice to participants. Thus, households attending the sessions might have been expected to look for another unit or succeed in moving more often than households that did not attend.

Data are presented below for the following sample groups:

Experimental households: those that attended at least one housing information session and those that did not attend any.

¹First Periodic Interview question 190, "What are some of the things you like best about the program?," and First Periodic Interview question 191, "What are some of the things you like least about the program?," are the final two questions in this interview.

²For discussions on the "reactivity" of measurement see Campbell and Stanley (1963) and Webb et al. (1966).

Control households offered housing information: those that attended at least one housing information session and those that did not attend any.

Control households overall: those offered housing information and those not offered housing information.

The two groups in the third category offer the clearest comparisons because participants were randomly assigned to these groups. For the first two categories, attendance was a matter of self-selection.

Table V-10 shows the percentage of households in each category that looked for another house or apartment. The households that looked are further categorized in Table V-11 by whether they succeeded in moving.

All Experimental households and half the Control households were offered (but not required to participate in) the Housing Information Program. Although the Housing Information Program was not a planned treatment variation, there were two Control groups--one that had been offered the program and one that had not been offered it. It is possible to compare the two Control groups to determine the effect of the housing information offer on move/search behavior. This comparison is limited, however. Information alone may have a limited effect, while information in combination with the allowance may have a substantial effect--that is, there may be an allowance/information interaction.

Neither the offer of housing information nor attendance at one or more of the housing information sessions seems to have influenced success in moving for households that looked during the first six months of the program. Overall there is little variation between the two Control groups or between those that attended and those that did not. Furthermore, the housing information sessions did not seem to influence the percentage of households that looked for another place.

An alternative way of assessing the impact of the Housing Information Program on search is to assess the differences between various households' perceptions of their search experiences. Although the differences were not large, the Control households invited to the sessions cited "not knowing where to look" as a problem less often than those not invited. The same differences appeared between households that attended and those that did

Table V-10

PERCENTAGE OF HOUSEHOLDS THAT SEARCHED DURING THE FIRST SIX MONTHS
BY HOUSING INFORMATION PROGRAM ATTENDANCE

TREATMENT GROUP BY ATTENDANCE	PITTSBURGH		PHOENIX	
	PERCENTAGE SEARCHING	SAMPLE SIZE	PERCENTAGE SEARCHING	SAMPLE SIZE
ALL EXPERIMENTAL HOUSEHOLDS				
Attended all five sessions	46%	(198)	46%	(119)
Attended one to four sessions	42	(400)	53	(331)
Attended at least one session ^a	44	(601)	52	(452)
Did not attend any sessions	41	(493)	57	(594)
CONTROL HOUSEHOLDS INVITED				
Attended all five sessions	47	(59)	45	(62)
Attended one to four sessions	32	(59)	39	(69)
Attended at least one session ^a	40	(118)	42	(131)
Did not attend any sessions	42	(74)	60	(93)
CONTROL HOUSEHOLDS INVITED	41	(192)	50	(224)
CONTROL HOUSEHOLDS NOT INVITED	36	(212)	49	(226)

SAMPLE: Households that completed the First Periodic Interview.

DATA SOURCES: Initial Household Report Form, First Periodic Interview.

a. Includes households indicating program attendance that failed to specify number of sessions attended.

Table V-11

PERCENTAGE OF HOUSEHOLDS THAT MOVED DURING THE FIRST SIX MONTHS
BY HOUSING INFORMATION PROGRAM ATTENDANCE

TREATMENT GROUP BY ATTENDANCE	PITTSBURGH		PHOENIX	
	PERCENTAGE MOVING	SAMPLE SIZE	PERCENTAGE MOVING	SAMPLE SIZE
ALL EXPERIMENTAL HOUSEHOLDS				
Attended all five sessions	47%	(92)	71%	(55)
Attended one to four sessions	45	(168)	69	(177)
Attended at least one session ^a	45	(262)	70	(234)
Did not attend any session	46	(201)	73	(339)
CONTROL HOUSEHOLDS INVITED				
Attended all five sessions	29	(28)	54	(28)
Attended one to four sessions	37	(19)	74	(27)
Attended at least one session ^a	32	(47)	64	(55)
Did not attend any sessions	35	(31)	66	(56)
CONTROL HOUSEHOLDS INVITED	33	(78)	65	(111)
CONTROL HOUSEHOLDS NOT INVITED	34	(76)	64	(110)

SAMPLE: Households that completed the First Periodic Interview.

DATA SOURCES: Initial Household Report Form, First Periodic Interview.

a. Includes households indicating program attendance that failed to specify number of sessions attended.

not attend (see Table V-12).

Additional differences between households that attended at least one housing information session are seen in the percentage of households that reported discrimination to someone. Table V-13 indicates that, although the overall number of households that took action was low, in Pittsburgh almost every household that did take action had attended the Housing Information Program. In Phoenix, where the number of households that took action was even lower, the results were in the same direction. It appears at the least that some households learned something about what to do if they encountered discrimination. This was consistent with the high helpfulness rating given to topics included in the session on Equal Opportunity, as noted in Section V.3.

Ability to Meet Housing Requirements

Because the housing information sessions emphasized familiarizing participants with the housing allowance program and providing information on housing and neighborhood choice, it might be expected that attendance at the sessions would help Housing Gap households to meet their housing requirements. Attendance would be expected to increase their understanding of these requirements and make them more knowledgeable about housing and neighborhood choices in moving to meet the requirements.

Although it was expected that households not meeting the housing requirements at enrollment would be more motivated to attend housing information sessions than those that did meet them, this was not the case. Table V-14 shows attendance by housing requirement status for Minimum Standards and Minimum Rent households. In comparison with households that did not meet the housing requirements at enrollment, a higher proportion of households that already met the requirements at enrollment attended at least one session. The difference in attendance was larger in Pittsburgh than in Phoenix, and especially large for households subject to the Minimum Standards requirement in Pittsburgh. Hence, if anything, one would conclude that rather than supporting the hypothesis, the data suggest the opposite to be true. Those that met the housing requirements at enrollment seemed more motivated to attend housing information sessions than those that did not. In terms of attendance at all five sessions, however,

Table V-12
 DIFFICULTY KNOWING WHERE TO LOOK
 BY HOUSING INFORMATION PROGRAM ATTENDANCE

TREATMENT GROUP BY ATTENDANCE	PITTSBURGH PERCENTAGE REPORTING PROBLEMA	SAMPLE SIZE	PHOENIX PERCENTAGE REPORTING PROBLEMA	SAMPLE SIZE
ALL EXPERIMENTAL HOUSEHOLDS				
Attended at least one session	28%	(258)	20%	(226)
Did not attend any session	36	(198)	25	(332)
CONTROL HOUSEHOLDS INVITED				
Attended at least one session	21	(47)	18	(55)
Did not attend any session	27	(30)	27	(56)
CONTROL HOUSEHOLDS INVITED	23	(77)	23	(111)
CONTROL HOUSEHOLDS NOT INVITED	31	(74)	32	(108)

SAMPLE: Searchers that completed the First Periodic Interview.

DATA SOURCE: First Periodic Interview.

a. Response to First Periodic Interview question 60A:

Did you have trouble finding a place to live because you didn't know where to look? (yes/no)

Table V-13

HOUSEHOLDS TAKING ACTION WHEN FACED WITH DISCRIMINATION
BY HOUSING INFORMATION PROGRAM ATTENDANCE

TREATMENT GROUP BY ATTENDANCE	PITTSBURGH PERCENTAGE TAKING ACTION ^a	SAMPLE SIZE	PHOENIX PERCENTAGE TAKING ACTION	SAMPLE SIZE
ALL EXPERIMENTAL HOUSEHOLDS				
Attended at least one session	13%	(151)	8%	(72)
Did not attend any session	3	(119)	5	(131)
CONTROL HOUSEHOLDS INVITED				
Attended at least one session	12	(26)	6	(18)
Did not attend any session	0	(14)	0	(27)
CONTROL HOUSEHOLDS INVITED	8	(40)	2	(45)
CONTROL HOUSEHOLDS NOT INVITED	2	(45)	0	(39)

SAMPLE: Searchers experiencing discrimination that completed the First Periodic Interview.
DATA SOURCE: First Periodic Interview.

a. Response to First Periodic Interview question 77:

Did you call or see anyone about this discrimination? (yes/no)

This question was followed by an interview item in which the respondent was asked if anyone of eight types of discrimination had been experienced during the housing search (First Periodic Interview question 77A):

Whom did you call or see?

- A. Anti-discrimination lawyer at the Urban League
- B. NNACP
- C. State of local human rights commission
- D. Program office
- E. Friends, relatives
- F. Other (specify).

the differences are less striking and sometimes reversed.

Table V-14 relates attendance to meeting housing requirements after six months in the program. As in the analysis of moving, self-selection in attendance makes it impossible to attribute the differences in meeting the requirements to the Housing Information Program alone without further analyses. However, it is interesting to note that almost all of the comparisons are in the expected direction--that is, households attending (more often) were more likely to meet the requirements at six months, even though the differences may be small.

For Minimum Standards and Minimum Rent households combined, the expected greater success in meeting requirements is observed for those attending at least one session in Phoenix, but not in Pittsburgh. The differences are more pronounced for Minimum Standards households (see Table V-15). Compared with households that attended less than five sessions, a greater proportion of households that attended all five sessions met requirements after six months in all categories except that of Minimum Rent in Phoenix. It seems reasonable that there may have been a greater effect for Minimum Standards households than for Minimum Rent households. Minimum Rent was a relatively uncomplicated requirement. Minimum Standards, on the other hand, involved a detailed set of physical and occupancy requirements.

V.5 SUMMARY OF MAJOR CONCLUSIONS AND DIRECTIONS FOR FUTURE RESEARCH

This section summarizes participants' reactions to the Housing Information Program and discusses possible future research.

Attendance

The percentage of households attending the Housing Information Program was not as high as had been anticipated. Fifty-six percent of invited households in Pittsburgh and 46 percent in Phoenix attended at least one session. Over half the households attending one session attended at least three of the four remaining sessions.

Differences in attendance rates among various treatment and demographic groups were not large. As expected, Control households which were paid

Table V-14

HOUSING INFORMATION PROGRAM ATTENDANCE
BY INITIAL HOUSING REQUIREMENT STATUS

INITIAL HOUSING REQUIREMENT STATUS	HOUSEHOLDS INVITED		HOUSEHOLDS ATTENDING AT LEAST ONE SESSION	
	Attended At Least One Session	Sample Size	Attended All Five Sessions	Sample Size
PITTSBURGH				
MINIMUM STANDARDS				
Met requirements	75%	(40)	24%	(29)
Did not meet requirements	49	(204)	34	(98)
MINIMUM RENT				
Met requirements	51	(156)	37	(79)
Did not meet requirements	44	(156)	29	(69)
PHOENIX				
MINIMUM STANDARDS				
Met requirements	41	(54)	27	(22)
Did not meet requirements	37	(216)	24	(79)
MINIMUM RENT				
Met requirements	39	(125)	20	(49)
Did not meet requirements	36	(183)	25	(65)

SAMPLE: Households in constrained Housing Gap treatment groups that completed the First Periodic Interview.

DATA SOURCES: First Periodic Interview, payments file.

Table V-15

PERCENTAGE OF HOUSEHOLDS CHANGING FROM NOT MEETING TO MEETING HOUSING REQUIREMENTS
BY HOUSING INFORMATION PROGRAM ATTENDANCE

TYPE OF HOUSING REQUIREMENT BY ATTENDANCE	PITTSBURGH PERCENTAGE MEETING AT SIX MONTHS	SAMPLE SIZE	PHOENIX PERCENTAGE MEETING AT SIX MONTHS	SAMPLE SIZE
COMBINED MINIMUM STANDARDS AND MINIMUM RENT				
Attended all five sessions	27%	(51)	51%	(35)
Attended one to four sessions	17	(111)	38	(105)
Attended at least one session ^a	20	(163)	42	(142)
Did not attend any session	18	(188)	22	(239)
MINIMUM STANDARDS				
Attended all five sessions	27	(33)	79	(19)
Attended one to four sessions	19	(62)	39	(59)
Attended at least one session ^a	22	(96)	49	(79)
Did not attend any session	16	(103)	20	(128)
MINIMUM RENT				
Attended all five sessions	28	(18)	19	(16)
Attended one to four sessions	14	(49)	37	(46)
Attended at least one session ^a	18	(67)	32	(63)
Did not attend any session	20	(85)	25	(111)

SAMPLE: Housing Gap Minimum Rent and Minimum Standards households not meeting housing requirements at enrollment that completed the First Periodic Interview.

DATA SOURCES: First Periodic Interview, payments file.

a. Includes households indicating program attendance that failed to specify number of sessions attended.

\$10 for each session attended had higher than average attendance rates. The Percent of Rent treatment group had a somewhat higher than average rate, while the Minimum Rent group had a lower rate. Contrary to expectations, a greater proportion of households meeting requirements at enrollment attended at least one session. The attendance rate was lowest for the youngest households.

Participants' Evaluation

Households at both sites were very positive and enthusiastic in their assessment of the Housing Information Program, but Pittsburgh households almost always responded more positively than Phoenix households. At both sites, most of the households considered the topics covered to be very helpful. Most households felt that the course covered everything, with few households suggesting additional topics. Most households responded that they would be able to make a better choice of house or apartment as a result of what they had learned; the percentage responding positively tended to increase with the number of sessions attended. Although about half the households said that the discussions of neighborhood choice did not influence their feelings about where they wanted to live, about one-fourth said they were influenced a great deal.

Impact on Participants' Behavior

Neither the offer of housing information nor attendance at one or more of the housing information sessions seemed to have influenced success in moving (for households that looked) during the first six months of the program. Overall there was almost no variation between the two Control groups or between attenders and nonattenders in the Experimental and Control groups offered housing information. There was somewhat more variation among the percentage of households that looked for another place.

A greater proportion of Minimum Standards households not meeting requirements at enrollment that attended at least one session met them after six months, as compared to the proportion of nonattenders that met them. A greater proportion of those attending all five sessions met requirements after six months, except for Minimum Rent households in Phoenix. These data seem to

show that the Housing Information Program influenced the ability of Housing Gap households to change from not meeting requirements initially to meeting them after six months. However, whether this was an artifact of self-selection--that is, whether those households that were motivated to meet requirements were also motivated to attend the sessions--or an actual result of attendance at the sessions cannot be determined at this point.

Directions for Future Research

The analyses in this appendix were based on attendance as reported by participants on the First Periodic Interview. It would be interesting to examine attendance at each particular session as shown by the site records. The overall attendance rates may drop somewhat because of respondent error during the interview. But, more importantly, the site attendance data would allow analysis of the impact of the program to be focused on households that attended a particular session. For example, the analysis of the effect of the program on search behavior could be focused on those that attended Session 2, which covered housing and neighborhood choice.

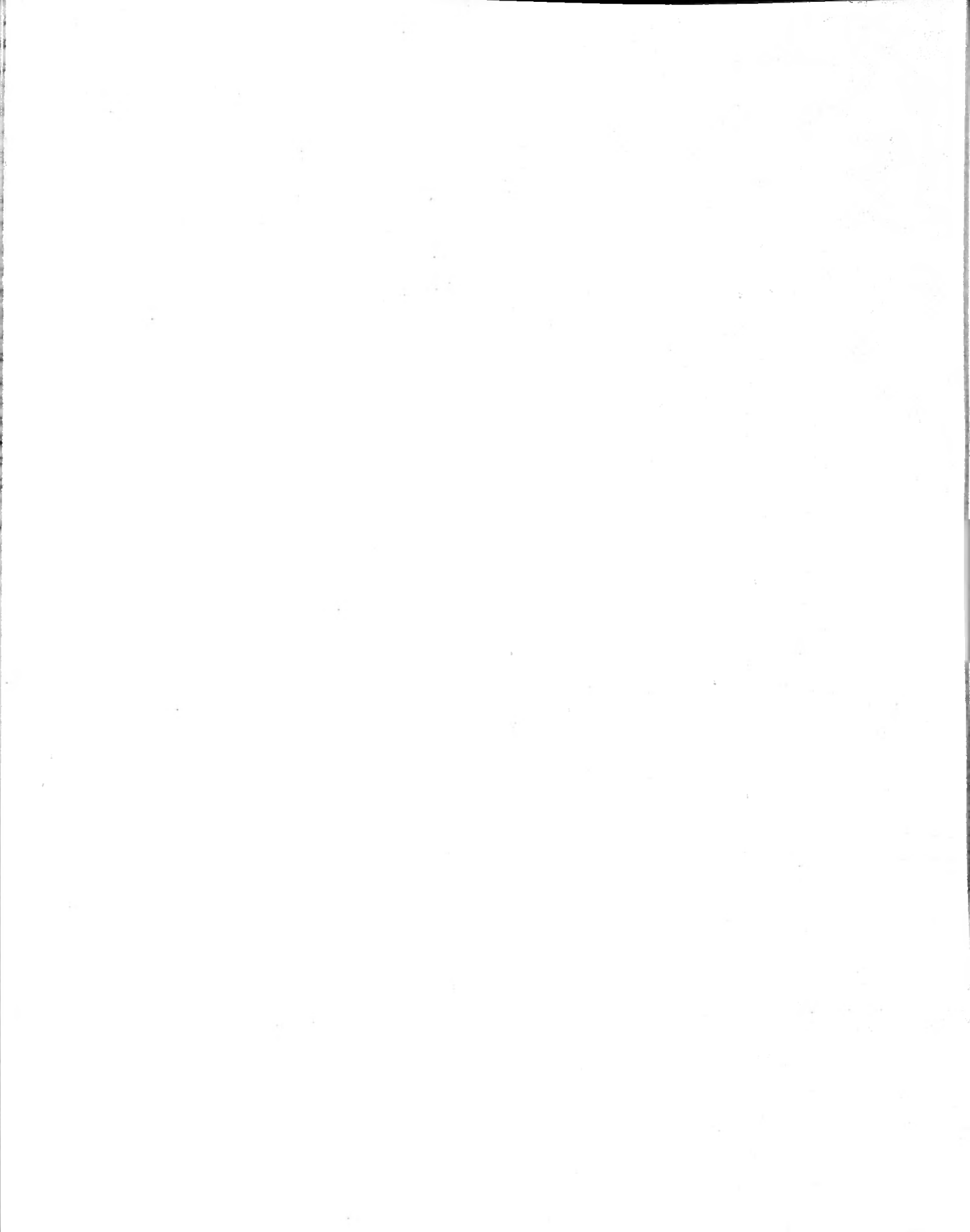
However, self-selection is the major problem in the analysis of the Housing Information Program. Since attendance was voluntary, the influence of the sessions themselves was combined with other factors, such as the priority the household put on housing, a factor which may have motivated the household to attend the sessions. Thus, it is not possible to attribute to Housing Information Program attendance alone the differences in behavior between households that attended the sessions and those that did not.

There is at least one possible approach to disentangling these effects. Assuming self-selection was essentially the same for Experimental and Control households, the responses of attending households would include both the effect of self-selection and the effects of the sessions. However, the interaction of attending and being an Experimental household could be interpreted as the interaction of the information given and the allowance. Combined with the "main effect" estimated by comparing the Control households offered Housing Information with those that were not offered it, this would provide an estimate of the effect of housing information on allowance recipients.

This approach would not be valid unless self-selection operates in the same way for Control and Experimental households. This assumption remains to be tested. In fact, there are reasons to suspect that self-selection operates differently for Control and for Experimental households. In particular, Control households were paid \$10 for each session attended and generally attended more frequently than Experimental households. Nevertheless, the approach does provide a possible avenue for further analysis.

REFERENCES

- Abt Associates Inc., Working Paper on Early Findings, Cambridge, Mass.,
January 1975.
- Campbell, Donald and Julian Stanley, Experimental and Quasi-Experimental
Designs for Research, Chicago, Rand McNally, 1963.
- Webb, Eugene, Donald T. Campbell, Richard D. Schwartz and Lee Sechrest,
Unobstrusive Measures: Nonreactive Research in the Social Sciences,
Chicago, Rand McNally, 1966.



APPENDIX VI
SUPPORTING DATA

VI.1 HOUSEHOLD CHARACTERISTICS AND SEARCH AND MOBILITY

As the review of the mobility literature in Appendix VII indicates, demographic and other socioeconomic household characteristics are correlated with moving rates. Tables VI-1 and VI-2 present the first-year search and moving rates for households in Pittsburgh and Phoenix, respectively. Because these rates are presented only for categories of a single variable, they must merely suggest possible relationships. (There are both natural interrelationships among the characteristics and structural correlation built in by the design of the Demand Experiment.)¹ A more informative investigation of the relationships between household characteristics and search and mobility is presented by the multivariate analyses in Chapters 2, 3, and 4. Further work on analyzing interactions among the variables is underway. The greater overall mobility in Phoenix is reflected in each of the variables.

It has been pointed out both in the body of the report and in Appendix IV.2 that households with a history of greater prior mobility are more likely to move during the experiment than other households.

The result most consistently reported in the literature is the inverse relationship between age and mobility. This finding was confirmed by the Demand Experiment, for both search and overall moving rates, though not for the moving rate of searchers. Households headed by the elderly are only about one-third as likely to search or move as those with household heads under 30.

The literature on mobility is ambiguous about the effects of income and education. The simple bivariate rates for the first year of the experiment indicate a slight increase in search and overall moving rates as income rises.² Although those on welfare or having lower per capita incomes

¹In particular, single-person households were eligible to join the experiment only if they were elderly or handicapped. The elderly are also likely to have lower incomes and less education than other types of households.

²Preliminary multivariate analysis reported in Sections 2.1, 3.1, and 4.1 suggests that when age and other household characteristics are controlled for, the income effects on search and moving noted here are no longer apparent.

Table VI-1
FIRST-YEAR SEARCH AND MOVING RATES
BY HOUSEHOLD CHARACTERISTICS: PITTSBURGH

CATEGORY	PERCENTAGE SEARCHING	SAMPLE SIZE	PERCENTAGE OF SEARCHERS MOVING	SAMPLE SIZE	PERCENTAGE MOVING	SAMPLE SIZE
Number of Moves in Prior Three Years	**		**		**	
0	41%	(480)	42%	(197)	17%	(484)
1	47	(319)	54	(151)	25	(324)
2-3	64	(223)	59	(143)	38	(226)
4 or more	78	(50)	62	(39)	47	(51)
Age of Head of Household (years)	**				**	
16-29	68	(311)	56	(213)	38	(315)
30-44	52	(290)	47	(151)	24	(294)
45-61	51	(196)	49	(100)	25	(197)
62 or more	25	(277)	51	(68)	12	(281)
Net Annual Household Income	*					
\$1,000-2,000	41	(90)	49	(37)	20	(91)
\$2,001-4,000	47	(560)	56	(265)	26	(569)
\$4,001-6,000	53	(366)	47	(193)	24	(368)
\$6,001 or more	66	(50)	45	(33)	29	(51)
Major Source of Income	**				**	
Welfare	61	(472)	52	(286)	31	(479)
Other	41	(602)	51	(246)	21	(608)
Per Capita Income	**				**	
\$0-1,000	59	(268)	48	(159)	28	(272)
\$1,001-2,000	53	(604)	54	(318)	28	(609)
\$2,001-3,000	27	(147)	48	(40)	13	(150)
\$3,001 or more	23	(47)	45	(11)	10	(48)
Race/Ethnicity	*		**			
White	48	(799)	55	(381)	26	(810)
Black	56	(266)	42	(148)	23	(268)
Household Size	**				**	
1	23	(197)	52	(46)	12	(201)
2	48	(274)	58	(131)	27	(277)
3-4	60	(401)	48	(241)	29	(405)
5-6	55	(148)	54	(81)	30	(149)
7-14	61	(54)	42	(33)	25	(55)
Household Type	**				**	
Unmarried, no children	24	(222)	56	(54)	13	(226)
Unmarried, children	58	(484)	49	(282)	28	(490)
Married, no children	42	(101)	60	(42)	25	(102)
Married, children	58	(267)	52	(154)	30	(269)
Education (years)	**					
1-8	37	(268)	57	(100)	21	(274)
9-11	55	(364)	49	(202)	27	(368)
12	53	(346)	49	(183)	26	(349)
13-20	52	(77)	62	(40)	32	(77)
Sex of Head of Household						
Male	49	(422)	53	(207)	26	(426)
Female	50	(652)	51	(325)	25	(661)
TOTAL	50	(1074)	52	(532)	25	(1087)

SAMPLE: Households active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: Baseline, First and Second Periodic Interviews.

* Chi-square statistic significant at 0.05 level.

** Chi-square statistic significant at 0.01 level.

Table VI-2
 FIRST-YEAR SEARCH AND MOVING RATES
 BY HOUSEHOLD CHARACTERISTICS: PHOENIX

CATEGORY	PERCENTAGE SEARCHING	SAMPLE SIZE	PERCENTAGE OF SEARCHERS MOVING	SAMPLE SIZE	PERCENTAGE MOVING	SAMPLE SIZE
Number of Moves in Prior Three Years						
0	**		**		**	
1	42%	(260)	58%	(108)	24%	(262)
2-3	56	(293)	74	(164)	41	(296)
4 or more	71	(327)	79	(231)	55	(331)
	85	(178)	89	(152)	74	(183)
Age of Head of Household (years)						
16-29	**		**		**	
30-44	80	(361)	87	(290)	69	(366)
45-61	67	(290)	68	(193)	45	(294)
62 or more	53	(171)	66	(90)	34	(174)
	35	(237)	73	(82)	25	(239)
Net Annual Household Income						
\$1,000-2,000	**		*		*	
\$2,001-4,000	48	(93)	76	(45)	35	(97)
\$4,001-6,000	59	(329)	77	(193)	44	(333)
\$6,001 or more	66	(378)	79	(248)	51	(381)
	65	(245)	73	(159)	47	(248)
Major Source of Income						
Welfare	**		*		*	
Other	74	(141)	76	(105)	56	(144)
	60	(917)	77	(549)	45	(928)
Per Capita Income						
\$0-1,000	**		*		*	
\$1,001-2,000	70	(266)	72	(185)	49	(271)
\$2,001-3,000	63	(465)	76	(293)	47	(472)
\$3,001 or more	57	(245)	84	(139)	47	(247)
	41	(69)	75	(28)	30	(69)
Race/Ethnicity						
White	60	(656)	79	(391)	46	(664)
Black	71	(84)	67	(60)	47	(85)
Spanish American	63	(292)	75	(185)	47	(297)
Household Size						
1	**		**		**	
2	34	(156)	75	(53)	25	(158)
3-4	61	(260)	85	(158)	51	(263)
5-6	70	(387)	77	(270)	53	(393)
7-14	67	(162)	68	(109)	45	(164)
	69	(94)	68	(65)	46	(95)
Household Type						
Unmarried, no children	**		**		**	
Unmarried, children	37	(178)	77	(65)	23	(180)
Married, no children	67	(340)	79	(229)	52	(344)
Married, children	59	(143)	82	(84)	48	(145)
	70	(398)	73	(277)	50	(404)
Education (years)						
1-8	*		**		**	
9-11	56	(345)	73	(192)	40	(349)
12	66	(244)	78	(160)	50	(249)
13-20	66	(283)	81	(187)	53	(285)
	66	(142)	74	(94)	49	(143)
Sex of Head of Household						
Male	64	(608)	75	(390)	47	(618)
Female	59	(451)	79	(265)	46	(455)
TOTAL	62	(1059)	77	(655)	47	(1073)

SAMPLE: Households active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: Baseline, First and Second Periodic Interviews.

* Chi-square statistic significant at 0.05 level.

** Chi-square statistic significant at 0.01 level.

searched and moved more often than other households, neither characteristic affected the moving behavior of searchers. The relationship between moving behavior and education is unclear. It appears that households with the household head having eight or fewer years of schooling searched and moved less often than others. This may be related to the observations made about elderly households; these households tend to have fewer years of schooling. The effect of race/ethnicity was curious in that it seemed to matter in Pittsburgh but not in Phoenix. Blacks in Pittsburgh were more likely to search than whites but searchers were less likely to move, resulting in no difference in overall moving rates.¹ Single-person families searched and moved significantly less than other household sizes, undoubtedly reflecting the fact that they were all elderly. This pattern was repeated by the household type variable. Finally, the sex of the household head had no effect.

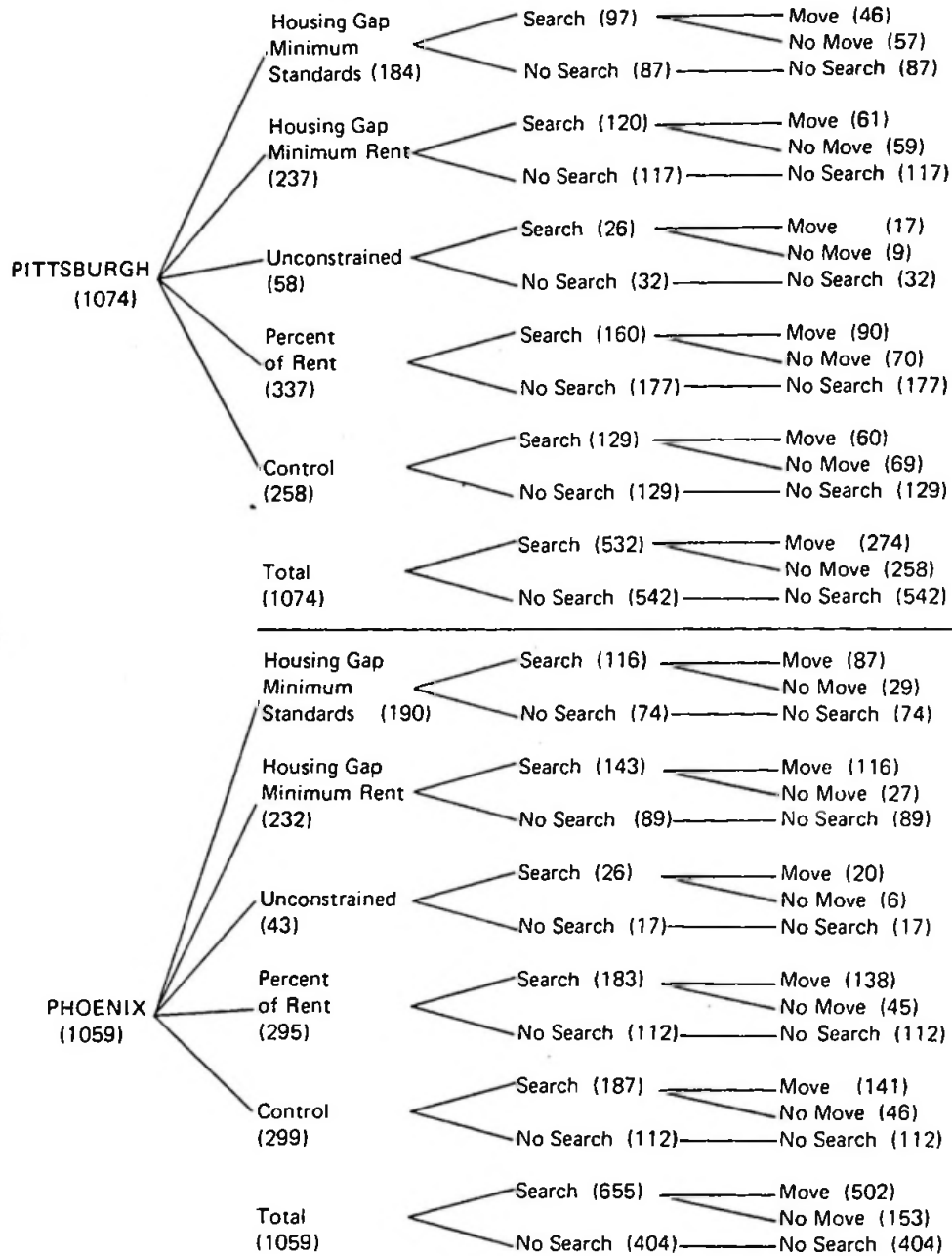
¹The preliminary multivariate analysis reported in Sections 3.1 and 4.1 suggests that in Pittsburgh when other factors are controlled for, black households were apparently less likely to move, whether or not they searched.

VI.2 TREATMENT GROUP EFFECTS ON SEARCH AND MOBILITY

The fact that the experiment was designed to assign demographically similar households to each of the major treatment groups permits a direct comparison of the search and moving rates of Experimental and Control households. The data in Table VI-3 show no clear overall experimental effects. The only possible exception appears to be Unconstrained searchers in Pittsburgh, that move more often than Control searchers. This difference is large in magnitude but is not statistically significant. Figure VI-1 depicts the disposition of households in each treatment group by their first-year search and moving status.

An examination of Housing Gap households in terms of their initial compliance with the housing requirements has revealed one apparent experimental effect. Housing Gap Minimum Standards households that did not meet their initial housing requirements were significantly more likely to search than those that did (see Table VI-4). However, once they searched, they apparently were less likely to move. Overall, their moving rate was slightly higher than other households. Minimum Rent households do not show this trend. When the two groups of Constrained households are considered together, the pattern of search and moving rates is similar to (but weaker than) the one observed among Minimum Standards households. The same overall pattern of response to the housing requirement appears in Sections 2.5, 3.5, and 4.1 of this report.

Figure VI - 1
DISPOSITION OF HOUSEHOLDS BY
FIRST-YEAR SEARCH AND MOBILITY
(Sample Size in Parentheses)



SAMPLE: Households active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: Baseline, First and Second Periodic Interviews.

NOTE: See Appendix I for a description of the experimental design and treatment groups and Appendix II for derivation of the search and mobility variables.

Table VI-3
 FIRST-YEAR SEARCH AND MOVING RATES
 BY TREATMENT GROUP

TREATMENT GROUP	PERCENTAGE SEARCHING	SAMPLE SIZE	PERCENTAGE OF SEARCHERS MOVING	SAMPLE SIZE	PERCENTAGE MOVING	SAMPLE SIZE
PITTSBURGH						
Control Households	50%	(259)	47%	(130)	23%	(263)
Experimental Households	50	(818)	53	(405)	26	(835)
Housing Gap	52	(423)	50	(219)	25	(433)
Unconstrained	45	(58)	65	(26)	29	(59)
Percent of Rent	48	(337)	56	(160)	26	(343)
PHOENIX						
Control Households	63	(300)	76	(188)	47	(305)
Experimental Households	62	(768)	77	(476)	47	(781)
Housing Gap	62	(425)	79	(262)	48	(431)
Unconstrained	62	(45)	79	(28)	47	(47)
Percent of Rent	62	(298)	75	(186)	46	(303)

SAMPLE: Households active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: Baseline, First and Second Periodic Interviews.

NOTE: Chi-square tests comparing Control households with each of the three groups of Experimental households not significant at 0.05 level.

Table VI-4
 FIRST-YEAR SEARCH AND MOVING RATES
 FOR HOUSING GAP HOUSEHOLDS
 BY INITIAL HOUSING REQUIREMENT COMPLIANCE

TREATMENT GROUP	PERCENTAGE SEARCHING	SAMPLE SIZE	PERCENTAGE OF SEARCHERS MOVING	SAMPLE SIZE	PERCENTAGE MOVING	SAMPLE SIZE
PITTSBURGH						
All Housing Gap	52%	(423)	50%	(219)	25%	(433)
Met Housing Requirements at Enrollment ^a	49	(142)	59	(69)	28	(144)
Did Not Meet Housing Requirements at Enrollment	53	(281)	45	(150)	24	(289)
Housing Gap Minimum Standards	53	(185)	48	(98)	24	(192)
Met Housing Requirements at Enrollment	36	(31)	[64]	(11)	22	(32)
Did Not Meet Housing Requirements at Enrollment	56*	(154)	46	(87)	25	(160)
Housing Gap Minimum Rent	51	(238)	51	(121)	26	(241)
Met Housing Requirements at Enrollment	52	(111)	59	(58)	30	(112)
Did Not Meet Housing Requirements at Enrollment	50	(127)	44	(63)	22	(129)
PHOENIX						
All Housing Gap	62	(424)	78	(261)	47	(430)
Met Housing Requirements at Enrollment	52	(124)	81	(64)	42	(124)
Did Not Meet Housing Requirements at Enrollment	66	(300)	77	(197)	50	(306)
Housing Gap Minimum Standards	61	(189)	75	(115)	45	(193)
Met Housing Requirements at Enrollment	36	(36)	[85]	(13)	31	(36)
Did Not Meet Housing Requirements at Enrollment	67**	(153)	74	(102)	48	(157)
Housing Gap Minimum Rent	62	(234)	81	(145)	50	(236)
Met Housing Requirements at Enrollment	58	(87)	82	(50)	47	(87)
Did Not Meet Housing Requirements at Enrollment	65	(147)	81	(95)	52	(149)

SAMPLE: Housing Gap Minimum Rent and Minimum Standards households active at one year, not living in own or subsidized housing, and below the low-income eligibility limit.

DATA SOURCES: Baseline, First and Second Periodic Interviews.

NOTE: Brackets indicate entries based on 15 or fewer observations.

a. Percentage meeting housing requirements at enrollment:

	Pittsburgh	Phoenix
All Housing Gap	34%	29%
Housing Gap Minimum Standards	17	19
Housing Gap Minimum Rent	47	37

* Chi-square statistic comparing met/did not meet significant at 0.05 level.

** Chi-square statistic comparing met/did not meet significant at 0.01 level.

APPENDIX VII
A SURVEY OF MOBILITY RESEARCH*

The movement of households between areas in response to various incentives has been studied by social scientists both in the United States and abroad. Most of the theoretical and empirical work has been concerned with migration--that is, movement between regions or urban areas. Movement of households participating in the Demand Experiment, however, is primarily local (emigrants are ineligible for continued payments). This review focuses on the determinants of these local moves, defined here as mobility. The first section summarizes the theoretical perspectives that have been used to analyze mobility and Section VII.2 presents a synthesis of the empirical results reported by a large number of researchers. The final section consists of brief concluding remarks.

VII.1 THEORETICAL PERSPECTIVES ON MOBILITY

Mobility has been studied by researchers using two distinct perspectives: demographers, economists, sociologists, and many geographers have examined the moving behavior of individual households. Other geographers and planners and some sociologists have emphasized studies of the areal determinants of movement between origin and destination within an urban area.¹

This review deals with the first approach--that concerned with the determinants of the individual household's decision to move. The second category of studies, often termed "ecological studies," is considered only to the extent that it provides additional evidence (based on "contextual effects") bearing on the household decision process. The extant theoretical models of mobility present a complex description of the determinants of household choice. Nevertheless, they offer surprisingly few specific hypotheses or

* Much of this appendix also appears in Quigley and Weinberg forthcoming.

¹Much of the analysis of so-called gravity models is of this latter kind. See Carrothers (1956) for a bibliographic review. Recent, more sophisticated, but essentially mechanical, models of this sort are reviewed by Tobler (1975). The purpose of this type of analysis is parsimonious description of spatial interactions.

verifiable propositions--indeed, it is hard to conceive how households' choices about residential mobility could fail to be consistent with these models.

Much of the theoretical work providing the conceptual description and underpinnings of other models of the mobility process has been done by sociologists and geographers. Consequently, this literature is framed mainly in terms of household "satisfaction." In a concise conceptualization of the mobility process, Rossi (1955) suggested that a household decides whether or not to move based on its housing "dissatisfaction," household characteristics, and exogenous circumstances such as the factors causing forced moves. After deciding to move, the household then searches for a new dwelling unit using both formal and informal information channels and chooses a new home based on desired characteristics determined by household "needs." Rossi emphasizes that "the major function of mobility [is] the process by which families adjust their housing to the housing needs that are generated by the shifts in family composition that accompany life cycle changes" (p. 9). Thus, Rossi's formulation of the mobility process concentrates on adjustment to changes in perceived housing needs.

Speare et al. (1974) provided a more elaborate theoretical description, emphasizing, as Rossi had, the theme of adjustment to dissatisfaction. They viewed the mobility (and migration) decision as "the result of an ongoing decision-making process for which three stages can be distinguished: (1) the development of a desire to consider moving, (2) the selection of an alternate location, and (3) the decision to move or stay" (p. 175).

The first stage of voluntary mobility (the desire to consider moving) results from an increase in dissatisfaction beyond some "threshold" or tolerance level. (Morrison, 1972, suggested that this kind of threshold is a function of such household characteristics as the education or occupation of the household head.) Dissatisfaction can result from a change either in household needs or in locational amenities. Mobility, moreover, is only one possible response to dissatisfaction; households could reduce dissatisfaction by other changes in current circumstances such as improvements to the current dwelling unit.

According to this analysis, residential satisfaction depends on household

characteristics and aspirations, housing unit characteristics, locational characteristics, and the household's social bonds with neighbors and neighborhood. Dissatisfaction (which ultimately results in moving behavior) is the direct result of "changes in the needs of a household, changes in the social and physical amenities offered by a particular location, or a change in the standards used to evaluate these factors" (p. 175). Factors such as age, income, and duration of residence are not considered to affect directly the decision to consider moving; rather, the decision-making process works through dissatisfaction.

Search for an alternate dwelling unit is the second stage in the model proposed by Speare et al. This search process is restricted to areas about which the household is somewhat familiar or knowledgeable. The desired outcome of the search process for the household is some idea of the level of satisfaction to be expected at alternative destinations. This is determined by household characteristics, "societal level factors" (social and economic factors largely beyond the control of the household), and the household's range of experience. Once the alternative dwellings have been evaluated, the third stage, the decision to move, is made on the basis of the magnitude of dissatisfaction at the current location, the expected satisfaction with the alternate location, and the costs of moving. A part of the process, as mentioned above, is revision of the household's expectations as a result of searching, which involves, perhaps, a revision of the household's current satisfaction.¹

The model proposed by Speare et al. is, in part, an extension of the geographers' approach to mobility models. The household at a particular location is exposed to "stresses," and it chooses a response to reduce or eliminate these stresses. Clark and Cadwallader (1973) suggest that this locational stress is created partly by problems of accessibility to other parts of the city, neighborhood decay, and changes in socioeconomic status, among other variables. Other researchers emphasize the "stresses" emanating from changes in housing needs, which may result from life-cycle effects (Brown, Horton, and Wittick, 1970; Moore, 1972; Wolpert, 1964, 1965, 1966).

¹Wild (1976) used discriminant analysis to examine search and moving separately. His findings confirm the importance of dissatisfaction in the formation of move intentions.

These authors suggest that the household can reduce stress and increase "place utility" (the satisfaction associated with a particular dwelling unit) in three ways: by adjusting its desires; by restructuring its environment; or by relocation. A representative model is outlined by L. A. Brown and Moore (1970). They view the mobility decision in two phases: the decision to seek a new residence, and the decision where to relocate. Only the first decision is discussed here.

The first phase of the mobility decision, the decision to look for a new residence, is constrained by the information available to the household. This comes primarily and directly through the household's "activity space," defined by its normal contacts: its commercial, personal, and recreational activities, and its daily work-trip. But it also comes, secondarily and indirectly, through its "contact space," which includes such general forms of communication as newspapers. Together these two sources of information constitute the household's "awareness space," whose stimuli directly affect the household's decision to relocate (L. A. Brown and Longbrake, 1969, 1970; Clark, 1969; Moore, 1970; Moore and L. A. Brown, 1970). L. A. Brown and Longbrake (1969) also suggest that search behavior is time-dependent; therefore the "stresses" the household faces are modified as a result of the search process. The household finally makes its decision to relocate or abandon the search, based on its aspirations (Moore, 1972) and its evaluation of alternate available place utilities.

Some economists have also approached the problem of explaining intra-urban mobility, though often with perspectives drawn from the literature on migration. For example, one economist (Fredland, 1974) posits a model in which the household obtains satisfaction (utility) and experiences costs from living in a particular housing unit. The net present value of living in that particular unit is compared with the value of the best available alternate dwelling unit. If the expected gain exceeds the moving cost the household will move. By contrast and more in the spirit of the sociological work, H. J. Brown (1975) has related moving to four kinds of changes: life-cycle changes, income changes, workplace changes, and changes in housing market conditions.¹

¹ Goodman and Vogel (1975) have attempted to pose an economic model of search and mobility for use in the analysis of the housing allowance programs.

VII.2 REVIEW OF EMPIRICAL RESEARCH

In contrast to the emphasis on explicit or implicit changes in the existing theoretical framework, most empirical research has emphasized the role of variables measuring the current status of households rather than changes in their status in motivating residential mobility decisions. Partly as a result of this, much of the research reported by individual scholars is highly ambiguous or at least difficult to interpret. In addition, there seem to be two other difficulties in reconciling the empirical evidence provided by previous researchers, regardless of its relationship to the current theory.

First, the definition of mobility used in analyses has varied greatly, resulting in inconsistencies in measurement. Researchers have taken a sample of households and either examined their subsequent mobility history or looked at their past mobility history. Regardless of sampling techniques, different results must obtain because of sample attrition as households move and cannot be followed. A distinction is often made between "retrospective" and "prospective" mobility to distinguish between samples of longitudinal data where the units of observation are households in the sample at the end of the observation period and samples where the observations are households in existence at the beginning of the analysis period.¹ Because household formation and dissolution almost invariably result in residential movement, this distinction has important consequences for evaluating results. For example, Duncan and Hauser (1960) complained that "household movement (rates) confound the moves of intact households with the moves of households which are undergoing formation, dissolution, or change in composition" (p. 108).

Another definitional difficulty is caused by differences in the period of analysis. The measure of mobility is sometimes truncated--for example, researchers have analyzed the propensity of individuals to move in a single year, in three years, or in five years, or the frequency of "one or more"

¹Sometimes the term "prospective mobility" is also used to describe research on the mobility intentions of existing households. This appendix ignores this body of literature, except where "desires" to move are reflected in observed behavior because the link between intentions and observed behavior is seldom traced.

moves in a given period by households still in the sample at the end of the period, among other possibilities.

Distinction is often made between voluntary and involuntary (forced) moves. However, there is no consensus on which kinds of moves are involuntary.¹ To a large extent these definitional difficulties are understandable; they result from data sets with differing coverage available to individual researchers. These definitional inconsistencies, however, make it difficult to compare the results of different studies and to resolve apparent discrepancies in findings.

The second major difficulty in evaluating mobility research is that much of the analysis has been in terms of simple two- and three-way cross-tabulations, even though it may be more plausible to consider a straightforward multivariate approach. Analysis of contingency tables often leads to arbitrary categorizations when continuous variables such as age or income are of interest. In addition, complex multi-dimensional tables may be required to control for the influences of several variables simultaneously. For many of these problems, multiple correlation, regression techniques, or logit analysis seem more appropriate. As noted below, however, many of the behavioral hypotheses have been loosely framed in terms of the "life-cycle" of households, a concept which is not quantifiable in a simple way either by a naive application of contingency tables or by multivariate techniques.

In addition to these major difficulties, several researchers have suggested that there are important regional differences in mobility behavior (Albig, 1932; Duncan and Hauser, 1960; Schnore and Pinkerton, 1966). Generalizing from the analysis of a single metropolitan region must be done with care.

¹Rossi (1955) considered moves resulting from the following types of reasons involuntary: (1) eviction or destruction of the dwelling unit, (2) marriage, divorce, or separation, (3) job changes involving long distance shifts, and (4) severe losses in income. Clark (1970) cited as examples of involuntary moves those moves resulting from a divorce or severe loss of income. Though they disagree about the definition of involuntary moves, most observers agree that moves resulting from a family's perception that its housing space is inadequate are considered voluntary. The discussion below and the body of the report focus exclusively on voluntary mobility. See Appendix Section IV.2 for a discussion of forced movers.

The Family Life-Cycle

There is widespread agreement that the most important determinant of voluntary intra-metropolitan mobility is transition between stages in the family life-cycle, but there is far less agreement on the definition and measurement of the life-cycle. The most obvious changes in household composition--household formation and household dissolution--are almost certain to result in relocation decisions. Several taxonomies of the stages of household progression from formation through dissolution have been suggested. For example, Hawley (1971) conceptualized the influence of change in household composition on mobility in the following scenario:

The young couple usually starts married life in an apartment, moves to a small house as children begin to appear, shifts to a larger home in the suburbs as the family reaches maximum size, and returns to small residential quarters, often in the central city, when the children leave to establish homes of their own (pp. 180-181).

Table VII-1 provides a representative list of life-cycle definitions that have been utilized in the analysis of household mobility.

There is little evidence on which to base a comparative analysis of alternative descriptions of "the" life-cycle; apparently no study has attempted to distinguish among alternative definitions. Furthermore, the differences between these definitions indicate the difficulty in applying the concept to quantitative analysis. The dimensions typically used to categorize the life-cycle include the number of family members, their ages, and blood (or other) relationships. In investigating this complex interaction, some scholars report the relationship between, for example, age, and the incidence of moving without holding other life-cycle components constant; others report relationships *ceteris paribus*. Still another complication in interpreting life-cycle influences on mobility is that some results are reported for levels of life-cycle influences and others are reported for changes in these life-cycle characteristics.

The studies of marital status illustrate this point. Fredland (1974), using regression analysis on a sample of households from the Philadelphia-Trenton area, found the never-married less likely to move than the ever-married. G. S. Goldstein (1970), using regression methods to analyze a sample of San Francisco households, confirmed this finding. Other research by Speare

Table VII-1
TAXONOMIES OF THE HOUSEHOLD LIFE-CYCLE

Life-Cycle Stage	<u>Glick (1947)</u>	<u>Lansing and Kish (1957)</u>	<u>Abu-Lughod and Foley (1960)</u>
1	pre-marriage	young, single	pre-marriage
2	married, awaiting birth of first child	young, married, no children	married, pre-child
3	married, awaiting birth of last child	married with child under 6 years	child-bearing
4	married, awaiting marriage of first child	married with all children over 6 years	child-rearing
5	married, awaiting marriage of last child	older, married, with children	child-launching
6	married, pre-death of one spouse	older, married, without children	post-child
7	widowhood	older, single	widowhood

SOURCES:

Glick, Paul C., "The Family Cycle, " American Sociological Review, Vol. 12, 1947, pp. 164-174.

Lansing, John B. and Leslie Kish, "Family Life Cycle as An Independent Variable," American Sociological Review, Vol. 22, 1957, pp. 512-519.

Abu-Lughod, Janet, and Mary Mix Foley, "The Consumer Votes by Moving," in Nelson N. Foote, Janet Abu-Lughod, Mary Mix Foley, and Louis Winnick, Housing Choices and Housing Constraints, New York, McGraw-Hill, 1960, pp. 134-178.

et al. (1974), based on survey data from Rhode Island, found that the moving rate of the currently married was lower than that of the divorced or separated, and that it decreased with duration of marriage (controlling for age and tenure type); they also reported that the moving rate increased with the number of previous marriages. Maisel (1966), using the 1960 Public Use Sample Census data for households residing in Standard Metropolitan Statistical Areas in the western states, found that a couple was less likely to move than a single person and that a widowed person was less likely to move than a couple. Chevan's analysis (1971) of household data from Philadelphia-Trenton indicated that mobility rates decline sharply during the early years of marriage and more slowly after the tenth year. G. S. Goldstein (1970) and Maisel (1966) also found that married couples without children were more mobile than those with children.

In contrast to the studies on marital status, studies have shown that recent changes in marital status increase household moving. Pickvance (1973) found that most households move in the first year of marriage, a finding confirmed by Speare et al. (1974), using moving rates, and by three other researchers using regression techniques: Morrison (1972) analyzing a national sample of households; Fredland (1974) analyzing Philadelphia households; and H. J. Brown (1975) analyzing San Francisco households. All found that dissolution of a marriage through separation or divorce led to more frequent movement (although Fredland and Brown found an effect only for owners, not for renters). Kain and Quigley (1975) reported a 99 percent moving rate for St. Louis households formed during a three-year period.

The most consistently reported life-cycle influence has been the inverse relationship between the age of the household head and moving--using simple tabulations of mobility rates for a wide variety of special samples of households (Abu-Lughod and Foley, 1960; H. J. Brown and Kain, 1972; Butler et al., 1964; Goldscheider, 1966; Rossi, 1955; Speare, 1974; Speare et al., 1974; Van Arsdol et al., 1968) as well as by regression analysis (Fredland, 1974; G. S. Goldstein, 1970; Kain and Quigley, 1975; Maisel, 1966; Morrison, 1971b, 1972; Weinberg, 1975). Long (1972) reported an independent effect of age and life-cycle based on an analysis of a national sample of households, but Okraku (1971), analyzing San Juan households, found an effect

of age only in the household's expansion phase. In addition, Fredland (1974) found that age affects moving at a declining rate (that is, the regression coefficient on age was negative but the coefficient on age-squared was positive with net effect being negative over the relevant range) and that the age of the head of household was not as important a determinant of moving for homeowners as for renters.

The sex of the household head also seems to play a role, though its effect is unclear. Goldstein and Mayer (1964) found, from an examination of simple mobility rates among Rhode Island households, that "short-distance migration...has been heavily female" (p. 12). Kain and Quigley (1975) found higher moving rates in St. Louis for households headed by older females (with or without children) than for other households. Fredland (1974) found male unmarried renters more mobile than female ones, but female unmarried homeowners more mobile than male unmarried homeowners.

There is an ambiguous relationship between moving and household size, perhaps because of definitional differences among researchers. Both Rossi (1955) analyzing simple mobility rates, and Weinberg (1975) using regression analysis found moving rates increasing with family size. H. J. Brown and Kain (1972) using moving rates and Maisel (1966) using regression, found decreasing mobility with larger family sizes. (Brown and Kain still found this tendency when controlling for income, education, and age of the household head.) Fredland's results, using regression analysis, were mixed--he found a family size of two to four more mobile than a single person or a larger family. Okraku (1971) asserted that family size has a positive effect upon mobility, but only in the household's perception of dwelling unit adequacy.

Variation in the composition of households is perhaps more important than family size. Kain and Quigley (1975) found a slight increase in mobility with household size, holding the number of workers and school-aged children constant in a regression, but a slight decrease in mobility with the number of school-aged children, holding the number of persons and workers constant. This finding was confirmed by Long (1972), who found that for both male- and female-headed households, the presence of school-aged children restricted mobility. The incremental effect of an additional child beyond the first was typically less than for the first. However, Long did not find any

systematic relationship between the number of children and moving rates. Speare et al. (1974) also found that the presence of school-aged children decreased moving for homeowners, but not for renters. Morrison (1972), however, reported that additional children did not lead to decreased moving; moreover, the results of analyses by Fredland (1974) and Butler et al. (1964) suggested that family composition is not very important at all in determining mobility.

In contrast to the ambiguous findings about family size, changes in family size are highly correlated with moving. Both H. J. Brown (1975) and Weinberg (1975), analyzing household data from the San Francisco Bay area, found that changes (both increases and decreases) in family size increased mobility significantly, for both owners and renters. Fredland's (1974) results confirmed this. Chevan's analysis (1971) indicated that, for any given marriage duration, the birth of children was associated with higher rates of moving and that moving rates were highest around the period of the first birth. Similarly, Fredland (1974) found that the birth of a child led to increased mobility and that the effect was greater for renters than for owners.

Other Household Characteristics

In addition to these components of the life-cycle of households, a body of research findings suggests several other correlates of residential mobility. First, renters are more likely to move than homeowners, even when holding constant a plethora of other influences (Abu-Lughod and Foley, 1960; H. J. Brown and Kain, 1972; G. S. Goldstein, 1970; Kain and Quigley, 1975; Morrison, 1971a, 1972; Okraku, 1971; Pickvance, 1973, 1974; Rossi, 1955; Speare et al., 1974; and Weinberg, 1975). These correlates may have little or nothing to do with causality, however, because the transaction costs of owning are substantially higher than those of renting. A widely held rule of thumb and some serious research suggest that renting is cheaper than owning for those who move within three or four years of initial occupancy (Shelton, 1968). It is thus reasonable to think that the choice of tenure type is part of the mobility process; otherwise identical households that assess their probabilities of moving as higher than average are more likely to choose rental units.

Second, much descriptive evidence suggests that prior mobility is strongly correlated with current mobility.¹ In addition, researchers, having examined simple moving rates, often conclude that minority households were more mobile than whites, but many of these analysts did not control for socioeconomic or tenure characteristics.² Using regression techniques, the results ranged from no effect of race on moving for unmarried individuals (Fredland, 1974) and minorities in general (Morrison, 1971b), to a substantially lower probability of moving for black owners (Kain and Quigley, 1975). Weinberg (1975) has found that, *ceteris paribus*, black and Spanish-surname males have lower moving rates than white males or females, even when a longer period of adjustment (two years) was taken into account. Moreover, he reported that the moving behavior of households in black, Oriental, and Spanish-surname racial/ethnic groups differed in important aspects.

The effects of two demographic characteristics--income and education--are difficult to disentangle. The reported results for the effects of income are simply inconsistent. Abu-Lughod and Foley (1960) reported from their examination of simple moving rates that movers had lower incomes than nonmovers. H. J. Brown and Kain (1972), using cross-tabulation, stated that mobility by income appears to have an inverted u-shape, with mobility highest in the middle-income range, a result supported by Weinberg's (1975) regression analysis. Pickvance (1973), using moving rates, and Kain and Quigley (1975) using regression analysis, found that moving decreased with income, while Fredland's (1974) results suggested a slight increase in moving with income. The effects of changes in income are clearer. Brown (1975) reported that increases in income increased mobility for both

¹For example, one result reported consistently for diverse samples of households--including Dutch households (Morrison, 1967), Mexican families (Land, 1969), and many analyses of the behavior of U.S. households (S. Goldstein, 1954, 1958)--was that the number of "chronic movers" is substantial. As reported in studies on moving rates (Speare, 1970; Speare et al. 1974, and in regression analyses by Land, 1969 and Morrison, 1967), recent movers were more likely to move again. Alternatively, moving declines with duration of residence. Duration of residence seems to be important, even controlling for age (Morrison, 1971a), but Speare (1970) found no effect for owners (mobility declines with duration for renters).

²See Butler and Kaiser (1971) and McAllister et al. (1971), for discussion of this point.

owners and renters (decreases seem to have had no effect), but the measure of income change that he employed is quite crude.

Investigations of the independent effect of education using moving rates reported either that more education was associated with higher mobility (Abu-Lughod and Foley, 1960; H. J. Brown and Kain, 1972; Goldstein and Mayer, 1964) or that it had no effect (Long, 1972; Morrison, 1972; Speare et al., 1974). Likewise, regression analysis results indicate either that there is a slight positive effect (Goldstein, 1970) or no systematic effect (Kain and Quigley, 1975; Weinberg, 1975). One possible explanation for the ambiguous results for income and education is the typically high correlation between household income and the educational level of the household head.

Questions about the effect of occupation on mobility are tied up with social mobility, career patterns, socioeconomic status, and workplace stability. The occupation of the head of household was generally a poor predictor of mobility (Berghorn and Naugle, 1973; Goldstein and Mayer, 1964; Long, 1972; Morrison, 1972). Weinberg (1975) suggested instead that it made more sense to think of occupation as affecting the stability of employment at a particular workplace, which in turn would affect residential movement. Some sociologists believed that socioeconomic status and upward social mobility play an independent role in moving behavior, but there was no agreement on their importance.¹

There was no consensus either on the effects of accessibility, workplace location, and workplace change on subsequent mobility. Johnston (1971) remarked that "whether a change of workplace is associated with a change of residence is at present only a matter of speculation" (p. 327).

Sociologists, using moving rate analysis, often found that accessibility and work-related reasons provide only minor impetus for residential moving

¹Leslie and Richardson (1961) thought that career patterns and upward mobility played a more important role than the life-cycle, at least in forming desires to move. Whitney and Grigg (1958) stated that 90 percent of local moves were status-related. Moore (1966) suggested that lower status people were more mobile and Goldscheider (1966) stated that the elderly of lower socioeconomic status were less mobile, but Ross (1962) and Butler et al. (1964) asserted that class and/or status were unimportant in determining mobility.

(S. Goldstein and Mayer, 1964; Speare et al., 1974; Stegman, 1969; Thibeault et al., 1973; Zimmer, 1973). On the other hand, economists found that there was a much stronger relationship. H. J. Brown (1975) reported that a decrease in accessibility (measured in time or distance) increased mobility for both owners and renters. Similarly, H. J. Brown and Kain (1972), using cross-tabulation, as well as both H. J. Brown (1975) and Weinberg (1975), using regression analysis, found that the probability of a residential move was significantly greater when there was a workplace change.

There is similar evidence from an examination of changes in employment status. It appears that such a change in employment status affects mobility, though the direction of that effect is unclear. Weinberg (1975) found that becoming unemployed raised moving and becoming employed lowered moving, whereas Fredland (1974) found the opposite (for renters). Retiring increased mobility (H. J. Brown, 1975; Fredland, 1974). Morrison (1972) found that unemployed men had higher moving rates, and Kain and Quigley (1975) found that both retired household heads and households with more than one worker were less likely to move. H. J. Brown (1975) reported curious results for the unemployed: residential mobility increased for renters but decreased for owners as the number of months unemployed increased. G. S. Goldstein (1970) found that residential mobility declined with length on the job. The results with respect to unemployment incidence in particular must be evaluated with care; sampling error is likely to be high because of the small fraction of households experiencing unemployment in each data base.

Environmental Characteristics

Many of these findings about the correlates of individual household movement are supported by ecological analyses that use moving rates reported by Census tracts or by other geographical units as the basis for analysis. For example, Moore's (1969) analysis of Brisbane indicated that mobility was inversely related to the average age of Census tract populations and directly related to the proportion of renter occupied units.

Several ecological analyses suggest that neighborhood characteristics per se are correlated with household mobility. Stegman (1969) and Morrison (1972) believed that considerations of neighborhood quality dominate those

of accessibility and housing unit quality. Clark (1970) considered neighborhood factors very important, while Zimmer (1973) rejected neighborhood "dissatisfaction" as unimportant. Overall it does appear that there are differential effects of individual and household factors on residential mobility in different areas (Speare et al., 1974).

Other than ecological analyses of the effect of neighborhood racial composition on moving (Berry, 1976), little work has been done on specific neighborhood factors affecting moving behavior. Droettboom et al. (1971) found a small effect of crime and violence on local mobility for a national sample of households, but Greenberg and Boswell (1972) found that the perception of deterioration--especially as it related to a fear of crime--was an important motivation for moving among households in New York City. Boyce (1969) and Moore (1972) found that low evaluations of housing and neighborhood quality led to more mobility. Overcrowding within a dwelling unit also increased mobility (Fredland, 1974; see also Goodman, 1974).

Housing market considerations also seem to matter. Grigsby (1963) stated that moving would be affected by the price and availability of alternate dwellings. Weinberg (1975) has found that the tightness of the housing market (as measured by mortgage rates) was inversely related to household mobility. The distribution of public services and taxes relative to the distribution of income and wealth may also provide motivations for mobility, at least according to analysis by Aronson and Schwartz (1973).

VII.3 CONCLUDING REMARKS

The analysis of the reported literature has indicated a remarkable divergence of view about the effects of status variables on moving yet a convergence of view about the effect of changes on moving. Moreover, the theoretical models provide little help in reconciling these differences. Yet it is inappropriate to reject status variables because they are likely to affect important determinants of moving such as search and moving costs or the degree of place attachment and thus lead to a household response to a change that is dependent on the levels of the status variables.

REFERENCES

- Abu-Lughod, Janet, and Mary Mix Foley (1960), "The Consumer Votes by Moving," in Nelson N. Foote, Janet Abu-Lughod, Mary Mix Foley, and Louis Winnick eds., Housing Choices and Housing Constraints, New York, McGraw-Hill.
- Albig, William (1932), "The Mobility of Urban Population," Social Forces, Vol. 11.
- Aronson, J. Richard, and Eli Schwartz (1973), "Financing Public Goods and the Distribution of Population in a System of Local Governments," National Tax Journal, Vol. 26, No. 2.
- Berghorn, Forrest J., and Ronald C. Naugle (1973), Changing Residence in Kansas City, Kansas, Kansas City, Mid-America Urban Observatory.
- Berry, Brian J. L. (1976), "Ghetto Expansion and Single-Family Housing Prices: Chicago, 1968-1972," Journal of Urban Economics, Vol. 3, No. 4.
- Boyce, Ronald R. (1969), "Residential Mobility and Its Implications for Urban Spatial Change," Proceedings of the Association of American Geographers, Vol. 1.
- Brown, H. James (1975), "Changes in Workplace and Residential Locations," Journal of the American Institute of Planners, Vol. 41, No. 1.
- Brown, H. James, and John F. Kain (1972), "Moving Behavior of San Francisco Households," in John F. Kain (ed.), The Detroit Prototype of the NBER Urban Simulation Model, Vol. II: Supporting Empirical Studies, New York, National Bureau of Economic Research, mimeo.
- Brown, Lawrence A., and John Holmes (1971), "Intra-Urban Migrant Lifelines: A Spatial View," Demography, Vol. 8, No. 1.
- Brown, Lawrence A., Frank E. Horton, and Robert I. Wittick (1970), "On Place Utility and the Normative Allocation of Intra-Urban Migrants," Demography, Vol. 7, No. 2.
- Brown, Lawrence A., and David B. Longbrake
1969 "On the Implementation of Place Utility and Related Concepts: The Intra-Urban Migration Case," in Kevin R. Cox and Reginald C. Golledge (eds.), Behavioral Problems in Geography: A Symposium, Evanston, Northwestern University, Department of Geography, Studies in Geography, No. 17.
1970 "Migration Flows in Intra-Urban Space: Place Utility Considerations," Annals of the Association of American Geographers, Vol. 60.

- Brown, Lawrence A., and Eric G. Moore (1970), "The Intra-Urban Migration Process: A Perspective," Geografiska Annaler, Vol. 52B.
- Butler, Edgar W., and Edward J. Kaiser (1971), "Prediction of Residential Movement and Spatial Allocation," Urban Affairs Quarterly.
- Butler, Edgar W., Georges Sabagh, and Maurice D. Van Arsdol, Jr. (1964), "Demographic and Social Psychological Factors in Residential Mobility," Sociology & Social Research, Vol. 48, No. 2.
- Carrothers, Gerald A.P. (1956), "An Historical Review of the Gravity and Potential Concepts of Human Interaction," Journal of the American Institute of Planners, Spring.
- Chevan, Albert (1971), "Family Growth, Household Density, and Moving," Demography, Vol. 8, No. 4.
- Clark, W.A.V.
 1969 "Information Flows and Intra-Urban Migration: An Empirical Analysis," Proceedings of the Association of American Geographers, Vol. 1.
 1970 "Measurement and Explanation in Intra-Urban Residential Mobility," Tijdschrift voor Economische en Sociale Geographie, Vol. 61, No. 1.
- Clark, W.A.V., and Martin Cadwallader (1973), "Locational Stress and Residential Mobility," Environment & Behavior.
- Droettboom, Theodore, Jr., Ronald J. McAllister, Edward J. Kaiser, and Edgar W. Butler (1971), "Urban Violence and Residential Mobility," Journal of the American Institute of Planners, Vol. 37, No. 5.
- Duncan, Beverly, and Philip M. Hauser (1960), Housing A Metropolis--Chicago, Glencoe, Ill., The Free Press.
- Fredland, Daniel R. (1974), Residential Mobility and Home Purchase, Lexington, Mass., D.C. Heath.
- Glick, Paul C. (1947), "The Family Cycle," American Sociological Review, Vol. 12.
- Goldscheider, Calvin (1966), "Differential Residential Mobility and The Older Population," Journal of Gerontology, Vol. 21, No. 1.
- Goldstein, Gerald S. (1970), "Household Behavior in the Housing Market," Ph.D. dissertation, Princeton University.
- Goldstein, Sidney
 1954 "Repeated Migration as a Factor in High Mobility Rates," American Sociological Review, Vol. 19.
 1958 Patterns of Mobility, Philadelphia, University of Pennsylvania Press.

- Goldstein, Sidney, and Kurt B. Mayer (1964), "Migration and the Journey to Work," Social Forces, Vol. 42.
- Goodman, John (1974), "Local Residential Mobility and Family Housing Adjustments," in James N. Morgan (ed.), Five Thousand American Families--Patterns of Economic Progress, Vol. II, Ann Arbor, Institute for Social Research, University of Michigan.
- Goodman, John, and Mary Vogel (1975), "The Process of Housing Choice: Conceptual Background and Research Plans," Urban Institute Working Paper No. 216-7, Washington, D.C.
- Greenberg, Michael R., and Thomas D. Boswell (1972), "Neighborhood Deterioration as a Factor in Intra-Urban Migration," The Professional Geographer, Vol. 24, No. 1.
- Grigsby, William G. (1963), Housing Markets and Public Policy, Philadelphia, University of Pennsylvania Press.
- Hawley, Amos (1971), Urban Society, New York, Ronald Press.
- Johnston, R.J. (1971), Urban Residential Patterns, New York, Praeger.
- Kain, John F. and John M. Quigley (1975), Housing Markets and Racial Discrimination, New York, National Bureau of Economic Research.
- Land, Kenneth C. (1969), "Duration of Residence and Prospective Migration: Further Evidence," Demography, Vol. 6, No. 2.
- Lansing, John B., and Leslie Kish (1957), "Family Life Cycle as An Independent Variable," American Sociological Review, Vol. 22.
- Leslie, Gerald R., and Arthur H. Richardson (1961), "Life-Cycle, Career Pattern, and the Decision to Move," American Sociological Review, Vol. 26.
- Long, Larry (1972), "The Influence of Number and Ages of Children on Residential Mobility," Demography, Vol. 9, No. 3.
- Maisel, Sherman J. (1966), "Rates of Ownership, Mobility, and Purchase," in Essays in Urban Land Economics, Los Angeles, University of California Press.
- McAllister, Ronald J., Edward J. Kaiser, and Edgar w. Butler (1971), "Residential Mobility of Blacks and Whites: A National Longitudinal Survey," American Journal of Sociology, Vol. 77, No. 3.
- Moore, Eric G.
 1966 "Models of Migration and the Intra-Urban Case," The Australian and New Zealand Journal of Sociology, Vol. 2, No. 1.
 1969 "The Structure of Intra-Urban Movement Rates: An Ecological Model," Urban Studies, Vol. 6.

- Moore, Eric G.
 1970 "Some Spatial Properties of Urban Contact Fields," Geographical Analysis, Vol. 2.
 1971 "Comments on the Use of Ecological Models in the Study of Residential Mobility in the City," Economic Geography, Vol. 47.
 1972 Residential Mobility in the City, Washington, D.C., Association of American Geographers.
- Moore, Eric G., and Lawrence A. Brown (1970), "Urban Acquaintance Fields: An Evaluation of a Spatial Model," Environment & Planning, Vol. 2.
- Morrison, Peter A.
 1967 "Duration of Residence and Prospective Migration: The Evaluation of a Stochastic Model," Demography, Vol. 4, No. 2.
 1971a "Chronic Movers and the Future Redistribution of Population: A Longitudinal Analysis," Demography, Vol. 8, No. 2.
 1971b The Propensity to Move: A Longitudinal Analysis, Santa Monica, California, Rand Corporation, R-654-HUD.
 1972 Population Movement and the Shape of Urban Growth: Implications for Public Policy, Santa Monica, California, Rand Corporation, R-1072-CPG.
- Okraku, Ismael O. (1971), "The Family Life-Cycle and Residential Mobility in Puerto Rico," Sociology and Social Research, Vol. 55.
- Pickvance, C.G.
 1973 "Life Cycle, Housing Tenure and Intra-Urban Residential Mobility: A Casual Model," The Sociological Review, Vol. 21.
 1974 "Life Cycle, Housing Tenure and Residential Mobility: A Path Analytic Approach," Urban Studies, Vol. 11.
- Quigley, John M., and Daniel H. Weinberg forthcoming, "Intra-Urban Residential Mobility: A Review and Synthesis," International Regional Science Review.
- Ross, A. Lawrence (1962), "Reasons for Moves to and from a Central City Area," Social Forces, Vol. 40.
- Rossi, Peter H. (1955), Why Families Move, Glencoe, Ill., The Free Press.
- Schnore, Leo F., and James R. Pinkerton (1966), "Residential Redistribution of Socio-Economic Strata in Metropolitan Areas," Demography, Vol. 3, No. 2.
- Shelton, John P. (1968), "The Cost of Renting versus Owning a Home," Land Economics.
- Speare, Alden, Jr.
 1970 "Home Ownership, Life Cycle Stage, and Residential Mobility," Demography, Vol. 7, No. 4.
 1974 "Residential Satisfaction as an Intervening Variable in Residential Mobility," Demography, Vol. 11, No. 2.

- Speare, Alden Jr., Sidney Goldstein, and William H. Frey (1974), Residential Mobility, Migration, and Metropolitan Change, Cambridge, Mass., Ballinger.
- Stegman, Michael A. (1969), "Accessibility Models and Residential Location," Journal of the American Institute of Planners, Vol. 35.
- Thibeault, Russell W., Edward J. Kaiser, Edgar W. Butler, and Ronald J. McAllister (1973), "Accessibility Satisfaction, Income and Residential Mobility," Traffic Quarterly.
- Tobler, Waldo (1975), "Spatial Interaction Patterns," International Institute for Applied Systems Analysis, Research Report RR-75-19.
- Van Arsdol, Maurice D., Jr., Georges Sabagh, and Edgar W. Butler (1968), "Retrospective and Subsequent Metropolitan Residential Mobility," Demography, Vol. 5, No. 1.
- Weinberg, Daniel H. (1975), "Intra-Urban Household Mobility," Ph.D. Dissertation, New Haven, Yale University.
- Whitney, Vincent H., and Charles M. Grigg (1958), "Patterns of Mobility Among a Group of Families of College Students," American Sociological Review, Vol. 23.
- Wild, Bradford (1976), "Residential Movement Among Recipients in the Administrative Agency Experiment: An Analysis of Moving Intentions, Housing Search, and Actual Moves," Appendix C in Supportive Services in A Housing Allowance Program, Vol. 2, Cambridge, Mass., Abt Associates Inc.
- Wolpert, Julian
- 1964 "The Decision Process in Spatial Context," Annals of the Association of American Geographers, Vol. 54.
 - 1965 "Behavioral Aspects of the Decision to Migrate," Papers of the Regional Science Association, Vol. 15.
 - 1966 "Migration as an Adjustment to Environmental Stress," Journal of Social Issues, Vol. 22, No. 4.
- Zimmer, Basil G. (1973), "Residential Mobility and Housing," Land Economics, Vol. 49, No. 3.

