Housing Allowance Demand Experiment

Fourth Annual Report

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EXPERIMENTAL HOUSING ALLOWANCE PROGRAM

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ABSTRACT

The Fourth Annual Report of the Demand Experiment summarizes experimental activities for 1976 and early 1977. Preliminary findings are presented based on data from the first half of the experiment. Operations described include the completion of data collection for the experiment and the transition of experimental households to other HUD programs. Data base organization and documentation are outlined.

PREFACE

The principal authors of this report are as follows: James Wallace, Director of Design and Analysis, wrote Chapter 3 summarizing the reports on the analyses of the first year of the experiment; Helen Bakeman, Deputy Project Director for the Demand Experiment, wrote Chapters 4 and 5 on the operations of the experiment and transfer of participants to existing housing programs, and on the data management system.

The final analysis of the Demand Experiment is now underway. The experimental programs and data collection have been successfully completed and the data organized into a coherent and readily useable analytic data base. Preliminary analyses have tested our basic concepts and models and identified key analytic issues. It is easy to underestimate the importance of these intermediate steps. Indeed, to some extent the measure of their success is that they do not have to be discussed at length in the final analyses. In fact, the successful implementation of an abstract design and the translation of several years of experience into a useable data base requires great skill and intense effort that should be recognized.

The site office staffs in the Demand Experiment successfully began and carried out not one but 17 different experimental programs at each site. The analytic requirements of the experiment demanded extreme discipline in carrying out program rules and extraordinary care to ensure accurate collection and transfer of data. The site staff's deep interest in the experiment and their high standards of performance were essential to its success. They are too numerous to list individually, but special mention should be made of Robert Cooper and David Barkely, the site directors, and Jane Huston and Linda Rinaldi, the deputy site directors for Pittsburgh and Phoenix, respectively. In addition, Pittsburgh, as the first site, bore the brunt of testing and implementing procedures. Marlene Roberts, the Pittsburgh Payments Supervisor, and her colleague in Phoenix, John Neville, played key roles in implementing and operating a complex system under both manual and automated processing. Maintenance of control records was supervised in Pittsburgh by Martha Goodison. JoElla Bobo was responsible for records audits and site administration in Phoenix. Rocco DeFilippo, the Pittsburgh Housing

Supervisor, and J. P. Conchola and King Elder in Phoenix, played an important role in assuring consistent and timely evaluation of participant housing.

Most of more than 133,000 interviews required for the experiment were conducted by the staff of the National Opinion Research Corporation, who also helped in their design, under the direction of Pearl Zinner, aided by Roz Weisinger. The high quality and timely completion of this work were essential to the experiment. The National Urban League helped to design and deliver the Housing Information Services under the direction of John Gaynus.

Actual construction of a useable analytic data base is an onerous and time-consuming task. The mass of data must be organized and linked in a way that serves the needs of analysts, variables defined, inconsistencies and anomalies resolved, and a reasonable system for accessing data developed. Sarah Green directed much of this work, aided by Robert Cox and Cathy Joseph. Her group was responsible for coordinating data processing and analytic needs and for supervising and documenting most of the variable definition and data cleaning process. On the data processing side, Jerry Crouch, John Hollcraft, Nouna Kettaneh, and the data processing staff contributed great skill, long hours, and considerable imagination in constructing the data base and developing file structures and software to allow easy and efficient analytic access.

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TABLE OF CONTENTS

TABLE OF CONTENTS (continued)

LIST OF TABLES

LIST OF TABLES (CONTINUED)

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

This report describes the activities of the Housing Allowance Demand Experiment during 1976 and early 1977. 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).[1] These experiments, authorized by Congress in the Housing Act of 1970, are designed to test the concept of providing 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 Allegheny County, Pennsylvania (Pittsburgh), and Maricopa County, Arizona (Phoenix), offered allowances to approximately 1,200 households selected at random from each area. For readers unfamiliar with the experiment, Chapter 2 provides a summary of its purpose and design.

The period covered by this report represents a major milestone in the completion of the Demand Experiment. Data collection was completed in mid-1976 and program operations phased out during 1976 and early 1977. The final analytic data base was ready for use by early 1977. At the same time, preliminary analyses of key areas using data from the first half of the experiment were completed by early 1977. The experiment is now in its final stage --analyses of the full data base to address policy questions.

The results of the preliminary analyses using data from the first half of the experiment are summarized in Chapter 3. These analyses are admittedly preliminary and were in fact primarily devoted to technical concerns --developing and testing basic analytic models. Nevertheless, they indicate the overall pattern of results that is likely to be found in the final analysis as well as shaping the plans for that analysis. Chapter 3 also briefly describes the way in which the final analysis, now underway, builds on preliminary results.

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[1] The other two experiments are the Supply Experiment and the Administrative Agency Experiment.

Chapter 4 describes the conclusion of program operations and data collection. The final analysis of the Demand Experiment is based on pre-enrollment data and data for two years of experimental program operations as well as special surveys of participants in other housing programs. Data collection and operations began in 1972. Data collection was completed in 1976 as households finished their second year in the experiment. The experimental programs were then phased out during 1976 and the site offices closed in early 1977. Experimental households eligible for ongoing HUD programs (chiefly Leased Housing) were assisted in transferring to these programs during the phase-out of the site offices.

Chapter 5 outlines data base development and management. The final analytic data base, incorporating all of the data gathered during the experiment, was ready for use by early 1977. By this time, all major variables had been defined and most of the data base files constructed, cleaned, and documented.

CHAPTER 2

OVERVIEW: DESIGN OF THE DEMAND EXPERIMENT

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

2.1 PURPOSE OF THE DEMAND EXPERIMENT

Under a housing allowance program, money is given directly to individual low-income households to assist them in obtaining adequate housing. The allowance may be linked to housing either by making the amount of the allowance depend on the amount of rent paid or by requiring that households meet certain housing requirements in order to receive the allowance payment. The initiative in using the allowance and the burden of meeting housing requirements are therefore placed upon households rather than upon developers, landlords, or the government.

The housing allowance experiments are intended to assess the desirability, feasibility, and appropriate structure of a housing allowance program. Housing allowances could be less expensive than some other kinds of housing programs. Allowances permit fuller utilization of existing sound housing because they are not tied to new construction. Housing allowances may also be more equitable. The amount of the allowance can be adjusted to changes in income without forcing the household to change units. Households may also, if they desire, use their own resources (either by paying higher rent or by searching carefully) to obtain better housing than is required to qualify for the allowance. As long as program requirements are met, housing allowances offer households considerable choice in selecting housing most appropriate to their needs--for example, where they live (opportunity to locate near schools, near work, near friends or relatives, or to break out of racial and socioeconomic segregation) or the type of unit they live in (single-family or multifamily). Finally, housing allowances may be less costly to administer. Program requirements need not involve every detail of participant housing. The burden of obtaining housing that meets essential requirements is shifted from program administrators to participants.

These potential advantages have not gone unquestioned. Critics of the housing allowance concept have suggested that low-income households may lack the expertise necessary to make effective use of allowances; that the increased supply of housing needed for special groups such as the elderly will not be provided without direct intervention; and that an increase in the demand for housing without direct support for the construction of new units could lead to a substantial inflation of housing costs.[1]

If housing allowances prove desirable, they could be implemented through a wide range of possible allowance formulas, housing requirements, non-financial support (such as counseling), and administrative practices. The choice of program structure could substantially affect both the program's costs and impact.

The Demand Experiment addresses issues of feasibility, desirability, and appropriate structure by measuring how individual households (as opposed to the housing market or administrative agencies) react to various allowance formulas and housing standards requirements. The analysis and reports are designed to answer six policy questions:[2]

1. Participation

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

2. Housing Improvements

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

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[1] The issue of inflation is being addressed directly as part of the Housing Allowance Supply Experiment.

[2] The policy questions have been restructured to reflect the current emphasis of policy and analysis and the developing knowledge emerging from the experiment. Their content is essentially the same as that of the eight questions originally developed by HUD. (See Abt Associates Inc., Experimental Design and Analysis Plan of the Demand Experiment, Cambridge, Mass., August 1973, p. 2-1.)

3. Locational Choice

For participants who move, how does their locational choice compare with existing residential patterns? Are there non-financial barriers to the effective use of a housing allowance?

4. Administrative Issues

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

5. Form of Allowance

How do the different forms of 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 other housing programs and with income maintenance in terms of participation, housing quality achieved, locational choice, costs (including administrative costs), and equity?

The Demand Experiment tests alternative housing allowance programs to provide information on the policy issues. While the experiment is focused on household behavior, it also offers data on program administration to supplement information gained through the Administrative Agency Experiment. Finally, the Demand Experiment gathers direct information on participants and housing conditions for a sample of households in conventional HUD-assisted housing programs at the two experimental sites for comparison with allowance recipients.

2.2 DATA COLLECTION

The Demand Experiment was conducted at two sites--Allegheny County, Pennsylvania (Pittsburgh), and Maricopa County, Arizona (Phoenix). HUD selected these two sites from among 31 Standard Metropolitan Statistical Areas (SMSAs) on the basis of their growth rates, rental vacancy rates, degree of racial concentration and housing costs. Pittsburgh and Phoenix were chosen to provide contrasts between an older, more slowly growing Eastern metropolitan

area and a newer, relatively rapidly growing Western metropolitan area. In addition, Pittsburgh has a substantial black minority and Phoenix a substantial Spanish American minority population.

Most of the information on participating households was collected from:

Baseline Interviews, conducted by an independent survey operation before households were offered enrollment;

Initial Household Report Forms and monthly Household Report Forms, completed by participating households during and after enrollment, which provided operating and analytic data on household size and income and on housing expenditures;

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

Payments and status data on each household maintained by the site offices;

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

Periodic Interviews, conducted approximately six, twelve, and twenty-four months after enrollment by an independent survey operation; and

Exit Interviews, conducted by an independent survey operation for a sample of households that declined the enrollment offer or dropped out of the program.

Surveys and housing evaluations were also administered to a sample of participants in other housing programs: Public Housing, Section 23/8 Leased Housing, and Section 236 Interest Subsidy Housing.

Households remained in the experimental programs for three years after they were enrolled. Since households were enrolled throughout the first ten months of operations, the operational phase of the experiment extended over nearly four years in total. Analysis will be based on data collected from households during their first two years after enrollment in the experiment. The experimental programs were continued for a third year in order to avoid confusion between participants' reactions to the ongoing experiment and their adjustment to the phaseout of the experiment. During their last year in the experiment eligible and interested households were aided in entering other housing programs.

2.3 ALLOWANCE PLANS USED IN THE DEMAND EXPERIMENT

The Demand Experiment tested a number of combinations of payment formulas and housing requirements and several variations within each of these combinations. These variations allow some possible program designs to be tested directly. More importantly, they allow estimation of key responses, such as participation rates and changes in participant housing, in terms of basic program parameters such as the level of allowances; the level and type of housing requirements; the minimum fraction of its own income that a household can be expected to contribute toward housing; and the way in which allowances vary with household income and rent. These response estimates can be used to address the policy questions for a larger set of candidate program plans, beyond the plans directly tested.[1]

Payment Formulas

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

Under the Housing Gap formula, payments to households 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.[2] The basic payment level, C, varies with household size, and is proportional to C*, the estimated cost of modest existing standard

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[1] The basic design and analysis approach, as approved by the HUD Office of Policy Development and Research, is presented in Abt Associates Inc., Experimental Design and Analysis Plan of the Demand Experiment, Cambridge, Mass., August 1973, and in Abt Associates Inc., 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.

[2] In addition, whatever the payment calculated by the formula, the actual payment cannot exceed the rent paid.

housing at each site.[1] Thus, payment under the Housing Gap formula can be interpreted as making up the difference between the cost of decent housing and the amount of its own income that a household should be expected to pay for housing.[2]

Under the Percent of Rent formula, the payment is a percentage of the household's rent. The payment formula is

$$P = aR$$

where R is rent and "a" is the fraction of rent paid by the allowance. In the Demand Experiment the value of "a" remained constant once a household had been enrolled.[3]

Housing Requirements

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

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[1]The housing cost parameter, C*, was established from estimates given by a panel of qualified housing experts in Pittsburgh and Phoenix. For more detailed discussion regarding the derivation of C*, refer to Abt Associates Inc., Working Paper on Early Findings, Cambridge, Mass., January 1975, Appendix II.

[2]Unlike other housing programs, such as Section 8 (Existing), the Housing Gap allowance program gave households considerable latitude in the exact amount that they spent for housing. As long as their housing met certain requirements (discussed below), households could spend more or less than C*, and hence contribute more or less than "b" of their own income, for housing as they desired.

[3]Five values of "a" were used in the Demand Experiment. Once a family had been assigned its "a" value, the value generally stayed 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 rose beyond a certain point, the value of "a" dropped rapidly to zero. Similarly, the payment under Percent of Rent could not exceed C* (the maximum payment under the modal Housing Gap plan), which effectively limited the rents subsidized to less than C*/a.

Under the Minimum Standards requirement, participants received the allowance payment only if they occupied dwellings that met certain physical and occupancy standards. Participants occupying units that did not meet these standards either had to move or arrange to improve their current units to meet the standards. Participants already living in housing that met standards could use the allowance to pay for better housing or to reduce their rent burden (the fraction of income spent on rent) in their present units.

If housing quality is broadly defined to include all residential services, and if rent levels are highly correlated with the level of services, then a straightforward housing requirement (one that is relatively inexpensive to administer) would be that recipients spend some minimum amount on rent. Minimum Rent was considered as an alternative to Minimum Standards in the Demand Experiment, in order to observe differences in response and cost and to assess the relative merits of the two types of requirements. Although the design of the experiment used a fixed minimum rent for each household size, a direct cash assistance program could employ more flexible structures. For example, some features of the Percent of Rent formula could be combined with the Minimum Rent requirement. Instead of receiving a zero allowance 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.

Allowance Plans Tested

The three combinations of payment formulas and housing requirements used in the Demand Experiment were Housing Gap Minimum Standards, Housing Gap Minimum Rent, and Percent of Rent. A total of 17 allowance plans were tested.

The 12 Housing Gap allowance plans are shown in Table 2-1. The first nine plans include three variations in the basic payment level, 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 value of "b"--the rate at which the allowance is reduced as income increases--is 0.25 for each of these plans. The next two plans have the same level of C (C*) and use the Minimum Standards Housing Requirement, but use different values of "b". In the tenth plan the value of "b" is 0.15, and in the eleventh plan, 0.35. Finally, the twelfth plan is unconstrained, that is,

Table 2–1
ALLOWANCE PLANS TESTED

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

b VALUE	C LEVEL	HOUSING REQUIREMENTS			
		Minimum Standards	Minimum Rent Low = 0.7C*	Minimum Rent High = 0.9C*	No Requirement
b = 0.15	C*	Plan 10			
b = 0.25	1.2C*	Plan 1	Plan 4	Plan 7	
	C*	Plan 2	Plan 5	Plan 8	Plan 12
	0.8C*	Plan 3	Plan 6	Plan 9	
b = 0.35	C*	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).

PERCENT OF RENT (P = aR) :

a = 0.6	a = 0.5	a = 0.4	a = 0.3	a = 0.2
Plan 13	Plans 14 - 16	Plans 17 - 19	Plans 20 - 22	Plan 23

CONTROLS:

With Housing Information	Without Housing Information
Plan 24	Plan 25

it has no housing requirement. This unconstrained plan allows a direct comparison with a general income transfer program.

Eligible households that did not meet the housing requirement were still able to enroll. They received full payments whenever they met the requirements during the three years of the experiment. Even before meeting the housing requirements, such households received a cooperation payment of $10 per month as long as they completed all reporting and interview requirements.

Within the Housing Gap design, the average effects of changes in the allowance level or housing requirements can be estimated for all the major responses. In addition, interactions between the allowance level and the 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 payments level of 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 2-1.[1] A demand function for housing is estimated primarily from the Percent of Rent observations. Demand functions describe the way in which the amount people will spend on housing is related to their income, the relative price of housing and other goods, and various demographic characteristics. Such functions may be used to simulate response to a variety of possible rent subsidy programs not directly tested within the Demand Experiment. Together with estimates of supply response, they may also be used to simulate the change in market prices and housing expenditures over time due to shifts in housing demand or costs.

Control Groups

In addition to the various allowance plans, control groups were necessary in order to establish a reference level for responses, since a number of uncontrolled factors could also induce changes in family behavior during the

[1] Designation of multiple plans for the same "a" value reflects an early assignment convention and does not indicate that the households in these plans were treated differently for either payment purposes or analysis.

course of the experiment. Control households received a cooperation payment of $10 per month. They reported the same information as families that received allowance payments, including household composition and income; they permitted housing evaluations; and they completed the Baseline Interview and the three Periodic Interviews. (Control families were paid an additional $25 fee for each Periodic Interview.)

Two control groups were 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 households enrolled in the experimental allowance plans but they were not paid for their attendance.) 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 income eligibility requirement. This limit was approximately the income level at which the household would receive no payment under the Housing Gap formula:

$$\text{Income Eligiblity Limit} = \frac{C^*}{0.25}$$

In addition, households in plans with lower payment levels (Plans 3, 6, 9, and 11) had to have incomes low enough at enrollment to receive payment 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.

2.4 FINAL SAMPLE

Final analysis of the impact of the housing allowance will be based on the first two years of experimental data. Thus, the key sample size in the experiment is the number of households in the experiment at the end of the first two years. The two-year sample size is shown in Table 2-2, and comprises households that were still active, in the sense that they were continuing to fulfill reporting requirements. The sample size for a particular analysis may be smaller. For example, analysis of the mobility of searchers is based on the sample of households that either searched for housing or moved during their participation in the program. The primary analysis of

Table 2–2
SAMPLE SIZE AFTER TWO YEARS

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

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

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

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

PERCENT OF RENT (P = aR) :

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

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

CONTROLS:

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

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

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

housing expenditures uses only those households that met the applicable housing requirements during their first year of enrollment. The findings discussed in the next chapter are based on the sample of households that remained active for the first year following enrollment.

CHAPTER 3

FINDINGS FROM FIRST-YEAR DATA

This chapter summarizes major results of preliminary analyses of data from the first year of program operations. The final analysis of the programs tested in the Demand Experiment is now in progress. It covers a broader range of topics, uses data for two years of operation, and, where appropriate, is based on extended and refined supporting analyses. Thus, the findings reported here are only partial and preliminary. These preliminary results, however, still offer considerable insight into how eligible households would use (or would not use) a housing allowance.[1]

Much of the preliminary analysis dealt only with changes in expenditures for housing. However, additional initial analyses of participation locational choice, and the proportion of households meeting the various housing requirements used in the experiment all tend to reflect the same basic pattern found for expenditures.

The increase in housing expenditures due to the allowance programs was larger than the estimated increase under a comparable unconstrained income transfer program. There are important differences in the housing needs and responses of different groups. Some households already lived in housing that met program requirements when they were offered the chance to participate. These households were generally devoting much of their income to housing. The allowance programs did not require them to spend more, and they generally did not, using the money instead to reduce excessive rent burdens. Housing Gap allowance recipients that had not already met program housing requirements before enrolling in the experiment did show large changes in their housing expenditures. However, many households refused even to enroll in the experimental programs. Furthermore, among those that did enroll, few, if any, were apparently willing to move to take

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[1] The full set of technical reports on the analyses of first-year data is listed in the references at the end of this chapter. In addition, Appendix I presents the summaries for each of these reports.

advantage of the various offers, unless they were going to move anyway. In addition, in the Housing Gap allowance plans, which included explicit housing requirements, many households that moved still did not meet requirements (and hence did not become recipients).

The final analysis of the full experimental data base extends the preliminary analysis in several ways. It attempts to develop a better understanding of why people did not participate or move to take fuller advantage of the allowance, and what policy actions, if any, might enable participants to use an allowance program more effectively. It also examines housing change in terms of a variety of measures in addition to housing expenditures. Finally, it includes a direct comparison of housing allowance recipients with participants in other housing programs at the two sites.

The final analyses will also examine the policy implications of the analytic findings in greater depth. The results reported here for the preliminary analysis are largely technical in focus. Policy applications are considered only sketchily. The final analysis focuses explicitly on the implications of the results for policy options, both for housing allowances and for programs to provide housing to the poor in general.

3.1 INITIAL HOUSING DEPRIVATION AND MAGNITUDE OF OFFERS

Baseline data on households before they enrolled in the experiment indicated substantial housing deprivation in the eligible population. Three-fourths were in housing that did not meet the minimum physical standards used in the Demand Experiment, half were overcrowded, and almost two-thirds were spending more than one-fourth of their disposable income for rent.[1] About one-fourth had all three problems. Almost no households (approximately 4 percent) had none.[2]

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[1] The measure of income used for analysis is disposable household income; it is the sum of earned and other income (including the net value of Food Stamps) received by household members age 18 or over net of taxes and other deductions, such as alimony paid out.

[2] Figures cited in the paragraph were originally developed by Sally Merrill in Working Paper on Early Findings, Cambridge, Mass., Abt Associates Inc., January 1975, p. 157.

The Minimum Standards and occupancy criteria used in the experiment are an adaptation of the American Public Health Association - Public Health Service Recommended Housing Maintenance and Occupancy Ordinance (as revised in 1971). Minimum Standards for housing required complete plumbing and kitchen facilities; core rooms (living room, bathroom, and kitchen); electrical outlets and fixtures; heating equipment; adequate exits; reasonably intact structure and surfaces; and adequate light and ventilation. The Minimum Standards occupancy requirement was that there be no more than two persons per physically adequate bedroom. Similar standards are used to assess the acceptability of housing units in the Section 8 Existing Housing program. Low-income households that spend more than 25 percent of their income on housing are often considered deprived in the sense that they do not have enough remaining income for nonhousing goods and services to allow a modest standard of living.[1] A rent/income ratio of 0.25 is used in conventional HUD-subsidized rental housing programs, for example, to determine the required (or in some cases maximum) tenant payment.

The housing allowance offers were apparently large enough to allow substantial amelioration of these conditions. For example, Housing Gap households that did not meet housing requirements at enrollment were offered, conditional upon their meeting the requirements, an average of $57 a month in Pittsburgh, and $78 in Phoenix. As Table 3-1 indicates, these offers represented, on average, over 20 percent of the pre-allowance disposable income and over 60 percent of the initial rent, of these households. For over 80 percent of these households, the potential monthly payments amounted to more than the increase in monthly rent required to qualify for payment--that is, the allowance was apparently generally large enough that households could meet the requirements and increase their spending on other goods at the same time. For the other 20 percent, meeting requirements would have meant an increase in their own out-of-pocket expenditures for housing. In general, this occurred for households that were spending a relatively small proportion of their income for rent (generally less than 25 percent), or for households assigned to plans with lower payments (either in terms of lower

[1] See Lane (1977) for further discussion of these housing expenditure conventions.

basic payment levels or a higher "b" value). Although some of these households did choose to participate in the experimental programs, they were less likely to do so than households for whom the net cash value of the allowance offer was positive.[1]

Table 3-1

AVERAGE PAYMENT OFFERS TO HOUSING GAP HOUSEHOLDS NOT MEETING REQUIREMENTS AT ENROLLMENT

	PITTSBURGH (N = 380)	PHOENIX (N = 462)
Average monthly payment offer at enrollment	$ 57	$ 78
Average annual income at enrollment	$3,869	$4,577
Average (payment ÷ income)	20%	20%
Average monthly rent at enrollment	$ 97	$ 115
Average (payment ÷ rent)	63%	72%

SAMPLE: Housing Gap households that did not meet housing requirements at enrollment.

DATA SOURCES: Initial Household Report Form, payments file.

3.2 HOUSING IMPACT

Housing Expenditures for Housing Gap Households[2]

Overall Housing Gap allowance recipients increased their expenditures for housing by about 16 percent in Pittsburgh and 23 percent in Phoenix (see Table 3-2). As comparison with the Control households indicates, however, much of this increase was due to nonexperimental factors such as inflation and changes in income, household size, or other demographic characteristics. Thus, the estimated increase in expenditures due to the allowance program

[1] For further details, see Kennedy, Kumar, and Weisbrod (1977, p. 110) and discussion of Table 3-11, below.

[2] This section is based on the analysis reported by Friedman and Kennedy (1977). Housing expenditures are the primary measure of housing improvement used here, although care is taken to account for changes that occur in the absence of the experiment (as calculated using Control households).

Table 3-2

ESTIMATES OF EXPERIMENTAL EFFECT IN TERMS OF PERCENTAGE CHANGE IN HOUSING EXPENDITURES BY HOUSING REQUIREMENT AND MOBILITY STATUS

HOUSEHOLD GROUP	PITTSBURGH				PHOENIX			
	AVERAGE RENT AT ENROLLMENT	MEAN PERCENTAGE CHANGE IN RENT (raw values)	ESTIMATED PERCENTAGE CHANGE IN RENT DUE TO THE ALLOWANCE[a] (Standard Error)	NUMBER OF HOUSEHOLDS	AVERAGE RENT AT ENROLLMENT	MEAN PERCENTAGE CHANGE IN RENT (raw values)	ESTIMATED PERCENTAGE CHANGE IN RENT DUE TO THE ALLOWANCE[a] (Standard Error)	NUMBER OF HOUSEHOLDS
All Housing Gap	$121	16%	5.7% (1.2)	238	$145	23%	13.4% (2.0)	210
Already met at enrollment	131	10	2.0 (1.2)	148	163	8	1.9 (1.8)	104
Only met after enrollment	104	29	12.2 (4.9)	90	125	46	26.0 (3.5)	106
Housing Gap Movers	112	35	8.9 (5.1)	74	137	39	21.2 (2.9)	121
Already met at enrollment	123	23	0.8 (3.7)	34	167	11	1.4 (3.7)	37
Only met after enrollment	102	48	16.0 (4.4)	40	123	56	30.4 (3.7)	84
All Unconstrained	107	10	1.0 (2.4)	69	133	14	7.3 (4.2)	46
Unconstrained Movers	112	24	5.9 (5.9)	19	126	27	12.6 (5.1)	25
All Control	116	9	0[b]	352	130	9	0[b]	320
Control Movers	123	23	0	81	130	15	0	144

SAMPLE: Housing Gap households that received full payments at one year after enrollment.

DATA SOURCE: Friedman and Kennedy, 1977, pp. 14, 28, 95, A-46, A-48, A-49, A-51.

a. The estimated increases for Housing Gap households are smaller than the raw data because they have been adjusted to correct for normal rent changes in the absence of a housing allowance and for sample selection bias. The estimated standard errors shown apply to unadjusted figures and do not include the error of estimate of the adjustment. They are, therefore, included only to give some idea of the sensitivity of the data.

b. Changes for Control households are defined as zero; they constitute the reference group.

was about 6 percent in Pittsburgh and 13 percent in Phoenix.[1] The estimated overall increase in expenditures due to the allowance was a relatively small proportion of the allowance--about one-quarter in Pittsburgh and one-third in Phoenix (see Table 3-3). As might be expected, households that moved showed much larger increases in response to the allowance--9 percent in Pittsburgh and 21 percent in Phoenix, or about one-third of the allowance payments to those households in Pittsburgh and almost one-half in Phoenix.[2]

The increases in housing expenditures associated with the allowance, while modest, are still larger than those likely to be associated with a pure income maintenance program. One of the plans tested in the Demand Experiment offered payments under the Housing Gap formula but without any housing requirements. This Unconstrained plan is essentially an income maintenance or welfare payment not tied to housing. Unconstrained households generally increased their expenditures less and devoted less of the allowance to housing than the constrained Housing Gap recipients (see Tables 3-2 and 3-3).

Figures on overall response mask important differences in the way that Housing Gap allowance programs worked for households with different sorts of housing needs. A Housing Gap form of allowance essentially categorizes a household's dwelling as either adequate (meets requirements) or inadequate (does not meet requirements). Recipients whose preprogram housing did not

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[1]The estimated effects of the allowance were obtained by using Control households to predict normal expenditures given demographic and housing characteristics. The difference between actual and predicted expenditures for Experimental households is the estimated experimental effect. Such a procedure gives potentially more accurate estimates than simple comparison of Experimental and Control households. It may be noted that the experimental effects were estimated using ln (rent), so that they are estimates of the median rather than the mean effect.

[2]While renters would be expected to make substantial changes in their housing only by moving, the experiment allowed households to upgrade (i.e., repair or rehabilitate) their current residence to meet requirements. The term "upgrading" applies to Minimum Standards households that remedy the deficiencies in their enrollment residences. Minimum Rent households could also meet the requirements by negotiating a rent increase, with or without a corresponding improvement in their dwellings. (Further analysis will be required to assess whether specific housing improvements were made by Minimum Rent households that stayed in their enrollment dwelling unit but only met the requirements after enrollment.)

Table 3-3

ESTIMATES OF EXPERIMENTALLY INDUCED CHANGES
IN HOUSING EXPENDITURES AS A PERCENTAGE OF THE MONTHLY ALLOWANCE PAYMENT

HOUSEHOLD GROUP	PITTSBURGH			PHOENIX		
	NUMBER OF HOUSEHOLDS	AVERAGE MONTHLY PAYMENT	AVERAGE RATIO OF ESTIMATED ALLOWANCE-INDUCED CHANGE IN RENT TO PAYMENT	NUMBER OF HOUSEHOLDS	AVERAGE MONTHLY PAYMENT	AVERAGE RATIO OF ESTIMATED ALLOWANCE-INDUCED CHANGE IN RENT TO PAYMENT
All Housing Gap	238	$50	0.26	210	$80	0.32
Already met at enrollment	148	48	0.10	104	62	0.07
Only met after enrollment	90	54	0.48	106	98	0.51
Housing Gap Movers	74	51	0.33	121	92	0.46
Already met at enrollment	34	46	0.04	37	69	0.04
Only met after enrollment	40	55	0.47	84	102	0.63
All Unconstrained	69	50	-0.001	46	77	0.19
Unconstrained Movers	19	58	0.004	25	83	0.21

SAMPLE: Housing Gap households that received full payments at one year after enrollment.

DATA SOURCE: Friedman and Kennedy, 1977, p. 19 (plus comparable calculations) for raw, uncorrected values and p. 97 for estimates of allowance-induced effect.

meet requirements had to move or upgrade their housing in order to receive payments. These households increased their expenditures by 12 percent in Pittsburgh and 26 percent in Phoenix. This amounted on average to about half of the allowance payment at both sites. Recipients whose preprogram housing already met requirements, on the other hand, were not required to change their housing and showed almost no increase in expenditures beyond normal changes.[1]

The policy objectives of an allowance program may include both improved housing for those in poor quality housing and financial relief for those with high rent burdens. This mixture of policy objectives is not confined to housing allowances. Many housing programs for the elderly, for example, seem to be intended to reduce the financial burden for elderly households that live in good but expensive housing as well as to help those in poor housing to find better housing.

Experimental households in the Demand Experiment clearly suffered from high rent burdens--the average preprogram rent burden was over 40 percent at both sites.[2] The allowance payment reduced this figure to slightly less than 25 percent by the end of the first year, as Table 3-4 indicates. This marked reduction in rent burden occurred both for households that already met housing requirements before enrollment and for those that only met the requirements after enrollment.

It may be argued that such reductions in rent burden are not a unique feature of housing allowances, that any income transfer program could accomplish the same end without additional administrative paraphernalia. There is, however, an important potential difference between a housing allowance and unrestricted income transfers: housing allowances can be much more

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[1]The requirements still act as a lower bound for such households. Households cannot reduce their housing below required levels without losing their allowance payments. Thus, for households that meet the requirements at enrollment, the requirements may keep average housing expenditures at a higher than normal level by discouraging the reduction of expenditures such as might occur if other income declined.

[2]Rent burden figures depend heavily on the definition of income used. Here the disposable income measure developed in the Demand Experiment was used. Caution is advised in making direct comparisons with other data on rent/income ratios.

Table 3-4

RENT BURDENS AT ENROLLMENT AND ONE YEAR AFTER ENROLLMENT BY HOUSING REQUIREMENT STATUS

HOUSEHOLD GROUP	RENT BURDEN		REDUCTION IN RENT BURDEN[c]	NUMBER OF HOUSEHOLDS
	Enrollment[a]	One Year[b]		
PITTSBURGH				
Housing Gap	41%	24%	17	239
Met housing requirements at enrollment	44	26	18	148
Met housing requirements after enrollment	36	21	15	91
Unconstrained	38	17	21	69
Control[d]	34	31	3	340
PHOENIX				
Housing Gap	42%	23%	19	223
Met housing requirements at enrollment	44	26	18	115
Met housing requirements after enrollment	40	20	20	108
Unconstrained	37	17	20	49
Control[d]	35	35	0	316

SAMPLE: Housing Gap households that received full payments at one year after enrollment, Unconstrained and Control households at one year after enrollment.

DATA SOURCE: Friedman and Kennedy, 1977, p. 17.

a. Rent burden at enrollment computed as R/Y, where R = enrollment rent and Y = net disposable income at enrollment.

b. Rent Burden at one year computed as (R-P)/Y, where R = actual rent at one year after enrollment adjusted only to include utilities and exclude furnishings, p = payment, Y = income at one year after enrollment.

c. Percentage points.

d. The rent burden for Control households is shown for reference only; the lower values at enrollment for Control households reflect the fact that all Control households are included, while only those Housing Gap households are included that were able to achieve full payment at one year.

selective than an income transfer program in the allocation of payments between improved housing and reduced rent burden. That is, a housing allowance is used primarily to reduce rent burden only by those already meeting the requirements in the absence of the allowance offer; while those not meeting the requirements are also allowed to reduce high rent burdens, they must devote a substantial portion of the allowance payment to increased housing expenditure.

Preliminary analyses suggest that different Housing Gap plans had different effects for recipients that only met the requirements after enrollment. For those households, higher Minimum Rent requirements resulted in larger increases in housing expenditures. Meeting Minimum Standards requirements after enrollment generally involved smaller increases in housing expenditures than did meeting Minimum Rent requirements. Varying payment levels had no significant effect.[1] For households that already met the housing requirements at enrollment, variations in housing requirements and payment schedules had no significant effect on housing expenditures.

Housing Expenditures for Percent of Rent Households[2]

The Percent of Rent plans were included in the Demand Experiment primarily to facilitate the estimation of demand functions for rental housing. Under Percent of Rent plans, households received a cash rebate for a fixed percentage of the rent they paid. Unlike the Housing Gap formula, in which payments were conditional upon meeting specific requirements (physical housing standards or minimum rent), Percent of Rent subsidies create a direct incentive to obtain more housing. A 50 percent rebate, for example, means that a $150 apartment will cost the participant $75. Thus, the Percent of Rent offer may be expected to increase housing expenditures (before the rebate) in the same way a decline in the price of housing would lead to an increase in the amount purchased. The increase depends on how sensitive housing demand is to price changes.

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[1] However, varying payment levels did have a significant effect on the overall participation rates.

[2] The results presented here are adapted from the analysis of Percent of Rent expenditures responses by Mayo (1977).

It seems reasonable to suppose that households may take time to fully respond or adjust to an allowance offer. Not all households are ready or able to move immediately. More generally, households may adjust gradually to an open-ended offer like a Percent of Rent rebate as they realize more exactly what housing and other goods they can afford with the rebate. The preliminary analysis of Percent of Rent households included a model to estimate both the short-run (first-year) and the implied long-run response to the Percent of Rent offer. It should be emphasized that, with only one year of data, the long-run estimates based on this model cannot be tested. They do indicate that the eventual response to an allowance program could be quite different from the response observed in one or two years.

Using the model developed by Mayo (1977), first-year percentage increases in rent were estimated to be as high as 8 percent in Pittsburgh and 16 percent in Phoenix, as shown in Table 3-5. Corresponding long-run estimates are much higher--up to 35 percent and essentially 100 percent--as displayed in Table 3-6.[1]

The figures presented represent increases over and above changes for Control households. Because normal changes in expenditure due to nonexperimental factors such as inflation are presumed to apply equally to Percent of Rent and to Control households, the estimated increases for Experimental households may be considered to be above and beyond normal changes.

Separate estimates for minorities and nonminorities indicate that increases in housing expenditures in response to the rebates were higher for minorities. In Pittsburgh, the estimated one-year response for blacks was roughly twice that for whites; in Phoenix, both black and Spanish American households were also more sensitive to the Percent of Rent subsidies, though only marginally so.

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[1]Different outcomes for the two sites may be explained in part by a far "tighter" housing market in Pittsburgh. If the supply of attractive, available housing is limited, then households are less likely, on average, to increase their spending on housing. Also, if housing is difficult to acquire, households may be less likely to move to higher-priced housing that they may have to vacate when the experimental program ends. Housing data support the hypothesis that Pittsburgh did have a tighter housing market: the mean number of days spent searching for new housing was 95 in Pittsburgh versus only 33 in Phoenix (Abt Associates Inc., January 1975, p. 209); 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; rental vacancy rates in 1974 averaged from 2 to 6 percent in subareas of Pittsburgh and above 9 percent in Phoenix.

Table 3-5

ESTIMATED EFFECT ON FIRST-YEAR PERCENTAGE CHANGE IN RENT FROM PERCENT OF RENT SUBSIDIES

PERCENT OF RENT SUBSIDY RATE ("a")	PITTSBURGH PERCENTAGE INCREASE IN RENT[a]	PHOENIX PERCENTAGE INCREASE IN RENT
0.2	1.8%	3.7%
0.4	4.2	8.7
0.6	7.6	16.2
Mean monthly rent at enrollment	$111	$130

SAMPLE: Percent of Rent households active at one year after enrollment.

DATA SOURCE: Estimate using model developed by Mayo, 1977, p. 81.

a. Calculations are based on estimated short-run price elasticities of demand, η_p, of -0.080 (standard error, 0.025) in Pittsburgh and -0.164 (standard error, 0.034) in Phoenix. Percentage change in rent = $(1-a)^{\eta p}-1$.

Table 3-6

ESTIMATED LONG-RUN EFFECT ON PERCENTAGE CHANGE IN RENT FROM PERCENT OF RENT SUBSIDIES

PERCENT OF RENT SUBSIDY RATE ("a")	PITTSBURGH PERCENTAGE CHANGE IN RENT[a]	PHOENIX PERCENTAGE CHANGE IN RENT
0.2	8%	19%
0.4	18	48
0.6	35	101

SAMPLE: Percent of Rent households active at one year after enrollment.

SOURCE: Mayo, 1977, p. 81.

a. Calculations are based on estimated long-run price elasticities of demand, η_p, of -0.326 for Pittsburgh and -0.764 for Phoenix.

The long-run allocation of subsidy payments to rent increases is shown in Table 3-7.[1] Because allocation of the subsidy depends directly on estimated price elasticities of demand, larger amounts of the subsidy are allocated toward rent increases in Phoenix than in Pittsburgh. In the long run, roughly 40 percent of the subsidy payments would be expected to go toward rent increases in Pittsburgh and roughly 80 percent in Phoenix.[2]

Table 3-7

ESTIMATED LONG-RUN ALLOCATION OF
PERCENT OF RENT SUBSIDIES TO RENT INCREASES

PERCENT OF RENT SUBSIDY RATE ("a")	PITTSBURGH			PHOENIX		
	RENT INCREASE	PAYMENT	RENT INCREASE ÷ SUBSIDY[a]	RENT INCREASE	PAYMENT	RENT INCREASE ÷ SUBSIDY
0.2	$ 8	$24	.35	$ 24	$ 31	.78
0.4	20	52	.38	62	77	.81
0.6	39	90	.43	132	157	.84

SAMPLE: Percent of Rent households active at one year after enrollment.
DATA SOURCE: Mayo, 1977, p. 89.
a. Calculations based on estimated long-run housing demand functions estimated at average inital rent levels. Rent increase ÷ payment = $[(1-a)\eta_p - 1] \div [a(1-a)\eta_p]$ where η_p = -0.326 (Pittsburgh), -0.764 (Phoenix).

Economic theory suggests that the "price incentive" for the increased spending on housing created by Percent of Rent subsidies will be larger than the "income incentive" created by a straightforward cash grant that is unrelated to housing expenditures. The former is, in effect, a "matching grant" that rewards a household for its own expenditures, whereas the latter is a

[1] Long-run estimates are literally the estimated response after an infinitely long time. About 90 percent of the estimated long-run response would be reached after roughly ten years.

[2] Calculations of estimated short-run (one year) subsidy allocations produce ratios of rent increase to subsidy that range from 0.09 to 0.11 in Pittsburgh and from 0.19 to 0.23 in Phoenix.

"lump-sum" transfer without particular incentives for increased housing expenditures. Thus, households are expected to spend more of a Percent of Rent subsidy on housing than they would of a direct, unrestricted cash grant.

The experiment permitted a direct confirmation of this proposition: households at both sites that received unrestricted income transfers (a small proportion of all Experimental households) consistently increased their housing expenditures by only about one-third as much as families who received equivalent Percent of Rent subsidies.

These first-year Percent of Rent results suggest that a price reduction incentive might encourage low-income renters to increase housing expenditures. However, serious consideration of a program using the price reduction incentive (such as a "Housing Stamp" program) would require modification of the fixed Percent of Rent formula tested in the Demand Experiment. A fixed Percent of Rent payment formula gives larger payments to higher income renters, who tend to spend more on housing than to lower-income renters. A nonexperimental program would undoubtedly have to reduce the rebate with increasing income.[1] Also, a program intended to encourage recipients to obtain physically adequate housing according to a specific set of standards would probably have to impose such a requirement directly.

Locational Choice[2]

Questions about the impact of housing allowances on locational choice focus on two issues--whether an allowance would enable people to move to better neighborhoods, and whether participant moves would alter existing concentrations of minority and poverty households.

In the analysis conducted thus far, the primary indicator of neighborhood quality has been low-income household concentration at the Census tract

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[1] Such programs can be simulated using the data from the Demand Experiment.

[2] These findings are based on the analyses of neighborhood change reported by Atkinson and Phipps (1977).

level.[1] Low-income concentration is defined by the percentage of households in the tract with total incomes under $5,000 (1970 Census). The low-income concentration measure serves two purposes. First, reduction in the average low-income concentration for a group of households serves as a rough indicator of moves to neighborhoods of better general quality. Second, such a reduction can be taken as a measure of dispersion, indicating that low-income households in the experiment are moving out of low-income neighborhoods.

The results thus far indicate that both Experimental and Control households tended to move to neighborhoods with a reduced concentration of low-income households. As Table 3-8 illustrates, there are no major differences between the average changes for Experimental and Control households.[2]

The overall pattern of moves by Experimental and Control households is too similar to suggest that patterns of minority or poverty household concentration would be altered in the short term. At enrollment, black households were concentrated in patterns typical of the sites. For example, most black households in Pittsburgh (57 percent) lived in predominantly black census tracts at enrollment, and most white enrollees (89 percent) lived in tracts with fewer than 15 percent black households. While not statistically significant, there is some indication at both sites that black Experimental households were more likely than black Control households to move to neighborhoods of lower minority concentration, as illustrated in Table 3-9. On the other hand, there is no indication thus far that the allowance led to any increase in the abandonment of racially mixed areas by whites.

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[1]This simply recognizes the fact that the poor, on the average, can only afford housing with less-valued attributes--including the living environment outside the dwelling unit. Low-income concentration can thus be used to characterize the general quality of neighborhoods as well as the incomes of their residents. This measure is also rather strongly correlated with other census measures of neighborhood housing conditions and socioeconomic status. In the continuing analysis, additional measures of neighborhood quality will be used.

[2]Survey data obtained on participant assessments of their neighborhood conditions--ratings of neighborhood features and overall satisfaction with the neighborhood--also tend to indicate improvement for movers but, at the current stage of analysis, no additional effect due to the allowance.

Table 3-8

NET CHANGE IN LOW-INCOME CONCENTRATION
FOR EXPERIMENTAL AND CONTROL MOVERS

MEAN PERCENTAGE OF LOW-INCOME HOUSEHOLDS	PITTSBURGH			PHOENIX		
	EXPERIMENTAL HOUSEHOLDS	CONTROL HOUSEHOLDS	t-STATISTIC (DEGREES OF FREEDOM)	EXPERIMENTAL HOUSEHOLDS	CONTROL HOUSEHOLDS	t-STATISTIC (DEGREES OF FREEDOM)
In enrollment tract	36%	35%	-0.7 (272)	38%	41%	1.84 (500)
In final tract	34	30	2.17* (272)	34	35	1.0 (500)
Net change in low-income concentration[a]	-2	-5	1.37 (272)	-4	-6	0.9 (500)
Sample size	(214)	(60)		(361)	(141)	

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

DATA SOURCE: Atkinson and Phipps, 1977, p. 27.

a. The net change is equal to the final low-income concentration minus the initial low-income concentration; therefore, a negative value indicates neighborhood improvement.

* t-statistic significant at 0.05 level.

Table 3-9

NET CHANGE IN CONCENTRATION
FOR BLACK EXPERIMENTAL AND CONTROL MOVERS

MEAN PERCENTAGE OF BLACK HOUSEHOLDS	PITTSBURGH			PHOENIX		
	EXPERIMENTAL HOUSEHOLDS	CONTROL HOUSEHOLDS	t-STATISTIC (DEGREES OF FREEDOM)	EXPERIMENTAL HOUSEHOLDS	CONTROL HOUSEHOLDS	t-STATISTIC (DEGREES OF FREEDOM)
In enrollment tract	56%	41%	-1.61 (60)	48%	35%	-1.51 (38)
In final tract	47	44	-0.25 (60)	39	36	-0.36 (38)
Net change in percentage black	-9	3	0.99 (60)	-9	0.4	0.9 (38)
Sample size	(50)	(12)		(24)	(16)	

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

DATA SOURCE: Atkinson and Phipps, 1977, p. 71.

NOTE: Statistical tests comparing the differences between means for Experimental and Control households in enrollment tract concentrations, in final tract concentrations, and in the net change in black concentrations not significant at the 0.05 level.

These results, while based on the relatively small samples of minority households that moved and not statistically significant, suggest that housing allowances might be a force for the gradual reduction of racial concentrations.[1] Even so, generalizations from the experimental situation need to be regarded with caution. An allowance program made widely available and widely taken up by eligible households might interact very differently with housing market and with socio-psychological factors.

In general, the analysis of the first-year data suggests that housing allowances do not have a major influence on the locational choices of participants or on the residential distribution of low-income or minority populations. These findings confirm those of previous housing allowance experiments and demonstrations, which also found locational patterns consistent with pre-existing trends in the local areas. It should be noted, of course, that a housing allowance is not intended to bring about specific locational changes, but rather to remove constraints on locational choice. The first-year data imply that the allowance neither induces nor constrains locational changes. Comparison between the constraints on locational choice of housing allowances and of conventional federally assisted housing programs at the experimental sites is the subject of a separate study to be published in 1978 as part of the Demand Experiment analysis.

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[1] Preliminary analysis of the full two years of data does indicate a modest, but significant, reduction in racial concentration for Experimental households.

3.3 PARTICIPATION AND FACTORS LIMITING PARTICIPATION[1]

One of the more dramatic findings of the Demand Experiment is that many of the households contacted did not become recipients. Among the households in the Housing Gap plans, for example, only about one-quarter of those contacted had become recipients by the end of the first year (24 percent in Pittsburgh, 30 percent in Phoenix). About 20 percent of the households that were contacted declined to enroll in the Demand Experiment before they had completed the initial 20 minute enrollment interview and heard a full description of the program. Such households may have been turning down the program, but they may also have been simply refusing to have an interview. The preliminary analysis of participation in the Demand Experiment was based on households that did complete the enrollment interview. The participation rate for these households (the percentage able to meet their housing requirement and receive payment during the first year after enrollment) was slightly more than 40 percent.

The analysis of participation in the Demand Experiment is focused on differences in participation among different allowance plans and different demographic groups. Estimates of absolute levels should take into account data from the Supply and Administrative Agency Experiments as well. In addition to the issue of sorting out interviewing loss from participation, the analytic goals of the Demand Experiment required an unusual form of outreach in which preselected, income-eligible households were individually approached and offered enrollment. This at-the-door outreach is necessary to distinguish differences in response among different demographic groups from differences in the effectiveness of alternative outreach methods in reaching households (see MacMillan and Hamilton, 1977). At the same time, it may have enrolled some households that would not have taken the initiative to apply. On the other hand, the experiment's special reporting requirements (monthly reports and periodic interviews) may have discouraged some households from participating (see Kennedy, Kumar, and Weisbrod, 1977, p. 138). The Administrative Agency

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[1]The findings presented here draw primarily upon the technical reports on Housing Gap participation by Kennedy, Kumar, and Weisbrod (1977) and on search and mobility by Weinberg et al. (1977).

and Supply Experiments used more conventional outreach methods and reporting requirements.[1]

The preliminary analysis of participation focused on differences in participation associated with differences in payment levels and housing requirements as well as differences in demographic characteristics. The results suggest that participation really involves two different stages--accepting the offer to enroll in the experiment and then meeting requirements and receiving an allowance payment. About 80 percent of the households that completed the enrollment interview accepted the offer. Of those enrolled, about half met requirements and received an allowance payment during the first year after enrollment.[2] Thus, the overall participation rate was 40 percent. (The term "overall participation" refers to the combination of the two steps --accepting the offer and then actually reaching recipient status.)

A key factor in the participation of enrolled households was whether or not they already met the housing requirements at enrollment. About one-third of enrolled households already met the housing requirements and automatically became recipients. Among the enrollees that did not already meet requirements, about a third met requirements and participated during the first year.

As might be expected, higher payment levels led to higher participation rates. The estimated difference in overall participation rates between the highest and lowest payment levels was 19 percentage points in Pittsburgh and 15 percentage points in Phoenix (see Table 3-10). Higher payment levels significantly increased both the probability of acceptance and the probability that an enrolled household would meet the requirements if it did not do so at enrollment.

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[1] In the Supply Experiment, with continuous outreach and enrollment, and with less stringent housing requirements, gross participation rates among eligible renters were about 35 to 40 percent over a two-year period. For participation rates in the Supply Experiment see Ira S. Lowry, An Overview of the Housing Assistance Supply Experiment, Santa Monica, The Rand Corporation, September 1977, pp. 8 and 10. For a comparison of the housing standards see Joseph J. Valenza, Program Housing Standards in the Experimental Housing Allowance Program: Analyzing Differences in the Demand and Supply Experiments, Washington, D.C., The Urban Institute, July 1977.

[2] Households that did not meet requirements received a cooperation payment of $10 a month, like the Control households. Such households could still meet requirements and participate during the second and third years of the program.

Table 3-10

ESTIMATED EFFECTS OF HOUSING GAP
PAYMENT LEVEL ON OVERALL PARTICIPATION

PAYMENT LEVEL[a]	AVERAGE MONTHLY PAYMENT	OVERALL PARTICIPATION RATE
	PITTSBURGH	
Highest (C = 1.2C*)	$69	51%
Lowest (C = 0.8C*)	34	32
	PHOENIX	
Highest (C = 1.2C*)	$115	52%
Lowest (C = 0.8C*)	56	37

SAMPLE: Housing Gap households in allowance plans 1-9 with incomes below the low-income eligibility limits that were given a correct payment estimate and remained eligible at one year after enrollment.

DATA SOURCE: Adapted from Kennedy, Kumar, and Weisbrod, 1977, pp. S-2, S-3, 90.

a. Payment level, C, in the Housing Gap Formula: P = C - bY, where Y is disposable income and b is a payment reduction rate with income.

Different housing requirements substantially affected overall participation. Acceptance rates were not significantly different for the two Minimum Rent levels or between Minimum Rent and Minimum Standards. The proportion of households that already met the requirements at enrollment and thus were automatically eligible for payments was very different, however. Indeed, among enrolled households that did not already meet requirements, the proportion participating was the same regardless of which requirement was not met. This suggests that reduced participation under more stringent requirements may be concentrated among households in the worst housing; those that must change their housing most may be dropping out under the more stringent requirements. (The speculation is at least partly confirmed by early results from the final analysis of participation, which show that the size of the difference between a household's preprogram housing and the required housing is an important factor in determining participation.)

As pointed out earlier, the housing allowances tested in the Demand Experiment act mainly as an income transfer (to relieve rent burden) for households that meet housing requirements at enrollment. Households that meet the requirements after enrollment spend more of the allowance on housing than they would otherwise. The setting of requirements thus involves a trade-off between participation and housing impact. More stringent requirements reduce the overall participation rate, but at the same time raise the proportion of allowance payments allocated to increased housing expenditures by those who do participate. In addition, as suggested above, the reduced participation under more stringent requirements may be concentrated among households in the worst housing.

The relative advantage in meeting requirements held by households in better housing also means that the very lowest-income households among the eligible population are also least likely to participate. In the Housing Gap plans considered in the preliminary analysis, larger payments were made to lower income households (the difference in payment was 25 percent of the difference in income). Nevertheless, higher income households participated more often. The estimated difference in participation rates between otherwise similar households with an annual income of $7,000 and those with an annual income of $2,000 is 28 percentage points in Pittsburgh and 12 percentage points in Phoenix (the difference is only significant in Pittsburgh).[1] This difference is mostly due to differences in the proportion of households that already met requirements at different income levels, though in Pittsburgh, at least, higher income households that did not already meet requirements were also more likely to participate. This could, of course, be offset by offering larger payments to very low income households.

Differences in overall participation were also related to other household characteristics. The important characteristics were age of head of household, minority status, and prior mobility.[2]

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[1] Estimated differences in participation are based on a logistic analysis of the probability of participating and refer to estimated effects holding various other demographic characteristics, such as age of head of household, minority status, welfare status, size of household, and so forth, constant. For details, see Kennedy, Kumar, and Weisbrod (1977).

[2] Household size was not an important factor in overall participation. Prior mobility, while not a significant factor in any one stage of participation, had enough cumulative effect to become important for overall participation.

Older households were less likely to participate. The estimated difference in the probability of participating for a household headed by someone aged 64 as compared with 24 was 12 percentage points in Pittsburgh and 17 percentage points in Phoenix. The reasons for this are different for the two sites. In Pittsburgh, older households were less likely to accept the offer; once enrolled, however, they were no less likely to become recipients. In Phoenix, older households were no less likely to accept the offer, but were much less likely to become recipients once enrolled; older households in Phoenix were less likely to meet requirements at enrollment and less likely to meet them subsequently. This last factor seems to be due to a greater reluctance to move.

Minority households in Phoenix (most of whom were Spanish American) had an estimated participation rate 19 percentage points below that of nonminorities; in Pittsburgh (where most minority households were black) there was no significant difference between minority and nonminority participation. Minorities at both sites were less likely to have already met the requirements and hence less likely to participate once enrolled. This factor was offset by higher acceptance by black households in Pittsburgh and exacerbated by lower acceptance of the offer by Spanish American households in Phoenix.

Prior propensity to move appears to be an important factor in participation. Other work has shown that the probability of moving is positively associated with prior mobility (see Weinberg et al., 1977). The estimated difference between the participation rates of households that had moved three times in the three years before enrollment and those that had not moved at all is 17 percentage points in Phoenix and 8 percentage points in Pittsburgh. (This difference was only significant in Phoenix, however.)

Housing Gap households that did not meet their housing requirements at enrollment were a primary target group for the housing allowance. Yet only about one-third of such households met the housing requirements within the first year. Even substantial offers of monthly payments did not guarantee that households not meeting housing requirements at enrollment would do so to qualify for the payments. A crude measure of net cash value of the allowance offers is the extent by which the allowance payment would exceed the estimated increase in rent necessary to meet requirements.[1] As Table

[1]For example, a net cash value of $40 a month means that a household would have $40 per month remaining from its allowance payment after spending the additional amount for rent that was necessary in order to meet requirements.

3-11 shows, less than half of the households with net cash values of over $40 a month participated (met requirements) after enrolling.[1]

Table 3-11

RELATIONSHIP OF NET CASH VALUE OF THE OFFER TO PARTICIPATION RATES FOR ENROLLED HOUSEHOLDS THAT DID NOT ALREADY MEET THE REQUIREMENTS AT ENROLLMENT

NET VALUE ($ PER MONTH)[a]	PITTSBURGH SAMPLE SIZE	PITTSBURGH PERCENTAGE THAT MET REQUIREMENTS AT THE END OF ONE YEAR	PHOENIX SAMPLE SIZE	PHOENIX PERCENTAGE THAT MET REQUIREMENTS AT THE END OF ONE YEAR
$41 or more	109	45	141	44
$21 to $40	57	23	46	37
$1 to $20	49	14	30	30
-$19 to $0	23	13	23	22
-$20 or less	20	20	29	7
Total	258	30	269	35

SAMPLE: Housing Gap households in allowance plans 1-9 with income below the low-income eligibility limit, that were active at one year and did not meet the housing requirements at enrollment.

DATA SOURCE: Kennedy, Kumar, and Weisbrod, 1977, p. 110.

a. Net Value Computed as

$$P - (R_E - R_0)$$

where

P = Allowance payment

R_E = Amount of Minimum Rent requirement for Minimum Rent, C* for Minimum Standards households

R_0 = Pre-experimental expenditures for housing.

[1] The calculation of net cash value can only be approximated for Minimum Standards households, since units meeting the Minimum Standards requirements are available over a wide range of rents. The estimate used for the cost of a Minimum Standards unit was C*, the estimated cost of modest existing standard housing in each site used in setting payment levels (see Section 2.3 of Chapter 2). This appears to be a reasonable estimate for low-income households (see Merrill et al., "Housing Consumption," in Abt Associates, January 1975). In any case, figures for Minimum Rent households alone, where the calculation is exact, show the same pattern as that of Table 3-11.

Moving was a key factor in determining whether or not households met requirements after enrollment. Table 3-12 shows that households that moved were much more successful in becoming participants (i.e., meeting the housing requirements and thereby receiving full payments) than those that did not move. Despite this, program offers did not affect the incidence of moves (Weinberg et al., 1977). Indeed, of the households that did not meet requirements at enrollment, about one-half in Pittsburgh and one-third in Phoenix did not even search.

Table 3-12

PARTICIPATION BY ENROLLED HOUSEHOLDS THAT DID NOT MEET REQUIREMENTS AT ENROLLMENT AS A FUNCTION OF MOBILITY

	PITTSBURGH		PHOENIX	
HOUSEHOLD GROUP	PERCENTAGE	SAMPLE SIZE	PERCENTAGE	SAMPLE SIZE
Households that moved	25%	303	52%	325
Percentage of movers that participated at one year	50	76	61	170
Percentage of nonmovers that participated at one year	22	227	17	155

SAMPLE: Housing Gap households in allowance plans 1-11 active at one year that did not meet housing requirements at enrollment.

DATA SOURCE: Kennedy, Kumar, and Weisbrod, 1977, p. 107.

NOTE: Participation is defined as participating at the end of the first year, and enrolled households are limited to those that remained in the experiment for the entire first year.

Key factors related to the decision to search for new housing (apart from forced moves due to eviction, fire, or demolition) were dissatisfaction with the neighborhood or dwelling unit, previous mobility, and being relatively younger heads of household. The reasons offered for reluctance to search appear to indicate that people do not want to consider leaving a place in which they are established, even if they are dissatisfied with it. This

psychological factor would help explain why 20 percent of households that said they were dissatisfied with both their unit and their neighborhood did not search for different housing, even with the financial incentive of the allowance offer (Weinberg et al., 1977, p. 25).

The decision to move may have been related more to what households could find in the market than to their satisfaction with or attachment to their current unit. Black searchers in Pittsburgh were less likely to move than otherwise similar white households, which may reflect more limited access to the market for minority households. Similarly, large households in Phoenix that searched were less likely to move than were small households and may have been hampered by limited availability of larger units. On the other hand, satisfaction and age, although related to search, were not significantly related to the probability that searchers will decide to move.

The interviews did not show a general correlation between reported search difficulties and the likelihood of moving--households that indicated search obstacles were often as likely to move as anyone else.

The search obstacles most frequently reported were not knowing where good housing might be found, limited access to transportation, lack of child care or landlords that would not rent to those with children, and anticipated difficulty in paying rents. Financial difficulty was the only problem related to actual moving rates at both sites--searchers that cited this problem were less likely to move. In Pittsburgh, those who reported transportation problems also were less likely to move. Searchers that did not know where to look for housing or those with problems because of children (child care or perceived discrimination because of children) were no less likely to move at either site.

Black households often perceived racial discrimination in their search for housing or restricted their search in anticipation of discrimination. A substantial proportion of black searchers--28 percent in Pittsburgh and 16 percent in Phoenix--indicated that they had encountered discrimination or avoided certain neighborhoods because of expected discrimination. Overall, 18 percent of black searchers in Pittsburgh and 12 percent in Phoenix said

they had experienced discrimination; 21 percent in Pittsburgh and 9 percent in Phoenix said that they avoided neighborhoods because they expected discrimination. These households were not less likely to move than other black households, although black households as a group were less likely to move than white households (controlling for other factors such as income, age, welfare status, education, household size, and so forth). This may suggest that discrimination was not perceived or reported accurately. It may also suggest that discrimination often acted indirectly. For example, there is evidence (Weinberg et al.) that friends and relatives are an important source of information about housing. Since black households are concentrated in restricted areas, their information from friends and relatives may be limited as well, thus reducing their chances of finding a suitable unit.

Several conclusions can be drawn from this analysis. First, to the extent that people are tied to their housing by psychological attachments that develop over time, all housing programs other than limited rehabilitation must either impose substantial burdens by forcing households to move out or must act gradually, waiting until households are ready to move of their own accord. A dependence on normal moving rates is not necessarily bad--the gradual entry of eligible households might place less pressure on the local housing market, would provide a gradual buildup of budgetary demands for allowance payments, and would ease administrative pressures at the time of program startup.

Second, analysis of the mobility of searchers, to the extent that it reflects market alternatives, may provide a way to identify the obstacles to effective use of a housing allowance. Such obstacles might include lack of housing market information or racial discrimination. The continuing analysis will seek to identify the extent to which such obstacles are amenable to government action (for example, by helping to provide information on housing or to overcome racial discrimination).

Finally, how well a household understood the allowance offer may have influenced both its decision to move and the kind of housing selected. When they enrolled, households were told how to qualify for an allowance payment and were given a brochure that summarized key program elements. They were

invited to a Housing Information Program, the first session of which was devoted to explaining the program. Follow-up letters, sent about one year after enrollment, reminded households of their status and prospective payment. These efforts at disseminating information were probably more painstaking than would be typical of an actual program (although households not ready to take action to meet the requirements might have had little motivation to learn the details of the offer at the time this information was provided).

Interview responses provide some data on program understanding in the experiment. They indicate that most households that did not meet the requirements were well aware that they were not receiving full allowance payments. Respondents who understood that they did not meet requirements were also asked in the Second Periodic Interview, given after one year, how they could qualify for full payment.

Table 3-13 presents the distribution of coded open-end responses for both the Minimum Standards and the Minimum Rent requirements. Overall, only 18 percent of the households were clearly wrong or said that they did not know. On the other hand, 75 percent of Minimum Rent households' answers were clearly right. Minimum Standards households more often gave ambiguous answers, mentioning requirements in general or simply saying that they would have to move. These figures suggest that relatively few households failed to meet requirements because they did not understand the program.

Although the general level of understanding seems reasonably high, the misunderstanding of program specifics could still explain a certain amount of nonparticipation. Among households that had an offer with a net cash value of more than $10 that moved during the first year, and still did not meet housing requirements, 30 percent (26 percent in Pittsburgh and 32 percent in Phoenix) either answered incorrectly or said they did not know how to qualify for full payments.

All of these obstacles to full participation deserve further investigation. The continuing analysis will assess which obstacles appear to be inherent in the housing allowance approach and which might be affected by program design. If further investigation shows that normal moving decisions pace the rate at

Table 3-13

CORRECTNESS OF HOUSEHOLD UNDERSTANDING OF HOUSING REQUIREMENTS NEEDED FOR FULL PAYMENTS

CODED RESPONSES[a]	ALL HOUSEHOLDS			MINIMUM STANDARDS HOUSEHOLDS			MINIMUM RENT HOUSEHOLDS		
	PITTSBURGH	PHOENIX	BOTH SITES	PITTSBURGH	PHOENIX	BOTH SITES	PITTSBURGH	PHOENIX	BOTH SITES
Clearly right	60%	61%	61%	54%	36%	47%	70%	78%	75%
Probably right	4	6	5	6	14	9	2	0	1
"Had to move"	15	16	16	21	34	26	7	4	5
Wrong	2	2	2	1	2	2	4	3	3
Don't know	18	15	16	18	14	16	18	15	16
Sample Size	(136)	(124)	(260)	(80)	(50)	(130)	(56)	(74)	(130)

SAMPLE: Housing Gap households in allowance plans 1-9 active at one year that had not met housing requirements by one year.

DATA SOURCE: Kennedy, Kumar, and Weisbrod, 1977, p.124).

a. Response to Second Periodic Interview questions 25 and 34: What would you have to do to receive full housing allowance payments?

which eligible households become recipients, program designers might simply choose to accept the gradual take-up of the program by devoting resources only to applicants who want to move, rather than to applicants who have to be induced to move.

3.4 REMAINING ANALYSIS ACTIVITY

The final series of analyses will cover three categories. First, the analyses of the household impact of housing allowances must be completed. Second, Demand Experiment data can bear on certain administrative issues and offer a supplement to the findings of the Administrative Agency Experiment. Third, direct comparisons can be made between housing allowances and conventional HUD-assisted housing programs, using the direct survey and housing evaluation data obtained at the two sites. These areas of work are outlined below. A final report will draw together the major findings of the Demand Experiment.

Continuing Research on Housing Allowances

The technical analyses of participation and housing impact under the various housing allowance plans will be refined and completed using the full two-year period of observations. In the final series of reports on the Demand Experiment, special attention will be paid to the development and interpretation of the policy and program design issues and to the evaluation of policy options.

Participation analyses will focus on the importance of treatment variations, on the initial conditions of households and their housing, and on household mobility. Given the relatively low levels of participation by Housing Gap households that did not meet their housing requirements at enrollment, however, special attention will be directed to the identification of participation barriers that might be subject to program design. Such program design areas might include the presentation of offers; dissemination of housing market information; or specific aid in negotiating the market through listing services, transportation, or equal opportunity enforcement. Continuing work will ascertain whether the program offers induced moves that would not have occurred otherwise and whether the limited duration of the experiment inhibited responses to the program, particularly if a move was required. More explicit analysis will assess the extent to which upgrading can operate as an alternative to moving as a way of meeting requirements.

The responses of housing allowance recipients will be analyzed first in terms of changes in housing expenditures; second, in terms of direct housing measures using the hedonic index (a composite score of many attributes of dwelling units and neighborhoods on which data were collected or are available, see Merrill, 1976); and third, in terms of subjective assessments (housing satisfaction and perceived neighborhood quality scores derived from interviews). The locational choice of recipients over the full two-year period will be examined to determine whether housing allowances induce moves to better neighborhoods or contribute to changes in minority and low-income household concentrations.

Administrative Issues

The Demand Experiment can augment information developed by the Administrative Agency Experiment on forms of housing allowance delivery. First, the verification and reverification of income in the Demand Experiment can provide data on households that might misreport income or household size; analysis may shed some light on the distinction between normal reporting mistakes and intentional underreporting. Second, the monthly collection of income data in the Demand Experiment provides a base for analyzing transfer costs and equity among recipients implied by various payment accounting methods. Finally, the data on other assistance programs in which allowance recipients participated can identify major areas of program overlap; this could help focus the problem of integrating multiple program benefits.

Comparison of Housing Allowances With Other Programs

Comparison of the Demand Experiment findings with other housing and income assistance programs is a key task in the development of policy implications. The findings of the experiment, whether or not they are favorable to housing allowances, can contribute greatly to decisions on future housing policy if presented in the context of alternative assistance strategies. The Demand Experiment analysis will compare other programs with the housing allowance program in terms of participation, housing quality (including housing satisfaction), locational choice, costs (including administrative costs), and equity.[1]

[1]For details on programs covered, sample sizes, and analysis plans, see Abt Associates Inc. (1976, Chapter 6).

Comparison with existing housing programs. The program comparison study will consider ways in which different programs can serve different groups. For example, some households may be best served when the government directly promotes new construction or rehabilitation; other households may be best served by allowance or other individual assistance programs. This study of alternative programs for different population groups could also contribute to the evaluation of possible policy mixes.

Although the comparative study cannot be as rigorous as a full experiment because of design limitations, it will provide specific data on housing conditions, costs, and tenant perceptions of how well these programs are working, information that is essential to the ongoing assessment of housing programs.

Comparison with income maintenance. The comparison of the housing allowance concept with the income maintenance experiments will assess the relative effects of income transfer programs aimed specifically at housing, as opposed to programs that rely solely on general income transfers.

A housing allowance program, unlike general income transfers, is designed to channel payments into the consumption of adequate housing; this difference is represented in the housing requirements attached to housing allowance programs. Although theoretically more effective in channeling payments into housing, a housing allowance program includes the extra administrative costs associated with the enforcement of housing requirements (for example, inspection) and with nonfinancial housing services. A key question, therefore, is whether the increased housing consumption under a housing allowance program justifies the program's extra administrative costs.

The two key analytic variables are administrative costs and housing consumption and expenditure. The Demand Experiment, the Supply Experiment, and the Administrative Agency Experiment have gathered data on the administrative costs associated with a housing allowance. The Demand Experiment analysis will estimate housing consumption and expenditure at various subsidy levels and under various housing requirements. Since income maintenance grants are unrestricted, their effect on housing consumption can be assessed by using the income elasticities (the propensities to spend added income on

housing) estimated from Demand Experiment data.[1] These estimates will be based on cross-sectional data and on observations of participant responses to changes in income over time, particularly under the Unconstrained Housing Gap treatment.

[1]This analysis may be supplemented by data from the income maintenance experiments themselves. Mathematica, Inc. is conducting a special study of the housing consumption of participants in the Seattle-Denver Income Maintenance Experiment (SIME-DIME), using measures of housing quality and of participant satisfaction with housing and neighborhood. These measures are based on those developed for the Demand Experiment.

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CHAPTER 4
OPERATIONS AND DATA COLLECTION

Participants in the Demand Experiment were enrolled for a period of three years. The analysis of the experiment, however, is based on the first two years in order to avoid confusing participant responses to the experimental programs with their preparation for termination. Normal operations continued until data collection for analysis was completed in April 1976. The final allowance payment was made in January 1977, and the site offices closed in March 1977.[1]

The phaseout of site operations during 1976 and early 1977 involved three tasks. First, operations were simplified wherever possible in order to reduce administrative costs. Second, efforts to transfer participants to other programs were begun in order to provide the maximum possible continuity of assistance. Third, all site office files were fully reviewed to assure that the final records on all participants were complete and were accurately reflected in the computer data base. Section 4.1 briefly describes the major ongoing operational activities and their simplification or elimination during phaseout. Section 4.2 describes efforts to assist participants in transferring to other ongoing housing programs.

While the requirements of experimental operations parallel those of normal programs, they are considerably more complex and require generally higher performance standards. The rapid and effective design, implementation, operation, and phaseout of 17 program variations in each of two sites in

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[1] Offices at the two experimental sites, as well as the central office of the experiment in Cambridge, Massachusetts, were operated by Abt Associates Inc. Additional experimental data were collected by surveys conducted under subcontract by the National Opinion Research Center, independently of program operations. The National Urban League also provided housing information services to enrollees. For a full description of the organization of the Demand Experiment, see Abt Associates Inc., Second Annual Report of the Demand Experiment, Cambridge, Mass., February 1975, and Third Annual Report of the Demand Experiment, Cambridge, Mass., October 1976.

a way that met the standards required for experimental analysis was a major achievement. Section 4.3 examines some of the differences between experimental and nonexperimental program operations and briefly reviews the accomplishments of the last four and one-half years.

4.1 OPERATIONAL ACTIVITIES

The major ongoing operational activities of the Demand Experiment can be grouped into three categories--survey operations, payments, and housing evaluation.

Survey Operations

In addition to the operating data collected by the Abt site offices, several different interviews, conducted from 1972 to 1976, were used to gather information on housing and nonhousing expenditures, neighborhood and housing satisfaction and preferences, program understanding and satisfaction, housing search, moving and locational issues, dwelling unit characteristics, and participation in other programs.

A total of nearly 20,000 interviews were conducted at the two sites by interviewers from NORC under subcontract to Abt Associates Inc.[1] Table 4-1 shows the timing, sample, and sample size for each kind of interview. The Baseline Interviews, conducted prior to receipt of the enrollment offer, provided preprogram information for comparison with later interview responses. The Periodic Interviews, administered to households at fixed points during their participation in the program, recorded changes in participants' situations and perceptions over time. Exit Interviews were given to a sample of households that did not accept the enrollment offer or that terminated prior to their thirty-sixth month to elicit their reasons for nonparticipation. To enable comparison of aspects of the housing allowance programs with other existing housing programs at the two sites, Program Comparison Interviews,

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[1] Some Baseline Interviews were conducted by Westat, Inc. An additional 90,000 Screening Interviews were conducted by NORC in developing the initial sample of eligible households selected for enrollment offers.

Table 4-1

DESCRIPTION AND NUMBER OF INTERVIEWS USED
IN THE DEMAND EXPERIMENT

INTERVIEW	TIME OF ADMINISTRATION	DATE COMPLETED	SAMPLE DESCRIPTION	NUMBER OF COMPLETED INTERVIEWS		
				Pittsburgh	Phoenix	Total
Screening	Pre-enrollment	November 1973	Interview to establish basic sample of potentially eligible households	50,938	43,341	94,279
Baseline	Pre-enrollment	December 1973	Households determined potentially eligible based on Screener Interview	4,348	4,072	8,421
First Periodic	Approximately six months after enrollment	October 1974	Enrolled households that had not yet terminated	1,635	1,610	3,245
Second Periodic	Approximately one year after enrollment	March 1975	Enrolled households that had not yet terminated	1,572	1,460	3,032
Third Periodic	Approximately two after enrollment	April 1976	Enrolled households that had not yet terminated	1,465	1,268	2,733
Exit Terminee	As households terminated at various points in the program	March 1976	Sample of terminated experimental households	79	102	181
Exit Nonparticipant	After turning down enrollment offer	April 1974	Sample of households offered enrollment in experimental treatment groups	170	168	338
Program Comparison	Timed to coincide with the Third Periodic Interview	May 1976	Program Comparison Sample	722	491	1,213

similar to the Periodic Interviews, were administered to a sample of participants in other programs.

All interviewing activity was completed during 1976. During the first months of the year three different interviews--Third Periodic, Exit Participant, and Program Comparison--were being fielded. As each type was finished, final computer tapes and documentation were reviewed by the Cambridge staff and data integrated into the analytic data base.

Payment Operations

At the beginning of 1976 almost 2,700 households were receiving either housing allowances or Control payments. By the end of January 1977 the last allowance payment had been issued. During the almost four years in which payments were disbursed, approximately 103,000 checks were issued for a total of nearly $3,415,000.[1] The average full payment in Pittsburgh was $54.37; in Phoenix, $74.82.

After the completion of data collection in April 1976, program operations were simplified wherever possible in order to reduce administrative costs and relieve participants of any reporting requirements that were no longer necessary. As a first step, Control households, from whom data were no longer required, were simply given a lump sum payment for their remaining months. This is reflected in the sharp increase in the number of terminated households in May 1976, as shown in Figure 4-1. Further reductions in workload were obtained by offering Experimental households receiving small payments the option of receiving a single lump sum payment rather than continuing monthly payments.[2]

At the same time (May 1976), the payments system itself was considerably simplified. Prior to May households submitted monthly Household Report Forms on income, rent, and household composition. These were used to

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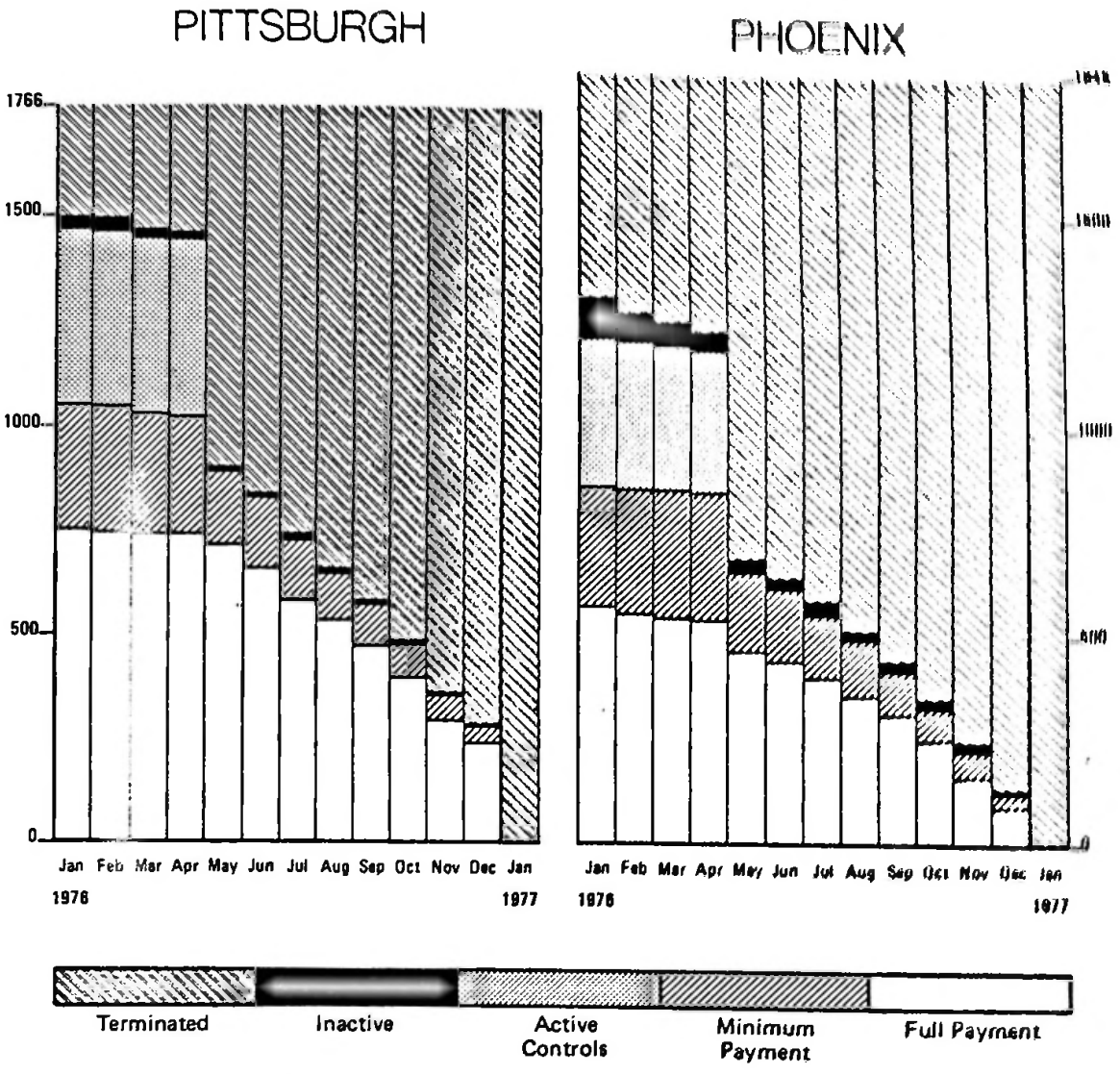
[1] This includes payments to Control households and to households that did not meet housing requirements, were homeowners or lived in subsidized housing, all of which received $10 minimum payments.

[2] This option was only offered when the lump sum payment would be less than $150.

Figure 4-1

HOUSEHOLD PAYMENT STATUS IN 1976, BY MONTH



DATA SOURCE: Site Weekly Statistical Reports (operational reports prepared by site staff)

determine continued program eligibility and payment status and to recalculate the household's allowance payment each month.[1]

After April 1976, when all participant data for analysis had been collected, households were no longer required to submit monthly Household Report Forms or rent receipts. Instead, they were issued a fixed monthly payment based on the final forms they had submitted, provided that this was representative of projected annual household income. A computerized check-printing routine produced a single specific check amount for each eligible household each month. Participants were asked to inform the site office of any nontemporary change in income, rent, or household composition that would have a substantial effect on payments.[2] Households received a level payment each month until they either completed their thirty-sixth payment cycle or transferred to another housing assistance program prior to their thirty-sixth cycle. If a household received a lower subsidy after transferring to another housing program, a lump sum payment was made for the difference between the amount they were entitled to under experimental rules and the amount received from the other program.

Housing Evaluations

Housing evaluations were conducted to gather analytic data on the physical characteristics of the housing of all participating households. For households with a Minimum Standards housing requirement, the evaluation also provided the information needed to determine payment status.

At the end of 1976, nearly 12,000 regular Demand Experiment evaluations had been completed, of which 1,827 were completed during 1976. In addition, 1,107 special Program Comparison evaluations had been completed, 928 of these during 1976. Table 4-2 and Figure 4-2 display the annual activity of housing evaluations by evaluation type. Since the majority were Initial and Annual evaluations, they closely follow the pattern of the enrollment build-up and

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[1] For a detailed description of the payments process, see Abt Associates Inc., Third Annual Report of the Demand Experiment, Cambridge, Mass., October 1976, Chapter 4.

[2] This is a standard procedure used in many HUD programs.

Table 4-2

HOUSING EVALUATIONS COMPLETED 1973-1976 BY TYPE

Type of Evaluation	1973	1974	1975	1976	Total
		PITTSBURGH			
Initial	1,111	1,085	4	0	2,200
Premove	12	23	19	3	57
Postmove	41	413	342	61	857
Upgrade	10	30	23	6	69
Annual	0	330	1,412	866	2,608
Program Comparison	0	0	100	538	638
TOTAL	1,174	1,881	1,900	1,474	6,429
		PHOENIX			
Initial	1,011	1,095	1	1	2,108
Premove	8	113	74	12	207
Postmove	18	988	749	127	1,882
Upgrade	2	35	11	5	53
Annual	0	0	1,101	746	1,847
Program Comparison	0	0	79	390	469
TOTAL	1,039	2,231	2,015	1,281	6,566

Definition of Terms:

Initial = HEF at enrollment or at time of household split.

Premove = HEF conducted at the request of a Minimum Standards household to determine whether prospective unit meets standards.

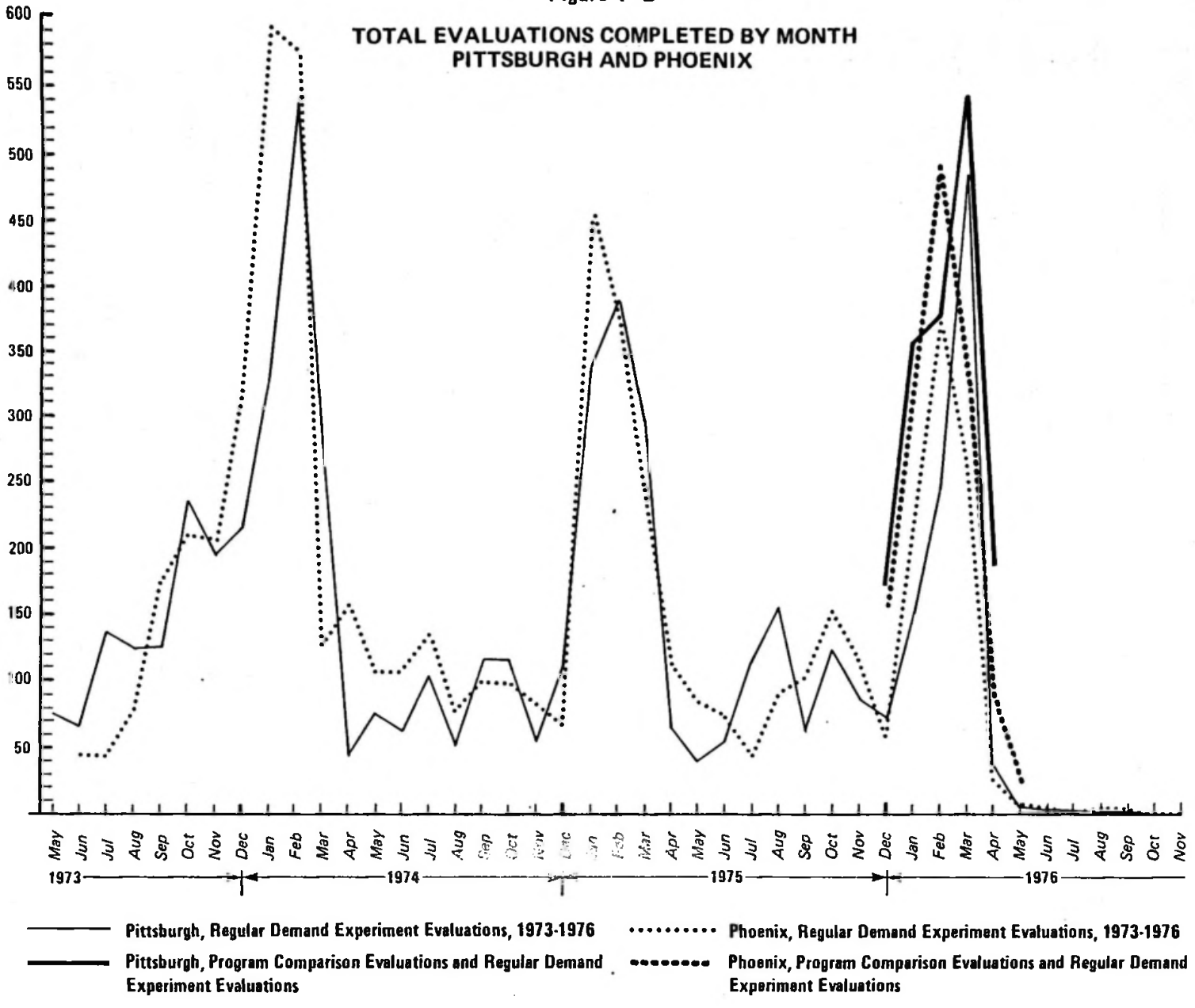
Postmove = HEF conducted after a household moves (where there is no premove evaluation).

Upgrading = HEF conducted either at the request of a Minimum Standards household to determine whether repairs have brought the unit up to standards or whenever a Minimum Rent household receives a rent increase in same dwelling unit that allows it to pass the Minimum Rent requirement.

Annual = HEF conducted after the Second and Third Periodic Interviews (unless same dwelling unit has been evaluated within the previous 90 days).

Program Comparison = HEF conducted for a sample of tenants in low rent public housing, Section 23 housing, and Section 236 housing.

Figure 4--2


TOTAL EVALUATIONS COMPLETED BY MONTH
PITTSBURGH AND PHOENIX
600
550
500
450
400
350
300
250
200
150
100
50
May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov
1973
1974
1975
1976
Pittsburgh, Regular Demand Experiment Evaluations, 1973-1976
Pittsburgh, Program Comparison Evaluations and Regular Demand Experiment Evaluations
Phoenix, Regular Demand Experiment Evaluations, 1973-1976
Phoenix, Program Comparison Evaluations and Regular Demand Experiment Evaluations

are therefore concentrated during a few months of the year. Because the experiment required information on unit quality at the time of the Periodic Interview, it was not possible to smooth this schedule. After completion of the Second Annual and Program Comparison evaluations in early 1976, further evaluations were conducted only for Minimum Standards households that moved to a new unit.

4.2 TRANSITION TO OTHER HOUSING PROGRAMS

One of the major site activities during 1976 was helping participants transfer to other housing assistance programs. Postprogram assistance was incorporated into the design of the experiment for both ethical and experimental reasons. Households that had grown accustomed to smaller out-of-pocket rental costs (or higher income) would feel less well off when allowance payments ceased, especially if they had increased their housing expenditures in order to take advantage of the allowance offer. The ethical issue was compounded because participation in the Demand Experiment had been directly solicited. It was also hoped that the prospect of continued assistance after the three-year period might reduce any tendency for the limited duration of the program to inhibit response to the experiment.

At enrollment, households were told that efforts would be made to transfer them into a continuing housing assistance program at the end of the 36 months, if they qualified. Planning for transition began at the outset of the experiment, using estimates of the number of households that would be eligible at the end of three years. HUD staff met with local officials to plan for the necessary reservation of funds. Funds for Demand Experiment households were reserved under the Section 23 Leased Housing Program and the Section 8 Existing Housing Program, and eligible households were given the opportunity to transfer to these programs, administered by Local Housing Authorities (LHAs)[1] at each site. Towards the end of the two-year experimental period,

[1] Five Local Housing Authorities were involved--two in Phoenix (one in the city and the other for the remainder of Maricopa County), and three in Pittsburgh (one each for Pittsburgh and McKeesport, and one for the rest of Allegheny County).

Abt prepared materials for information sessions in which housing assistance programs would be explained and alternative future housing choices reviewed, and HUD, Abt, and Local Housing Authories jointly developed procedures for processing households that applied for assistance. The transition schedule was planned to ensure that there would be no gap between the end of housing allowance payments and the initiation of other housing assistance.

The steps involved in transferring participants are briefly described below. Experimental households on active status[1] were considered for transition upon completion of the Third Periodic Interview and the Second Annual Housing Evaluation, which generally occurred by the household's twenty-sixth month in the program. Site office and Cambridge staff reviewed each participant file to ensure that key analytic data had been collected and entered in the data base, including all Periodic Interviews, all monthly Household Report Forms, the First and Second Annual Assets Supplement, and the Housing Evaluations.

When all data had been reviewed, households were notified that their participation in the program was nearing an end; this was done no later than the household's thirtieth payment cycle. Experimental households were informed of the opportunity to apply for continued assistance and were invited to attend information sessions in which available assistance programs were explained.

Transition information sessions, held at various locations in Allegheny and Maricopa County, described the other housing assistance programs to which households might apply and the steps necessary for enrollment. Staff from the Local Housing Authority were introduced and were available to answer questions and take applications. Households that were unable to attend transition sessions were contacted individually by site office staff and given information about their transition options.

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[1]The limited payment and purely informational character of the Control households' participation made the offer of continued assistance unnecessary. Also, assistance was not offered to households that received minimum payments that either already lived in subsidized housing or in homes that they owned.

Both site office and LHA staff assisted interested households in completing application forms either at the transition information sessions or when households were counseled in their homes. Others filled out the forms during subsequent visits to the LHA offices. All applications from Demand Experiment households were given priority and processed separately from other LHA applications. Households that did not apply were contacted by site office staff and offered additional information to assure that they could make an informed choice among their postprogram options.

The income and other eligibility requirements for LHA programs were different in some respects from those used in the housing allowance program. LHA staff used the information from the application forms to determine eligibility. About 15 percent of the households that applied were found ineligible because of differences in eligibility requirements.

Both the Section 23 and Section 8 housing programs require that dwelling units meet various physical standards in order to qualify for payment. Since not all Experimental households had to meet physical housing standards, and since the standards used in the experiment were not identical to those used in other housing programs, the LHAs inspected the units of all eligible households. Site office staff offered search assistance to households whose units did not pass the inspection. In a few cases, landlords repaired items that caused the units to fail.

The Section 23 program requires that landlords agree to lease their units to the LHA, so that the participant rents the unit from the LHA rather than directly from the landlord. The Section 8 program requires that there be a lease between the household and the landlord and that the landlord sign a Housing Assistance Payment Contract with the housing authority. LHA staff made the necessary lease and contractual arrangements with landlords. When the lease was signed, the household was terminated from the housing allowance program. Some landlords did not wish to participate in these programs; in such cases, site staff provided search assistance if the participant desired.

When the lease was signed, participants received a subsidy in the form of an actual rent reduction; landlords received a direct payment from the LHA

for a portion of the rent.[1] If the households' out-of-pocket housing costs were higher in the LHA program than they would have been in the housing allowance program, they received a lump sum payment for the difference for the remainder (if any) of their 36 months.

Table 4-3 presents the outcome of transition activities. Of the over 1,650 households at both sites that were offered the opportunity to apply for assistance, only 426 (or 25 percent) actually signed leases and received payments. Almost 75 percent of those that were initially offered assistance applied. Of those that did not apply, many were receiving small allowance payments and did not feel the need for continued assistance. Some others, while willing to participate in the experiment, either did not wish to receive government assistance from a regular program or did not want to bother with the forms and procedures involved. Others felt that their units would not be eligible or that their landlords would not be willing to participate; they did not wish to relocate or preferred their current housing to what they anticipated as the required housing in other programs.

About 85 percent of the applicants were eligible. Of these eligible applicants, 31 percent in Pittsburgh and 53 percent in Phoenix were successfully transferred to other assistance programs. This number was far fewer than had been anticipated, especially in Pittsburgh. A number of households that did enroll in programs nonetheless experienced a gap of more than a month between their final housing allowance payment and the initiation of other assistance.

Some eligible applicants changed their minds and withdrew their applications for reasons similar to those of households that chose not to apply. Others were not willing to follow the necessary procedures and did not allow or keep appointments for housing inspections. During their participation in the housing allowance program, the site offices repeatedly followed up on and helped such households; LHA procedures did not provide for such assistance, nor was the necessary staff available. Although dwelling units had been specially allocated for Demand Experiment participants, the LHAs were involved in other programs with long waiting lists and were unable to give

[1]This is in contrast to the housing allowance payment, which was made directly to the household.

Table 4-3

BUILD-UP FOR TRANSITION TO OTHER HOUSING ASSISTANCE PROGRAMS

TRANSITION STAGE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	TOTAL
PITTSBURGH														
Eligible for transition	367	434	652	789	935	941	941	941	941	941	941	941	941	941
Applications	117	168	258	373	488	581	680	690	692	693	696	697	697	697
Determined ineligible by LHA	9	22	29	34	36	63	80	100	101	105	108	109	109	118
Lease signed	-	1	1	2	9	18	30	36	58	86	144	169	171	182
PHOENIX														
Eligible for transition	162	264	573	719	719	719	719	719	719	719	719	719	719	719
Applications	43	88	168	256	361	456	513	519	522	525	525	527	527	527
Determined ineligible by LHA	2	2	16	29	35	41	45	55	61	67	68	69	69	69
Lease signed	1	4	4	28	45	78	103	130	173	202	212	225	237	244

participants the priority that was originally planned. Despite efforts to maintain a relatively even flow of applicants, the majority of applications were filed over a relatively short time.

There were some special problems in Pittsburgh. Local resolutions authorizing the operation of the Section 23 program were approved in only 12 of the more than 120 towns and cities in Allegheny County. In May 1976, the Section 23 funds that had been reserved for participants were converted to Section 8, which did not require local approvals. There was already a backlog of County applicants, however, and initiation of the Section 8 program was slow, because the County LHA had not previously operated a leased housing program. The Section 8 program in McKeesport was not approved until early in 1977. The greatest problem in Pittsburgh was the shortage of eligible units available to participants: during the latter part of 1976 and the early part of 1977 the standard rental unit vacancy rate was below 2 percent. Because of this shortage, and despite assistance from both site office and LHA staff, nearly 100 households whose current units did not meet standards were unable to find program-acceptable housing. By April 1977, when the site offices closed and the priority given to Demand Experiment households had lapsed, many of these households had stopped searching for program-acceptable units and had decided to remain in their current units. A few households had negotiated with their landlords for repairs that would enable the units to meet LHA standards.

In closing, it is of interest to note that the overall rates for successful transition into other programs are similar to those for participation in the Demand Experiment. In both cases the majority of those that were offered the opportunity to participate applied. However, only about one-quarter of those that were originally made the offer finally met all requirements and became program beneficiaries. The major difference between the patterns of experimental and transition participation was in the relatively lower transition success rate in Pittsburgh. This reflects both the increased tightness in the Pittsburgh rental housing market between 1974 and late 1976 and the administrative problems that were encountered in initiating the transfer programs.

4.3 OVERVIEW OF OPERATIONS AND DATA COLLECTION

Experimental operations consisted of four phases that began in 1972 and continued through 1977--planning and procedures development, build-up, steady state, and phaseout. Although activities paralleled those of non-experimental programs in many ways, the experiment imposed special requirements on operation during each phase.

The planning phase of any program involves the development of rules and procedures for every aspect of operational activity. Starting with a statement of program goals, functions are defined and the means for carrying them out specified in sufficient detail to enable the program staff to perform their day-to-day tasks. The operation of an experiment must be planned in much greater detail than that of a normal program. Operational data are a primary input into the analytic data base, so that the data collection instruments, fielding and manual edit procedures, and quality control mechanisms have to meet both operational needs and the additional rigorous standards required for research purposes. In addition, rules and procedures have to be defined in sufficient detail to ensure that the participants receive the same treatment and services at the two experimental sites and over time. This means that there is less opportunity to rely on learning as opposed to planning. While internal operating procedures can improve over time, the program has to be planned in sufficient detail that changes will not affect participants.

During the planning phase, the Site Operating Procedures Handbook and detailed operations manuals were developed to guide all aspects of site operations; these handbooks were updated and revised throughout the experiment as new situations arose. The same degree of specificity was necessary in the development of interview procedures for the survey operations subcontracted to the National Opinion Research Center (NORC).

The goals of the experiment also imposed special requirements on the build-up, or enrollment phase of operations. In most programs, the application process is initiated by individual households after a period of agency publicity or outreach. In the Demand Experiment, a random sample of households that would

receive the enrollment offer was drawn from the potentially eligible population. This sample was randomly assigned to the 17 different housing allowance programs being tested. Households were then individually contracted and invited to enroll in the experiment. Statistical consideration for the analysis required that enrollment targets be met in each of the 17 programs. This was accomplished by careful monitoring of acceptance rates and reassignment of subsamples to achieve targets while maintaining random assignment. In addition, since the analysis of acceptance is an important analytic response area, the explanation of the program given to households had to be uniform for households in each program type. And because the data collected at the time of enrollment not only determined eligibility and initial payment, but also provided baseline information for comparison with later data, careful control was necessary.

The steady-state activities--eligibility monitoring, payment disbursements, and housing evaluations--perhaps more closely resembled the activities of nonexperimental programs than did activities in the other phases. There were still differences in the amount, complexity, and frequency of data collection. Continuing eligibility and payment status rules were numerous and complex. Data were thoroughly checked for both inter- and intra-form consistency and completeness. Rigorous quality control assured both intra- and inter-site adherence to program procedures. Since the analysis would be focused on participant responses to receipt of the allowance payment, the payments system had to be immediately responsive to changes in participant circumstances; payments were recalculated monthly to reflect changes in household income and housing and involved a careful sequence of controls to assure that data were accurately transferred first from the sites to the automated payments system and then to the analytic data base. Housing evaluations not only affected the payments to some participants but also provided data for the analysis of household behavior. Ongoing retraining of housing evaluators was required to assure that evaluations were consistent among evaluators, between sites, and over time. Survey operations, which would not be part of an actual program, were kept separate from site operations, in order to assure participants that they could answer questions freely without affecting their program status or payments.

The phaseout of site operations also had characteristics unique to an experiment. After all experimental data were collected, each participant file was reviewed to assure that all key analytic data had been accurately entered in the automated data base. To ensure that households were left no worse off because of their participation in the experiment, termination counseling and assistance in transferring to programs with similar benefits were provided.

The program operations and data collection phases of the Demand Experiment are now completed. The accomplishments of the past four years have been impressive. Site and interview staff were able to balance programmatic and experimental requirements by being responsive both to the needs of participants and to analytic concerns. Many of the experimental tasks, such as the monthly processing of forms and production of payment checks, were routine and repetitive; these tasks, however, were carried out with constant sensitivity to their impact on participants and their use for experimental analysis. Although the schedule was demanding, no milestones were missed.

The operational phase of the experiment began in December 1972. During the six months after that, a pilot program was initiated and completed, operational procedures and training manuals generated, enrollment materials developed, data and quality control procedures implemented, site office staff trained, and full operations at the two sites begun. By March 1974, enrollment operations were complete--on schedule and with targets met. By June 1974, the conversion to full reliance on an automated payments system, from the operation of parallel automated and manual systems, was accomplished. The completion of enrollment activities and the payments system conversion necessitated a large staff, each of whom had to be able to carry out a variety of tasks. Task assignment was accomplished by careful planning and scheduling, tight management and quality control, and careful training across as well as within assigned activities.

Because extremely high standards of quality control were maintained in all program activities, errors and inconsistencies in housing evaluations and payment operations were kept to a minimum. Procedures were carefully

documented and checked across sites. Data were prepared both for entry into the data base and for operational purposes; site staff were an integral part of the data base construction process, rechecked data items within forms, consistency across forms, and consistency of site records with printouts from the automated data base. Site contributions to these data base activities were both timely and of high quality.

Participants' feelings about site operations are difficult to measure. However, there are indications that participants felt satisfied and fairly treated. In only two cases did participants bring concerns to the program grievance board. In response to an interview question, nearly all participants characterized the site office staff as being concerned, helpful, and friendly. Although the program design specifically excluded responsive services to households (such as housing search assistance and negotiations with landlords), site office staff did help households extensively in completing monthly forms and in transferring to other housing assistance programs.

The ability to design, implement, operate, and dismantle program operations on a tight time schedule with effective quality controls is essential to successful social experimentation. The completion of experimental operations marks a major milestone for the Demand Experiment.

CHAPTER 5

DATA BASE DEVELOPMENT AND MANAGEMENT

The conversion of raw data from many different sources into an efficient analytic data base is a major task, however carefully the raw data are collected. Meaningful variables must be constructed from the raw information. Data sources must be linked to provide a coherent picture. Anomalies between sources due to differences in timing and definition or simple mistakes in recording, punching, entering, or manipulating data must be resolved. The data base itself must be designed and structured and fully documented to allow easy and efficient access to the data.

Construction of the final analytic data base was completed during 1976 and early 1977 and involved three stages. First, a core data base was constructed around data collected at four time periods during a household's participation in the experiment--preenrollment and six, twelve, and twenty-four months after enrollment. Second, the core data base was extended and cleaned, and variables common to several analyses were derived. Third, the two-year data base was documented.

Section 5.1 provides a brief description of the analytic organization of the data base. Data base documentation is described in Section 5.2.

5.1 DATA BASE ORGANIZATION

The final two-year data base comprises nearly 300 million characters, which are organized into 35 major files and numerous intermediate and temporary working files. The Third Annual Report of the Demand Experiment describes in detail the development, organization, and maintenance of the data base for first-year data; the process involved in development of the two-year data base was very similar: source data were collected, entered, reformatted, and cleaned. New data for 1976 included: Third Periodic, Exit, and Program Comparison Interviews; Housing Evaluation Forms (including Program Comparison); monthly Household Report Forms and supplements; monthly

payments and status data; reverification data; geocodes; and Census and other site data.[1]

Once source data had been entered in the data base and intermediate variables had been derived, different types of data were linked for the analytic time periods. Four cross-sectional time periods were specified in order to provide a relatively regular structure of intervals within which responses could be observed across the various data sources. The four time points designated as analytic cross sections were enrollment and the times of the First, Second, and Third Periodic Interviews.

The initial cross section comprises variables derived from data collected during the several months just prior to receipt of the first allowance check. Variables associated with the initial cross section were derived from the Baseline Interview, the Initial Household Report Form (IHRF), the first monthly Household Report Form (HRF), Census data for the tract of the IHRF address, the initial Housing Evaluation Form, and payments file data used to compute the first payment. Data for the initial cross section correspond to a variable number of months, depending on the intervals between key enrollment events for a given household. Table 5-1 summarizes information on the key intervals for Housing Gap, Percent of Rent, and Control households at each site. Although these figures indicate much variation among individual households, distributions for Pittsburgh and Phoenix, and for the major treatment groups, were similar; the one exception is a somewhat shorter interval between the IHRF and the first payment for Control households at both sites, because 80 percent of the Control households did not need third-party income verification and were therefore immediately eligible for payment after completing the IHRF.

Figure 5-1 summarizes the types of data used to link various data sources in the initial cross section; key data sources for this cross section are the IHRF and the payments file. IHRF data are linked by definition to

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[1] For a description of the cleaning process for each type of instrument, see Abt Associates Inc., Third Annual Report of the Demand Experiment, Cambridge, Mass., October 1976, Chapter 5.

the payments file data used to compute the first payment, even though, as indicated in Table 5-1, the IHRF is ordinarily completed one to two months before the first payment.[1]

Table 5-1

NUMBER OF MONTHS BETWEEN KEY EVENTS
WITHIN THE INITIAL CROSS SECTION

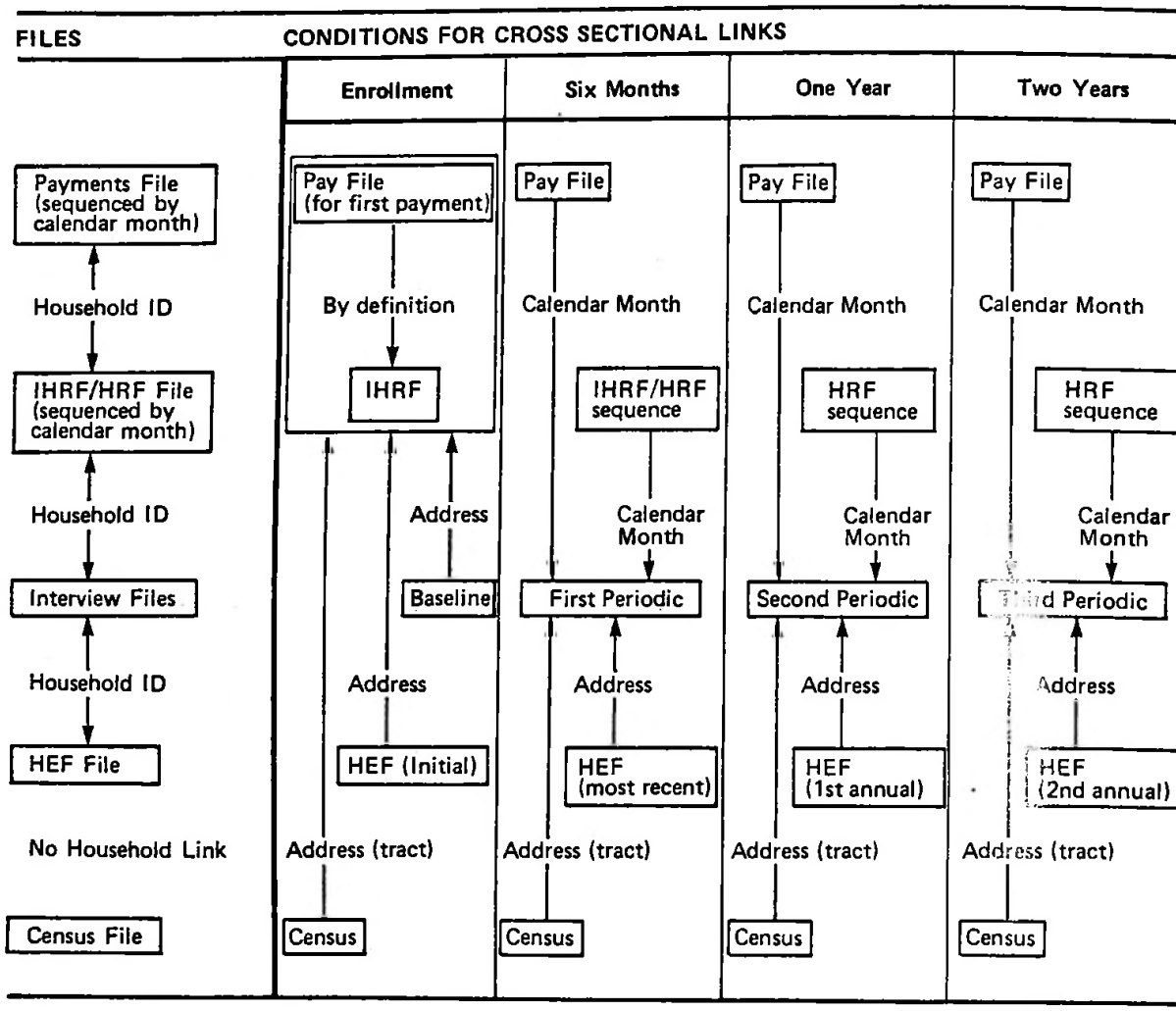
	BASELINE/IHRF		IHRF/FIRST PAYMENT		
	Mean	Standard Deviation	Mean	Standard Deviation	Sample Size
PITTSBURGH					
Housing Gap	2.2	(1.4)	1.6	(1.3)	720
Percent of Rent	2.3	(1.6)	1.4	(1.3)	528
Control	2.4	(1.5)	0.9	(1.4)	512
PHOENIX					
Housing Gap	2.1	(1.1)	1.4	(1.0)	778
Percent of Rent	2.2	(1.2)	1.4	(1.0)	497
Control	2.1	(1.1)	0.1	(0.5)	566

SAMPLE: All enrolled households.
DATA SOURCES: Baseline Interview, Initial Household Report Form, and payments file.

[1]The data base is constructed so as to note any significant discrepancies between a household's position at the time of the IHRF and its position at the first payment. The only significant discrepancies concern Housing Gap households that moved or changed status with respect to housing requirements between the IHRF and the first payment. There were fewer than ten such households.

Figure 5–1

SCHEMATIC REPRESENTATION OF ANALYTIC CROSS SECTIONS



IHRF = Initial Household Report Form
HRF = Monthly Household Report Form
HEF = Housing Evaluation Form

The payments file indicates the initial payment status for Experimental households and, for Housing Gap constrained households, whether or not housing requirements were met at enrollment. The initial address and the initial rent and demographic variables were derived from the IHRF[1] and are current as of the administration date. The initial income, derived from the IHRF, is the annual income over the twelve-month period immediately preceding the month in which the IHRF was administered. The IHRF address determined whether or not the initial HEF and the Baseline Interview could legitimately be associated with the initial cross section. The IHRF address also determined the Census tract data associated with the initial cross section.

Figure 5-1 includes a summary of the types of data used to link various data sources to cross sections that correspond to the First, Second, and Third Periodic Interviews. The post-enrollment cross sections correspond to real events (the completion of Periodic Interviews) rather than to arbitrary fixed time intervals. Because post-enrollment cross sections are built around the Periodic Interviews, responses recorded in the interviews can be compared directly with data on program status, rent, and demographics for the same calendar month and with housing and Census neighborhood data that correspond to the interview address.[2] Income variables for post-enrollment cross sections represent annual income for the twelve-month period ending in the cross-sectional month. For the month of the First Periodic Interview these variables are derived from data for the last few months on the IHRF and from the sequence of monthly HRFs that follow the IHRF.

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[1]Race and education of household head were derived, regardless of address changes, from the Baseline Interview; they did not appear in the IHRF.

[2]In the few cases where the Periodic Interview is unavailable for an active household, payments file (program status) and IHRF/HRF (income, rent, demographics) data are accessed for the calendar month that corresponds, for the given household, to the mean month of program participation in which the interview was administered in the sample. HEF (housing) and Census (neighborhood) data are then accessed for the current address (from the IHRF/HRF file) for the specified calendar month.

After the data sources were linked at the analytic time periods, key variables--such as income, demographic characteristics, rent and rent burden, housing standards and occupancy measures, and moving status--were derived. Table 5-2 indicates the data sources used to derive each of these variables.

The derivation of key variables usually required numerous listings of detailed components from the source data. The variable values for a representative sample of households were calculated manually to check the computer derivations. In addition, values outside the acceptable range were investigated and missing values were assigned.

At the final stage of analytic data base development, key derived variables were recleaned. This involved a preliminary analysis--usually by cross-tabulations--of key responses in terms of selected demographic variables and the experimental payment plans. Anomalous responses or correlations were investigated to determine whether they were due to errors in the collection, transmission, or processing of data. Analytic cleaning was also the first step in actual data analysis; such cleaning helped identify strong correlations among variables, sharp breaks in response patterns, and other factors important for the specification and interpretation of complex statistical models.

5.2 DATA BASE DOCUMENTATION

To ensure that the data base is maximally useful and that analytic runs will be properly specified and interpreted, extensive data base documentation materials have been prepared for use by the Cambridge staff. The major pieces of documentation are briefly described below.

Data Element Dictionary. The Demand Experiment data base contains up to 7,000 variables that describe each household. More than 1,300 variables describe each household at the initial cross section, and over 2,000 variables describe each active household at the cross section two years after enrollment. The Data Element Dictionary provides a complete listing of the variables available for analysis and thereby serves as a convenient reference guide to the data base as a whole. The dictionary is divided into sections that correspond to data sources, and is sorted alphabetically by data source and by variable name within each data source. Each variable

Table 5-2

DATA SOURCES USED TO DERIVE KEY VARIABLES

VARIABLES	DATA SOURCES	
	ENROLLMENT	POST-ENROLLMENT
Rent	Initial Household Report Form, Housing Evaluation Form, Baseline Interview	Household Report Form, Housing Evaluation Form, and Periodic Interview for cross section
Income	Initial Household Report Form	Twelve-month history from Household Report Forms
Demographics Race/Ethnicity Education Age of Head Sex of Head Household Size Household Composition	Baseline Interview, Initial Household Report Form	Baseline Interview, continuous history from Household Report Forms
Move Status	Initial Household Report Form	Initial Household Report Form, Periodic Interviews
Program Status Current Status Reason for Minimum Payment Housing Requirement Status	Payments File	Payments File
Income Eligibility Status	Initial Household Report Form, Household Events List	Initial Household Report Form, Household Events List
Program Housing and Occupancy Standards Minimum Standards	Housing Evaluation Form	Housing Evaluation Form for cross section
Occupancy	Initial Household Report Form, Housing Evaluation Form	Housing Evaluation Form and Household Report Form for cross section

is documented with the correct variable name, a brief description of the data it defines, the analytical cross sections for which it is available, the number of data characters, and the number of decimal places, if any.

Codebooks. A codebook is provided for each of the major data base files (the tape record layouts described below serve as codebooks for the interview files). Codebooks contain detailed descriptions of all variables in the file, as well as information on valid and missing values. Data sources for variables derived from multiple data sources are specified. Extensive background information is presented for variables with complex derivations, such as housing standards components. The introduction to each codebook contains a description of the variables, data sources, methods of collection, and the analytic cross sections for which variables are available.

Tape Record Layouts and Other Interview Material. The tape record layouts are used as codebooks for variables that appear in interviews administered by the National Opinion Research Center (NORC). Tape record layouts are available for the Screening, Baseline, First, Second, and Third Periodic Interviews; for Exit Interviews of Non-Participants and Program Terminees; and for the Program Comparison Interview. Codes for the complete range of allowed values (valid and missing) for each variable are included. Skip patterns that affect the sample for which a particular variable is available are documented as "absolute" and "relative" consistency requirements. Other available interview materials include: (1) the actual interviews; (2) complete "other" lists, which record verbatim responses for cases that could not be coded according to the scheme adopted for a particular open-ended variable; and (3) "training" interviews, which contain detailed instructions on how to administer each item.

Interview Index. The Interview Index is a reference guide to the data items included in the survey instruments. It provides a summary of the data items included in each interview and a cross reference for items included in more than one interview. Each item is represented by a paraphrase of the original question and by the appropriate question number for each interview in which it appears. The Index is divided into 12 sections, or subject categories, that correspond to major areas of analysis or to natural divisions in the data (such as search and mobility, participation,

or data on nonhousing expenditures). This format allows the Index to be used as a concise, yet complete guide to the interview items available on any given analysis topic.

Background Information Memos on Derived Variables. The information provided on key derived variables in the codebooks is condensed, simplified, and oriented toward the production of accurate specifications for computer runs. The background information memos provide important additional material that is not suited to the codebook format--detailed technical and reference material relating to variable derivations, and general background material relating to methods and rationale for developing particular variables. The technical material on derived variables includes complete specifications of source variables and step-by-step descriptions of the processes of derivation; derived variables are specified as mathematical functions of source variables. The general background materials address the appropriateness or interpretation of derived variables by summarizing the issues considered in the derivation process. This material can help in deciding which variable among a related set is most suited to a particular analysis. Aspects of derived variables that could lead to interpretation problems if not properly understood are also presented.

Computer Output Files. The computer output files are the central source for current descriptive data on variables, and for historical documentation of file development, of the creation of derived variables, and of the specific runs used in preparing reports. The output files are of four types: (1) descriptive statistics; (2) key data "dumps"; (3) report backup; and (4) variable and file development.

Descriptive statistics (cross-tabulations, frequencies, and condescriptives) for almost every variable in the data base provide information that is useful in initially specifying analytic runs. These statistics indicate, for example, the sample sizes available under various specifications, or the most appropriate values at which to establish categories for continuous variables. Statistics are ordinarily based on the largest sample for which data are available, and are arranged in binders that correspond to sections in the Data Element Dictionary and the codebooks.

Key data dumps contain case-by-case listings of certain sets of related observations. They provide concrete examples of relationships among observations, which are useful in understanding general relationships more clearly. This output is also useful as backup material for investigating unusual cases that appear during the course of analysis. Key data dumps include: (1) payments: values of the key payment variables for each month of participation; (2) mobility and geocode: a complete set of mobility variables, Census tract and block of residence, Census tract of workplace, X and Y coordinates of residence at each analytic cross section; (3) cycle/date: date and payment cycle number of each analytic cross section; (4) HEF: key variables for every Housing Evaluation Form on file.

The report backup files contain output used in the analysis and writing of analytic reports. Report backup can be used to explore reported findings in greater detail.

Variable development materials document the derivation processes summarized in the background information memos on derived variables; the final program used in the derivation is also available. File development materials document the contents of and the relationships among various files.

At the beginning of 1977, less than nine months after the final data had been collected from participants, data base development and documentation was completed. The thorough and timely completion of this task provides the foundation for the final set of analyses and reports on the Demand Experiment in 1977 and early 1978.

REFERENCES

Abt Associates Inc., Third Annual Report of the Demand Experiment, Cambridge, Mass., October 1976.

APPENDIX I

SUMMARIES OF REPORTS BASED ON FIRST-YEAR DATA

Chapter 3 of this report is based on analyses using first-year observations from the Demand Experiment; the results have been reported in a series of technical reports produced during 1976 and early 1977. Summaries from these reports are reproduced in the following pages.

SUMMARY

PARTICIPATION UNDER A HOUSING GAP FORM OF HOUSING ALLOWANCE

This report is one of a series on the first-year results of programs being tested in the Housing Allowance Demand Experiment.[1] The subject of this report is the participation of eligible households in a Housing Gap form of housing allowance.

A Housing Gap allowance is designed to make up the gap between the cost of modest, existing, standard housing and the amount that eligible low-income households might reasonably be expected to spend for housing. Eligible households select their own housing but receive allowance payments only if that housing meets certain requirements. Two kinds of housing requirements are tested in the Demand Experiment. Minimum Standards requirements specify minimum physical quality and occupancy standards for the dwelling unit. Minimum Rent requirements specify a minimum amount that recipients must spend for housing, but otherwise leave the exact type of housing up to recipients. This report analyzes differences in participation rates associated with differences in payment levels, housing requirements and the demographic characteristics of households.

The Demand Experiment started with a sample of apparently eligible households in each site. This sample was drawn on the basis of pre-enrollment interviews and was randomly assigned to one of the experimental allowance plans before households were told about the program. Households in the sample were then individually approached and offered an opportunity to participate in the allowance plan to which they had been assigned. Some households refused to be interviewed for the program or broke off the interview before hearing what the program offered. Households that did

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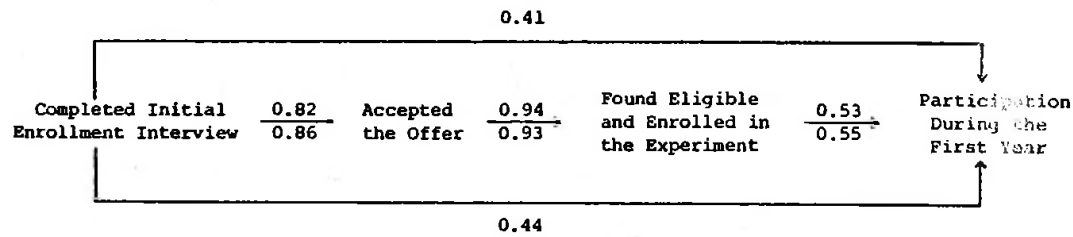
[1] The Demand Experiment, conducted in Allegheny County (Pittsburgh), Pennsylvania, and Maricopa County (Phoenix), Arizona, is one of three experiments sponsored by the U.S. Department of Housing and Urban Development to test alternative programs for helping low-income households to improve their housing. Final evaluation of the program tested in the Demand Experiment will be based on data collected from participating households during two years. Reports based on first-year data lay the groundwork for further analysis by establishing and testing analytic techniques and identifying key issues. The findings reported here must, therefore, be regarded as partial and preliminary.

complete the initial enrollment interview of about 15 minutes could then accept or reject the offer. Households that accepted were then enrolled in the experiment if a review of income and household size and composition showed that they were in fact currently eligible. Enrolled households could participate in the programs (receive an allowance payment) as soon as they met the housing requirements. Thus, households participated in the allowance programs if they completed all of these steps--completing the enrollment interview, accepting the offer, enrolling in the experiment, and meeting the housing requirements.

This report analyzes the participation of households that completed the enrollment interview.[1] Thus, the participation rate is defined as the proportion of households completing the enrollment interview that accepted the offer, enrolled in the experiment and met the housing requirements (received an allowance payment) some time during the first year after enrollment.[2]

The proportion of households that passed through each of the steps in participation are shown below (numbers above the lines refer to Pittsburgh, those below the lines refer to Phoenix).



[1]Households that did not complete the initial enrollment interview are excluded from the analysis because, while they may have been rejecting the allowance program, they may also simply have been refusing to have an interview. Which of these reasons was involved will be further examined in the final analysis. If all households contacted were included in the base, the overall participation rates would be 24 and 30 percent in Pittsburgh and Phoenix, respectively, as opposed to the 41 and 44 percent figures shown in the chart.

[2]Households that did not meet the housing requirement received a monthly cooperation payment of $10 as long as they continued to meet other requirements such as filing regular reports on income and household size. Such households could still participate at any time during the remaining two years of the experiment by meeting the housing requirements.

The central issue addressed by the analysis is the extent to which participation rates will differ first, under different payment levels and housing requirements and second, among different demographic groups. The effects of these factors are analyzed in terms of their impact both on overall participation rates and on individual stages in participation--in particular, acceptance of the enrollment offer and the subsequent participation of households that accepted the offer and enrolled in the experiment.[1]

In addition, special attention is paid to the way in which households' pre-enrollment housing affected their subsequent participation. About one-third of the enrolled households already met requirements when they enrolled (34 percent in Pittsburgh and 31 percent in Phoenix). All of these households automatically received payments (became participants) once they were enrolled. Of the households that did not already meet requirements, on the other hand, only 28 percent in Pittsburgh and 34 percent in Phoenix became participants by the end of the first year. Thus, one important source of differences in participation rates for different housing requirements or demographic groups is simply the difference in the proportion of households that already met the requirements before enrolling.

The findings of the first-year analysis are summarized below.

1. Differences in the level of allowance payments had a substantial impact on participation. Higher payments led to higher acceptance rates for households offered enrollment and higher participation rates for enrolled households.

   Three payment levels were tested in the Demand Experiment. Average monthly payments at the highest payment level ($81 in Pittsburgh and $102 in Phoenix) were about twice those at the lowest payment level ($40 in Pittsburgh and $52 in Phoenix).

   The estimated difference in participation rates between the highest and lowest payment levels was 19 percentage points in Pittsburgh (from 32 to 51 percent) and 15 percentage points in

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[1] As indicated in the chart, there was an additional step between acceptance and enrollment. This consisted of a final review of household eligibility. The step is not analyzed separately since it does not involve any decision by the household--almost every household found eligible did in fact enroll.

Phoenix (from 37 to 52 percent). In terms of the individual stages of participation, higher payment levels significantly increased both the probability of acceptance and the probability that an enrolled household would participate at each site.

2. Higher Minimum Rent requirements led to lower participation rates.

Two Minimum Rent levels were tested. The higher level was 28 percent above the lower level (or about $28 per month higher in Pittsburgh and $36 per month higher in Phoenix for a family of four). The estimated difference in participation rates under the two Minimum Rent levels is 15 points in Pittsburgh and 21 points in Phoenix.

3. Participation under a Minimum Standards requirement appears to be lower than under a Minimum Rent requirement that requires the same level of housing expenditures, though the evidence for this is stronger in Pittsburgh than in Phoenix.

The housing expenditures of Minimum Standards households that met requirements after enrollment were used to estimate the average level of housing expenditures required to meet Minimum Standards at each site. Estimated participation rates under a Minimum Rent requirement at this level are 10 percentage points higher in Pittsburgh and 4 percentage points higher in Phoenix than under a Minimum Standards requirement.

4. It appears that differences in housing requirements affect participation mainly by changing the proportion of eligible households that already meet requirements. Changes in requirements have little or no effect on acceptance rates or on the participation of households that do not already meet the requirements.

Acceptance rates were not significantly different for the two Minimum Rent levels or between Minimum Rent and Minimum Standards requirements at either site. The proportion of enrolled households that already met requirements was different. Since participation rates are much lower for households that do not already

meet requirements, this affects the overall participation rate. If a household did not already meet requirements, however, there was no further effect on participation from differences in housing requirements. Apparently, the key factor in determining participation is whether or not households already meet whatever requirement is imposed, without regard to the specific details of the requirement.

Other analysis has suggested that the relative participation of households that already meet housing requirements and those that do not, also determines how much of the allowance payment is allocated to increased housing expenditures and how much is used to help pay for current housing with no increase in expenditures.[1] Thus setting requirements involves an apparent trade-off between participation and housing impact. More stringent requirements reduce the proportion of eligible households that already meet the requirements and hence reduce the overall participation rate. At the same time, by reducing the proportion of participating households that already met requirements, they will raise the proportion of allowance payments allocated to increased housing expenditures.

5. Smaller households and households with higher incomes were more likely to participate. This suggests that a payment formula different from the ones tested might be desirable. In particular, it appears that payments to households in the lowest income categories need to be relatively larger in order to give them an equal chance of participating.

Under the Housing Gap payment formulas used in the Demand Experiment, smaller households and households with higher incomes were offered smaller allowance payments. These households tended to accept the enrollment offer less often, apparently reflecting the lower payment offered them. They were, however, much more likely to have met housing requirements already, and thus more likely to participate once enrolled. Indeed, in Pittsburgh they were also

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[1] See Friedman and Kennedy (1977).

more likely to participate even if they did not already meet requirements. The net effect was a higher overall participation rate. The estimated difference in participation rates between households with an annual income of $7,000 and those with an annual income of $2,000 is 28 percentage points in Pittsburgh and 12 percentage points in Phoenix (the difference is only significant in Pittsburgh). The difference between six-person and two-person households is estimated to be 16 percentage points in Pittsburgh and 18 points in Phoenix.

This suggests that it might be desirable to adjust either the payment formula or, in the case of household size, housing requirements. For example, in the Housing Gap plan considered in this report, allowance payments were reduced at a rate of 25 percent of income. In other words, the increase in payments to lower income households relative to higher income households was 25 percent of the difference in their incomes. The preliminary estimates in this report suggest that a rate of 44 percent in Pittsburgh and 39 percent in Phoenix would be necessary to give lower income households the same chance of participating as higher income households. These figures are not exact and need to be tested further. They do suggest that poorer households are at a relatively greater disadvantage in obtaining decent housing than is implied by the 25 percent rate of adjusting payments.

6. Older households were less likely to participate.

Older households were significantly less likely to participate at both sites. The estimated difference in the probability of participating for a household headed by someone 64 years old as compared with a household headed by someone 24 years old, is about 12 percentage points in Pittsburgh and 17 percentage points in Phoenix. The reasons for this vary between the two sites. In Pittsburgh, older households were less likely to accept the offer. Once enrolled, however, they were no less likely to participate. In Phoenix, on the other hand, older

households were no less likely than younger households to accept the offer, but were much less likely to participate once enrolled; older households in Phoenix less often met requirements already and if they had not met requirements were much less likely to meet them subsequently. This last factor seems to be related to a lesser willingness to move.

7. Minority households were significantly less likely to participate in Phoenix (where most minority households were Spanish American) but not in Pittsburgh (where most were black).

Minority households in Phoenix had an estimated participation rate 19 percentage points below that of nonminorities (almost half the rate for nonminorities). There was no significant difference between minority and nonminority participation in Pittsburgh. Minorities at both sites were less likely to have already met requirements and hence less likely to participate once enrolled. This was offset in Pittsburgh by a higher propensity to accept the offer and exacerbated in Phoenix by a lower propensity to accept the offer.

8. There is evidence that willingness to move is an important factor in participation.

Other work has shown that the probability of moving is positively associated with prior mobility.[1] The estimated difference in participation rates between households that had moved three times in the three years before enrollment and those that had not moved at all is 17 percentage points in Phoenix and 8 percentage points in Pittsburgh. While this effect is only significant in Phoenix for overall participation, the effect on the probability of participating once enrolled is significant at both sites. There is some evidence that the smaller effect in Pittsburgh reflects both a weaker relationship between prior mobility and households' later propensity to move and some difficulty in finding Minimum Standards housing.

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[1] See Weinberg et al. (1977).

9. While overall participation rates are much the same at the two sites, this may mask substantial differences.

No explicit tests of site differences are presented for the preliminary analyses in this report. It appears, however, that the similarity of overall participation rates may be the result of the higher price of housing and higher mobility rate in Phoenix offsetting one another.

10. The basic model for participation developed in this report appears to be confirmed. The theoretical and empirical results suggest further work to improve the accuracy and stability of the estimates.

In general the predictions of the basic participation model are met. It is apparent, however, that the preliminary specification used in this report needs to be refined further. It does not yet adequately identify the different factors involved in participation and is subject to some instability in estimates.

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SUMMARY

HOUSING EXPENDITURES AND QUALITY, PART I: HOUSING EXPENDITURES UNDER A PERCENT OF RENT HOUSING ALLOWANCE

This report is one of a series on the first year results of programs being tested in the Housing Allowance Demand Experiment. The Demand Experiment, conducted in Allegheny County (Pittsburgh), Pennsylvania, and Maricopa County (Phoenix), Arizona, is one of three major experiments sponsored by the U.S. Department of Housing and Urban Development to develop and test alternative programs for helping low-income households improve their housing. The programs tested in the Demand Experiment will be finally evaluated on the basis of two years of program operations. Reports such as this one are intended to lay the groundwork for further analysis by developing appropriate analytic techniques and by identifying key analytic issues. The findings reported here must, therefore, be regarded as partial and preliminary.

The subject of this report is Percent of Rent housing allowances, one of the major types of housing allowance payment formulas being tested in the Demand Experiment. Under Percent of Rent, eligible households are assisted in obtaining decent housing by a rebate equal to some fraction of their monthly rent. Within the Demand Experiment, households were divided into five groups receiving rebates of 20, 30, 40, 50, or 60 percent of their monthly rent, depending on the group. For example, a household receiving a 20 percent rebate would be given $20 if its rent were $100 and $30 if its rent were $150; a household receiving a 50 percent rebate would receive $50 and $75 for the same rents.

A Percent of Rent subsidy creates a distinct incentive for families to increase their housing consumption. It does so by making housing, in effect, a "bargain" relative to other goods and services. A household receiving a 50 percent rebate, for example, has its rent cut in half whether it stays where it is or moves to other housing. Price cuts, in the case of most goods, normally lead to increases in demand. When the price cut is in the form of a Percent of Rent housing allowance, demand for housing is expected to increase--and housing conditions to improve commensurately.

The most obvious potential advantages of this kind of payment are that it automatically ties housing payments to a household's own contribution toward meeting its housing needs and does so in an administratively simple way; it

allows each household a wide range of choice; and it automatically adjusts payments to take account of local housing costs. Whether or not such a program would work in reality is not known. Households may or may not use their rebate to improve their housing. Even if they do spend the rebate on housing, they may or may not obtain decent housing that meets government policy objectives, unless specific housing standards are imposed and enforced. The rebate may lead households to shop less carefully, paying more than they would otherwise or even colluding with landlords to raise rents artificially. Furthermore, how effective, efficient, and equitable such a program would be depends on exactly how sensitive families are to the implicit price cuts provided by the subsidy.

Planning a housing allowance program that would be effective, efficient, and equitable must be based on detailed information about how different sorts of families in different places respond to varying rebates. The analysis described here represents a first step toward providing tools that may be used to design and evaluate alternative programs. Its primary focus is on measuring how families change their housing expenditures in response to different rebates. It also examines how changes in nonexperimental variables, particularly income, affect housing expenditures. Finally, it looks at how housing expenditure changes are likely to be used to obtain better quality and less crowded housing.

Because the Demand Experiment is still in progress, the results presented here should be seen as elements of a progress report on how Percent of Rent subsidies appear to be working at the end of the first year, and not as final returns on their efficacy as a policy instrument. For example, experimental simplicity necessitated that the fraction of rent returned as a subsidy not be varied by income or rent level; possible national programs might well vary the subsidy fraction according to a family's income or rent. The analysis presented here does, however, present a framework that would permit one to decide how to vary the fraction in a more general program. In addition, much of the analysis is exploratory, and some of it may well be modified as a result of an additional year of experimental data or of the development of alternative analytical perspectives. Nevertheless, this analysis offers rich insights into the nature of housing demand and the workings of Percent of Rent subsidies, even after only one year of the experiment.

The following major conclusions emerged from the analysis of the first-year data:

1. Percent of Rent subsidies significantly increased first-year housing consumption at both experimental sites relative to Control groups. Increases differed greatly between the two sites.

   Overall, households spent an average of $111 per month on housing in Pittsburgh and $130 in Phoenix before joining the program. Average monthly increases above Control group changes ranged from $2 to $8 in Pittsburgh and $5 to $21 in Phoenix, depending on the level of rebate offered. Thus, although the sample populations were apparently similar, housing consumption consistently increased by two to three times as much in Phoenix as in Pittsburgh. Increasing the rebate percentage resulted in increased spending, at all levels of rebate.

   Different outcomes may be explained in part by a far "tighter" housing market in Pittsburgh. If the supply of attractive available housing is limited so that households have few units from which to choose and difficulty in finding suitable units, then they are less likely on average to increase their spending on housing. Also, if housing is difficult to acquire, households may be less likely to move to higher-priced housing that they may have to vacate when the experimental program ends.

   Data support the hypothesis that Pittsburgh has a tighter housing market: the mean number of days spent searching for new housing was 95 in Pittsburgh versus only 33 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; rental vacancy rates in 1974 averaged from 2 to 6 percent in subareas of Pittsburgh and above 9 percent in Phoenix.

   Until factors responsible for site differences in responses can be better understood, ability to generalize from experimental results will be limited.

2. Households respond relatively slowly to changes in factors affecting housing demand, such as subsidy payments or household income. This suggests that a housing allowance program using Percent of Rent would only affect housing demand slowly, giving more time for housing supplies to adjust.

It is estimated that the first-year changes in housing consumption are only a small step toward the eventual long run response to Percent of Rent subsidies. Estimated time lags indicate that it would take from two to three years for 50 percent of the eventual long run changes in housing consumption to take place, from five to six years for 75 percent, and from eight to ten years for 90 percent. Time lags appear to result from two distinct factors--relatively low rates of residential mobility, which are unaffected by experimental rebates, and a tendency on the part of some households to adjust housing consumption in a step-by-step manner toward some stable long-term equilibrium position.

Such a time lag has obvious importance for assessing program impact, in terms of both improvements in participant housing, and the impact of a large-scale program on housing prices and housing construction. To the extent that the increased demand for housing generated by such a program is only gradually realized, it may be more readily absorbed by a sustained gradual increase in construction and rehabilitation without generating sharp inflationary pressures on housing costs.

The tentative nature of the time-lag calculations and thus of the long-term estimates of increased housing consumption should be emphasized. Further testing of these estimates is a clear priority for future research using second-year data.

3. Because households respond slowly, estimated long run changes in housing consumption made in response to Percent of Rent subsidies may be considerably greater than first-year responses.

Households take time to move, even in the face of considerable incentives to do so, because leases must be terminated, new units must be sought out, and money to defray moving costs accumulated. During the first year of the experiment, only 26 percent of all participant households moved in Pittsburgh, and only 45 percent

moved in Phoenix. Among households that moved, contrasts between changes in housing expenditures for Control and Percent of Rent households were even more striking than was the case for the combined population of movers and nonmovers, as presented under Conclusion 1. As more households move and change their housing expenditures, during the course of the experiment, the dollar magnitude of Control/Percent of Rent housing consumption differences would be expected to increase, so that the projected long run effects of the program would be larger than the measured one-year effects.

Long run effects of the program are projected to be roughly five to six times larger than the one-year change. For example, for a 60 percent rebate, households in Pittsburgh were projected to have a long-term monthly increase of $39 (versus $8, short run), and households in Phoenix $132 (versus $21, short run).

As in the case of the one-year differences between sites, some of the estimated difference may be attributable to differences in the "tightness" of the two housing markets. It is not clear, however, that long run differences would be as extreme as those currently projected. For example, to the extent that a housing allowance program encourages housing to be built or rehabilitated, this "tight-market" problem could be self-correcting. Furthermore, the long run projection depends crucially on assumptions concerning time lags in responding to rebates. As noted earlier, establishing greater precision in time-lag estimates and hence estimated long run program effects, has a high priority in forthcoming research.

4. Minority households appear to be at least as sensitive as non-minority households, and possibly more so, in their responses to Percent of Rent payments.

First-year rent increases in response to the program are uniformly higher for minorities. In Pittsburgh, the estimated one-year response for blacks is roughly twice that for whites; in Phoenix, both black and Spanish American households are more sensitive than whites as of one year, though only marginally so.

Differences are projected to be similar to short run differences in Pittsburgh, but considerably greater, in relative terms, in Phoenix.

5. The differences in rental expenditures that would be produced at each site imply very different housing quality outcomes.

During the first year, the Percent of Rent subsidies have somewhat increased the quality of the recipients' housing, as measured by the percentage of housing meeting the quality and occupancy requirements required of participants in the other major type of housing allowance being tested in the Demand Experiment.

Projections of the long run impact of the program indicate that the percentage meeting the requirements would increase as the subsidy percentage increased. In Pittsburgh, however, the estimated long-term percentage of participants living in housing meeting quality requirements would increase by only 17 percentage points at the highest subsidy level, and the increase in households meeting occupancy (crowding) requirements would be only 8 percentage points. In Phoenix, the situation is projected to be a good deal better, but only for a 60 percent rebate would the projected long-term percentage of households meeting the housing requirements surpass 80 percent.

Differences between the housing quality outcomes at the two sites are attributable almost wholly to projected long run differences in rents, since the overall relationship between rent levels and ability to obtain housing meeting the program's standards is very similar at the two sites. That is, for equal rents, households have roughly equal changes of occupying housing that meets program quality requirements.

It is possible that the program's standards are too high or too arbitrary to use as indicators of housing quality. Nevertheless, the Pittsburgh long-term estimates suggest that the subsidy levels there would have to be increased a good deal to meet a long-term goal of decent housing for the majority of potential housing allowance recipients.

6. The estimated response differences between sites imply that very different proportions of total subsidy payments would be spent on increased housing consumption at each site.

The importance of the difference between Pittsburgh and Phoenix can be seen by examining the long-term estimate of the percentage of the housing subsidy projected to be spent on housing in the two cities. In Phoenix, for all percentages of subsidy, it is projected that about 81 percent of the subsidy would eventually go for rent; in Pittsburgh, the comparable figure would be only 38 percent. Thus, the Percent of Rent subsidy appears to be working primarily as a housing subsidy only in Phoenix; in Pittsburgh it acts mainly as another form of income.

7. Percent of Rent subsidies are likely to produce changes in housing expenditures that are several times larger than those likely to be produced by unrestricted cash grants of equal value.

The effects of unrestricted cash grants, such as "Negative Income Tax" payments, depend on how sensitive housing expenditures are to income changes. While the analysis found that households are more responsive to changes in "permanent income" (long run expected, "normal" income), than to changes in "current income" (income including transitory, unexpected, "abnormal" components), the expected housing expenditure changes resulting from even permanent income changes are nevertheless small.

Economic theory suggests that the "price incentive" for increased spending on housing that is created by Percent of Rent subsidies will be larger than the "income incentive" created by a straightforward cash grant that is unrelated to housing expenditures. The former is, in effect, a "matching grant" which rewards a household increasingly for its own expenditures, whereas the latter is, in effect, a "lump-sum" transfer without particular incentives for increased housing expenditures. Thus, households are expected to spend more on housing of each dollar of a Percent of Rent subsidy than they would each dollar of a direct, unrestricted cash grant.

The experiment permits a direct test: families at both sites who received unrestricted income transfers (a small proportion

of all "Experimental" households) consistently increased their housing expenditures by only about one-third as much as families who received Percent of Rent subsidies of equivalent amounts. Other comparisons further substantiate the strong effect of Percent of Rent subsidies relative to direct cash grants which are unrelated to income. There can be no doubt that the Percent of Rent subsidy program is strikingly more effective in inducing recipients to increase their housing consumption than is an unrestricted income transfer program.

8. Potential biases in the experiment attributable to its limited duration do not, at this time, seem serious.

As is made clear above, Experimental households are acting "rationally" by increasing their housing consumption and increasing it more in response to price subsidies than in response to direct income subsidies not related to rents. Parameters relating consumption, price, and income, racial differences in responses, and time lags in adjusting housing consumption to new circumstances all fall within the range found by previous investigators using nonexperimental data. The fear that recipients would treat the subsidies as a "windfall" and not significantly modify their housing is not justified by this experiment's findings. On the other hand, differences in estimated responses between Pittsburgh and Phoenix may be affected somewhat by the limited experimental duration. The tight market in Pittsburgh, which inhibits moving during the first year of the experiment, may further dampen housing responses if households fear that they may have to move again at the end of the experiment, thereby incurring large search and moving costs. Were the subsidy "permanent" this latter deterrent would not be present. This is an issue that bears further research.

9. First-year responses were apparently affected by some participants' misunderstanding of the nature of the Percent of Rent offer.

Responses to a First Periodic Interview question (asked roughly six months after enrollment in the experiment) indicated that a substantial minority (about one third in Pittsburgh and one

quarter in Phoenix) may not have fully understood that the amount of their payment would increase as their rent increased. Those households that gave the "wrong" answer did increase their housing expenditures in response to the payment, but the estimated sensitivity of such households was only half that of households who (correctly) believed payments would rise when expenditures did.

In general, after one year the experimental participants receiving Percent of Rent subsidies are behaving largely in accordance with expectations, modifying their housing consumption in rational ways according to experimental offers. Estimates of the mathematical parameters governing their behavior correspond well with previous results, where available.

Nevertheless, important analytical tasks lie ahead. The time lag between changed circumstances and changed housing consumption necessitates caution in inferring long run impacts of Percent of Rent subsidies and requires careful conceptual modeling; second-year data from the experiment should be extremely helpful in testing alternative models. Reasons for differences in housing consumption responses between Pittsburgh and Phoenix need to be more fully explored. The ways in which various demographic groups respond to the subsidy have only begun to be analyzed, as has the role of family mobility in determining housing consumption. Finally, ways in which subsidies are used to gain improvements in specific elements of housing and neighborhood quality or to break through racial barriers in the housing market are important items for continuing research.

SUMMARY

HOUSING EXPENDITURES AND QUALITY, PART II: HOUSING EXPENDITURES UNDER A HOUSING GAP HOUSING ALLOWANCE

This report is one of a series on the first-year results of programs being tested in the Housing Allowance Demand Experiment. The Demand Experiment, conducted in Allegheny County (Pittsburgh), Pennsylvania, and Maricopa County (Phoenix), Arizona, is one of three major experiments sponsored by the U.S. Department of Housing and Urban Development to develop and test alternative programs for helping low income households improve their housing. The programs tested in the Demand Experiment will be finally evaluated on the basis of two years of program operations. Reports such as this one are intended to lay the groundwork for further analysis by developing appropriate analytic techniques and by identifying key analytic issues. The findings reported here must, therefore, be regarded as partial and preliminary.

The type of program discussed in this report is a Housing Gap form of housing allowance. Under a Housing Gap allowance, eligible households are assisted in obtaining decent housing by paying them a housing allowance based on the size and income of the households. These payments are designed to make up the gap between the cost of modest, existing, standard housing and the fraction of their income which a household might reasonably be expected to devote to housing. Households receive allowance payments only if the housing that they rent meets housing requirements. Two kinds of housing requirements are tested in the Demand Experiment--Minimum Standards and Minimum Rent. Minimum Standards requirements specify minimum physical quality and occupancy standards and size for the dwelling unit. Minimum Rent requires recipients to spend at least a minimum amount for housing, but leaves the exact type of housing up to recipients.

The Demand Experiment tests eleven different Housing Gap allowance plans. Variations among these plans were created by varying the payment schedule and by varying the type of housing requirements. In addition to the Housing Gap plans, there is a special "Unconstrained" plan. Households in this plan received allowances according to the Housing Gap payment formula, but were not required to meet any housing requirements. The Unconstrained plan allows a direct comparison with a general income transfer program. There is also a large group of Control households, which received only a token cooperation payment.

The analysis presented in this report is focused on the effect of the allowance plans on recipients' housing expenditures and rent burden. Future reports will analyze additional measures of housing.

The following major conclusions emerged from the analysis of the first-year data:

1. On the average, recipients of Housing Gap allowances made only modest increases in their housing expenditures during the first year.

   The allowance programs are estimated to have increased recipient housing expenditures by an average of 6 percent in Pittsburgh and 13 percent in Phoenix. These increases represent changes in expenditure beyond those that would normally have occurred due to changes in economic conditions such as inflation, changes in income or other household characteristics, or changes in the housing markets at the two experimental sites.

2. Recipient households had very high rent burdens when they enrolled in the experiment. The allowances reduced their rent burdens to a level which is standard in most conventional housing assistance programs.

   At enrollment, recipients were spending over 40 percent of their income on rent at each site. At the end of the first year, recipient rental expenditures net of the allowance payment were slightly less than 25 percent of income.

3. Overall, recipients devoted less than one-third of the allowance payment to increased expenditures for housing.

   Estimated increases in recipient housing expenditures above normal levels amounted, on average, to less than one third of the allowance payment at both sites (26 percent in Pittsburgh and 32 percent in Phoenix).

4. Recipients that moved during the first year of the experiment increased their housing expenditures much more than those that did not move. However, they still spent less than one-half of the allowance on increased housing expenditures.

Recipient households that moved increased their housing expenditures by an average of 9 percent in Pittsburgh and 21 percent in Phoenix as compared with increases for nonmovers of 4 percent or less at both sites. Estimated increases for movers represent changes in expenditure beyond the normal increases associated with moving. On the average these increases amounted to 33 percent of the allowance payment in Pittsburgh and 46 percent in Phoenix.

Estimates for recipients that moved may provide a better indication of the long-term impact of a permanent Housing Gap allowance program than estimates for all recipients. The allowance does not appear to have induced many households to move; about the same proportion of Housing Gap and Control households moved at each site. To the extent that most households eventually move, most recipients may eventually respond to the allowance program in the way that movers did in the first year. The evidence is only suggestive, however. Analysis of the second year of the experiment is needed to determine whether or not there is a cumulative impact as more households move.

5. The housing requirements appear to be an effective mechanism for allocating allowance payments between increased housing expenditures and reduced rent burden.

Housing deprivation involves both high rent burdens and poor quality housing. To the extent that the experiment's housing requirements adequately reflect the government's policy objectives with respect to adequate housing, there may be little interest in inducing households that already meet the requirements to spend more on housing. Major interest for these households may lie in reducing excessive rent burdens. On the other hand, for households that do not meet the requirements, policy objectives would include both improved housing and reduction of excessive rent burdens.

In fact, households that only met requirements after enrollment allocated from five to seven times as much of the allowance to increased expenditures as households that already met requirements at enrollment. Estimated increases in expenditures above and beyond expected normal increases due to inflation or other factors amounted, on average,

to 48 percent of the allowance in Pittsburgh and 51 percent in Phoenix for households that only met requirements after enrollment as compared with 10 percent and 7 percent, respectively, for households that already met requirements at enrollment.

6. Recipients that only met the housing requirements after enrollment increased their housing expenditures much more than recipients that already met the requirements at enrollment.

   Recipients that only met the requirements after enrollment increased their housing expenditures above and beyond expected normal increases due to inflation and other factors by an average of 12 percent in Pittsburgh and 26 percent in Phoenix. Households in this group that moved had estimated increases of 16 percent in Pittsburgh and 30 percent in Phoenix.

   Estimated increases in expenditures above normal levels for households that already met requirements at enrollment were less than 2 percent at both sites. These results are generally consistent with the notion that these households responded to the allowance in much the same way as they would have to any other increase in income (including payments from an income maintenance program).

7. Both recipients that already met housing requirements at enrollment and those that only met requirements after enrollment reduced their rent burden substantially.

   Recipients that already met the housing requirements at enrollment had an average rent burden at enrollment of 44 percent at both sites. At the end of the first year, rental expenditures net of the allowance payment for these households were, on average, 26 percent of income. Recipients that only met requirements after enrollment achieved even lower rent burdens, despite their relatively larger increases in housing expenditures. Rental expenditures net of the allowance by these households were about 20 percent of income after one year.

8. There is evidence that in the first year, at least, the allowance program reached only a small proportion of eligible households that would not normally meet housing requirements. Most recipients appear to be households that could be expected to meet the housing requirements without the program. This may, however, change over time.

In terms of households that were still actively enrolled in the experiment after one year, including both those that had met requirements and were receiving allowance payments and those that had not, 39 percent in Pittsburgh and 32 percent in Phoenix met the requirements at enrollment. After one year, 52 percent met requirements at each site. Thus almost half of the households enrolled in the experiment still had not met requirements after one year.

In terms of recipients, more than half already met requirements at enrollment. Furthermore, there is evidence that over half of the households that only met requirements after enrollment could have been expected to meet requirements by the end of the first year without the experiment. Thus, well over three-fourths of recipients may have been households that would have met housing requirements without the program.

This may change over time. Among households that did not already meet the housing requirements at enrollment, those that moved during the first year met requirements from two to two-and-one-half times more often than those that did not move, and over one-and-one-half times as often as similar Control households. Thus the program may reach more households that would not meet requirements as these households move in the second year. This could substantially affect overall results.

9. It appears that responses at the two sites may be similar once differences in residential mobility are taken into account.

The proportion of households that moved in Phoenix was almost twice that in Pittsburgh. Of Housing Gap households that did not meet requirements at enrollment, 29 percent in Pittsburgh and 37 percent in Phoenix met requirements after one year. The major reason for this difference appears to be the higher mobility rate in Phoenix. Further-

more, tests on responses at the two sites suggest that in the context of a multivariate analysis of changes in housing expenditures, after controlling for income and household size and differences in the distribution of participants across the different housing allowance plans, the response of households that moved may not be significantly different at the two sites.

This conclusion is tentative, but it has important implications. If responses are in fact similar except for basic differences in mobility rates, results at the two experimental sites may be more readily projected to other cities.

10. Variations in the type of housing requirements and in payment schedules significantly affected the experimentally induced changes in housing expenditures of recipients that only met the requirements after enrollment.

Higher Minimum Rent requirements resulted in larger increases in housing expenditures. Meeting the Minimum Standards requirements after enrollment generally involved smaller increases in housing expenditures than meeting the Minimum Rent requirements used in the experiment. Increasing payments had a surprisingly small effect on expenditures in comparison to the average effect of the allowance payment. This deserves further investigation. If confirmed, it suggests that there is a point at which increases in payments will yield only marginal changes in the housing of recipients.

11. Variations in housing requirements and payment schedules did not significantly affect the experimentally induced changes in housing expenditures for recipients that already met the requirements at enrollment.

Variations in housing requirements and payment schedules did not significantly affect the mean change in housing expenditures of households that already met the housing requirements at enrollment. This is consistent with the hypothesis that these households responded to the allowance in much the same way as they would have to any other addition to their income.

12. Actual changes in housing expenditures due to the allowance may have been somewhat larger than the estimates reported here.

Estimated changes in housing expenditures reported here include adjustments to correct for possible bias. Uncorrected estimates are generally about five percentage points larger. The patterns of results do not change, however.

13. The results of the first-year analysis provide a firm basis for the final analysis of data from the two years of the experiment.

The basic model proposed for analyzing the responses of Housing Gap households appears to be supported by first-year results. The conclusions of the analysis follow theoretically expected patterns and significant policy distinctions in evaluating the experimental programs. Major issues identified for the final analysis are: 1) the need to combine the analysis of participation in the experimental plans with the analysis of the responses of participants in order to evaluate alternative Housing Gap plans; 2) the importance of evaluating impacts in the light of multiple housing policy objectives and in particular both housing quality and rent burden; 3) the need to analyze responses in terms of additional measures of housing quality; 4) the need to examine the relation between first and second year responses for evidence that there is a cumulative impact as more and more households move; and 5) technical issues of estimation concerning possible bias in estimated effects.

SUMMARY

HOUSING EXPENDITURES AND QUALITY, PART III: HEDONIC INDICES AS A MEASURE OF HOUSING QUALITY

Appropriate measures of housing quality are essential to address most of the policy concerns in the Demand Experiment, including the design of an effective housing allowance and the choice among a housing allowance, other housing programs, and general income maintenance. Some of the major analysis issues that must be addressed once appropriate measures are devised include:

> the extent to which the allowance is translated into increased housing quality;
>
> the extent to which quality obtained for a given amount of rent varies among different demographic groups or different experimental programs;
>
> the extent to which increased housing quality obtained under housing allowance programs differs from that obtained in existing housing programs.

This paper addresses only the development of measures of housing quality; it does not attempt to apply these measures to the analysis of housing quality changes in the Experiment. Such application will occur after the final development and selection of the measures.

A house or apartment is not a homogeneous commodity. It is a complex bundle of attributes including not only the attributes of the unit itself, but also its neighborhood, the quality of public and private services available, and even the characteristics of neighbors themselves. Any approach to measuring quality involves a decision as to which attributes of the housing bundle should enter into the definition of quality and how they should be weighted in determining overall quality. Since weights are not observed, they must be derived from some external criterion, such as market value, consumer satisfaction, or a normative concept of adequacy. The approach to these issues depends on whose point of view is being considered and what use is to be made of the quality measure. Policymakers, health and safety planners, environmentalists, individual consumers, and the "marketplace" may select and weight housing attributes quite differently. Thus, it should be emphasized that no single definition of quality is likely to be ideal for all purposes.

Three approaches to measuring housing quality will be used in the Demand Experiment based on direct information concerning policy concerns, on individual recipient preferences and satisfaction, and on market values. None is ideal, but each complements the others.

In terms of policy criteria, one of the experimental programs includes a Minimum Standards housing requirement, which participants must meet in order to receive an allowance payment. These Minimum Standards represent a modified subset of the American Public Health Association code and are very like the housing requirements used in the Section 8 Leased Housing Program. They thus provide a good proxy for a policy measure of acceptable and unacceptable housing.

At the same time, whether a unit passes or fails such standards provides a very limited measure of housing quality. Units are either acceptable or not; there are no other grades of quality. Furthermore, the measure is limited to a few features of the unit itself; it provides no indication of neighborhood quality, nor any reflection of recipient satisfaction with housing. Finally, the Minimum Standards themselves are not irrefutable. Any specific item may be challenged.

A previous report explored the relation of Minimum Standards to rent levels and attempted to develop finer resolution by developing five grades of standards (including the Minimum Standards used in the experiment) and by examining the various components of Minimum Standards separately (Abt Associates, 1975). The present report also extends this work to consider a measure based on the number of components failed.

Another method for rating the quality of units is to use the tenant's expressed satisfaction with the unit and its neighborhood. Such measures have already been discussed in a preliminary way in previous reports and will be explored further in a separate report using data from the first year of the experiment. These measures complement the Minimum Standards measures by taking explicit account of recipients' own sense of how their housing changed.

The bulk of this paper is devoted to the hedonic index approach to measuring housing quality. The hedonic approach assumes that for the

market as a whole rent is strongly related to housing quality, in the sense that higher priced units reflect a general consensus that they are better (higher quality) units. However, rent is also determined by a variety of other factors not related to quality. Inflation by definition raises the dollar value of rent without changing quality. Long established tenants may pay lower rents because they are known to the landlord as good tenants. Racial discrimination may force minorities to pay more for units of the same quality. Individual households may simply obtain better deals, paying less than others for a given quality unit.

Hedonic indices provide a way to develop a broad and sensitive measure of housing quality reflecting a large variety of quality attributes. The basic idea involved is to sort out the influence of quality and non-quality factors in determining the market value of units (their rent). This allows the construction of quality indices which are sensitive to both unit and neighborhood characteristics and which do not include non-quality factors such as inflation, tenure conditions, or racial discrimination.

This report applies the hedonic approach to data from Pittsburgh and Phoenix and explores the meaning and limitations of the resulting indices. The report includes estimates of preliminary indices and indicates the further work necessary to develop final indices for measuring housing quality in the Demand Experiment.

Hedonic Index Estimates of Changes in Housing Quality

In order to indicate how an hedonic index estimate of quality change might be used in the analysis, some illustrative calculations have been made for Phoenix using the preliminary results presented in Chapter 3 of this report. Nine housing bundles have been defined which represent possible combinations of dwelling unit and neighborhood quality for housing having "low, moderate, and high" dwelling unit quality and "low, moderate, and high" neighborhood quality.

The "high" quality housing bundle, for example, has higher interior wall and floor quality, has central air-conditioning and adequate kitchen facilities, and also has better quality neighborhood landscaping, fewer

substandard dwelling units in the neighborhood, and better quality public services, such as schools and police protection. In contrast, the "low" quality unit has inadequate kitchen facilities, inadequate heat, inadequate light and ventilation, has inferior surface and structural quality, and less overall neighborhood quality and public services. The "moderate" quality unit represents the average sample amount of the attributes.

Dwelling unit size is held constant in these examples: each housing bundle is assumed to have four rooms. Each total represents the housing quality attribute index estimated in the hedonic equation. Table S-1 shows that the index value for a moderate dwelling unit in a moderate quality neighborhood is about 110; the value of the index increases to 235 for a higher quality unit in a higher quality neighborhood.

Table S-2 shows the change in housing quality which occurs when a household moves from the lowest quality bundle to any other combination of dwelling unit and neighborhood quality. For example, moving to a moderate quality dwelling unit located in a low quality neighborhood increases the index by 29; moving to another low quality unit in a higher quality neighborhood increases the index by about 36. Thus, the hedonic index is sensitive to changes in both dwelling unit and neighborhood quality.

The sensitivity of the hedonic index to changes in neighborhood quality provides a useful contrast to other quality measures such as the Minimum Standards definition of housing quality. Assume for the purpose of illustration that the low quality dwelling unit does not meet Minimum Standards but that the high quality unit does meet them. Then, if a move were made to the better dwelling unit, a change would be recorded in Minimum Standards. If, however, the household moved to a low quality unit in a better quality neighborhood, the hedonic index value would show an increase but there would be no change using the Minimum Standards definition.

Table S-1

HEDONIC ESTIMATE OF HOUSING QUALITY IN LOW, MODERATE, AND HIGHER QUALITY HOUSING[a]

DWELLING UNIT NEIGHBORHOOD QUALITY	LOW QUALITY DWELLING UNIT	MODERATE QUALITY DWELLING UNIT	HIGHER QUALITY DWELLING UNIT
LOW QUALITY NEIGHBORHOOD	68.95	97.54	154.87
MODERATE QUALITY NEIGHBORHOOD	77.60	109.76	174.29
HIGHER QUALITY NEIGHBORHOOD	104.65	148.02	235.04

a. This illustrative case uses hedonic weights for Phoenix.

Table S-2

ESTIMATED CHANGE IN HOUSING QUALITY BY MOVING FROM A LOW QUALITY DWELLING UNIT AND NEIGHBORHOOD TO BETTER QUALITY HOUSING[a]

DWELLING UNIT NEIGHBORHOOD QUALITY	LOW QUALITY DWELLING UNIT	MODERATE QUALITY DWELLING UNIT	HIGHER QUALITY DWELLING UNIT
LOW QUALITY NEIGHBORHOOD	0	28.59	85.92
MODERATE QUALITY NEIGHBORHOOD	8.65	40.81	105.34
HIGHER QUALITY NEIGHBORHOOD	35.70	79.07	166.09

a. This illustrative case uses hedonic weights for Phoenix.

Summary of the Results

Overall, the results of the research done on hedonic indices of housing quality are quite encouraging. The specific results, summarized below, indicate that meaningful measures of housing quality can probably be derived with this technique.

1. The explanatory power of the hedonic estimates is reasonably high.

   In Pittsburgh, more than 60 percent of the variation in (the logarithm of) rent is explained by the available data. In Phoenix, more than 75 percent of the variation is explained. These results give some assurance that the estimated regressions will provide reasonable measures of housing quality.

2. A large number of variables representing housing attributes are significant; furthermore, they represent attributes from all the major component groups of the housing bundle.

   The significant variables represent dwelling unit facilities, dwelling unit quality, dwelling unit size, and neighborhood public services and amenities. Thus, the measure of quality will be sensitive to changes in the consumption of a very broad range of housing services. Moreover, if interest centers on the derivation of subindices representing dwelling unit quality or neighborhood quality, these subindices should also be sensitive to changes in many individual attributes.

3. Many tenure characteristics are significant in explaining variations in rent.

   The equations show that conditions of tenure (including length of residence, relationship to landlord, or presence of landlord in the same building) do, in fact, have an important effect on observed expenditures. This finding confirms the need to eliminate such factors when assessing changes in housing quality. At the present time, no analysis has been made of the effects of inflation. Use of weights based on market conditions at enrollment automatically corrects for inflation. Nevertheless, future work will explore more precisely the effects of inflation.

4. Some evidence exists of price discrimination against residents of minority submarkets in Pittsburgh.

   Extensive tests for price discrimination, on the basis of race of household and submarkets of different racial composition, were conducted in Phoenix and in Pittsburgh. Residents of ghetto areas in Pittsburgh--that is, in submarkets where

more than 50 percent of the residents are black--appear to pay a price premium. The premium appears to be larger for better quality housing.

5. Housing market segmentation does not, however, appear to pose severe problems for the use of hedonic indices to measure housing quality.

   In order to test for housing market segmentation, separate equations were estimated for central city and suburban areas and for different types of buildings, as well as for racial submarkets. In some cases, the estimated coefficients of tenure characteristics and housing attributes were found to differ. However, since the loss in predictive power from using full-sample rather than subsample equations is very small, the use of market average weights appears to be reasonable. Tentatively, then, a single (full-sample) hedonic regression can be used to derive a quality index applicable to all participants in each city.

6. The summative quality index is preferable to an "adjusted rent" index for measuring overall consumption.

   This conclusion is based on assessing the use of the summative index and adjusted rent in the analysis and on the ability to make reliable and accurate adjustments to rent. The summative index is directly affected by changes in housing quality attributes but is not affected by other factors such as inflation or tenure characteristics. In contrast, when estimating an adjusted rent index, these effects must be excluded from actual rent.

7. The results of the analysis of the components of Minimum Standards are also reasonably promising.

   An index based on components of the Minimum Standards is useful as a normative, or target-related, measure of dwelling unit quality and is preferable to the use of program Minimum Standards on a pass/fail basis because it is more sensitive to positive changes in dwelling unit features. Many of the components appear to be highly valued in the market, explaining 21 percent of the variation in rent in Pittsburgh and 36 percent in Phoenix. Thus the components represent both a normative concept of adequacy and a subset of dwelling unit features which command a market price.

The results of the research described in the report are preliminary. Final hedonic regressions must be estimated. They will be based not only on the equations represented here, but also on additional ideas and insights stimulated by this report and on additional neighborhood and accessibility data not being collected. Possible areas for additional study in developing final indices are discussed in Chapter 7 of this

report. The hedonic indices, as well as quality measures obtainable through the normative Minimum Standards approach and consideration of recipient preferences and satisfaction, will be used, along with other data, to analyze housing quality for each of the experimental treatment groups at the two sites.

SUMMARY

LOCATIONAL CHOICE, PART I: SEARCH AND MOBILITY IN THE HOUSING ALLOWANCE DEMAND EXPERIMENT

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 Pheonix). 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 as 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.

SUMMARY

LOCATIONAL CHOICE, PART II: NEIGHBORHOOD CHANGE IN THE HOUSING ALLOWANCE DEMAND EXPERIMENT

This report is one of a series describing 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 of this report is on the effect a housing allowance program has on the kinds of neighborhoods in which participants live. The households studies are low-income, renter households in Pittsburgh and Phoenix and include both Experimental households--those offered a housing allowance--and Control households.[1]

The programs tested in the Demand Experiment will be evaluated primarily on the basis of data from two years of program operations. Reports such as this lay the groundwork for that evaluation by examining first-year responses to the experimental offers[2] and by identifying key analytic issues. The findings presented here must therefore be regarded as partial and preliminary.

Unlike many other forms of housing assistance, a housing allowance is not tied to particular housing units or projects. The household may rent housing

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[1]The Housing Allowance Demand Experiment tests several different formulations of a housing allowance program. The analyses of first-year data presented in this report, however, focus solely on the differences between Experimental and Control households, without distinguishing among Experimental subgroups.

[2]All Experimental households were offered the opportunity to participate in a housing allowance program. In some cases, however, the households had to meet specified conditions (such as occupying a unit that would meet program housing standards) in order to receive allowances. Thus, although all Experimental households received an offer, many of them never participated in a housing allowance program in the sense of receiving payments. Most of the analysis in this report is based on the responses of all households enrolled in the experiment.

of its choice (generally subject to some quality requirements) in the location of its choice. The freedom to choose locations raises two important possibilities. First, an individual household might be able to improve the quality of its living environment by moving to an area with more desirable characteristics. Second, participating households in the aggregate might alter existing residential patterns; possibilities hypothesized in the literature have been dispersion of low-income concentrations, dispersion of racial or ethnic concentrations, and movement from the central city to the suburbs. This report examines the first-year evidence from the Demand Experiment pertaining to these locational issues.

1. The evidence does not indicate that the housing allowance offer brought about major improvements in households' neighborhood quality.

> The measures of neighborhood quality included Census data describing the proportion of low-income households in the Census tract and survey data in which households evaluated the characteristics of their neighborhoods. Both Experimental and Control households moved, on the average, to neighborhoods with reduced concentrations of low-income households and neighborhoods that ranked higher in subjective assessments. But there were no major differences in the average changes for Experimental and Control households.
>
> There is some evidence that the housing allowance program may have influenced neighborhood choices for some subgroups of households or households in particular conditions. Analyses of low-income concentration in the destination neighborhoods indicate that Experimental and Control households behaved differently. There is some suggestion that the program may be useful in helping households living in heavily concentrated low-income areas to move to areas with reduced low-income concentrations. Analysis of two-year data will be required to confirm the stability of the Experimental/Control differences and explore them further.

2. The housing allowance offer does not appear to have induced statistically significant changes in the residential distribution of households.

> Experimental households that moved did not differ significantly from Control movers in terms of racial or ethnic dispersion, dispersion of low-income concentrations, or central city to suburban movement.
>
> Black households and Spanish American households that moved chose neighborhoods of slightly lower racial/ethnic concentration, on the average. Among Spanish American households (in Phoenix), the patterns were essentially the same for

Experimental and Control groups. Among black households (both sites), those in the Experimental group moved to areas of somewhat lower black concentration than those in the Control group, but the difference was not statistically significant. Black households in the Experimental group that actually received allowance payments moved to areas of lesser black concentration than those that did not receive payments, but the number of cases available for analysis was very small. Analysis of the two-year data will pay particular attention to the change in concentration of black households, to determine whether these patterns are found to be significant with a larger number of cases. (The first-year analysis was based on 74 Experimental households and 28 Control households.) However, the first-year data suggest that even if a significant effect is found, it is likely to be small.

There was almost no change in the city/suburban distribution of households enrolled in the experiment, and certainly no major program effect. Households for the most part seemed to move short distances; about a quarter of those that moved stayed within the same Census tract. Although there were some areas (groups of Census tracts) that experienced a net loss of a few households, nearby areas generally showed a net gain, and in any case the net changes were quite small.

In general, the analysis of the first-year data suggests that a housing allowance does not have a major influence upon the locational choices of households or the residential distribution of the low-income or minority population. The findings are generally consistent with those in previous housing allowance experiments and demonstrations, which also found small improvements in neighborhood quality consistent with general mobility patterns in the local areas. It should be noted, of course, that a housing allowance is not intended to bring about specific locational changes (unlike the objective of improvement in housing unit quality, where specific quality levels are often required). Rather, the housing allowance is intended to remove constraints on locational choice, which other forms of housing assistance reinforce. The first-year data imply that the allowance neither induces nor constrains changes. The comparison of constraints on locational choice between housing allowances and conventional federally assisted housing programs at the experimental sites is the subject of a separate study in this series.

APPENDIX II

DEMAND EXPERIMENT PUBLICATIONS

DESIGN AND OPERATIONS

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

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

TECHNICAL REPORTS ON FIRST-YEAR DATA

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

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

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

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

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

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

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

ANNUAL REPORTS

Abt Associates Inc., First Annual Report of the Demand Experiment, Cambridge, Mass., March 1974 (organization of the experiment).

Abt Associates Inc., Second Annual Report of the Demand Experiment, Cambridge, Mass., February 1975 (description of the enrollment process).

Abt Associates Inc., Third Annual Report of the Demand Experiment, Cambridge, Mass., October 1976 (preliminary first-year data).