Housing Allowance Demand Experiment

Housing Improvements and Upgrading in the Housing Allowance Demand Experiment

Sally R. Merrill
Catherine A. Joseph

June 1980

Abt Associates Inc., Cambridge, Massachusetts

ABT ASSOCIATES INC
55 WHEELER STREET, CAMBRIDGE, MASSACHUSETTS 02138
TELEPHONE • AREA 617-492-7100
TWX 710-3201382

Submitted to:

Office of Policy Development and Research
U.S. Department of Housing and Urban Development
Washington, D.C.

THE FINAL REPORT OF THE HOUSING ALLOWANCE DEMAND EXPERIMENT

Contract H-2040R Task 3.6

May 14, 1980 AAI# 80-61
(Revised June 1980)

Author: Stephen D. Kennedy

AN EQUAL OPPORTUNITY EMPLOYER

The research and studies forming the basis of this report were conducted pursuant to a contract with the Department of Housing and Urban Development (HUD). The statements and conclusions contained herein are those of the contractor and do not necessarily reflect the views of the U.S. government in general or HUD in particular. Neither the United States nor HUD makes any warranty, expressed or implied, or assumes responsibility for the accuracy or completeness of the information contained herein.

ABSTRACT

This report summarizes the results of the Housing Allowance Demand Experiment--one of three Experiments conducted by HUD to test the idea of housing allowances. Housing allowances comprise a variety of programs which provide direct cash payments to low-income households to allow them to obtain decent housing in the private market. This is in contrast to construction programs, which arrange for the construction or major rehabilitation of units for low-income households, and earlier leased housing programs, in which agencies rather than households bore the major responsibility for finding and acquiring units.

The Demand Experiment operated several programs in Pittsburgh and Phoenix from 1973 to 1976 involving about 2,400 Experimental households and 1,000 Control households. The two major types of allowance plans tested were the Housing Gap plans, which offered to pay eligible households the difference between the average local cost of modest standard housing and some fraction of household income if they found housing that met program housing requirements, and the Percent of Rent plans, which paid some fraction of a household's rent. The Experiment also included an Unconstrained income transfer program and a Control group, and collected information on other housing programs, including Public Housing, Section 23, and Section 236. The results of the analyses have substantial implications not only for these programs but also for two programs begun since Experimental operations were completed--the Section 8 Existing Housing program, which is in many ways similar to one form of Housing Gap allowances, and the Section 8 New Construction program, which shares many features with the Public Housing and Section 236 construction programs studied in the Experiment.

The Experimental Housing Allowance Program is described in Chapter 1. Chapter 2 describes the various housing goals used to evaluate the programs and presents evidence that the incidence of physically inadequate and overcrowded housing among low-income renters is far higher than currently available national data would indicate. Chapter 3 compares Housing Gap allowances with other housing programs and shows that Housing Gap allowances can be used to provide comparable housing under at most the same and sometimes less economically and racially segregated conditions, with at least equal and sometimes

greater tenant satisfaction. At the same time, allowance program costs are far lower than those for new construction programs and somewhat lower than those of programs that use the existing housing market but place less reliance on households to find and acquire adequate housing.

Chapter 4 discusses the effects of allowance programs on recipient housing and compares them to similar programs of unrestricted transfers. Housing Gap allowance programs have much lower participation rates than Unconstrained programs. They do lead to different housing changes, but these are almost entirely focused on the specific housing standards explicitly required by program regulations. This raises some questions as to their desirability, since standards are frequently justified as being proxies for generally better housing, rather than critically desirable items in themselves. Percent of Rent allowance programs, on the other hand, have the same high participation rates as Unconstrained programs and produce larger changes in recipient housing expenditures. Much of the additional change in expenditure is, however, due to reduced incentives for households to shop carefully, resulting in payment of above-average rents without comparable improvements in housing quality. None of the allowance or nonallowance programs have any substantial impact on the neighborhoods chosen by recipients or on existing patterns of racial and economic segregation.

Chapter 5 reviews the findings presented in the report and discusses areas where further research is indicated.

ACKNOWLEDGEMENTS

One of the delights of writing a final report is the opportunity to say "Thank you." The results of the Demand Experiment, summarized in this report, are based on seven years of work that involved well over 300 people at one time or another. In addition, the original design of the Demand Experiment and many of its operating procedures were developed by the Urban Institute and Stanford Research Institute before the work reported here began. It is impossible to list all of the contributors by name, but some must be mentioned.

First in any list is Walter Stellwagen, who was Project Director of the Demand Experiment for its first year and a half and chief technical reviewer throughout. His judgment and leadership were critical in completing the design of the Experiment, implementing operations, and determining the basic analytic strategy. His review was insightful and exacting and encompassed all of the analyses from preliminary outlines to final products.

Barbara Sampson has managed the division of Abt Associates in which the Demand Experiment resides and also served as Deputy Project Director during the first year and a half of the project. She played a vital role in organizing the work and acquiring and providing necessary resources in the face of many conflicting needs.

Helen Bakeman, Contract Manager and Deputy Project Director for the Demand Experiment, is directly responsible for the completion of this work. After an initial period as Deputy Director of Operations for the Demand Experiment and then Deputy Project Director for the Administrative Agency Experiment, Ms. Bakeman became Deputy Project Director and Contract Manager for the Demand Experiment in 1975. She has been responsible for scheduling and organizing the work, including site operations, data processing, and analysis, and managing its completion. In addition she has provided substantive review of all major reports. Without her, the project simply would not have been accomplished.

James Wallace was Director of Design and Analysis from the beginning of the Experiment until 1978, when he left to become Project Director of a separate study of the Section 8 New Construction and Existing Housing programs. Dr.

Wallace was responsible for managing the analysis of the Experiment from design through the completion of initial analyses in all of the major subject areas discussed in this report. He played a key role in the formulation of analytic objectives and strategies as well as the day-to-day supervision of the analysis.

Analysis is no better than its data, and the Demand Experiment has been blessed with exceptionally able and careful data collection. The sampling plan and data collection in the Experiment required more than 133,000 household interviews. Most of these were conducted, edited and coded by the staff of the National Opinion Research Center (NORC), under the direction of Pearl Zinner, aided by Roslyn Weisinger. NORC staff also helped with the design of the sampling procedures and interview instruments. The high quality and timely completion of this work were essential to the analysis of the Experiment.

The rest of the analytic data were collected by the two site offices, which were also responsible for enrolling households in the Experiment and simultaneously administering 17 different allowance programs in each site. The programs themselves involved well-specified variations that had to be exactly implemented to permit accurate analysis. Data collection and payments calculations were based on monthly reports and regular housing evaluations, which had to be carefully reviewed for consistency and completeness and transferred to Cambridge for processing and analysis. The success of these operations is directly due to the high performance standards and real commitment of the site office staffs.

Frank Smith was Director of Site Operations in Cambridge during the critical first two years of the Experiment, when operating procedures were developed and implemented and enrollment completed. Within the site offices themselves, Robert Cooper and David Barkley, the Pittsburgh and Phoenix site directors, and Jane Huston and Linda Rinaldi, the deputy site directors, deserve special mention. In addition, Marlene Roberts, the Pittsburgh Payments Supervisor, and her Phoenix counterpart, John Neville, played key roles in implementing and operating the complex systems of monthly payments under both manual and automated processing. The central records unit was supervised by Martha Goodison in Pittsburgh and records audits and site office administration by JoeElla Bobo in Phoenix. Rocco DeFilippo and Thomas Fean in Pittsburgh, and

J.P. Conchola and King Elder in Phoenix, supervised the units responsible for the timely and consistent evaluation of participant housing. The initial enrollment process was supervised by Paulette Floyd in Pittsburgh and Lenore Yalisove in Phoenix. Counseling services for enrolled households were provided by staff of the National Urban League, under the direction of John Gaynus.

Turning raw data into a useable analytic data base requires that data from different sources be linked together, transformed into variables, cleaned of unresolved inconsistencies and anomalies, and placed within a well-documented system that provides easy access at reasonable cost. This work was very ably directed by Sally Green and later by Cathy Joseph, with the assistance of Robert Cox and Irma Rivera-Veve. The data processing design and implementation was directed and largely carried out by John McDonnell, Jerry Crouch, John Hollcraft, and Nouna Kettanah, who with the rest of the data processing staff contributed long hours, great care, and considerable skill in developing file structures and software to provide easy and efficient access to the data.

The analysts responsible for the findings in this report are indicated in the individual chapters. David Budding's analysis of housing deprivation provided the basis for Chapter 2, supplemented by Helen Bakeman, Carol Ann Dalto and Charles S. White's work on the content of the Minimum Standards requirements used in the Demand Experiment. Sally Merrill's work on hedonic indices was a keystone of the analysis of housing and housing change in both Chapters 3 and 4. The comparison of housing allowances and other housing programs in Chapter 3 is based on the work of Stephen Mayo, Shirley Mansfield, Richard Zwetchkenbaum, and David Warner, under the direction of Stephen Mayo, as well as other analyses by Reilly Atkinson, William Hamilton, and Dowell Myers and by Avis Vidal. The analysis of participation and housing change in Chapter 4 is based on work by myself and Jean MacMillan, Joseph Friedman and Daniel Weinberg, and Sally Merrill and Cathy Joseph. In addition to these, the final analyses owe a considerable debt to earlier work by Krishna Kumar, David Napior, Lucina Vernazza, Tony Phipps and Darrell Drury, as well as Steven Sicklick, Glen Weisbrod, Bruce Dunson, and Peter Rossi, Jr. Work on participation and housing demand was also aided by help from Michael Murray, Richard Hanushek and John Quigley.

The analysis also benefited from the comments and suggestions of the HUD Review Panel, including Henry Aaron, Marcus Alexis, Anthony Downs, John Kain, Edwin Mills, Peter Rossi, Henry Schechter, Harold Watts, Louis Winnick, and Phyllis Wallace. Work on housing demand and hedonic indices was further helped by Zvi Griliches.

Finally, our work was considerably aided by our immediate supervisors in the Office of Policy Development and Research of the U.S. Department of Housing and Urban Development, Division of Housing Assistance Research. The division was first directed by Jack Betts and subsequently, and for most of the Demand Experiment, by Jerry Fitts. The project officers for the Demand Experiment have been Charles Field, Terry Connell, and Garland Allen. We were able to rely on these and other HUD staff for careful criticism of our work, useful suggestions for improvements in understanding and focus, and unstinting appreciation when we did well.

This report was ably typed and prepared by Mari Morgen, contract secretary for the Demand Experiment. She and her predecessors, Margarita Rooney, Billie Renos, Sandra Richardson, and Joyce Stamps, have kept track of the innumerable drafts of the various reports and produced them with care and accuracy that only those spared, as I have been, from re-reading reports for the fifth time for typographical errors, will fully appreciate.

This report has benefited from the comments and suggestions of Helen Bakeman, Barbara Sampson, Walter Stellwagen, Henry Aaron, Michael Lea, Robert Erwin, James Wallace and Joanna Kennedy, as well as the various report authors mentioned above.

TABLE OF CONTENTS

		Page
ABSTRACT		i
ACKNOWLEDGEMENTS		iii
LIST OF TABLES		ix
LIST OF FIGURES		xiii
SUMMARY		S-1
CHAPTER ONE:	INTRODUCTION	1
	REFERENCES	12
CHAPTER TWO:	THE HOUSING CONDITIONS OF LOW-INCOME HOUSEHOLDS	13
	2.1 The Housing Conditions of Low-Income Households Enrolled in the Demand Experiment	13
	2.2 Housing Deprivation and the Evaluation of Program Alternatives	36
	REFERENCES	51
CHAPTER THREE:	COMPARISON OF RECIPIENT HOUSING AND PROGRAM COSTS UNDER ALTERNATIVE PROGRAMS	53
	3.1 Overall Description of Program Structures, Housing, and Benefits	55
	3.2 Housing Under the Different Programs	64
	3.3 Program Costs	105
	3.4 Conclusions	127
	REFERENCES	130
CHAPTER FOUR:	PROGRAM IMPACT	133
	4.1 Program Participation	134
	4.2 Program Impacts on Recipient Housing	176
	REFERENCES	210
CHAPTER FIVE:	SUMMARY OF FINDINGS AND AREAS FOR FUTURE RESEARCH	213
	REFERENCES	235
APPENDIX I:	DESCRIPTION OF THE DEMAND EXPERIMENT	A-1
	I.1 Purpose of the Demand Experiment	A-1
	I.2 Design of the Demand Experiment	A-4
	I.3 Sample Selection in the Demand Experiment	A-9

TABLE OF CONTENTS (continued)

		Page
	I.4 Data Collection in the Demand Experiment	A-22
	I.5 Design of the Program Comparisons Study	A-24
	REFERENCES	A-32
APPENDIX II:	TABLE BACK-UP FOR FIGURES	A-33
APPENDIX III:	ANNOTATED BIBLIOGRAPHY OF REPORTS ON THE DEMAND EXPERIMENT	A-43
	III.1 Abstracts of the Final Analytic Reports From the Demand Experiment	A-44
	III.2 Complete List of Demand Experiment Publications	A-51
	REFERENCES	A-54

LIST OF TABLES

		Page
Table 2-1	Results of Budding's Analysis of the Housing of Households Enrolled in the Demand Experiment	16
Table 2-2	Comparison of Budding's Analysis of the Demand Experiment with Other Studies Based on Census Data	19
Table 2-3	Incidence of Various Levels of Physical Housing Deprivation	22
Table 2-4	Percent of Households Crowded by Household Size	24
Table 2-5	Rent Burden by Poverty Status	28
Table 2-6	Incidence of Insupportable Rent Burdens by Income Class	31
Table 2-7	Rent Burden and Poor Housing	46
Table 3-1	Estimated Differences in Monthly Program Benefits Taking Account of Differences in Recipient Characteristics	65
Table 3-2	Percent of Recipients in Acceptable Housing Under Alternative Physical Standards	69
Table 3-3	Alternative Standards of Housing Adequacy	72
Table 3-4	Incidence of Crowding Among Large Households	77
Table 3-5	Rent Burden Among Allowance Recipients	80
Table 3-6	Rent Burdens Among Nonallowance Programs	81
Table 3-7	Mean Low-Income Concentration of Allowance and Control Households	86
Table 3-8	Low-Income Household Concentration by Program	87
Table 3-9	Change in Low-Income Concentration	90
Table 3-10	Changes in Racial Concentration Among Households Enrolled in the Demand Experiment	91
Table 3-11	Minority Concentration of Neighborhoods in Pittsburgh and Phoenix by Program	94
Table 3-12	Minority Concentration of Neighborhoods by Race/Ethnic Group of Program Participants	98

LIST OF TABLES (continued)

		Page
Table 3-13	Change in Minority Concentration for White Households	99
Table 3-14	Change in Minority Concentration for Minority Households	100
Table 3-15	Mean Satisfaction with Dwelling Unit and Neighborhood, and Differences from Control Group and Housing Allowances, by Program Type	102
Table 3-16	Comparison of Adjusted Satisfaction Levels Between Various Categories of Households and Both the Control Group and Housing Allowances	104
Table 3-17	Estimated Annual Cost of Two-Bedroom Unit in 1975	109
Table 3-18	Estimated Annual Costs Required to Obtain an Additional Unit with an Annual Rental Value of $2,000 in 1975	113
Table 3-19	Estimated Lifetime Cost-to-Value Ratios for Public Housing Under Alternative Assumptions	116
Table 3-20	Comparison of Fair Market Rents for Section 8 Existing and New Construction Programs	119
Table 3-21	Operating Costs for Recently Built Public Housing and Section 236 Units Relative to Expected Operating Costs for Private Units of Comparable Value	122
Table 3-22	Average Cost-to-Value Ratios Under Alternative Allowance Programs	126
Table 4-1	Overall Participation Rates by Type of Housing Allowance Program	140
Table 4-2	Stages in Participation	141
Table 4-3	Reasons for Declining the Enrollment Offer	144
Table 4-4	Initial Payment Status and Subsequent Participation	152
Table 4-5	Estimated Participation Rates Among Households That Would and Would Not Have Met Requirements Normally	155
Table 4-6	Selected Demographic Differences in the Subsequent Participation of Housing Gap Households	158

LIST OF TABLES (continued)

		Page
Table 4-7	Effect of Housing Requirements on Participant Profiles	159
Table 4-8	Comparison of Hypothetical Housing Change Under Minimum Standards and Unconstrained Programs	162
Table 4-9	Impact of a Minimum Standards Program on the Percentage of Households in Standard Housing	163
Table 4-10	Impact and Participation Under Different Requirements	167
Table 4-11	Estimated Participation for Minimum Standards Programs with Different Payment Schedules	169
Table 4-12	Percentage of Households with Positive Expected Net Payments	171
Table 4-13	Impact and Participation Under Different Requirements for Households Still Enrolled and Eligible at the End of Two Years	178
Table 4-14	Estimated Effect of the Minimum Standards Allowance on the Percentage of Households in Acceptable Housing at the End of Two Years Under Alternative Measures of Acceptability: For Households That Were Not in Minimum Standards Housing at Enrollment	182
Table 4-15	Program Impacts at the End of Two Years Under Alternative Standards of Evaluation: All Households	186
Table 4-16	Impact on Expenditures and Market Value	189
Table 4-17	Impact of Minimum Rent Allowances on Expenditures and Market Value	192
Table 4-18	Comparison of Rent Rebate and Unconstrained Programs in Terms of Changes in Housing Expenditures for Nonminority Households	196
Table 4-19	Comparison of Rent Rebates and Unconstrained Programs in Terms of Changes in Market Value for Nonminority Households	198
Table 4-20	Differences in Market Value of Participant Housing from Apparently Similar Control Households	207
Table I-1	Allowance Plans Tested	A-7

LIST OF TABLES (continued)

		Page
Table I-2	Selected Descriptors of Demand Experiment Sites	A-10
Table I-3	Modal Income Eligibility Limits at Enrollment	A-12
Table I-4	Revised Modal Income Eligibility Limits	A-12
Table I-5	Summary of the Sample Selection Process	A-14
Table I-6	Selected Demographic Characteristics of Enrolled Households	A-17
Table I-7	Sample Size at Enrollment	A-19
Table I-8	Sample Size After Two Years	A-20
Table I-9	Two-Year Retention Rates	A-21
Table I-10	Unit Breakdown by Legislative Title of Federally Subsidized Rental Housing, Through FY 1974	A-26
Table I-11	Sample Sizes for Comparison Programs for the Comparisons Study in General and for the Analysis of Program Costs	A-30
Table I-12	Demographic Characteristics of Households in Comparison Programs Sample	A-31
Table II-1	Incidence of Crowding and Severe Crowding by Income for Medium-Size Households (Figures 2-1 and 2-2)	A-34
Table II-2	Incidence of Crowding and Severe Crowding by Income for Large Households (Figures 2-1 and 2-2)	A-35
Table II-3	Types of Housing Deprivation by Income Class (Figure 2-3)	A-36
Table II-4	Housing Deprivation and Income Class (Figure 2-4)	A-37
Table II-5	Mean Estimated Rental Value of Units (Including the Value of Landlord-Supplied Stove and Refrigerator, Where Present) (Figure 3-2)	A-38
Table II-6	Mean Estimated Rental Value of Units (Including the Value of Landlord-Supplied Stove and Refrigerator, Where Present): Net of Differences in Unit Size (Figure 3-2)	A-39
Table II-7	Percent of Units Passing Alternative Physical Standards (Figure 3-3)	A-40
Table II-8	Acceptance Rates by Payment Amount (Figure 4-2)	A-41

LIST OF FIGURES

		Page
Figure 2-1	Incidence of Crowding by Income for Large and Medium-Size Households	26
Figure 2-2	Incidence of More Severe Crowding (Two or More Rooms Less than Needed) by Income for Large and Medium-Size Households	27
Figure 2-3	Types of Housing Deprivation by Income Class	33
Figure 2-4	Housing Deprivation and Income Class	35
Figure 3-1	Income Eligibiltiy Limits by Program in 1975	63
Figure 3-2	Average Market Value of Units in Different Programs as a Percent of Housing Gap Minimum Standards Values	67
Figure 3-3	Percent of Units Passing Under Alternative Physical Standards	74
Figure 3-4	Rent Burden in Relation to Income-to-Needs Ratio	83
Figure 3-5	Relationship Between Location of Units and Participation of Minority and Nonminority Households in Programs	96
Figure 4-1	The Participation Process in the Demand Experiment	138
Figure 4-2	Acceptance Rates and Payment Estimate	147

SUMMARY

This report summarizes the results of the Housing Allowance Demand Experiment. The Demand Experiment, authorized by Congress in the Housing Act of 1970, was one of three Experiments designed to test the concept of housing allowances in terms of household response, market impact, and administrative methods and costs. The focus of the Demand Experiment was on household response--on the ways in which low-income renter households would use housing allowances. It tested a variety of allowance plans involving approximately 1,200 Experimental households and 500 Control households at two sites: Allegheny County, Pennsylvania (Pittsburgh) and Maricopa County, Arizona (Phoenix), during 1973-1977. Each household enrolled in the Experiment was offered allowance payments for three years. Analysis was based on data from the first two years.

Housing allowance programs provide direct cash payments to eligible low-income households to allow them to obtain adequate housing in the private market. Except for the fact that allowance payments are made to households rather than landlords, allowance programs are similar in concept to the current Section 8 Existing Housing program and are also related to the Section 23 Leased Housing program, which used existing units in the private rental market but placed the major responsibility and discretion in finding and obtaining units on local housing authorities rather than recipients. They are very different from construction programs such as the conventional Public Housing, Section 236, and Section 8 New Construction or Substantial Rehabilitation programs, which directly arrange for the construction or major rehabilitation of units to be rented to eligible households below cost.

The housing allowance programs tested in the Demand Experiment can be divided into two major types--Housing Gap and Percent of Rent. Housing Gap programs offered participants payments designed to make up all or part of the gap between the estimated costs of modest, existing standard housing in each site and the fraction of its income that a household could reasonably be expected to spend for housing. Households could only receive these payments if they lived in or moved to housing that met certain program requirements. Three different requirements were tested in the Demand Experiment--Minimum Standards and two levels (High and Low) of Minimum Rent. Housing Gap house-

holds assigned to Minimum Standards programs had to occupy housing that met certain physical and occupancy standards in order to receive payments. Households assigned to Minimum Rent programs had to spend a minimum amount for housing in order to receive their allowance payments.

The Percent of Rent allowances tested in the Demand Experiment did not impose housing requirements. These plans offered households rebates equal to a fixed fraction of their monthly rent. Payments were tied directly to housing expenditures, but no other requirements were imposed. Households were free to spend as much or as little for housing as they wished and could occupy any private rental unit in the two counties.

The Experiment also tested the alternative of an expanded welfare or income maintenance program in the form of an Unconstrained Housing Gap plan. This plan offered households payments based on the same formula used for the Housing Gap plans, but without imposing any housing requirements.

A group of Control households were included to provide benchmark information on the housing that eligible households would occupy without assistance from the housing allowance programs.

Finally, the Experiment also evaluated program costs and housing in other housing programs in Pittsburgh and Phoenix in comparison with housing allowances. The programs studied were Section 23 Existing Leased Housing, conventional Public Housing, and Section 236, which accounted for the vast majority of subsidized housing units in 1975, when the data for this study were collected.

The major findings of the analysis are as follows. First, allowances compare favorably with new construction programs: It is estimated that allowances can provide similar housing to that provided by new construction programs at roughly one-half to three-fourths the cost, with greater recipient satisfaction and equal or lower levels of racial and economic segregation. Second, the advantages of an allowance program over a similar expansion of existing cash transfers are not as clear cut: housing allowances can achieve substantially greater improvements in housing than those obtained by a similar program of Unconstrained payments when the allowance program imposes reasonably stringent housing requirements; however, the additional housing change is focused on the specific requirements imposed and sharply reduces program participation among households in substandard housing. Third, analysis of

Demand Experiment housing data was able to show a much greater incidence of physically inadequate housing among low-income households than has been found in past studies based on less complete housing data. However, much more could be done to understand the nature of housing deprivation and the potential ability of housing programs to target assistance to those most in need.

These findings are explained more fully below. The first three items are primarily concerned with the comparison of housing allowances with other housing programs. Items 4 through 6 compare housing allowances with similar Unconstrained welfare transfers. Item 7 discusses housing deprivation.

Housing Allowances and Other Housing Programs

1. *The costs of units in new construction programs were from 35 to 91 percent higher than those of comparable units in a Minimum Standards housing allowance. In contrast, Section 23 costs were only modestly higher than those for housing allowances.*

   The total annual program costs, including administrative costs, required to provide a unit with an annual rental value of $2,000 in 1975 ranged from $2,180 for the Minimum Standards housing allowance program in Phoenix to $4,400 for Public Housing in Pittsburgh. Public Housing costs for comparable units were 91 percent higher than those of a Minimum Standards program in Pittsburgh and 64 percent higher in Phoenix. Section 236 costs were 75 percent higher in Pittsburgh and 35 percent higher in Phoenix. In contrast, Section 23, which also used existing housing, had costs that were 10 percent higher than Minimum Standards programs in Pittsburgh and effectively the same (2 percent higher) in Phoenix.

   The much higher costs associated with new construction may reflect operating or construction inefficiencies or simply market prices for existing adequate low-income rental housing that are well below replacement cost. The size of these different factors has important implications for possible policies to reduce construction costs and/or choices across programs. These could be estimated by the collection of additional data to permit direct comparisons with private landlords. Further work could also be done on the time pattern of construction program costs and bene-

fits and its implications for the evaluation of program alternatives.

2. *Despite large differences in costs, the housing units provided by the various allowance and nonallowance programs were very similar except to the extent that program rules mandated specific physical and occupancy standards. The differences in housing obtained by these standards were often highly specific, so that imposing one set of program requirements did not necessarily mean that other standards were met.*

All of the programs studied provided roughly comparable housing in terms of overall unit rental value. Market rental values were estimated as a function of a variety of measurements of unit size, quality and locational amenities. The average estimated rental values of units occupied by participants in the various housing allowance plans, the Unconstrained plan, conventional Public Housing, Section 23, and Section 236, were all within 20 percent of each other and within 10 percent of that for Minimum Standards housing allowance recipients.

Program housing differed much more in terms of compliance with alternative physical and occupancy standards. Program housing was evaluated in terms of six different physical standards and two different occupancy standards. Units provided by programs with explicit housing and occupancy standards (Housing Allowance Minimum Standards, Section 23, conventional Public Housing, and Section 236) usually met standards significantly more often than unsubsidized units or units in programs without such standards. The extent of the differences changed substantially depending on how closely the standard used to evaluate units matched the standard imposed by the program. Thus, requiring one set of standards may not always provide good results under another set of standards.

In contrast, recipients in programs that did not impose explicit physical and occupancy standards (the Unconstrained, Minimum Rent, and Percent of Rent programs) were no more likely to occupy standard housing than similar unsubsidized Control households, with one exception. The one exception was the Minimum Rent High program in Phoenix, which had a modestly higher proportion of standard units under several measures. Indeed, programs with Minimum Rent High requirements in both sites had ratings similar to those of Section 23, but well below those of other programs with explicit physical and occupancy requirements. It appears that fairly

high Minimum Rent requirements may sometimes provide a reasonably good proxy for relatively modest physical requirements.

3. *On average, housing allowance and Unconstrained recipients occupied the same economically and racially segregated housing as similar unsubsidized Control households. Units in the other housing programs were generally located in lower income neighborhoods with higher minority concentrations. Only Public Housing, however, shows evidence of actually moving households into poorer or more segregated neighborhoods than they would otherwise have occupied. In addition, households in construction programs expressed lower levels of satisfaction with their neighborhoods than did Minimum Standards allowance recipients.*

The average percentage of households with 1970 incomes of less than $5,000 (low-income concentration) in the Census tracts occupied by Control households in 1975 was 34 percent. The corresponding figure for households enrolled in the various allowance plans was almost identical, 35 percent. Public Housing units in Pittsburgh were located in tracts with an average low-income concentration of 40 to 55 percent. Examination of recent enrollees in these programs shows, however, that only Public Housing recipients had moved from tracts with lower concentrations (37 percent in Pittsburgh and 45 percent in Phoenix) to higher concentrations (50 percent in both sites for recent enrollees).

Similarly, minority and nonminority recipients in the various housing allowance programs continued to live in largely minority and nonminority neighborhoods, respectively, maintaining the same degree of racial segregation as similar Control households. This was also true to a large extent for other programs. Indeed, for all programs, there is a direct relationship between the proportion of program units located in minority areas and the proportion of recipients who are minorities.

At the same time, it appears that Public Housing and Section 236 in Pittsburgh, at least, may have moved minority households into more segregated neighborhoods. Minority households that enrolled in these two programs in recent years left tracts where an average of 55 percent of households were minority households and were placed in tracts where 68 percent of households were minority households.

The locational restrictions imposed by construction programs may explain the lower levels of housing satisfaction expressed by participants in these programs. The average level of neighborhood satisfaction expressed by households in Section 23, Public Housing, and Section 236 was lower than that for households participating in the Minimum Standards housing allowance programs in both sites. (Dwelling unit satisfaction in the nonallowance programs was also lower in Pittsburgh, but showed no difference in Phoenix.) Taking account of differences in recipient demographic characteristics, housing quality, and rental payments confirmed the finding of lower levels of satisfaction for nonelderly households in Public Housing and Section 236.

Housing Allowances and Income Maintenance

4. *The higher incidence of standard units obtained under housing allowances by imposing housing requirements often reflects the exclusion of households that do not meet program requirements rather than any program effect in actually placing households in better housing than they would have occupied without the program. Furthermore, the changes in recipient housing that are produced by the allowance programs are very tightly tied to the specific program housing requirements. Similar results may apply to nonallowance programs, but this is not known.*

Among households offered enrollment in the Percent of Rent and Unconstrained programs, which had no housing requirements, 85 percent accepted the enrollment offer and participated in the programs. In contrast, only 45 percent of those offered enrollment in the Housing Gap plans participated. This sharp reduction in participation was concentrated among households that would normally have occupied housing that did not meet the program requirements. Thus, for example, in the Minimum Standards program, 78 percent of the households that would have lived in standard housing without program assistance participated, as compared with 19 percent of those that would normally have lived in substandard housing. As a result, two-thirds of recipients in the Minimum Standards program were households that would have lived in Minimum Standard housing without program assistance. The remaining third were moved from substandard to standard units by the program.

The additional housing change (beyond that of a similar Unconstrained program) generated by housing allowance programs is very specifically tied to the allowance program's housing requirements. A Minimum Standards allowance was able to move more recipients from substandard to Minimum Standard housing than a similar Unconstrained program. It had, however, no substantially or significantly greater effect in terms of housing expenditures, overall housing quality, or alternative measures of housing adequacy. Similarly, a Minimum Rent allowance induced more recipients to meet Minimum Rent requirements and thus led to larger changes in housing expenditures. These additional changes were not, however, accompanied by additional changes in the overall quality of the units or in the percentage of units meeting various housing standards.

These findings are based on the special data provided by the Demand Experiment. Indeed, the sort of data standardly available for operating programs would have overestimated allowance program impacts by a factor of two. While the same patterns may apply to other housing programs as well, this should be investigated directly.

5. *Higher payments increase both participation rates and program impact. More stringent requirements also increase program impact on recipient housing, but reduce overall participation rates.*

Even if the allowance programs had had no impact at all on recipient housing, recipients would still have occupied better housing than the eligible population because recipients had to live in program-required housing in order to participate. The impact of a program on recipient housing depends on the extent to which the program can get households in substandard units to move to standard units (or upgrade their current units to meet standards). In fact, most participants were households that either already met program requirements or were about to meet the requirements anyway (without the program's help). These households participate in an allowance program roughly three to four times as often as households that would not normally meet requirements. Thus, more stringent requirements reduce program participation rates because fewer households normally meet requirements.

The immediate impact of an allowance program on housing is, however, centered on getting households that would normally live in housing that

did not meet program requirements into housing that does. Given the size of the allowance payment, participation rates were largely determined by whether households would normally meet the program's housing requirements. In particular, the difference in the participation rates of households that would and would not normally meet requirements was essentially the same for all three requirements tested in the Demand Experiment. Thus, the larger the proportion of households not in required housing, the larger the proportion of recipients whose housing is brought to required levels by the program. This is illustrated by the table below. Among programs with comparable payment offers, more stringent requirements (requirements which are failed by more households without the program) are accompanied by sharply reduced participation rates. At the same time, the percentage of recipients moved into required housing by the program increases. (The impact on all eligible households is smaller than the impact on recipients because not all eligible households participate.)

Effect of Requirements on Participation and Program Impact

	Program			
	Unconstrained	Minimum Rent Low	Minimum Rent High	Minimum Standards
Stringency (percent of eligibles that would have failed requirements)	0%	32%	60%	69%
Participation rate	85	60	43	38
Impact (percent of households placed in required housing by the program)				
On recipients	NA[a]	13	29	34
On eligible households	NA[a]	8	12	13

a. The impact of the Unconstrained program varies with the requirement used to measure impact, but is always small.

It should be recalled, as noted earlier, that the differences in program impacts on housing shown above are measured in terms of the program requirements. Differences in impacts on housing characteristics not directly mandated by requirements are generally small or nonexistent.

Higher payments increase both participation rates and program impact. Thus, for example, doubling the average allowance offered to Minimum Standards households from $65 to $130 per month would, it is estimated, have increased the participation rate among households in substandard housing from 19 percent to 45 percent, with a resultant increase in the overall participation rate from 37 to 56 percent, and over half of the program's recipients moved from substandard to standard housing by the program.

6. *A Percent of Rent allowance does generate additional housing expenditures well above those of an Unconstrained program with similar average payments. At the same time, the Percent of Rent allowance reduces household incentives to shop carefully, so that almost half of the change in expenditures goes to increased spending without increases in the value of units obtained. Accordingly, the additional housing value obtained by a Percent of Rent allowance is only modestly larger than that obtained under a similar Unconstrained program.*

Estimated average expenditure functions indicate that a 50 percent Percent of Rent rebate would increase average total housing expenditures in both sites by about 20 percent. An Unconstrained program with the same average payment would increase expenditures by less than half as much--7 percent.

A Percent of Rent rebate reduces households' incentives to shop carefully, since the rebate is reduced if the household finds a cheap unit and helps to pay for the costs of over-priced units. The estimated change in the average rental value of units obtained under a 50 percent rebate is 11 percent--almost half the 20 percent change in expenditures, and only 4 percentage points greater than the 7 percent change in rental value obtained under an Unconstrained program.

Housing Deprivation and Areas for Further Research

7. *Prior to the housing allowance program, some form of housing deprivation was common among all low-income renters. In particular, the incidence of physically inadequate housing was much higher than previous studies have indicated. At the same time, the nature and depth of housing needs varied considerably.*

When the allowance programs started, 43 percent of the eligible low-income renter households in Pittsburgh and Phoenix were in physically inadequate housing; 23 percent were crowded; and 68 percent had rent burdens in excess of 25 percent of income. Only 12 percent lived in housing that was neither physically inadequate nor overcrowded without incurring high rent burdens.

The incidence of physically inadequate housing was greater than past studies based on decennial Census or Annual Housing Survey data would indicate. This does not reflect unreliable data, unusual samples of households or sites, or unreasonably strict standards of acceptability. Rather it reflects the much more extensive housing data collected in the Demand Experiment and the ability, given these data, to apply contemporary standards in evaluating housing condition.

Ninety-five percent of renter households with incomes below poverty suffered some form of housing deprivation (physically inadequate or overcrowded housing or high rent burdens). The incidence among low-income renters above the poverty line was lower, but still very high--81 percent. However, the nature and depth of deprivation was markedly different for the two groups. Most of the housing deprived low-income households above poverty suffered only from high rent burdens as compared with less than a third of those with incomes below poverty. Almost half of the households with incomes below poverty both occupied inadequate or overcrowded housing and incurred high rent burdens, as compared with 15 percent of low-income households above the poverty line. In addition, the physically inadequate units occupied by low-income households above the poverty line generally involve fewer and less serious deficiencies and the high rent burdens of these households are more affordable than those of households in poverty.

Taking account of such variation in need might result in different program participant profiles. Nonexperimental rental assistance programs in Pittsburgh and Phoenix served about 23 percent of the low-income renter households in these sites. This funding level would apparently have been more than sufficient to accommodate the 12 percent of households that both occupied physically inadequate or overcrowded housing and paid more than 40 percent of their income for rent. Had the program been targeted to this group, however, about 90 percent of their recipients would have been households in poverty. In fact, the proportion of actual recipients in poverty was about the same as the proportion of low-income renters in poverty (50 percent), suggesting little effective targeting of program assistance.

SOURCES OF FINDINGS:

1. Comparative costs are presented in Table 3-18.

2. Housing under the different programs is discussed in Section 3.2 of Chapter 3.

3. Racial and economic concentrations are discussed in Section 3.2 of Chapter 3 (Tables 3-7 through 3-14 and accompanying discussion). Results on participant satisfaction are presented in Tables 3-15 and 3-16.

4. Participation results are discussed in Section 4.1 of Chapter 4 (see especially Tables 4-1 and 4-5). Program impacts are discussed in Section 4.2 (see Tables 4-14 through 4-17). The problems involved in estimating program impact from standard program data are illustrated in Table 4-9.

5. The effects of variations in program requirements and payment levels on participation are discussed in Section 4.1 of Chapter 4 (see especially Tables 4-10 and 4-11).

6. Percent of Rent rebates are discussed in Chapter 4. See Table 4-1 for participation, and Tables 4-18 and 4-19 for housing changes.

7. Housing deprivation is discussed in Chapter 2.

CHAPTER 1

INTRODUCTION

This report summarizes the findings of the Housing Allowance Demand Experiment. One of three Experiments funded by the Department of Housing and Urban Development (HUD) to test the idea of housing allowances, the Demand Experiment is concerned with the way in which eligible households would use an allowance program in terms of participation, housing change, and locational choice. The Experiment tested several alternative allowance programs and also included direct comparisons with other housing programs. As a result, it offers considerable insight into the effects of a wide range of possible housing assistance programs.

Housing allowances comprise a variety of possible programs aimed at assisting low-income households in obtaining decent housing at reasonable cost. The central features of an allowance program are that it provides direct cash payments to eligible low-income households to enable them to obtain adequate housing in the private market. These payments are tied to housing in one of two ways. Under the most commonly proposed forms of housing allowances, households receive payments only when they obtain housing that meets certain minimum housing requirements. Alternatively, allowance payments may be made to households in substandard housing, but increase with the quality of housing obtained, providing an incentive to households to improve their housing. In any case, the initiative in deciding where to live and how much to spend on housing and the burden of finding housing that meets requirements are placed upon households rather than developers, landlords, or government agencies.

The desirability of housing allowances depends on comparisons with alternatives. The three major alternatives usually invoked have been no program, expanded general income transfers, or other housing assistance programs. Whether some form of allowance program would be desirable depends first of all on what allowances do and how much they cost. Once these results are established, however, allowances must still be compared with other programs. Money spent on housing allowances could instead be used to expand other housing programs or to offer additional income transfer payments not specifically tied to housing.

Additional income transfer payments might take the form of expanded welfare payments, increased Supplemental Security Income or Social Security benefits, or increases in payments by other unrestricted assistance programs. Because it is focused on housing, an allowance program might be expected to yield greater improvements in low-income housing conditions than a similar unrestricted cash transfer. It would also be expected to involve higher administrative costs and restrictions on recipient freedom of choice. While the proper tradeoff between these is no doubt in part a matter of policy preference, the size of the differences in cost and housing impact can be determined empirically.

Alternative housing programs include all of the low- and moderate-income rental housing programs funded by HUD.[1] In the early 1970s, when the housing allowance Experiments began, the major alternative rental assistance programs were the Public Housing, Section 236, and Section 23 programs, which then accounted for about 90 percent of federally subsidized rental housing units.[2] Public Housing was by far the largest of the three, accounting for 52 percent of the units. Under this program, local housing authorities arranged for the construction of new units, which were owned and operated by the authority and rented to eligible low-income households below cost. Section 236 accounted for about 30 percent of subsidized units. This program subsidized new construction or major rehabilitation of rental units for low- and moderate-income households through mortgage interest subsidies, special mortgage guarantees, and accelerated depreciation provisions. Units were developed, owned, and operated by private sponsors, but subject to prior HUD approval and regulations on construction, tenant eligibility, and unit rents. The rents charged Section 236 tenants were generally well above those in Public Housing, however, and some low-income Section 236 tenants were given additional assistance (Rent Supplements).

Both Public Housing and Section 236 programs are still in force today. Most additional new construction, however, is funded under the Section 8 New Construction program. Like Section 236, Section 8 New Construction is developed,

---

[1]The housing allowance programs tested in the Demand Experiment were confined to renters. The Supply Experiment included a homeowner program.

[2]Figures on program size are as of FY 1974 and are taken from Schechter (1973), p. 40.

owned, and operated by private sponsors subject to prior HUD approval and regulations for construction, tenant eligibility, and rents. Again developers qualify for a variety of special mortgage guarantees and depreciation provisions. Unlike Section 236, Section 8 does not offer mortgage interest subsidies. Instead, the government guarantees that it will pay some portion of tenant rents for the life of the project (usually 30 to 40 years).

Like housing allowances, the Section 23 Leased Housing program used existing rental units instead of directly arranging for new construction or major rehabilitation of subsidized units. Section 23 subsidies were still, however, tied to units rather than to households. Local housing authorities leased units from private landlords, which they in turn sublet to eligible households at reduced rents. Thus, under Section 23, the major responsibility for finding and acquiring acceptable housing lay with administering agencies rather than households.

Section 23 has now been replaced by the Section 8 Existing Housing program. This program is closer to housing allowances in design and was indeed based in part on the early experience with the allowance Experiments. Under Section 8, households accepted into the program are responsible for finding a unit that meets the Section 8 acceptability criteria. This may require nothing more than having their current unit certified as acceptable. Alternatively, it may require that households either repair their current unit or move to a different unit. Once the household has found an acceptable unit, the local housing authority enters into an agreement with the landlord to pay part of the rent (if the landlord is willing to participate). The authority does not itself lease the unit and its payments terminate if the household moves (and is not replaced by another Section 8 household).

The Section 8 (Existing) program is very similar to some forms of housing allowances, with two major differences. First, unlike housing allowances, Section 8 still involves agreements between landlords and agencies, since payments are made directly to landlords. Housing allowances, in contrast, do not have to require landlords to agree to participate, since payments are made to households (though proof of rent payment may be required). From a landlord's point of view, a housing allowance recipient is like any other private renter. No special agreements or involvement with government agencies are required.

The second difference involves the way in which payments are calculated. The allowance programs that most closely resemble Section 8 calculate payments in terms of the difference between the average cost of adequate housing and some fraction of household income. Section 8 in contrast starts by calculating payments in terms of the difference between a household's actual rent and some fraction of household income. Because of this, the Section 8 program has set maximum limits on the amount of rent that a household can pay (to limit the subsidy) and has also developed somewhat complex incentives to households to encourage them to pay less than the maximum where possible.[1]

When the housing allowance Experiments began, the principal question was the desirability of housing allowances in comparison to other programs. The subsequent development of the Section 8 (Existing) program adds a new dimension to the analysis. To the extent that the Section 8 program is similar to housing allowances, the Experiments can be used to estimate the effects of Section 8 and to suggest and test possible modifications in its structure. Indeed, the value of the housing allowance Experiments lies not only in what they reveal about housing allowances but also in what they imply or suggest about housing programs in general. The housing allowance Experiments represent the first sustained, systematic effort by HUD to investigate how housing programs work. Although focused on housing allowances, their analysis is both relevant to other programs and revealing of the paucity of direct information about them.

Before the allowance Experiments began, it was argued that housing allowances could be both more effective and less expensive than housing assistance programs in which government agencies directly construct, buy, or lease housing for low-income tenants. Allowances might be more effective from a recipient's point of view because, within the limits set by the program's housing requirements, recipients would have considerable freedom of choice in selecting units that best meet their needs. In addition, individual households might be both more likely and more able than government agencies to select units throughout a metropolitan area, promoting greater racial and economic integration. At the same time, allowances might be less costly to the gov-

[1]These shopping incentives were dropped from the Section 8 program in 1980.

ernment. Administratively, the freedom of choice afforded to recipients also means that they would bear the costs of finding and acquiring suitable units. Beyond this, allowance recipients might be able to acquire housing in the private market more cheaply than the government.

These advantages needed to be tested, however. They depend on the way in which eligible households use the allowance offer, on the ability of the private market to provide adequate housing at reasonable cost, and on the ability of administering agencies to meet the special requirements of an allowance program. While proponents of an allowance program could point to possible advantages in terms of recipient freedom of choice, reduced program costs and increased racial and economic integration, opponents could argue the opposite case.

Some households might not be willing or able to use an allowance program to find decent housing at reasonable cost. Discrimination or limited information about housing opportunities could substantially limit housing choice. Housing requirements might either be too onerous or too easy, either unduly restricting household choice or leading to subsidization of households in unacceptable units. The administrative costs involved in certifying units could be large, and households might be less rather than more efficient shoppers than government agencies.

In addition, an allowance program makes no direct provision for the construction or rehabilitation of new housing; it depends instead on the private market to provide an adequate supply of decent housing. Without explicit tests, it was not clear that the private market would be able to meet the demand for standard housing generated by an allowance program without substantial price inflation. Nor was it certain that the private market would provide adequate housing for groups with relatively special needs, such as the elderly, the handicapped, or large households. In theory, private suppliers should act to meet special needs if the allowance program offers sufficient assistance to pay for them. Whether this would in fact happen at reasonable costs was not known.

Finally, an allowance program might place somewhat special requirements on program administrators. On the one hand, they would have to assure compliance with program rules and procedures and arrange for necessary and reasonable levels of nonfinancial assistance to enrolled households. On the other

hand, because the allowance program emphasizes recipient as opposed to agency responsibility and discretion, this would have to be done in a way that maintained the program's flexibility and emphasis on individual initiative. Again, the administrative feasibility of allowance programs had to be tested.

Furthermore, while the basic concept of housing allowances was clear, a housing allowance program could in theory include any of a variety of payment levels and formulas, nonfinancial services, housing requirements, and administrative procedures. Evaluating housing allowances does not involve testing a single well-defined program, but examining a wide range of alternative program mechanisms and specifications to identify weaknesses and possible remedies in program design, as well as determining the extent to which allowances might replace or supplement other housing and income support programs.

The most commonly talked of payment formula, for example, is the Housing Gap formula. Under this formula, the allowance payment is calculated to make up the gap between the estimated cost of modest existing standard housing and the amount that a household could reasonably be expected to pay for housing from its own resources.[1] The estimated cost of standard housing is expected to vary across different urban areas as well as with household size. The contribution rate is most often set at 25 percent of income, but could well be higher or lower, or itself vary with household income. Furthermore, if closing the entire housing gap is too expensive, the payment formula could be adjusted to make up only a portion of the gap.

A Housing Gap form of allowance necessarily involves some sort of housing requirement. The Housing Gap payment formula is essentially like that used to determine welfare payments; the household is offered a payment equal to a basic grant level (the cost of standard housing) reduced by a fraction of the household's other income. The only difference is that in the case of housing allowances the grant level and contribution rate are set solely in terms of the household's putative housing costs.

Housing requirements tie the allowance to housing and distinguish it from unrestricted welfare payments. The most commonly suggested form of requirement is a Minimum Standards requirement. Under this sort of require-

---

[1] Alternative programs are described in more detail in Chapter 3.

ment, a household qualifies for allowance payments only while it occupies a unit that meets some set of basic physical and occupancy standards. The exact standards used may vary from place to place and be more or less detailed. An alternative requirement is a Minimum Rent requirement. Under this sort of requirement, a household qualifies for payments as long as it spends at least a certain amount on housing. To the extent that housing quality and costs are closely related, a Minimum Rent requirement could serve to encourage recipient households to obtain adequate housing. At the same time, it would allow households greater flexibility than Minimum Standards in deciding on specific unit features and should reduce administrative costs, since it obviates the need to set and enforce physical standards.

Yet another alternative is to have the allowance payments themselves vary with housing expenditures. Under this sort of allowance, called a Percent of Rent allowance, households are aided in obtaining housing by offering them rebates on rent equal to some fraction of their housing expenditures. A Percent of Rent allowance essentially reduces the cost of housing to recipients by the amount of the rebate. Thus, for example, a household with a fifty percent rebate would have to pay half the market price for a unit from its own resources; the rest would be made up by the allowance payment. Because Percent of Rent allowance payments are directly tied to housing expenditures, no housing requirements are necessary under this program. Indeed, in some ways, a Percent of Rent formula can be regarded as a modified Minimum Rent requirement under which payments are scaled by the amount which the household spends on housing rather than simply being cut off entirely for households spending less than the Minimum Rent amount. However, additional housing requirements could be added to a Percent of Rent program. Physical requirements might, for example, be imposed to assure that households were not subsidized in seriously deficient units.

While these examples hardly exhaust the full range of possible payment rules, they do encompass the basic elements involved in almost any allowance program. Under an allowance program, payments are determined by some combination of actual housing expenditures, local housing costs, and household size and income, subject to various additional housing requirements framed in terms of physical standards or housing expenditures or both. Even beyond these basic program rules, however, an allowance program may include a variety of administrative mechanisms and nonfinancial services

to enrollees. Various levels of nonfinancial services may be provided to help households in finding housing, negotiating costs and other matters with landlords, or overcoming discrimination. Programs may also use any of a wide range of administrative procedures in outreach, enrollment, and certification and recertification of household eligibility, payment amount, and housing condition.

Allowances could not reasonably be evaluated within the context of a single experiment in which failures of administration, problems faced by households in understanding or using the allowance program, and failures of housing supply could all arise at once, confounding any attempt to identify individual program weaknesses and their remedies. As a result, the Experimental Housing Allowance Program (EHAP), funded by HUD to test the concept of housing allowances, comprises three separate Experiments, focused respectively on households, suppliers, and administrators.

The Demand Experiment, which is the subject of this report, was focused on households. Designed, operated, and analyzed by Abt Associates Inc.,[1] under contract to HUD, the Demand Experiment offered allowance payments to approximately 1,200 low-income renter households selected at random from eligible households in each of two metropolitan areas--Allegheny County, Pennsylvania (Pittsburgh) and Maricopa County, Arizona (Phoenix)--from 1973 to 1976. Enrolled households were offered allowance payments for up to three years and were assured of efforts to arrange for continued assistance at the end of the Experiment. Analysis is based on the responses of households during the first two years after enrollment. Several different allowance plans were tested, consisting of variations on the Housing Gap Minimum Standards, Housing Gap Minimum Rent, and Percent of Rent plans described above, as well as a program of Unconstrained income transfers and a Control group of approximately 500 households in each site. In addition, data were also collected on samples of participants in other housing programs.

The Demand Experiment was specifically designed to examine the way in which eligible households would use an allowance program. Because the Experiment was confined to a relatively small number of households in two large metro-

---

[1]The Urban Institute and Stanford Research Institute made substantial contributions to the initial design of the Demand Experiment, and particularly to the specification of alternative allowance formulas.

politan areas, changes in recipient housing could easily be accommodated by the existing stock of privately owned housing and analysis can focus on households rather than housing suppliers. Because households were selected at random, they can be used to estimate the way in which eligible households in general would use an allowance program. Because the Experiment included a Control group, it is possible to examine not only what sort of housing was obtained by participants in the allowance program, but also how the program changed participant housing. Because the Experiment included a variety of systematically different allowance programs, it can be used not only to analyze several different actual programs, but also to infer results for other possible program variations. Because the Experiment included a sample of participants in other housing programs in each site, it affords a direct comparison between allowance programs and existing alternatives.

The Supply Experiment was focused on the private housing market. Designed and analyzed by the Rand Corporation under contract to HUD, the Supply Experiment programs are conducted by specially created local housing authorities under Rand supervision in two sites--Brown County, Wisconsin (Green Bay), and St. Joseph County, Indiana (South Bend). The operation of the Supply Experiment program was begun in 1973 and will continue through 1983. In contrast to the Demand Experiment, the Supply Experiment offers assistance to all eligible households in each of its sites and includes both renters and homeowners. Eligible households may enroll in the program and become recipients at any time.

The Supply Experiment is designed to test the ability of the private market to accommodate an allowance program without undue price inflation or housing shortages. Where the Demand Experiment tests a variety of allowance programs against a Control group, the Supply Experiment tests a single Housing Gap Minimum Standards program against the local housing market. In theory, however, information from the Demand Experiment on the ways in which households respond to different allowance programs could be combined with the results of the Supply Experiment to predict the impact of alternative allowance programs on the private housing market.

The third Experiment, the Administrative Agency Experiment (AAE), was focused on administering agencies. Designed and analyzed by Abt Associates, the AAE was conducted by state or local government agencies in eight different sites

from 1972 to 1976. The various Administrative Agency Experiment programs each enrolled from 400 to 900 renter households for two years, with assurances of further assistance at the end of the allowance program. As in the Supply Experiment, all of the allowance programs used in the AAE were of the Housing Gap Minimum Standards type. The primary purpose of the AAE was to test the overall administrative feasibility of an allowance program and in particular to determine whether local agencies with differing experience in operating housing and other social service programs could successfully implement and administer a housing allowance program. In addition, the analysis examined and compared alternative administrative mechanisms adopted by the different agencies and estimated administrative costs.

The design of the AAE approximated normal HUD procedures for program operations much more closely than either the Demand or Supply Experiments. The Demand Experiment was operated by the research contractor under very detailed operating rules, extremely rigorous quality control, and extensive data collection beyond the needs of an ongoing program. Likewise, while the Supply Experiment was operated by local housing offices, these were created for the Experiment and closely supervised in both development and operation. In contrast, the AAE involved pre-existing agencies, which were allowed to operate with considerable discretion under a fairly general set of program rules.

The coordination of the three Experiments was undertaken by the Urban Institute. The Urban Institute played a major role in the original design of EHAP and has reviewed the design, operation, and analyses of all three Experiments. HUD also arranged for separate outside review of both the design and analysis by various panels of experts.

This report summarizes the analyses and findings of the Demand Experiment. It is accordingly focused on how households, as opposed to suppliers or administering agencies, respond to and make use of alternative allowance programs. These are contrasted with the housing of eligible households in the absence of an allowance program, with expanded welfare payments not tied to housing, and with other housing programs. Because the report is focused on results rather than techniques, analytic issues are generally ignored or relegated to footnotes unless they substantially affect the interpretation of results. Readers are referred to the individual reports, which are listed in Appendix III, for technical details.

The report starts, in Chapter 2, by describing the housing situation of low-income renter households in the two Demand Experiment sites in terms of unit quality, crowding, rent burden, and location. Chapter 3 then compares the housing provided by and costs of alternative allowance and nonallowance programs. Chapter 4 describes who participates under alternative allowance programs and how the programs change the housing of recipients. Chapter 5 then summarizes the findings of the Demand Experiment and discusses their implications for housing policy and further research.

REFERENCES

Schechter, Henry, An Analysis of the Section 235 and 236 Programs, Washington, D.C., U.S. Senate Committee on Banking, Housing and Urban Affairs, Subcommittee on Housing and Urban Affairs, May 24, 1973.

CHAPTER 2

THE HOUSING CONDITIONS OF LOW-INCOME HOUSEHOLDS

This chapter discusses the housing conditions of low-income households in Pittsburgh and Phoenix. It sets the stage for subsequent chapters by describing the sorts of deficiencies that housing programs might be expected to remedy and discussing why specifically housing oriented programs might be preferred to programs of general income support.

2.1 THE HOUSING CONDITIONS OF LOW-INCOME HOUSEHOLDS ENROLLED IN THE DEMAND EXPERIMENT

The housing of low-income households has usually been discussed in terms of three sorts of problems--physically inadequate housing, overcrowding, and, more recently, excessive rent burden.[1] Recent studies of housing problems in the United States have consistently found a low and declining incidence of physically inadequate or overcrowded housing combined with an increasing incidence of high rent burdens. Thus, for example, Levine (1978) found that among all renter households in the United States, the incidence of physically inadequate housing dropped dramatically from 49 percent of households in 1940 to 8 percent in 1976. Likewise the percentage of households in crowded units fell from 20 percent to 5 percent. The proportion of households paying more than 25 percent of their income for rent, on the other hand, rose from 31 percent in 1950 to 47 percent in 1976.

Even analyses of housing deprivation among low-income households indicated declining rates of physical deprivation, relatively little crowding, and an increasing incidence of high rent burdens. Levine found that in 1976, only 13 percent of renter households eligible for federal low- and moderate-income housing assistance were in physically inadequate housing (as compared with 57 percent of such households in 1950), while 7 percent were living in crowded conditions. At the same time, 61 percent of such households had rent burdens in excess of 25 percent of their income, and 38 percent had rent burdens of over 35 percent of their income. Birch et al. (1973), using somewhat

[1] A fourth type of problem--inadequate neighborhoods--is more difficult to quantify and is discussed later in this chapter.

different measures, found that among very low-income households (with incomes of $5,000 or less in 1970), 24 percent were in physically inadequate or crowded housing, while an additional 54 percent suffered from rent burdens greater than 25 percent of income.[1]

Analysts have disagreed about the policy implications of these trends, particularly with respect to physically inadequate housing. Levine, for example, emphasized the continuing existence of physically inadequate housing. Weicher (1976), on the other hand, concluded that "we are probably very close to meeting the national housing 'goal of a decent home,' as it was originally envisioned in 1949." In any case, it has appeared that the need for improved housing as opposed to higher incomes (or lower rents) was rapidly disappearing.

Analysis of Demand Experiment data by Budding (1978) indicates that these conclusions substantially misrepresent the housing needs of low-income households, and especially of households with incomes below poverty. Budding used the detailed information on enrollee housing collected in the Demand Experiment to assess the physical adequacy of units. Units were classified as clearly inadequate if they were structurally unsound, had unvented gas heaters, rats, inadequate fire exits, incomplete plumbing facilities, no heat, seriously holed interior surfaces, incomplete kitchen facilities, or inadequate electrical service, or needed major repairs to obtain working plumbing, adequate light and ventilation, or adequate ceiling height.[2] The results,

[1] Birch et al. (1973) do not provide figures on the total incidence of high rent burden.

[2] For a complete discussion of the standards used in classifying units, see Budding (1978), Chapter 2. Plumbing was classified as incomplete if the unit did not have a flush toilet, shower or tub with hot water, and a wash basin with hot water, or if the bathroom was shared with another household. Minimum kitchen facilities consisted of a stove, refrigerator, and sink with hot water. Electrical service was rated as incomplete if there was no light fixture in the kitchen or bath, no outlet in the kitchen, or less than two outlets or one outlet plus a light fixture in the living room. A unit was classified as needing major repairs if it was both evaluated by the housing evaluator as needing major repairs and had basic kitchen or plumbing facilities that did not work, inadequate ceiling height, unopenable, loose or broken windows, and/or no ventilation or windows in the kitchen, bath, or living room.

The double requirement of evaluator rating plus reported specific deficiency for the "needed major repairs" category was introduced because the standards involved for some items were subject to greater controversy or because the measured item rating could conceivably include temporary breakdowns or relatively minor hazards. In any case, only 6 percent of the units studied were classified as inadequate solely on the basis of needing major repairs.

shown in Table 2-1, are startling. Budding found that 43 percent of enrolled households lived in clearly inadequate units, as compared to the 13 percent figure found by Levine. Another 26 percent lived in units of questionable quality, while only 31 percent were in units that were apparently adequate.[1] Among households with incomes below poverty, the situation was even worse: 56 percent were in clearly inadequate units, as compared with Birch et al.'s figure of 24 percent; 24 percent were in questionable units; and only 19 percent were in apparently physically adequate units.

The dramatically higher incidence of physically inadequate housing found by Budding reflects a combination of unusually complete data and long-term changes in what constitutes minimally acceptable housing. Until 1973, data on the physical condition of housing was generally limited to one or two items from the census--availability of complete indoor plumbing and an overall rating of structural soundness.[2] Almost all analysts have recognized that these measures are inadequate. The census rating of structural soundness varied substantially in definition between each census from 1940 to 1960 and was finally dropped altogether in 1970 because of the Census Bureau's serious concern about its reliability. Data on complete indoor plumbing facilities, on the other hand, while probably reliable, are not an adequate proxy for the overall physical condition of a dwelling unit. In particular, it seems unlikely that the presence of complete indoor plumbing is any guarantee against severe dilapidation, the absence of other basic housing services, or the presence of serious safety hazards.

The Annual Housing Survey was begun in 1973 to supplement the census information on housing condition. The survey reports households' ratings on a variety of housing and neighborhood conditions. In a Congressional Budget Office study, Levine made one of the first published attempts to use Annual Housing Survey items to construct an overall measure of physical housing deprivation. Levine's measure is based on 15 ratings of dwelling

---

[1]The term "apparently adequate" is meant literally. Extensive as they are, the Demand Experiment data still may not adequately indicate all serious defects. On the other hand, the units classified as questionable ("ambiguous" is Budding's term) are just that and may well include both adequate and inadequate units.

[2]Birch et al. (1973) also used information from the census on heating equipment, requiring the existence of some form of central heating in areas with severe winters.

Table 2-1

RESULTS OF BUDDING'S ANALYSIS OF THE HOUSING OF HOUSEHOLDS ENROLLED IN THE DEMAND EXPERIMENT

	ALL LOW-INCOME HOUSEHOLDS	POVERTY HOUSEHOLDS	NONPOVERTY LOW-INCOME HOUSEHOLDS
PERCENT IN[a]			
Clearly inadequate units	43%	56%	30%
Questionable units	26	24	27
Apparently adequate units	31	19	43
SAMPLE SIZE	(3,357)	(1,697)	(1,670)

SOURCE: Budding (1978), Figure 2-2.

a. Units were classified as clearly inadequate if they were structurally unsound, had unvented gas heaters, rats, inadequate fire exits, incomplete plumbing facilities, no heat, seriously holed interior surfaces, incomplete kitchen facilities, or inadequate electrical service, or needed major repairs to obtain working plumbing, adequate light and ventilation, or adequate ceiling height.

Questionable units are units for which there is inconclusive evidence of possibly serious problems. These include two sorts of cases. First, in some cases the housing evaluator rated a unit as unsound or needing major repairs without any specific deficiency. Second, cases in which the deficiency might or might not be serious (nonworking plumbing, for example, could be permanent or a temporary disorder) were rated as questionable unless the evaluator indicated a need for major repairs. Units not classified as clearly inadequate or questionable were classified as apparently adequate.

unit condition from the Annual Housing Survey. Seven of these he considered sufficient to classify the unit as inadequate.[1] Eight additional items concerning structural and surface condition and safety, he regarded as useful but weaker or less reliable indicators of inadequate housing; two or more of them had to be present before a unit was classified as inadequate.[2] Levine's estimates of the incidence of inadequate housing in 1976, however, were almost identical with those based on the two census items for 1970. This suggested that the census items were not as inaccurate indicators as some believed. Still, Levine, like most authors, continued to feel that better information could materially alter the picture of relatively low rates of physical deprivation, particularly among poor and low-income households.

The Demand Experiment data base offers an almost unique opportunity to test the adequacy of current data on physically inadequate dwelling units. Every household's dwelling unit was evaluated by trained evaluators when the household enrolled and, thereafter, at regular intervals and whenever the household moved. Evaluators were subject to continuing quality control and review to assure comparability across evaluators and over time. The evaluation averaged one hour and covered a broad range of data; 137 different items of information, including an overall assessment of the condition of the dwelling unit by the evaluator, are available for each dwelling unit, of which 78 have proved useful as indicators of housing condition.

These data provide an extensive and reliable picture of housing conditions in Pittsburgh and Phoenix. Reliability is an important issue in housing quality data. As mentioned earlier, interviewer ratings of structural sound-

---

[1]The seven items involved were: absence of complete plumbing; absence of complete kitchen facilities; absence of either a public sewer connection, a septic tank, or cesspool; three or more breakdowns of six or more hours each in the sewer, septic tank, or cesspool during the past 90 days; three or more breakdowns of six or more hours each in the heating system; three or more breakdowns in plumbing (unit without water) for six or more hours each during the past 90 days; or three or more breakdowns of the flush toilet for six or more hours each during the past 90 days.

[2]The eight items were: leaking roof; holes in interior floors; open cracks or holes in interior walls or ceilings; broken plaster areas on interior walls or ceilings larger than one-foot square; unconcealed wiring; the absence of a working light in the public hallways of multiunit structures; loose or no handrails in public hallways in multiunit structures; loose, broken, or missing steps in public hallways in multiunit structures.

ness were dropped from the U.S. Census in 1970 because successive ratings of the same unit by different interviewers were apparently uncorrelated with each other. In contrast, successive evaluations of units in the Demand Experiment indicate that evaluations were extremely reliable, with 94 percent of units accurately classified as clearly inadequate or not.[1] Nor does it appear that households enrolled in the Demand Experiment lived in especially better or worse housing than other households in Pittsburgh and Phoenix with similar income and household size.[2]

The major limitation on the Demand Experiment data base is that it is confined to only two urban areas--Pittsburgh and Phoenix. Available evidence suggests, however, that Budding's findings of extensive physical housing deprivation would apply nationally as well. The contrasts between Budding's estimates and those based on Census or Annual Housing Survey data are maintained within the two cities. At the same time, nationally available data suggest that Pittsburgh and Phoenix are quite close to the national mean, as shown in Table 2-2. This at least suggests that Budding's results do not reflect abnormal housing conditions in the two sites.

As Budding points out, however, improved analysis of housing deprivation is not simply a matter of more extensive data collection. There is no question that the housing stock in the United States has improved enormously over the last 40 years. However limited the measures, the sharp fall in the incidence of seriously dilapidated units and units without indoor plumbing since 1940, mentioned at the beginning of this section, represents a real and important improvement in the nation's housing. Budding's figures do not deny this improvement. Rather they show the ability of more extensive data

---

[1]See Budding (1978), Appendix III. The basic procedure used is that suggested by Henry (1973). Housing evaluations were conducted at enrollment and at least annually thereafter. Thus, the units of households that did and did not move provide a set of three repeated evaluations (at enrollment and one and two years after enrollment) by different evaluators (evaluators were randomly assigned to units and did not know the results of previous evaluations). Assuming that the sequence of true states is generated by a Markov process, the consistency of ratings over time can be used to estimate the probabilities of correctly classifying a unit given its true state, as well as the true proportion of inadequate units. The estimated conditional probabilities of accurate classification were .93 if the unit was actually inadequate and .94 if the unit was actually not inadequate.

[2]See Kennedy and MacMillan (1979), Chapter 2.

Table 2-2

COMPARISON OF BUDDING'S ANALYSIS OF THE DEMAND EXPERIMENT WITH OTHER STUDIES BASED ON CENSUS DATA

	PERCENT OF HOUSEHOLDS IN PHYSICALLY INADEQUATE HOUSING	
	ALL LOW-INCOME HOUSEHOLDS[a]	VERY LOW-INCOME HOUSEHOLDS[b]
PITTSBURGH AND PHOENIX		
Budding's Measure (Demand Data)	43%	56%
Simulation of Census Measure (Demand Data)	15	22
Levine (Census Annual Housing Survey)	12	NA
NATIONAL ESTIMATES		
Levine (Census Annual Housing Survey)	13	NA
Birch et al. (Decennial Census)	NA	24

SOURCE: Budding (1978), Chapter 2 (Section 2.4).

a. Low-income households are defined as households eligible for housing allowances for Demand Experiment figures (see Appendix I) and as households eligible for low- and moderate-income housing assistance programs for Levine.

b. Very low-income households are defined as households with (1974) incomes below poverty, using 1974 poverty incomes for male-headed urban families for Demand Experiment figures (see Budding, 1978, Appendix II, Section II.2, for details) and as households with 1970 incomes of less than $5,000 for Birch et al.

to reflect more current standards of housing adequacy.

Prevalent forms of housing deficiencies in the United States have shifted from conditions that palpably threatened tenants' lives to conditions that, while no doubt survivable, are simply not acceptable under modern standards. The New York Tenement House Law of 1867, for example, required at least one privy or water closet for every 20 families in a dwelling unit; since the 1930s a dwelling unit has not been considered adequate without at least one complete bathroom for each household. Likewise, in the first decade of the twentieth century in the United States crowding was described in terms of the number of families that shared a single dwelling unit; in recent decades, the concern has shifted to the privacy of the individual and has been measured in terms of the number of persons per room (Baer, 1976).

While some life-threatening conditions still exist, attempts to measure housing deprivation in modern terms must accept the fact that deprivation is a relative concept and that any analysis will necessarily leave some ambiguities. Thus, in a major review of housing codes for the National Commission on Urban Problems (the Douglas Commission) in 1968, Eric Mood concluded that while it would be hard to deny that there is an objective link between quality of housing and health under extreme physical conditions, the possibility of scientifically establishing causal relationships between individual (noncatastrophic) housing attributes and the health of a people was remote (Wilner et al., 1962 and Schorr, 1963).

The fact that standards of need are relative and change over time should not be allowed to obscure the fact of real present deprivation. It is true that the use of housing standards rather than biological minima means that any definition of physical inadequacy is open to question. Indeed, it seems quite likely that most readers who took the time to examine Budding's analysis in detail would find that his standards for classifying a unit as clearly inadequate both omitted items that the reader would consider to be serious problems and included items that the reader would regard as minor. One of the important contributions of Budding's analysis is that it demonstrates that these ambiguities do not preclude effective analysis.

Because he had both a large number of measures and detailed information on the criteria used to rate individual items, Budding was able to construct a persuasive case by simply describing the conditions involved. By explicitly

including an ambiguous category for questionable units that showed some evidence of serious deficiencies, but might still be regarded as acceptable, he avoided the trap of having to make knife-edge decisions that could easily be challenged. Equally important, he showed that the incidence of clearly inadequate units would be only marginally affected by quibbles about the inclusion of any particular standard. Thus, for example, the largest reduction in the overall incidence of physically inadequate housing that could be obtained by dropping any single item was less than three percentage points.[1] Finally, the units classified as inadequate rarely have only one deficiency of any sort. Only 10 percent of physically inadequate units had a single deficiency; most had four or more deficiencies, and over 40 percent had six or more.

In short, the much higher incidence of physical housing deprivation found by Budding does not appear to reflect unreliable data, unusual samples of households or sites, or unreasonably strict standards of acceptability. They do reflect much more extensive data and, as a consequence, the ability to apply more complete standards in evaluating housing condition.

Having acquired data capable of reflecting contemporary standards and having found more extensive physical housing deprivation than heretofore realized, it is important not to make the opposite mistake of lumping all inadequate housing together as if equally bad. As noted above, 10 percent of the units classified as inadequate had only one deficiency, albeit a serious one. At the opposite end of the spectrum, 14 percent had 11 or more deficiencies and 10 percent were rated by evaluators as literally unsound or unfit for human habitation.

Lumping these extremes together can obscure important differences in potential priorities for assistance. An example of this is shown in Table 2-3, which presents a sequence of increasingly stringent definitions of unacceptable housing ranging from inadequate units that were rated by evaluators as unfit for human habitation, through units with 11 or more or six or more deficiencies, up to units not rated as apparently adequate (i.e., either clearly inadequate or ambiguous). As shown in Table 2-3, each of these not only

[1] The single item whose deletion would have accomplished this was the requirement for adequate fire exits for units above ground floors in multi-unit buildings.

Table 2-3

INCIDENCE OF VARIOUS LEVELS OF PHYSICAL HOUSING DEPRIVATION

	PERCENT OF LOW-INCOME RENTERS IN UNACCEPTABLE HOUSING	PERCENT OF THOSE IN UNACCEPTABLE HOUSING WITH INCOMES BELOW POVERTY
In clearly inadequate units rated unfit for human habitation	4%	79%
In clearly inadequate units with 11 or more deficiencies	6	79
In clearly inadequate units with six or more deficiencies	19	71
In clearly inadequate units	43	65
Not in apparently adequate units (clearly inadequate or ambiguous)	69	59
All households	100	51
SAMPLE SIZE	(3,357)	(NA)

SOURCE: Budding (1978), Tables 2-2 and 2-4.

identifies a larger overall target group, but also rearranges potential assistance priorities. About half of the low-income renters (51 percent, to be exact) studied had incomes below poverty. A program targeted towards households in units rated as unfit for human habitation or units with 11 or more deficiencies would be focused on a very small percentage of low-income renters (4 to 6 percent), four-fifths of whom would have incomes below poverty. A program aimed at all households in clearly inadequate housing would have a much larger target group (43 percent of low-income renters), two-thirds of whom would have incomes below poverty. Finally, a program aimed at all households not in apparently adequate housing would embrace most low-income renters (69 percent) and be relatively close to evenly divided among poverty and nonpoverty households.

Similar issues arise with respect to crowding. Concerns about crowding have shifted over time from questions of family privacy and health, involving several families crowded into one unit, to issues of individual privacy involving too little space per person within the unit. In recent decades, the predominant measure of crowding used in the United States has been persons per room, with various criteria (more than one, one and a half, two, or even three persons per room) suggested as the appropriate measure. HUD regulations use a different criterion, defining a unit as crowded when there are more than two persons per bedroom. Budding developed a more complex measure, taking some account of the age and sex of household members. Budding's measure starts by estimating the number of bedrooms needed to obtain at least one bedroom for every two people, with the additional requirement that unrelated roomers and boarders, adults and children, and teenage children of opposite sex not have to share a bedroom. A household is then judged to be crowded if it has fewer bedrooms than required.

The different measures do give different incidences of crowding, as shown in Table 2-4. Overall, the percentage of households in crowded units ranges from 15 percent under the one person per room standard to 27 percent under the household composition standard. More important, perhaps, is the strong relation between crowding and household size. At least two-thirds of large households (those with five or more members) are crowded under any of the three measures. Among three and four person households, on the other hand, the incidence of crowding ranges from 6 to 26 percent, depending on the measure used. (Crowding is definitionally impossible for one or two person

Table 2-4

PERCENT OF HOUSEHOLDS CROWDED
BY HOUSEHOLD SIZE

	CROWDING MEASURE			
	MORE THAN ONE PERSON PER ROOM	MORE THAN TWO PERSONS PER BEDROOM	NOT ENOUGH BEDROOMS FOR PRIVACY[a]	SAMPLE SIZE
HOUSEHOLD SIZE				
1,2	0%	0%	0%	1,376 (41%)
3,4	6	24	26	1,291 (38%)
5 plus	64	68	80	700 (21%)
ALL HOUSEHOLDS	15	23	27	3,367 (100%)

SOURCE: Budding (1978), Table 3-2.

a. The number of bedrooms needed under this measure is defined as one bedroom for every two household members, with the added requirement that unrelated roomers and boarders, adults and children, and teenage children of the opposite sex not have to share a bedroom.

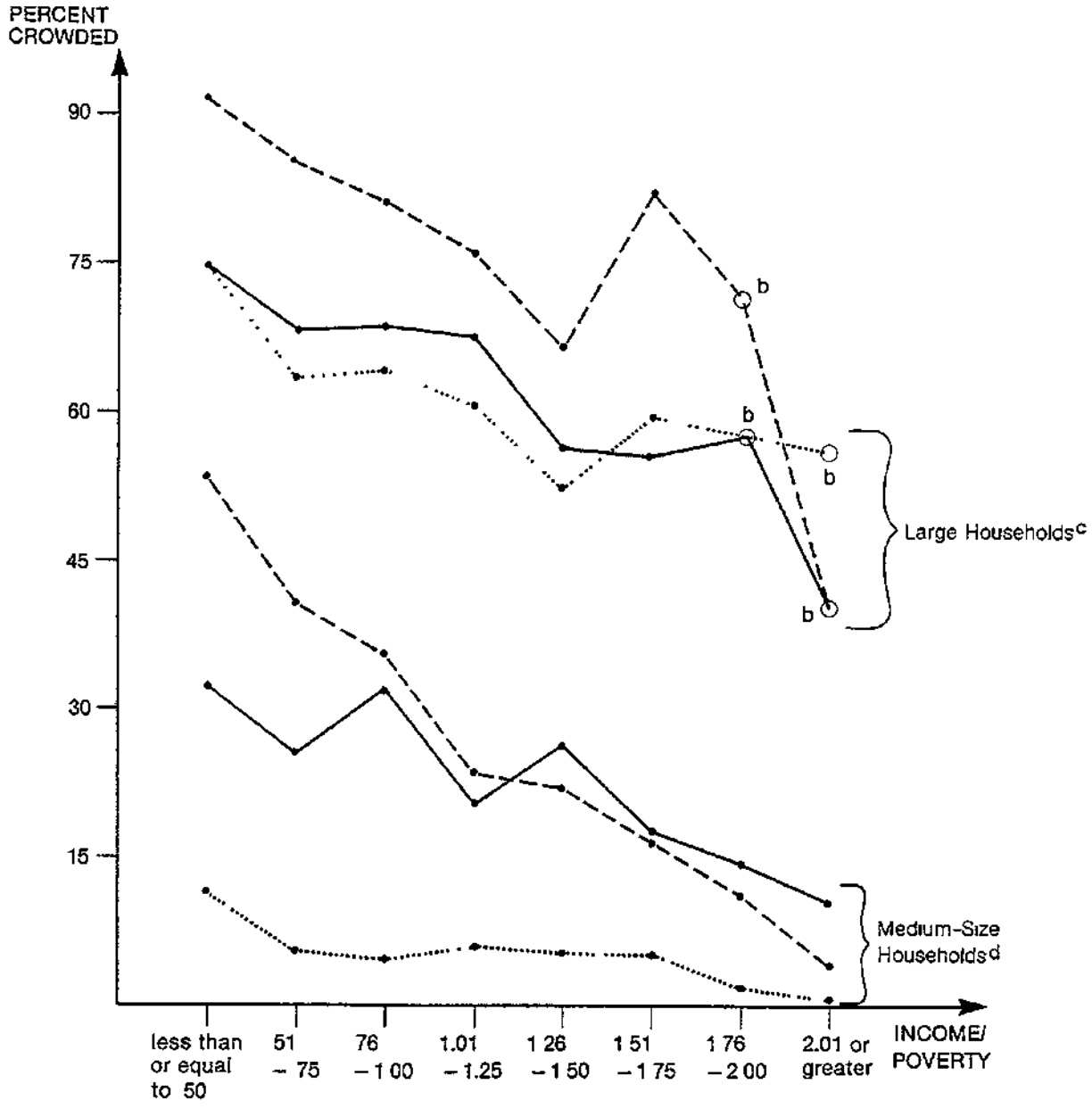
households under any of the three measures.)[1] The high incidence of crowding among large households persists across a wide range of incomes, as illustrated by Figure 2-1. Among large households no measure of crowding gives an incidence of less than 50 percent until household incomes are more than twice the poverty level. Among three and four person households, on the other hand, the incidence of crowding is substantially greater than 25 percent only for households with incomes below poverty.

More stringent measures of crowding emphasize the importance of household size and show a somewhat stronger relationship to income. Figure 2-2 shows the percent of households that would need two or more additional bedrooms under Budding's household composition measure. The incidence of more severe crowding indicated by this measure is low for three and four person households, running at about 10 percent for income levels below poverty and 5 percent or less for those with incomes above poverty. Among larger households, on the other hand, more severe crowding conditions occur among 63 percent of the households with incomes equal to half the poverty line or less and decline to 20 percent among those with incomes greater than 1.5 times the poverty line.

The final form of housing deprivation considered in Budding's analysis is excessive rent burden. Households in physically adequate and uncrowded housing may still be regarded as housing deprived if they obtain their housing at the cost of failing to meet other basic needs. The most frequently used criterion for excessive rent burden, both in analysis and legislation, is payment of more than 25 percent of income for housing. In common with other authors, Budding found that rent burdens of over 25 percent were quite common among the low-income renters enrolled in the Demand Experiment. As indicated in Table 2-5, over two-thirds of all enrolled low-income renters had rent burdens in excess of 25 percent of income, while 28 percent had rent burdens of more than 40 percent of income. As with other measures of housing deprivation, households with incomes at or below poverty were more often subject to high rent burdens, and especially to very high rent burdens: 79 percent of poverty households were paying more than 25 percent of their income for housing as compared with 58 percent of nonpoverty households; likewise, severe rent burdens in excess of 40 percent of income occurred among 43 percent of the pov-

[1] By convention, efficiencies are regarded as adequate for two persons under all measures.

Figure 2-1
INCIDENCE OF CROWDING BY INCOME FOR LARGE AND MEDIUM-SIZE HOUSEHOLDS[a]



KEY

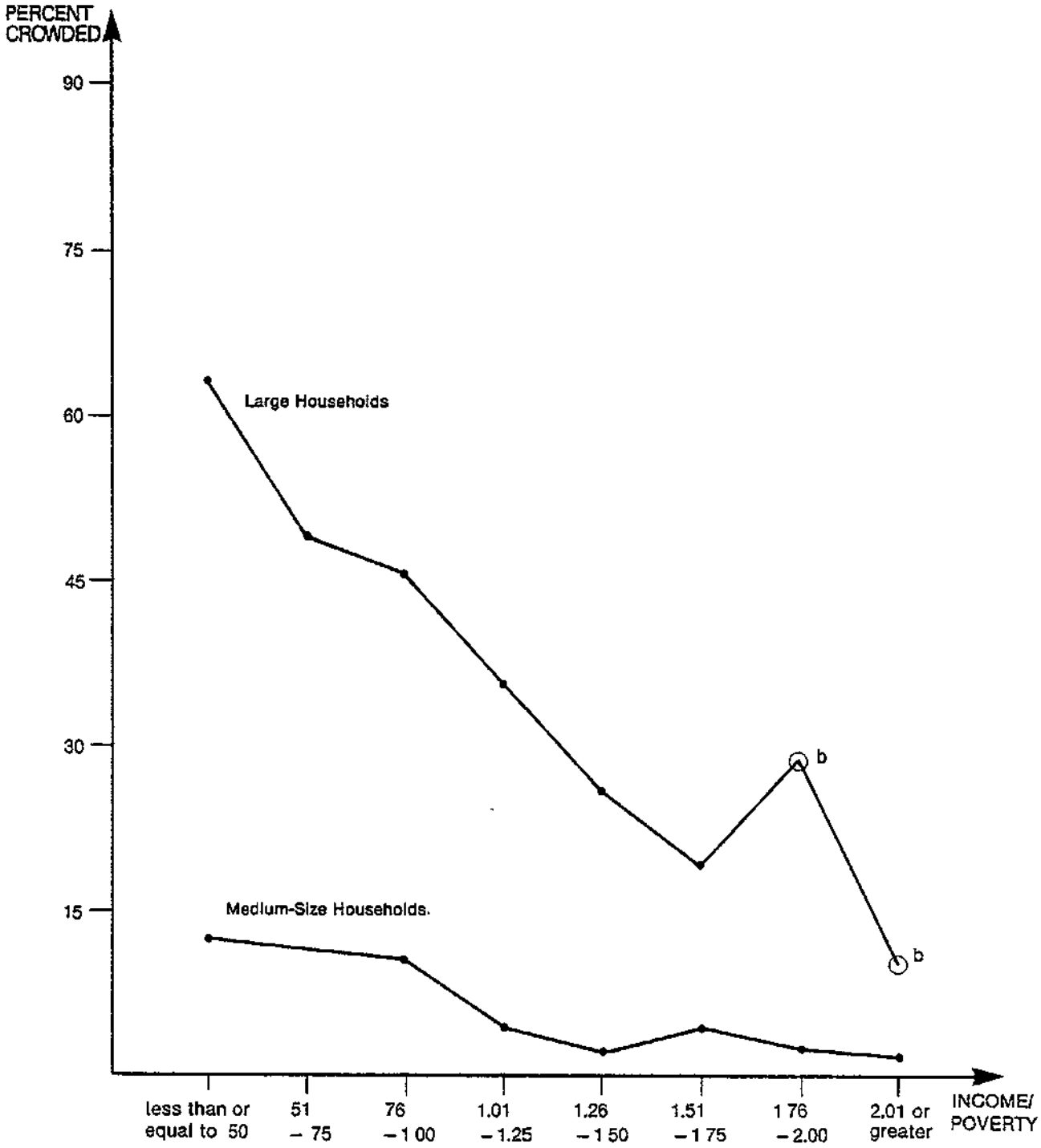
- - - - - - - - - - One or more rooms less than needed to be uncrowded
- ····· - ····· - - More than one person per room
———————— More than two persons per bedroom

a. Tables for figures are given in Appendix II.
b. Fewer than 25 observations.
c. Households with five or more persons
d. Households with three or four persons.

ATI#9233

Figure 2-2

INCIDENCE OF MORE SEVERE CROWDING (TWO OR MORE ROOMS LESS THAN NEEDED) BY INCOME FOR LARGE AND MEDIUM-SIZE HOUSEHOLDS[a]



a Tables for figures are given in Appendix II

b Fewer than 25 observations.

ATI #9233

Table 2-5

RENT BURDEN BY POVERTY STATUS

	ALL LOW-INCOME RENTERS	INCOMES BELOW POVERTY	INCOMES ABOVE POVERTY
Percent with rent burdens greater than 25 percent of income	68%	79%	58%
Percent with rent burdens greater than 40 percent of income	28	43	14
SAMPLE SIZE	(3,367)	(1,697)	(1,670)

SOURCE: Budding (1978), Figure 3-5.

erty households as compared with only 14 percent of nonpoverty households.[1]

Despite its common use, the 25 percent criterion for reasonable rent burdens does not appear to have any special validity. Lane (1977) indicates that the figure first arose from the practice in certain mill towns, where workers were charged one week's pay a month for company supplied housing. Thereafter, it seems to have become a widely used but unsubstantiated rule of thumb. Yet it is apparent on the face of it that the 25 percent rule can hardly be justified as a measure of need. A household with a high rent burden may well be in less need of assistance than a household with a lower rent burden. A household with an income of $10,000 a year, for example, may well be able to afford a 30 percent rent burden, which leaves it with a net of housing income of $7,000, more easily than a similar household with an income of $4,000 a year could afford a 20 percent rent burden, which leaves it with only $3,200 for other needs. In addition, some high rent burdens may be voluntary in the sense that they reflect household preferences for better housing, rather than what the household would have to pay in order to obtain basically adequate housing.

The basic idea behind the notion of excessive rent burdens appears to be that a household should be able to meet both housing and nonhousing needs. If a household obtains minimally adequate housing at the cost of inadequate diet, clothing, medical care, or education, then it clearly needs financial assist-

---

[1] As Budding points out, the apparently simple definition of high rent burden as rents greater than 25 percent of income contains a mass of definitional problems. In the analysis of the Demand Experiment, rent is defined as the contract rent for an unfurnished unit including utilities other than a telephone. Income is defined as all receipts from any source, including the bonus value of food stamps, net of taxes and alimony payments. Other programs and data sources use other definitions. These result in different classifications for individual households and also yield different overall figures for the incidence of high rent burdens, though the pattern of results is not changed, as shown below.

Percent of Households with Rent Burdens Greater than 25 Percent Under Alternative Definitions of Income

	All	Poverty	Nonpoverty
Disposable Income	68%	79%	58%
Census Annual Income	63	81	47
Public Housing Countable Income	74	90	59
Section 8 Income	71	86	54

SOURCE: Budding (1978), Figure 3-5.

ance to meet housing costs. Indeed, in this sense, there is some supporting evidence for a 25 percent rent rule for households with incomes at the poverty line. As it happens, the reference group used to estimate the minimum income needed to escape poverty did, on average, spend 25 percent of household income on housing.[1] If the poverty line is thought of as the basic income level necessary, on average, to obtain adequate food, shelter, clothes, and so forth, then 75 percent of poverty would be the implied income needed, on average, to obtain minimally adequate levels of nonhousing goods and services.

If rent burdens are indeed excessive only when they leave too little income to meet other basic needs, then it is clear that no fixed percentage of income provides an appropriate criterion. Households with incomes below 75 percent of poverty can in effect, afford nothing for housing; anything they spend for housing will only drive them farther from meeting basic nonhousing needs. Households with incomes above poverty can, however, spend more than 25 percent of their income and still at least be able to afford the basic levels of nonhousing services implicit in the poverty line income. If we define maximally supportable housing costs for any household as the costs that would leave the household able to meet the basic nonhousing needs implicit in the poverty line income, then a household has insupportable housing costs if its after housing income is less than 75 percent of poverty--that is, if

(1) $$Y - R < 0.75PV$$

where

Y = household income

R = housing costs

PV = poverty line income.

Under this definition, then, a household has insupportable rent burdens if its income after housing costs is below the (net of housing) poverty line.

As one might imagine, the notion of insupportable housing costs focuses attention much more strongly on the poorest households, as shown in Table 2-6.

---

[1]The poverty line is estimated as a multiple of a basic food budget. The multiple is set by the ratio of nonfood to food expenditures among middle-income households. Housing expenditures among this reference group accounted for 25 percent of income. See, Orshansky (1969).

Table 2-6

INCIDENCE OF INSUPPORTABLE RENT BURDENS BY INCOME CLASS

RATIO OF INCOME TO POVERTY	PERCENTAGE OF HOUSEHOLDS IN POVERTY AFTER HOUSING	PROPORTION WITH RENT BURDENS GREATER THAN		SAMPLE SIZE[a]
		40%	25%	
≤ 0.50	100%	65%	80%	(318)
0.51 to 0.75	100	42	81	(691)
0.76 to 1.00	94	32	76	(551)
1.01 to 1.25	46	29	68	(463)
1.26 to 1.50	9	18	57	(427)
1.51 to 1.75	2	13	62	(330)
1.76 to 2.00	0	8	56	(237)
≥ 2.01	0	4	49	(346)
All households	53	19	69	(3,363)

a. Number of observations for households in poverty after housing is 278 fewer than shown due to missing values.

ATI#878/5-9

Households with gross incomes of less than 75 percent of poverty are all by definition in need of financial assistance. Interestingly, only 6 percent of the households with incomes between 75 and 100 percent of poverty have housing costs low enough to bring them out of poverty. Among households with gross incomes just above poverty, on the other hand, 46 percent are in poverty after paying for their housing.[1] Among households with gross incomes greater than 125 percent of poverty, the incidence of insupportable rent burdens is very low.

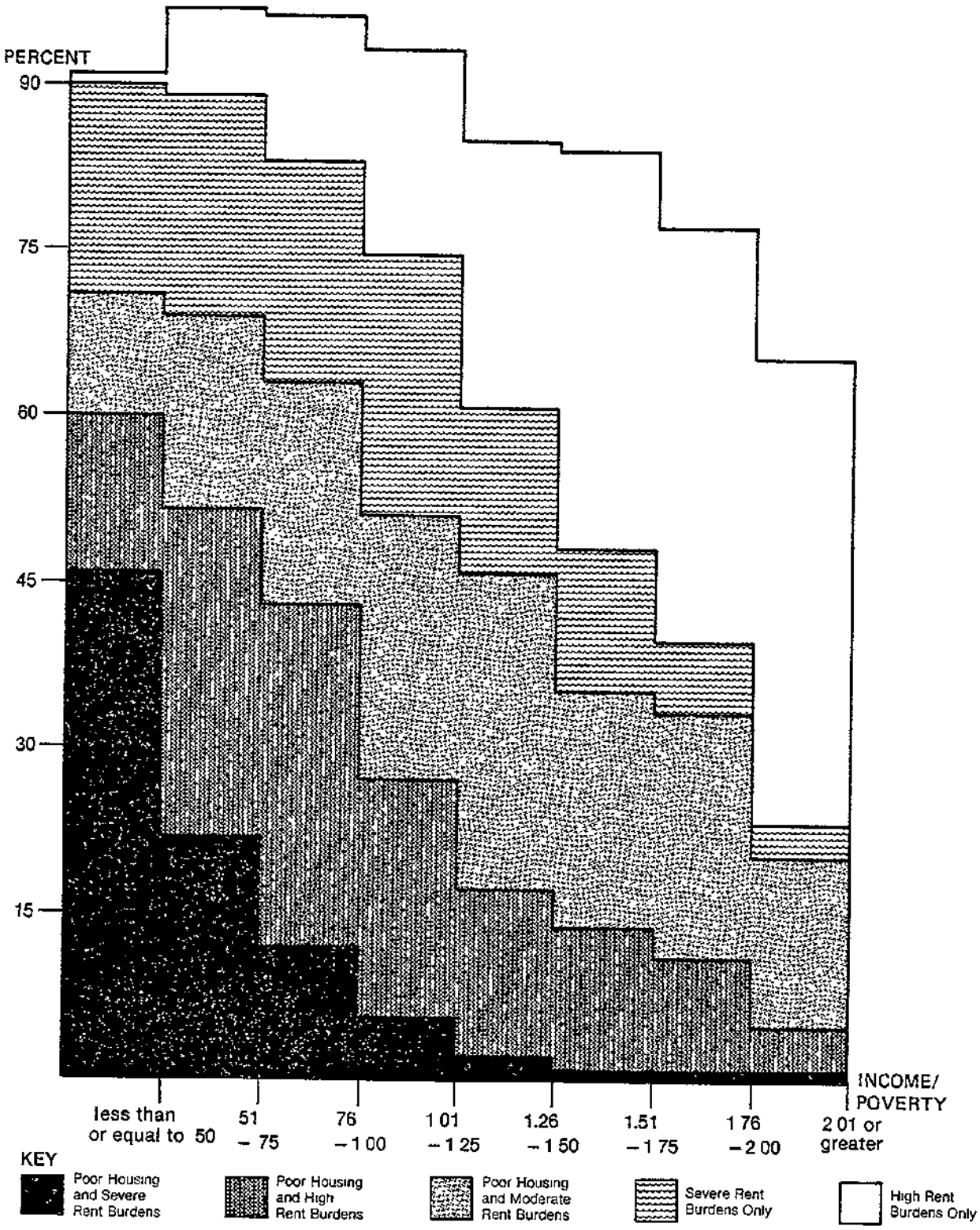
As shown in Table 2-6, there were almost as many households with insupportable rent burdens as there were with rent burdens greater than 25 percent of income. The enormous difference between the two measures is in which households they identify for assistance. A program aimed at alleviating insupportable rent burdens would be almost entirely concentrated on households with incomes below 125 percent of poverty. A program which defined its goals in terms of the usual 25 percent of income target, on the other hand, would find a large proportion of its target households with incomes well above the poverty line. As with measures of physical and areal adequacy, more stringent rent burden standards can identify groups of households with especially severe housing problems. As would be expected, this tends to focus attention on poorer households. Income is not the only household characteristic of interest, however, and similar analyses of deprivation by race, age, and geographic characteristics might also serve to identify more severely deprived households.

These same issues arise in examining the way in which physical inadequacy, crowding, and rent burden contribute to the overall incidence of housing deprivation. Figure 2-3 shows the incidence of various combinations of poor housing and high or severe rent burdens by income class. Income classes are defined in terms of the ratio of household income to poverty. Those in the lowest class have incomes less than or equal to half the poverty line for their household size and age, while households in the highest class have incomes of more than twice poverty incomes. The combinations of housing deprivation are indicated by differences in shading. The darkest portion of

---

[1]This simply reflects the fact that rent burdens among low-income households are usually greater than 25 percent, while the housing costs implicit in the poverty line were 25 percent.

Figure 2-3
TYPES OF HOUSING DEPRIVATION BY INCOME CLASS[a]



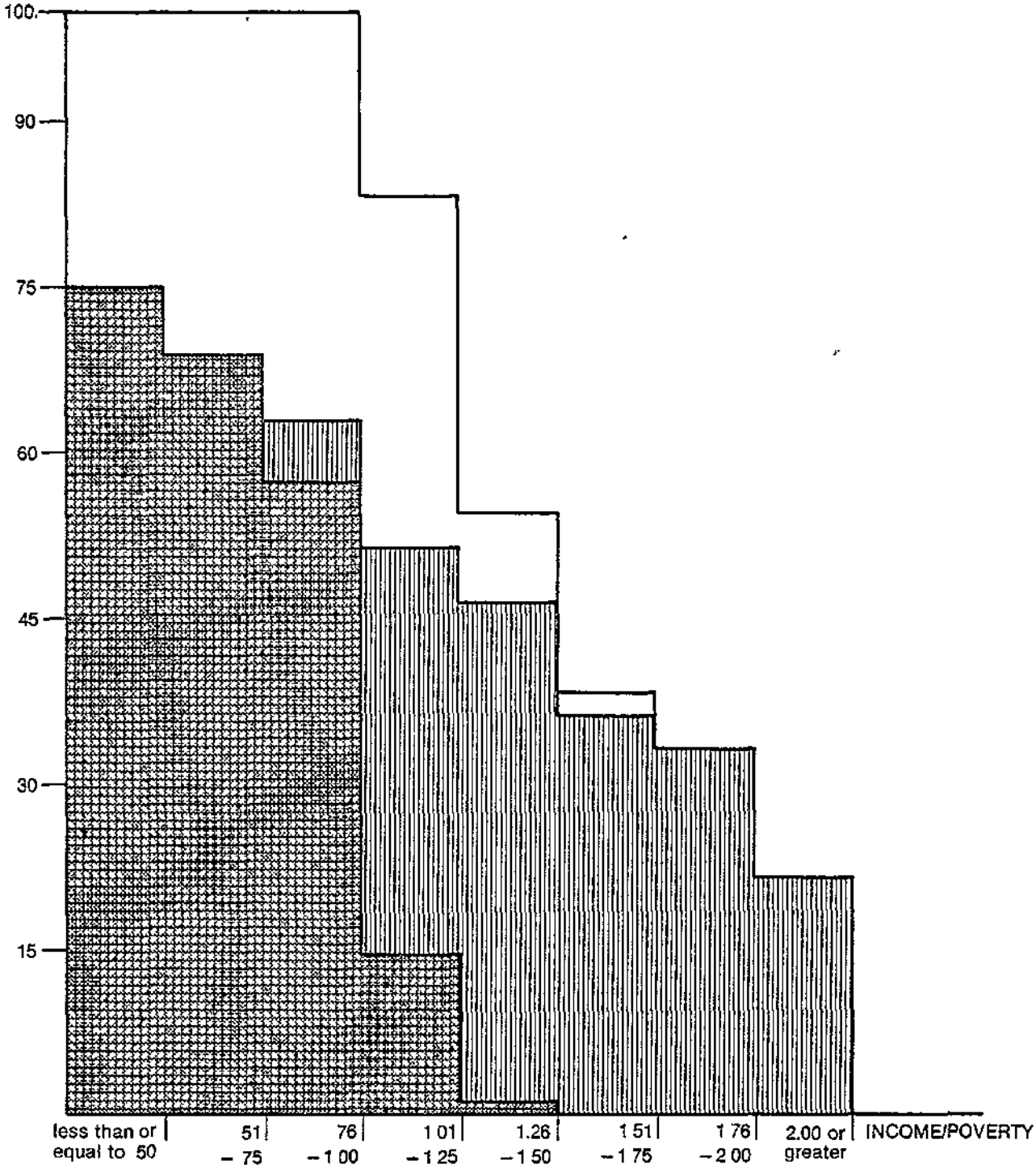
a Tables for figures appear in Appendix II.

the graph indicates households in poor housing (that is, in either physically inadequate or overcrowded units) with severe rent burdens (greater than 40 percent of income). The medium-gray area shows households in poor housing with rent burdens of 26 to 40 percent. The light-gray area indicates households in poor housing but with moderate rent burdens (25 percent of income or less). The rest of the graph shows households that suffer only from high rent burdens, with severe rent burden indicated by the wavy line and high rent burdens in the 26 to 40 percent range left blank.

If households are classified as housing deprived if they suffer from either poor housing or high rent burdens, the incidence of housing deprivation is both very high (88 percent) and only moderately related to income. About 96 percent of households in poverty are in inadequate or excessively costly housing. The incidence of housing deprivation among the low-income households with incomes of more than twice the poverty line is lower, but still almost 65 percent. Yet the nature of housing deprivation varies dramatically with income. Households that suffer both poor housing and severe rent burdens are almost exclusively poor (the relatively few cases among households above poverty account for only 10 percent of this group). Households with poor housing and high (but not severe) rent burdens, indicated by the medium-gray areas, are also preponderantly poor. Conditions of either poor housing or severe rent burdens add a large group to all income levels, with a noticeably decreasing incidence among households with incomes over one and a half times poverty. The inclusion of households with rent burdens in the 26 to 40 percent range, on the other hand, adds a large block of higher income households and accounts for from 40 to 60 percent of the deprivation among households with incomes greater than one and a half times poverty.

Comparisons based on poor housing and insupportable rent burdens are even more dramatic, as shown in Figure 2-4. Among households with incomes below poverty, 66 percent are both in poor housing and have insupportable rent burdens. Because the notion of insupportable rent burdens is so tightly bound to poverty, however, the separate roles of rent burden and poor housing are now reversed in comparison to Figure 2-3. In both cases, households suffering from both poor housing and extreme rent burdens are almost exclusively concentrated among those with incomes below poverty. Extending the

Figure 2-4
HOUSING DEPRIVATION AND INCOME CLASS[a]



KEY

Poor Housing and Insupportable Rent Burdens

Poor Housing Only

Insupportable Rent Burdens Only

a. Tables for figures are given in Appendix II.

definition of housing deprivation to include all households with rent burdens greater than 25 percent, regardless of housing conditions, added a large block of households above the poverty line in Figure 2-3 and sharply reduced the association between housing deprivation and income. In contrast, extending the definition of housing deprivation to include all households with insupportable rent burdens adds a large block of households with incomes below the poverty line in Figure 2-4.

2.2 HOUSING DEPRIVATION AND THE EVALUATION OF PROGRAM ALTERNATIVES

Budding's (1978) analysis of the housing situation of low-income households offers an important first step towards a systematic appraisal of housing need in the United States. As Budding points out, the analysis is limited; it is confined to two urban areas, omits any mention of neighborhood, is based on an admittedly partial list of physical housing deficiencies, and offers only a rudimentary treatment of crowding and especially rent burden. Even so, Budding's analysis clearly indicates the potential role of low-income housing programs separate from general income support, and, by emphasizing differences in the nature and severity of housing need across different households, once again raises the difficult issues of program targeting. It cannot, however, by itself define the objectives of housing programs and the basis for evaluating program alternatives.

The recurrent finding that high rent burden was rapidly becoming the housing problem in the United States, even among low-income households, suggested that there might be no distinctive housing problem per se. The problems found were increasingly susceptible to being described as simply one of too little income. In contrast, Budding's analysis shows that, by contemporary standards, there is still a substantial incidence of physically inadequate or overcrowded housing among low-income renters. Household income and housing deprivation are, of course, connected. On average, the nature and severity of housing deprivation among households in poverty is very different, for example, than among other low-income households. At the same time, some households at every income level live in apparently adequate housing at apparently affordable costs, while others do not. Low-income and poor housing are not synonymous, and programs of housing assistance and general income redistribution, while they may overlap, are also likely to involve different patterns of assistance.

This does not mean that housing deprivation must be regarded as a separate and special issue. Proponents of general income transfers can still argue that the inadequate housing conditions found in Budding's analysis are only one of many problems associated with low incomes and one that deserves no more special attention than any other; that poor households, no less than those with higher incomes, are the best judges of how they should spend what money they have; and that there is no reason why the government should devote time and money to burdening poor households with special restrictions not shared by others. More generally, even if housing problems do deserve special attention, Budding's analysis neither claims to present all or even the most important policy objectives by which alternative programs should be evaluated.

Given the substantial funds allocated to housing programs over the last 40 years, it seems evident that there has been some special concern for housing. The nature of the concern has not, however, always been clear.

At one level it may be enough to admit that improved low-income housing has apparently been an especially desirable policy objective, so that housing programs may simply be evaluated by the extent to which they improve housing conditions. The analyses presented in this report have accordingly measured housing conditions and improvements in terms of alternative physical and occupancy standards, neighborhood conditions, and overall market value or unit rent, as well as the rent burden borne by households.

At the same time, the lack of a detailed rationale for housing assistance programs is troublesome for program evaluations. To the extent that program goals are unclear, program evaluations may be similarly clouded. Strong conclusions depend on the happy situation in which a wide variety of goals are all better met by one program than another. As the analyses of Chapters 3 and 4 will show, this is more often the case than might be expected. Nevertheless, it seems important to try to unravel the potential reasons for housing assistance programs.

The classic reasons advanced for special attention to housing fall into three areas involving externalities, countercyclical economic policy, and special issues in income-transfers.[1] Externalities arise when having households in

[1]For an excellent review of the first two of these, see Weicher (1979). Aaron (1972), Chapter 1, also provides an illuminating discussion of possible reasons for government intervention in housing in general.

adequate housing directly benefits other households as well. Interest in countercyclical government investment in housing arises because construction, in common with other capital formation, tends to fall off sharply in periods of recession. In-kind transfers of specific commodities may be more desirable than general cash transfers when the commodity itself has a special importance, when costs vary substantially among households, or when households' needs for or interest in the commodity varies substantially among recipients.

Housing externalities can occur because inadequate housing directly affects other households or because it produces conditions of crime or disease that affect society at large. Externalities may justify intervention because they mean that individual households under-invest in housing. The issue between proponents of cash-transfers and proponents of low-income assistance programs specifically aimed at housing is not whether the poor should be assisted, but whether they should be forced to use assistance for housing instead of other needs. If there are externalities, then households at all income levels may choose to spend too little on housing. In effect, each household decides how much to spend on housing in terms of its individual needs and resources--without considering the benefits to other households. Thus, households (and in particular higher-income households) are potentially willing to pay each other to improve their housing further.

As was noted in the previous discussion of housing quality, there is little or no evidence that the sorts of poor housing conditions found in modern America have any substantial effect in promoting crime, poverty, and disease.[1] On the other hand, it does seem reasonable to suppose that obviously deteriorated or unattractive structures do affect the value of nearby properties. Budding's analysis does not generally include the exterior quality of units. Estimation of the value of rental properties as a function of unit and neighborhood attributes by Merrill (1977) did, however, find a small effect from the general condition of the immediate block face which seems consistent with other studies.

---

[1]See Wilner et al. (1962), Schorr (1963) and Weicher (1979). The present day lack of credit for such externalities no doubt in part reflects vastly improved housing conditions as well as, in the case of crime, a decrease in the tendency to regard criminal behavior as a psychopathic condition produced by extreme stress as opposed to a rational response to available opportunities.

Indeed, the area of housing deprivation that seems most likely to offer substantial externalities--adequate neighborhoods--is not covered by Budding's analysis. Neighborhoods are more or less shared by large numbers of people, including both those who live in them and those who pass through them or utilize their services. Thus, programs to improve neighborhood quality may benefit people other than the neighborhood's residents.

No analysis of low-income neighborhoods comparable to Budding's work on unit quality has yet been done in the Demand Experiment (or elsewhere). This partly reflects the fact that the concept of neighborhood is itself relatively undefined. While the quality of schools attached to a particular location may be well-defined by the school district in which it is located (in the absence of school busing), relevant areas for measures of crime, police protection, access to public and private services and to jobs, are much more difficult to specify. Moreover, hard data on neighborhood qualities are frequently unavailable. As a result, much of the data collected in the Demand Experiment on neighborhood characteristics are based on the subjective impressions of enrollees about their neighborhoods as they see them. Such data are not inherently less useful than objective statistics. They are, however, difficult to translate into clear statements of neighborhood adequacy, especially without comparative information from higher-income households.

Despite the problems involved in characterizing neighborhoods, it seems clear that this is an area of concern which should not remain unexplored. Decent neighborhoods are clearly important parts of decent housing. In addition, if there are externalities to housing that would justify special attention beyond that indicated by a desire to assure all households access to decent housing, they seem most likely to arise in connection with inadequate neighborhoods.

Absent a better characterization of neighborhood deficiencies, the analysis of neighborhood quality in the Demand Experiment proceeded by focusing on economic concentration. Low-income households tend to be concentrated in low-income neighborhoods. In 1970, for example, roughly 25 percent of all households in Pittsburgh and Phoenix had annual incomes of less than $5,000. Over two-thirds of these households lived in Census tracts where more than 25 percent of the households had incomes of less than $5,000; almost one-fifth were in tracts where over half of the households in the tract had incomes of less

than $5,000.[1] Residents of such neighborhoods are more likely to report adverse conditions such as heavy traffic, poor schools, inadequate playgrounds, poor fire and police protection, crime, drugs, and abandoned buildings--in short, a catalogue of substandard neighborhood conditions. Thus, one simple question that can be asked of housing programs is simply whether they allowed households to escape from low-income neighborhoods.[2]

Reduction in economic or racial segregation is also a direct goal of housing policy, apart from general improvements in neighborhood quality. Among the households enrolled in the Demand Experiment, for example, over 80 percent of the white households lived in Census tracts where fewer than 5 percent of the households were black. In contrast, about 80 percent of black households lived in tracts that were either themselves mostly black or immediately adjacent to black tracts. The same was true for Spanish American households in Phoenix; again about 80 percent lived in tracts that were mostly Spanish American or immediately adjacent to Spanish American tracts.[3] One obvious question, therefore, is whether housing allowances or other programs allowed households to move to less segregated neighborhoods.

The countercyclical effects of housing programs and indeed supply effects in general are not directly tested in the Demand Experiment. Recent work by Swan (1976) and Murray (1980), however, has suggested that construction programs such as Section 236 or Section 8 and, to a lesser extent, public housing, withdraw financing that would have been used to finance private construction. Thus, it is not clear that these programs in fact promote any increase in the level of total construction, though they undoubtedly redirect it.

Most of the arguments for housing assistance based on externalities or countercyclical policy are not specifically directed at low-income housing. A special concern for housing need not, however, imply an undifferentiated desire for housing improvements. It is possible to frame concerns for those in poverty not in terms of wanting to provide a minimum level of income per se, but rather in terms of wanting to guarantee access to basic levels of shelter, food, medical care, clothing, and education. In this case, program goals are

---

[1] Atkinson et al. (1979), Table 4-4, Section 4.3, and Table 5-3.

[2] Ibid., Table 2-1.

[3] Atkinson and Phipps (1977), p. A-78ff.

focused not on general changes in housing, food, medical care, or whatever, but on directing adequate assistance to those in need.

The basic differences between a guaranteed income and a guaranteed access approach would seem to be twofold. First is the definition of need. Guaranteed access may evaluate needs much more individually. Thus, in the case of medical care, a guaranteed income approach would simply make sure that every household had at least a certain minimum income and with this, the medical services that that income could command. A guaranteed access program, on the other hand, essentially attempts to guarantee access to a basic level of health by covering all or most of the costs of whatever treatment may be needed. Typically, guaranteed income plans offer individual recipients considerable flexibility in deciding how to spend the money they receive, but are relatively inflexible in determining the amount of support offered. Guaranteed access programs on the other hand, offer less discretion in the use of funds, but may be more flexible in adjusting the amounts of benefits to individual circumstances.

A second potential difference between guaranteed income and guaranteed access plans is in the evaluation of program participation. Guaranteed income plans generally expect (and get) high levels of participation. Guaranteed access plans may not. This may be because they fail to provide reasonable access in fact, or it may be because eligible households do not need or do not want the services provided (even though their cost is, from a policy viewpoint, regarded as reasonable). It may, however, be extremely difficult in practice to determine which of these factors lies behind low program participation and hence whether the program is a failure because it does not provide access or a resounding success because it does provide reasonable access without promoting unnecessary or undesired use of services.

The archetypal guaranteed access plan is the Medicare program, which essentially covers most of the costs of recognized treatments for a certain large set of illnesses. The decision to adopt a guaranteed access approach in the case of health care as opposed to simply providing a guaranteed income would appear to rest on any or all of three facts. First, it is widely felt that health is important and that people ought to receive necessary care when they are ill. This means that the government may be willing to finance health care beyond the extent to which it would help to pay for other wants and needs, regardless of individual recipient preferences. Second, the extent

and costs of treatments needed to maintain health vary substantially among individuals, depending on whether they are ill and on the nature of the illnesses. As a result, a guaranteed income would provide very different levels of health to different individuals.[1] Finally, there is some variation in the desire for at least some treatments (including, for example, psychotherapy, dental care, and certain of the more painful cancer therapies) which may compound variation in needs with variation in desires for treatment. Providing access to adequate housing may share these same qualities. The extent to which it does so, however, is not clear.

While it is possible to argue that Budding's classification does reflect contemporary standards of housing adequacy, it does not necessarily measure the seriousness of the deficiencies. Failure to achieve contemporary norms may well seem less urgent than eradication of the sorts of conditions that excited progressive reformers at the beginning of this century. The housing conditions of nineteenth century slums were immeasurably more severe than the problems embodied in Budding's inadequate housing. But there is also an issue of perspective. It is not obvious that the standards proposed in 1890 were any more universally compelling then than Budding's measure is today. Nevertheless, it would seem desirable to extend Budding's work to develop direct evidence of what inadequate housing meant to the households that lived in it.

One obvious approach would be to try to relate the presence or absence of various deficiencies to differences in households' expressed satisfaction with their dwelling units. Unfortunately, the quality levels of many housing attributes tend to be highly correlated so that it is often impossible to interpret estimated effects as the impact of changing any single deficiency. Nor does expressed satisfaction have a clear metric. Thus, for example, a finding that removing some deficiency increased the probability that a household was satisfied with its unit by three percentage points is not, on the face of it, easy to interpret as either a clearly important or unimportant effect. Finally, households' expressed satisfaction may to some extent reflect their ability to change their housing as well as their eval-

[1] It may also be important that the incidence of illness is generally regarded as outside the individual's control.

uation of their housing.[1]

Alternatively, the importance of deficiencies to households might be inferred from household choices. Most obviously, finding that the costs involved in correcting some deficiency were truly trivial would suggest that the deficiency was either unimportant or at least perceived to be more unimportant or difficult to remedy than is in fact the case. This would in turn suggest either revising the measurement or counseling households. Unfortunately, estimated cost of repair data were not included in the housing evaluations. It would be desirable to do so in future studies.

Absent direct estimates of repair costs, the costs of repairs might be estimated by regressing unit rents on the presence of various deficiencies and other measures of unit quality. Such hedonic regressions are widely used in economics and indeed play a key role in the analysis of the Demand Experiment, as discussed in subsequent chapters. As with regressions of household satisfaction, however, the fact that housing attributes tend to be highly correlated--while improving the ability to predict unit rent--often makes it impossible to interpret individual coefficients as the cost of correcting a single deficiency.

Another obvious approach would be to examine the connection between a total household income and the presence or absence of various deficiencies--that is, to use the choices made by households with different incomes as a clue to their subjective assessment of the importance of various deficiencies.[2] This has not yet been done with Demand Experiment data, though other work suggests that such an analysis is unlikely to indicate any strong consensus about the relative importance of various deficiencies. Goedert and Goodman (1977), for example, using data from the 1973 Annual Housing Survey, compared the incidences of 24 indicators of housing problems between households with incomes below poverty and those with incomes at least four times the poverty income. Deficiencies were usually either common or uncommon for both groups. Among urban households there was only one deficiency (lack of central heat-

---

[1]Households that are unable to change their circumstances may tend to resign themselves to be satisfied with what they can get. This sort of cognitive dissonance problem is a standard caveat, and difficult to quantify.

[2]To be interpreted properly, of course, the costs of correcting deficiencies would also have to be known.

ing) that was present among more than 20 percent of poor households and less than 5 percent of higher-income households. (Among rural households, there were three, relating to adequate electric outlets, complete plumbing, and acceptable sewage disposal.)[1]

Yet another approach would be to shift attention from examining how households act with respect to predefined housing deficiencies to analyzing the ways in which they do select housing and in particular the ways in which the quality levels of different attributes tend to vary together across households. The idea here, common in psychology, is to search for some underlying dimensions of housing such as better bathrooms, improved climate control, more space, which may be manifested in a variety of specific repairs or features.[2] The idea involved is to find what does matter to people in selecting housing. The problem with such measures, however, is that they tend to be relatively abstract weighted averages of observable attributes which are difficult to visualize and/or use operationally.[3]

If the importance of adequate housing to policy makers or households is not clear, it is clear that the cost of obtaining it varies. Most obviously, adequacy requirements will differ according to the size and composition and locational needs of households. In addition, however, some households may simply not have access to decent housing at any (reasonable) cost due to discrimination or sustained shortages of certain types of units. Thus, for example, black households have standardly been excluded from large parts of the housing market and in extreme cases in smaller Southern cities may have had no access to decent housing other than Public Housing.

---

[1] Goedert and Goodman (1977), pp. 16-19.

[2] This was suggested to us by Peter Rossi.

[3] Program standards could in theory be set in terms of a minimum point score that could be obtained by a variety of features. The major operational problem in using such an approach would seem to be communicating the alternatives that will satisfy the point score requirement.

It should also be noted that if such investigations were in fact successful, the latent traits identified might be quite comprehensible--as in the examples of more space, better climate control, or better bathrooms mentioned in the text. The problem that arises is in communicating what a given score on one of these traits means. Score values can be related to average scores among different income groups, for example, but are not tied to specific physical qualities.

It is also clear that households end up paying different amounts for apparently comparable housing. When comparable housing is defined in terms of some specified set of standards, differences in unit costs may in part reflect differences in households' willingness to give up locational and dwelling unit amenities not included in the standard. Unit prices also vary apart from differences in unit quality. Some households simply end up with exceptionally good or bad deals. Finding such deals is in part a matter of more careful or extensive search and thus, to some extent, under a household's control (Kennedy and Merrill, 1979). There is also some evidence that informal information networks of friends and relatives play an important role and may be more effective for whites, who have access to a wider market, than blacks (Vidal, 1978). To some extent, however, such good or bad deals are also simply a matter of luck. Thus, households in apparently comparable situations may end up having to spend different amounts to obtain the same quality of housing. Unfortunately, while the Demand Experiment provides clear evidence that unit rents vary apart from differences in unit quality, it has so far been impossible to develop any convincing estimate of the extent of the variation involved.

Nor has any attempt been made to estimate the extent to which housing deprivation might be, in some sense, regarded as voluntary. The problem is straightforward: housing deprivation is not necessarily the same thing as need for housing assistance. Most measures of excessive rent burden are based on comparison of households' actual housing expenditures with an amount that they could in theory be expected to afford for housing. Actual housing expenditures, however, may not reflect the amount necessary to obtain minimally adequate housing. Some households in inadequate housing might have to spend even more to obtain adequate housing. Other households, in adequate housing, may be voluntarily spending more than they would have to in order to obtain minimally adequate housing. Just as it is possible to argue that some households may be better able than others to support high rent burdens, based on their relative ability to achieve minimal levels of nonhousing consumption, it is also possible to argue that some households are better able to support high rent burdens because they have voluntarily chosen to support them.

Some evidence of tradeoffs between rent burden and inadequate housing is presented in Table 2-7, based on work done by Budding. As indicated

Table 2-7

RENT BURDEN AND POOR HOUSING[a]

	HIGH RENT BURDEN[b]	LOW RENT BURDEN[b]
ALL LOW-INCOME HOUSEHOLDS		
Poor housing[c]	32%	21%
Not poor housing	37	12
HOUSEHOLDS WITH INCOMES BELOW POVERTY		
Poor housing[c]	49	17
Not poor housing	30	4
HOUSEHOLDS WITH INCOMES ABOVE POVERTY		
Poor housing[c]	15	23
Not poor housing	43	19

SOURCE: Budding (1978), Tables 4-2 and 4-7.

a. Totals do not add due to rounding.

b. High rent burden is defined as rental costs greater than 25 percent of income. Low rent burdens are rent burdens of 25 percent of income or less.

c. Poor housing is either physically inadequate or crowded (more than two persons per bedroom).

there, among all low-income renters 32 percent were in poor housing (either clearly physically inadequate or overcrowded or both) and had high rent burdens (in excess of 25 percent of income). Another 58 percent were apparently able to choose between adequate housing and high rent burdens; 21 percent were in poor housing without high rent burdens, while 37 percent had high rent burdens but not clearly inadequate or crowded housing. Finally, 12 percent showed no housing deprivation. Comparison of households with incomes above and below the poverty line suggests that very low-income households were much less likely to be able to escape either excessive rent burdens or inadequate housing. Almost half of the households with incomes at or below poverty were both in poor housing and had high rent burdens, as compared with only 15 percent of households with incomes above the poverty line.

Thus, even if programs that provide access to adequate housing at reasonable cost are granted a special place in federal policy, however, it is still difficult to assess the need for assistance in individual cases. Some households apparently chose to occupy less desirable housing although they could, from a policy perspective, afford adequate housing at reasonable cost. Others incurred high rent burdens in order to obtain better than minimally adequate housing. Many, however, did not have these options and, while they sometimes avoided one form of deprivation or another, frequently ended up paying large fractions of their limited incomes to obtain inadequate housing.

Yet the need to estimate the extent of housing deprivation and establish priorities for assistance is pressing. Programs of low-income housing assistance typically start by setting a general goal of providing decent housing at reasonable cost. Considerations of equity and work incentives then suggest that households should be eligible for the program if they are worse off than program participants. This quite commonly indicates a large eligible population. In terms of the households enrolled in the Demand Experiment, for example, a program aimed at eliminating any incidence of poor housing or high rent burdens would potentially be targeted at almost all low-income renter households, with almost equal attention to those with incomes above and below poverty.

At the same time, housing programs in the United States are never funded at anywhere near the levels needed to serve their entire eligible population. HUD (1973, pp. 4-27ff), for example, estimated that all low- and moderate-

income programs combined served less than 10 percent of eligible households at any income level. Coverage varies from place to place and depending on how broadly the eligible population is defined, but it is still far from universal. Thus, for example, about 23 percent of the low-income renter households in Pittsburgh and Phoenix were in subsidized housing in 1975.[1] The vast majority of the potentially eligible population will simply not be served with current funds. This obviously placed a premium on efficient use of funds. It also, however, means that programs must decide which households will be helped.

There are at least three strategies for determining which households receive assistance. One, which may most closely resemble current practice, is simply to raffle off places on a first-come first-served basis. This has a certain crude equity, since all households get an equal chance to receive benefits. Given Budding's analysis, however, it also means that assistance will be given to some households in moderately difficult straits and denied to others in much worse housing.

---

[1]See Mayo et al. (1979), Part 1, Chapter 2. Estimates were based on the total number of households in Public Housing (Conventional, Turnkey, leased, and former defense housing), Section 236, Section 221(d)(3) and Section 202, compared with estimates from 1970 Census data of the total number of rental households meeting Section 236 income limits in 1970. Similar computations were made for households in poverty. Details are shown below:

	Pittsburgh	Phoenix	Combined Sites
All			
Total subsidized rental units	22,189	6,300	28,489
Total renter households meeting Section 236 limits	81,300	42,400	123,700
Percent of eligibles in subsidized units	27%	15%	23%
Poverty			
Total subsidized units occupied by households in poverty	10,429[a]	3,528[a]	13,957
Total renter households in poverty	38,119	19,660	57,779
Percent of poverty eligible in subsidized units	27%	18%	24%

SOURCE: Mayo et al. (1979), Part 1, Table 2-1.

a. Estimated from sample studied in the Demand Experiment (see Chapter 3).

A second strategy is to target assistance to the groups in greatest need. Thus, for example, a program targeted at all low-income renters with physically inadequate or crowded housing (as defined by Budding) and severe rent burdens greater than 40 percent of income would potentially encompass about 12 percent of the low-income renter population in Pittsburgh and Phoenix. This is less than the proportion currently served in these cities. The difference would be in who is served. Under a poor housing/severe rent burden criterion, for example, 90 percent of the target population would be households in poverty as compared with 49 percent of actual subsidized housing tenants in Pittsburgh and Phoenix.

Part of the problem in adopting such a strategy is to identify the target population. Budding's analysis, for example, makes it quite clear that the housing situation of households in poverty is generally far worse than that of low-income households with incomes above the poverty line. Nevertheless, it is apparent that some low-income households not in poverty are in worse housing than some households in poverty and are clearly in worse housing than would be provided by a program of adequate housing at moderate rent burdens. Again, program participants would have a better housing situation than some nonparticipants. Furthermore, there is some question about the desirability of a situation in which a household can be better off if it reduces its income (by, for example, reducing employment or splitting off wage earners), or refuses to increase its income. Finally, in programs involving large projects, there is some concern that such policies might reinforce economic concentration of very low-income households.

A third strategy, though one not yet employed, it to offer programs that are consonant with the funding levels provided. Thus, for example, a Public Housing program that offered only low or moderate quality units while charging rents equal to 40 to 50 percent of tenant income would only appeal to households in very poor housing or with very high rent burdens or both. The advantage of such a program is obvious. If tenant contributions are made high enough and unit quality held low enough, the program can serve all households that want its assistance and will appeal only to households with the highest rent burdens or worst housing. This would both direct assistance to those households in greatest need and concentrate program effects on replacing the less adequate housing. The disadvantage is equally obvious. It is difficult to accept the implications of low program funds by running a program that

leaves people in clearly unacceptable housing at outrageous costs.

In sum, Budding's analysis does not present a strong argument for low-income assistance programs specifically oriented towards housing. It does refute the assertion that there is no housing problem (by contemporary standards at least). It does not, however, address the aspects of housing and neighborhoods that would be most likely to involve housing externalities. Nor does it establish the conditions of substantial variations in the costs of decent housing, in nonfinancial barriers to obtaining decent housing, or in individual households' needs for housing that would suggest that housing, like medical care, might be more appropriately viewed as a problem of providing guaranteed access rather than guaranteed income. It does, once again, emphasize the considerable variation in housing need and the importance of targeting assistance. All of these areas deserve further study.

The rest of this report does not try to resolve the issues involved in identifying a rationale for housing programs. Instead, it takes the opposite tack of measuring differences in the extent to which actual programs meet various housing goals. The hope is not to resolve the debate about the possibility that housing programs may be especially desirable, but rather to move the argument from conjectures about possible special advantages to examination of the actual differences among housing programs and between housing programs and general income support.

REFERENCES

Aaron, Henry J., Shelter and Subsidies, Washington, D.C., The Brookings Institution, 1972.

Atkinson, Reilly, William L. Hamilton, and Dowell Myers, Economic and Racial/Ethnic Concentration in the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., January 1979 (revised June 1980).

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

Baer, William C., "The Evolution of Housing Indicators and Housing Standards: Some Lessons for the Future," Public Policy, Vol. 24, No. 2, Summer, 1976, pp. 361-393.

Birch, David et al., America's Housing Needs: 1970 to 1980, Cambridge, Mass., MIT-Harvard Joint Center for Urban Studies, 1973.

Budding, David W., Housing Deprivation Among Enrollees in the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., November 1978 (revised June 1980).

Friedman, Joseph and Daniel H. Weinberg, The Demand for Rental Housing: Evidence From a Percent of Rent Housing Allowance, Cambridge, Mass., Abt Associates Inc., September 1978 (revised June 1980).

_____, Housing Consumption Under a Constrained Income Transfer: Evidence From a Housing Gap Housing Allowance, Cambridge, Mass., Abt Associates Inc., April 1979 (revised June 1980).

Goedert, Jeanne E. and John L. Goodman, Jr., Indicators of the Quality of U.S. Housing, Washington, D.C., The Urban Institute, 1977.

Henry, Neil W., "Measurement Models for Continuous and Discrete Variables" in Goldberger, Arthur S. and Otis Dudley Duncan, eds., Structural Equation Models in the Social Sciences, New York, N.Y., Seminar Press, 1973.

Kennedy, Stephen D. and Jean MacMillan, Participation Under Alternative Housing Allowance Programs: Evidence From the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., October 1979 (revised June 1980).

Kennedy, Stephen D. and Sally R. Merrill, "The Use of Hedonic Indices to Distinguish Changes in Housing and Housing Expenditures: Evidence From the Housing Allowance Demand Experiment," paper presented at the Research Conference on the Housing Choices of Low-Income Families, Washington, D.C., March 1979.

Lane, Terry S., Origins and Uses of the Conventional Rules of Thumb for Household Rent Burdens, Cambridge, Mass., Abt Associates Inc., 1977.

Levine, Martin D., Federal Housing Policy: Current Programs and Recurring Issues, Congressional Budget Office, Washington, D.C., Government Printing Office, June 1978.

Mayo, Stephen K., Shirley Mansfield, David Warner and Richard Zwetchkenbaum, Housing Allowances and Other Rental Housing Assistance Programs--A Comparison Based on the Housing Allowance Demand Experiment, Part 1: Participation, Housing Consumption, Location, and Satisfaction; and, Part 2: Costs and Efficiency, Cambridge, Mass., Abt Associates Inc., November and August 1979 (revised June 1980).

Merrill, Sally R., Hedonic Indices as a Measure of Housing Quality, Cambridge, Mass., Abt Associates Inc., December 1977 (revised June 1980).

Murray, Michael, "Subsidized and Unsubsidized Housing Starts, 1961-1977," Center for the Study of Policy Analysis, Institute of Policy Sciences, Duke University, Working Paper No. 680, June 1980.

Orshansky, Mollie, "How Poverty Is Measured," Monthly Labor Review, 92, 1969, pp. 37-41.

Schechter, Henry, An Analysis of the Section 235 and 236 Programs, Washington, D.C., U.S. Senate Committee on Banking, Housing and Urban Affairs, Subcommittee on Housing and Urban Affairs, May 24, 1973.

Schorr, Alvin, Slums and Social Insecurity, Social Security Administration, U.S. Department of Health, Education, and Welfare, Washington, D.C., 1963.

Swan, Craig, "Housing Subsidies and Housing Starts," in U.S. Department of Housing and Urban Development, Housing in the Seventies Working Papers, Vol. 2, 1976, pp. 833-841.

U.S. Department of Housing and Urban Development, Housing in the Seventies, Washington, D.C., 1973.

Vidal, Avis, The Search Behavior of Black Households in Pittsburgh in the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., July 1978 (revised June 1980).

Weicher, John C., "Policy and Economic Dimensions of 'A Decent Home and a Suitable Living Environment,'" unpublished paper delivered to the American Real Estate and Urban Economics Association, May 1976.

_____, "Urban Housing Policy," in Mieszkowski, Peter and Mahlon Straszheim, eds., Current Issues in Urban Economics, Baltimore, Md., John Hopkins University Press, 1979.

Wilner, Daniel M. et al., The Housing Environment and Family Life, Baltimore, Md., Johns Hopkins University Press, 1962.

CHAPTER 3

COMPARISON OF RECIPIENT HOUSING AND PROGRAM COSTS UNDER ALTERNATIVE PROGRAMS

This chapter describes the costs and housing outcomes of various housing programs, including both the allowance programs tested in the Demand Experiment and other then-current housing programs such as conventional Public Housing, Section 236, and Section 23. The current Section 8 New Construction and Existing Housing programs are not included, since they were largely implemented after 1975, when the data for these comparisons were collected. Nevertheless, the Section 8 programs are closely enough related to the programs studied in this chapter to allow fairly accurate appraisal of them as well. The chapter is largely based on the work by Stephen Mayo, Shirley Mansfield, David Warner, and Richard Zwetchkenbaum reported in Mayo et al. (1979, Parts 1 and 2).

Unlike Chapter 2, most of the results in this chapter are presented separately for Pittsburgh and Phoenix. This reflects sometimes important differences for the two sites. While qualitative results are almost always the same, quantitative estimates sometimes differ. Differences appear to reflect both differences in program implementation in the two sites, described in Section 3.1, and differences in the two housing markets.

At the time of the Demand Experiment, the Pittsburgh SMSA was an older Northeastern urban area, with a stable overall population, a declining central city, and a moderate rental vacancy rate. The population of the Pittsburgh SMSA was almost unchanged from 1960 to 1970, while the population of the City of Pittsburgh declined by about 14 percent. In the years immediately before the completion of enrollment in the Demand Experiment (1970 to 1974), the number of renter occupied housing units fell by about 1 percent, while the rental vacancy was fairly stable at 5 to 6 percent. The Phoenix SMSA, in contrast, was a newer Southwestern urban area, with a rapidly growing population, substantial new construction, and fairly high rental vancancy rates. The population of the Phoenix SMSA grew 56 percent from 1960 to 1970, while that of the City of Phoenix grew 32 percent. In the years immediately prior to the completion of enrollment in the Demand Experiment, the number of renter occupied units grew by 27 percent. At the same time, the rental

vacancy rate increased substantially, from 7.5 percent in 1970 to 14.4 percent in 1974.[1]

As described in Section 3.1, the programs studied here cover a wide range of alternatives in terms of subsidy levels, housing requirements, and methods used to obtain housing. Most programs offered their participants relatively deep subsidies at roughly comparable levels. The major exception to this was Section 236, which provided substantially lower benefits than the other programs unless additional assistance was provided by Rent Supplements. Housing requirements ran the gamut from no requirements (for the Unconstrained allowance plan) to rent-conditioned payments under Percent of Rent and Housing Gap Minimum Rent to physical and occupancy standards under Housing Gap Minimum Standards and Section 23 to almost complete determination of unit features under Public Housing and Section 236. The methods used to obtain housing ranged from participant selection in the existing private market under housing allowances through agency leasing in the private market under Section 23 to the various construction programs involved in Public Housing and Section 236.

The analysis by Mayo et al. (Part 1), reported in Section 3.2, shows that these programs are both remarkably similar in the overall level of housing services provided to participants and very different in the degree to which specific housing standards are achieved. The average private rental values of units provided under the different programs are all within 10 percent, or about 18 dollars per month, of the average for Minimum Standards Housing Allowances. The percent of units passing various alternative physical standards, on the other hand, varies considerably. This appears to be a direct result of the different housing requirements imposed by the programs.

Guaranteeing that program participants live in housing that meets minimum physical and areal standards beyond those usually found in unsubsidized low-income housing requires that these standards be explicitly imposed. Thus, for example, programs of additional income support or general rent subsidies will generally have a large proportion of their recipients in substandard housing. Furthermore, different standards may not serve as good proxies for one another. Minimum Rent requirements do not guarantee that minimum physical standards will be met. Likewise, imposing one set of physical standards

[1] For further details, see Section I.3 of Appendix I.

does not always give good results in terms of another set of standards. At the same time, it appears that with comparable standards and payment schedules different housing programs can achieve similar housing conditions and rent burdens for their participants. The only two exceptions to this appear to be locational choice and participant satisfaction. The more limited flexibility of construction programs does seem to result in more restricted locations and lower levels of participant satisfaction with housing and neighborhood.

By far the largest variation, however, is in program costs, which are the subject of Section 3.3. It is clear that at least in Pittsburgh and Phoenix, construction programs are much more expensive than comparable housing programs that use the existing stock of private rental housing. Furthermore, Mayo's (Part 2) analysis of relative costs suggests that this cost differential has been growing over time. The reasons for the large excess costs in construction programs are not completely clear. Mayo's analysis suggests that they may largely reflect general trends in rent levels and construction prices, which have made it less and less profitable to construct new rental housing in the private market as well. However, this hypothesis is not proven. Indeed, despite their long history, so little is known about these programs in general that it is impossible to say whether they materially change the housing of participants, increase the supply of rental housing, or are efficiently run within the existing technology. The most that can be said at the moment is that they appear to be relatively very expensive programs, with uncertain impacts on housing, and unclear prospects for substantial cost reduction.

3.1 OVERALL DESCRIPTION OF PROGRAM STRUCTURES, HOUSING, AND BENEFITS[1]

The data collected in the Demand Experiment cover a bewildering array of some 41 different program options including 16 variations on housing allowances, one extended welfare program, and two Control groups within the Experiment itself plus observations on at least 22 variations of nonallowance housing programs. For the purposes of this chapter, however, these variations may be thought of as falling into three major groups of alternatives

[1]For a more detailed description of the Demand Experiment design, sites, and samples, see Appendix I.

consisting of construction programs (Public Housing and Section 236), existing housing programs (including all housing allowance variations and Section 23) and no programs (the Control households). In order to provide some common benchmark, each of these groups is discussed in contrast to a Housing Gap Minimum Standards allowance program, with more detailed discussion of individual program types as appropriate.

Three Types of Housing Allowances

The most commonly discussed form of housing allowance program, and indeed the only one common to all of the allowance experiments, is the Housing Gap Minimum Standards allowance. Under this form of allowance program, eligible households are offered primarily financial assistance in obtaining standard housing in the private market. Specifically, eligible households are offered payments calculated to make up the gap between the estimated cost of modest existing standard housing and the fraction of their incomes that households could reasonably be expected to afford for housing (usually 25 percent). Thus, the standard Housing Gap payment formula is

(1) $$A = C^* - 0.25Y$$

where

A = the allowance payment

C^* = the estimated cost of modest existing standard housing for various household sizes and locales

Y = household income.

Households can receive this payment only if they live in a unit that meets certain minimum physical and occupancy standards. This assures that the allowance payment is used to help households in obtaining standard housing. If an eligible household already lives in standard housing it can qualify for payments immediately. If it does not live in standard housing, it must either move to a standard unit or arrange for the repair of its current unit.

A Housing Gap Minimum Standards allowance could use a wide variety of standards and payment schedules. Indeed, the Demand Experiment tested five different payment schedules for Minimum Standards plans in each site. These all followed the general Housing Gap formula but differed in terms of the proportion of the gap covered by the payment as well as the household contribution rate. On the other hand, all of the Minimum Standards plans in the Demand Experiment used the same set of physical standards, based on a

modified version of the American Public Health Association/Public Health Service Recommended Housing Maintenance and Occupancy Ordinance of 1971. Thus the Minimum Standards program discussed in this chapter actually involves five different plans with common housing requirements but somewhat different payment schedules.

The basic features of a Minimum Standards allowance are direct cash payments to households, reliance on the existing private stock of housing, and reliance on eligible households to find housing that best meets their needs subject to the program's Minimum Standards housing requirements. The program alternatives tested in the Demand Experiment generally varied from Minimum Standards by using either much less detailed housing requirements or no housing requirements at all. The nonallowance housing programs studied, on the other hand, place less reliance on participants and/or make less use of the private market.

A Minimum Standards allowance involves both the development of specific physical and occupancy standards and the administrative costs necessary to enforce them. Neither of these is easy to accomplish. Many plausible housing requirements are difficult to monitor and others, while possibly important, place allowance recipients' units under special requirements well beyond those imposed on middle-income units. Almost any standard will simultaneously be faulted as inadequate because it omits potentially important items and too onerous because it includes trivial details. Indeed, actual program standards are usually justified not simply in terms of the specific requirements imposed but also in terms of other features that are commonly present when the standard is met.

One possible alternative to a Minimum Standards requirement is a Minimum Rent requirement. Under a Minimum Rent requirement, eligible households qualify for payments as long as they spend at least a minimum amount for housing. If housing quality and costs are closely related, this sort of requirement could serve in theory to restrict assistance to households that obtain generally adequate housing. At the same time, in contrast to a Minimum Standards requirement, a Minimum Rent requirement would both offer households more discretion in the selection of specific unit features and be easier and less costly to enforce. The Demand Experiment tested two Minimum Rent requirements--Minimum Rent Low set at 70 percent of C* (the estimated cost of modest existing standard housing used in the Housing Gap payment formula) and Minimum Rent High set at 90 percent of C*. Payments

were calculated under the Housing Gap formula used for Minimum Standards, and, like Minimum Standards, involved several different payment schedule variations.

An even more general form of rent-conditioned payments is to let payments vary with rent without fixing a definite minimum. This is the Percent of Rent allowance scheme. Under Percent of Rent allowances, the payment is simply equal to some fraction of household rent, so that

$$A = aR \tag{2}$$

where

A = the allowance payment

R = household rental expenditures

a = the rebate fraction.

In effect, a Percent of Rent allowance reduces the cost of housing by the rebate fraction. A household with a 33 percent rebate, for example, only pays two-thirds of the cost of any unit from its own pocket. The rebate rate and hence the amount of the cost reduction may vary with household income or rent level.

Yet another alternative is to eliminate any form of housing requirements or rent-conditioning entirely and simply make payments based on household size and income. This would amount to an expanded welfare or income maintenance program. One such program was tested in each of the Demand Experiment sites, using the Housing Gap payment formula of Equation (1) with no housing requirements.

Other Housing Programs

Where the programs tested in the Demand Experiment tended to rely on household decisions in the private market, the nonallowance programs studied generally placed less reliance on households or the private market. The original Section 23 program, for example, also used the existing stock of private housing, but the primary responsibility for finding and acquiring standard units lay with the local housing authority rather than with households. Privately-owned units that passed some set of Minimum Standards were generally selected and leased by local housing authorities, which in turn sublet the unit to eligible households at reduced rents. There was also a revised Section 23 program in some parts of the Phoenix area, which

was somewhat closer to an allowance program. The revised Section 23 program encouraged households to find suitable units themselves. If these units met the program standards and if their landlords were willing to participate, they were then leased by the local housing authority.[1]

Unlike housing allowances, payments under Section 23 were not made directly to participants. Instead, the payment was made directly to the landlord and was equal to the difference between what agencies paid for the unit and the rent at which they sublet to tenants. These rents were generally set at 25 percent of household income, so that the average payment under Section 23 might look very much like the average payment under a Minimum Standards allowance program.[2] For individual households, however, the two programs could operate very differently. Under a Minimum Standards allowance, the household may pay more or less than average for its unit. This may reflect a decision by the household to obtain better or worse housing than the average standard unit or differences in perseverance or luck in finding exceptionally good or bad deals. In any case, under a Minimum Standards allowance program a household's actual out-of-pocket rent may be more or less than 25 percent of income.[3] Under Section 23 in contrast, a household's rent is set by the program. Variations in unit costs associated with variations in quality or price are absorbed by the local housing authority rather than the tenant.

Construction programs do not rely on the existing stock of private housing at all. These programs essentially arrange for the construction of units,

---

[1]There were provisions under the original Section 23 program for agency leasing of units found by households, but they were rarely used (Mayo et al., 1979, Part 2, Chapter 3, Section 3.3).

[2]Tenants' rents could be set at less than 25 percent of income. In addition, income is subject to a variety of deductions, so that tenants rarely pay 25 percent of gross income.

[3]The household's out-of-pocket rent is given by R - A, where R is rent and A is the allowance payment. Under the payment formula of Equation (1), the payment is

$$A = C^* - 0.25Y$$

so that a household's net rent burden is

$$\frac{R - A}{Y} = 0.25 + \frac{R - C^*}{Y} .$$

Rent burden will be higher or lower than 0.25 as actual rents (R) are greater or less than the average cost of standard housing (C*).

which are then offered to households at below market rents. The exact mechanism involved varies among programs. Under Public Housing, units are constructed for the local housing authority, which then owns the units and rents them to recipient households below cost. The difference between costs and tenant rents is made up by federal contributions towards mortgage payments and operating expenses (partly in the form of tax exemptions for the interest from public housing mortgages) and reduced local property taxes.

Under Section 236, developers were offered a variety of tax and financing incentives to construct (or substantially rehabilitate) low- and moderate-income units. The major financing incentive consisted of a mortgage interest subsidy under which the federal government paid the difference between actual mortgage payments and the mortgage payments that would have prevailed with a 1 percent interest rate. In actual operation, this subsidy had two parts; first, the government made annual payments to make up the difference between an FHA-approved rate of interest and the 1 percent rate; second, when FHA rates fell below market rates, mortgages were purchased by the Government National Mortgage Association (GNMA) at close to par value and then resold at a loss (making up the difference between the FHA and market rates for the original lender). In addition, the program provided subsidized mortgage insurance and accelerated depreciation provisions for tax purposes (some of which also accrued to any private new construction). Ownership remained with the developer, but subsidized projects both had to be approved by HUD beforehand and constructed and operated under HUD regulations, including restrictions concerning tenant eligibility and rents, which were reduced to reflect the cost reductions associated with the interest subsidies.[1]

As with Section 23, payments under the new construction programs are not made directly to tenants. Rather they are implicit in the difference between program costs and the rents charged to tenants. Public Housing, like Section 23, set tenant rents at 25 percent of income or less (up to a maximum rent). Under Section 236, tenants generally had to pay 25 percent of income

---

[1] Program variations in the Demand Experiment sites included elderly projects in both Public Housing and Section 236 and, for Section 236, nonprofit and limited dividend sponsorship and new construction and major rehabilitation.

(up to a maximum) or "Basic Rent," whichever was greater. The Basic Rent was set to cover operating and interest-subsidized capital costs for the unit. Upper income 236 households generally paid 25 percent of income (up to the maximum rent), as in Public Housing. Lower-income households, however, were generally subject to the Basic Rent minimum. Because Basic Rents frequently exceeded 25 percent of income, some Section 236 tenants received additional assistance in the form of Rent Supplements. These in essence put Section 236 payments on the same basis as Public Housing, Section 23, and the Housing Gap formulas.

Since 1975, when the data presented in this chapter were collected, the Section 236 program has been replaced by the Section 8 New Construction program, while the Section 23 Leased Housing program has been replaced by the Section 8 Existing Housing program. Like Section 236, the Section 8 New Construction program offers developers a variety of incentives to construct (or substantially rehabilitate) low-income housing. Again, ownership remains with the developer, but projects must have prior HUD approval and are then constructed and operated under HUD regulations. The major difference is that the Section 8 New Construction program does not offer interest subsidies. Instead, the government undertakes to pay the difference between tenant rents (usually set at 25 percent of income) and the rents necessary to cover project costs (Fair Market Rents). This offers tenants deeper subsidies, so that their contribution is like that under the Section 236 program with rent supplements. In addition, since subsidies are not specifically attached to capital costs (mortgage payments), the program could in theory lead to more efficient decisions concerning tradeoffs between initial construction costs and operating costs. Overall, however, there is little reason to suppose that total costs would be very different from those under Section 236, though the allocation of costs among tenants and government differs.

The Section 8 Existing Housing program is in many ways similar to a housing allowance Housing Gap Minimum Standards program. As in a Minimum Standards allowance program, eligible households are responsible for finding units that meet the program's physical and occupancy standards. Unlike a housing allowance program, however, the Section 8 Existing program then pays the landlord the difference between the unit rent and the tenant contribution (usually 25 percent of income). This means that the landlord must agree to

participate, since program subsidies are contracted between the landlord and the local housing authority. In addition, because the Section 8 payments are determined by the actual unit rents, the program must set limits on the rents that may be paid.

Eligibility Rates and Payments

The various programs also differed in terms of eligibility rules and payment levels. The programs tested in the Demand Experiment all had roughly the same eligibility rules; households were generally eligible if they would qualify for payments under the Housing Gap formula of Equation (1).[1] The nonallowance programs differed in eligibility, as shown in Figure 3-1. In both sites, income limits for Public Housing were the lower of the three nonallowance programs, followed by Section 23 and then Section 236. Allowance program limits were close to those of Public Housing in Pittsburgh and generally above those of Section 236 in Phoenix. This reflected both the higher C* values and lower nonallowance eligibility limits in Phoenix.

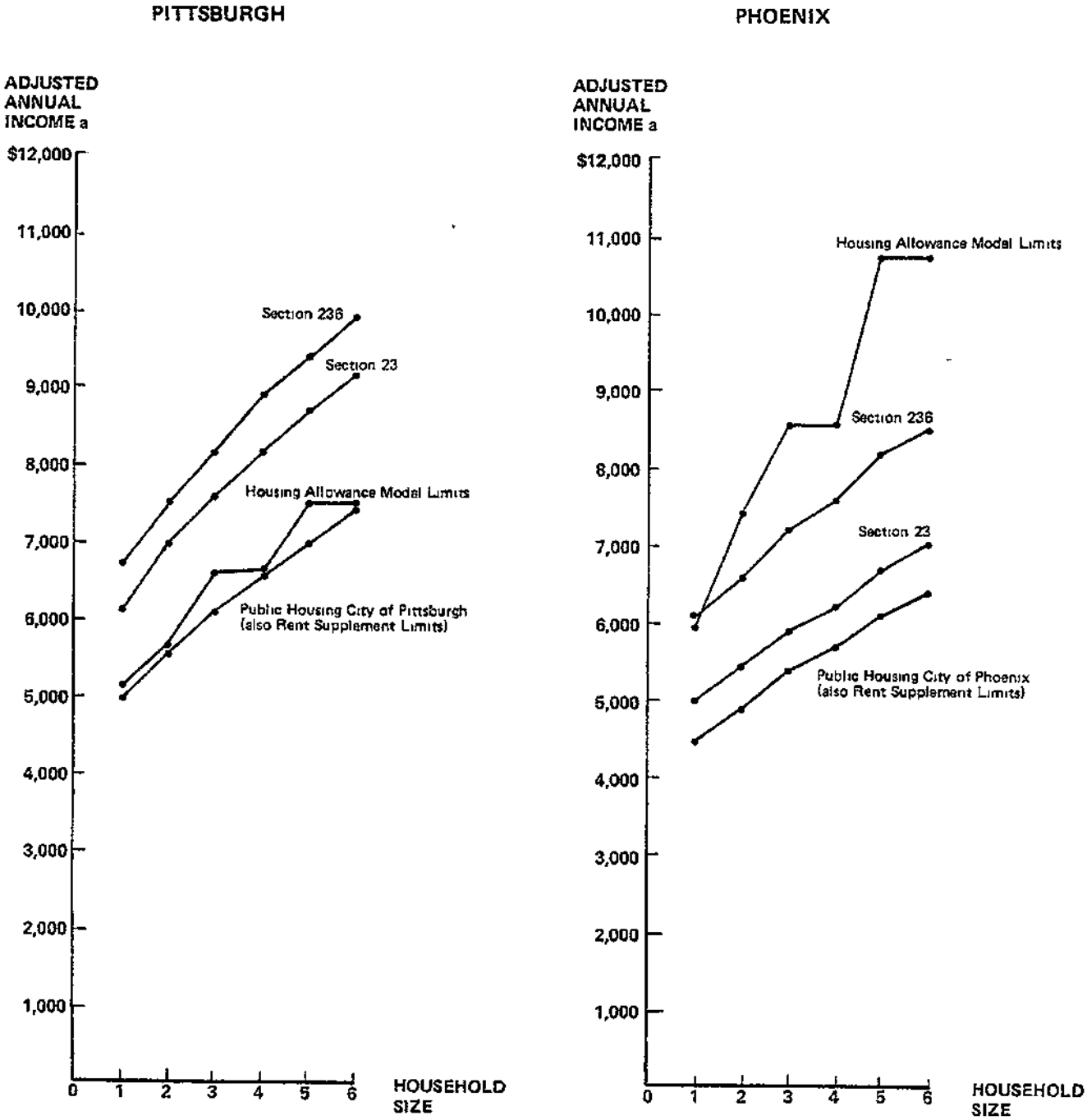
In addition to these eligibility rules, however, the nonallowance programs could and did exercise considerable discretion in tenant selection. Some Public Housing and Section 236 projects, for example, were specifically restricted to elderly households, while others simply gave elderly applicants special preference. The Section 23 program in Pittsburgh, on the other hand, was confined to the city of Pittsburgh and targeted towards large families in Public Housing that were considered to be "problem cases." In contrast, Section 23 in Phoenix involved three different housing authorities, including one county-wide program, and included one program targeted towards elderly households.[2]

---

[1]Eligibility for the different allowance plans did vary somewhat, reflecting differences in payment levels under different plans. In addition, households were ineligible if they were receiving assistance from other housing programs, if the head of household or spouse was a member of the armed forces, if the head of household and spouse were students, and if the household consisted of only one person under the age of 62. (In Phoenix, but not Pittsburgh, nonelderly single persons were also eligible if they were disabled.)

[2]See Mayo et al. (1979), Part 1, Sections 2.3 and 5.2.

Figure 3-1
INCOME ELIGIBILITY LIMITS BY PROGRAM IN 1975



SOURCE Mayo et al (1979), Part 1, Figure 2-1

NOTE· Income limits shown for Public Housing, Rent Supplements, Section 23 and Section 236 apply to households in the City of Pittsburgh and the City of Phoenix, limits are different for certain areas outside the central city but within Allegheny County and Maricopa County, respectively

a Adjusted income refers to individual program definitions of adjusted income, the definitions vary from program to program

Actual payments received under the various programs were generally quite comparable. The major exception was, as expected, Section 236 without Rent Supplements, though Percent of Rent and Section 23 also showed somewhat lower payments. Payments varied across the allowance programs depending on treatment plan, participant characteristics and sites. The average monthly payment to Housing Gap Minimum Standards recipients at the end of two years was $65 in Pittsburgh and $81 in Phoenix. The only consistant deviation from these levels across the two sites was in the Percent of Rent plans, whose average payments were about 25 percent (or roughly $20 a month) lower in both sites. Since payments were not made directly to tenants in Section 23, Public Housing, and Section 236, tenant benefits under these programs were not observed directly. Instead, they were estimated as the difference between the estimated market rental value of the units provided and the actual rent paid.[1] As shown in Table 3-1, comparison with similarly calculated benefits for Housing Gap Minimum Standards recipients, taking account of the demographic characteristics of participants, yielded estimated differences of less than three dollars per month for Public Housing and Section 236 with Rent Supplements. Section 23 benefits were estimated to be about 17 dollars per month lower. Section 236 without Rent Supplements, on the other hand, had very low estimated benefits--roughly 55 dollars per month lower than those in Housing Gap Minimum Standards, Public Housing, and Section 236 with Rent Supplement assistance.

3.2 HOUSING UNDER THE DIFFERENT PROGRAMS

As discussed in Chapter 2, housing conditions may be measured in a variety of ways, including unit rental value, physical deficiencies, crowding, and rent burden, as well as neighborhood conditions and tenant satisfaction with housing. This section compares the housing of recipients under the different programs in terms of each of these measures. Comparisons of program costs are taken up in the next section.

---

[1] Section 23 benefits could be calculated separately as the difference between the lease amount paid by the agency and the amount paid by tenants. This would, however, omit certain payments to landlords in the form of guaranteed maintenance paid for from the local housing authority's administrative budget.

Table 3-1

ESTIMATED DIFFERENCES IN MONTHLY PROGRAM BENEFITS
TAKING ACCOUNT OF DIFFERENCES IN RECIPIENT CHARACTERISTICS

	ESTIMATED DIFFERENCE FROM HOUSING GAP MINIMUM STANDARDS[a]	
	PITTSBURGH	PHOENIX
Section 23	$-18.90**	$-15.29**
Public Housing	0.38	-2.61
Section 236 with rent supplements	-0.06	2.45
Section 236 without rent supplements	-57.86**	-52.56**

SOURCE: Mayo et al. (1979), Part 1, Table 3-6.

a. Estimated differences are based on regression of estimated monthly benefits on recipient characteristics (including household size and income and the race, sex, age, education and occupational status of the head of household) and program dummies.

† Significant at the 0.10 level.

* Significant at the 0.05 level.

** Significant at the 0.01 level.

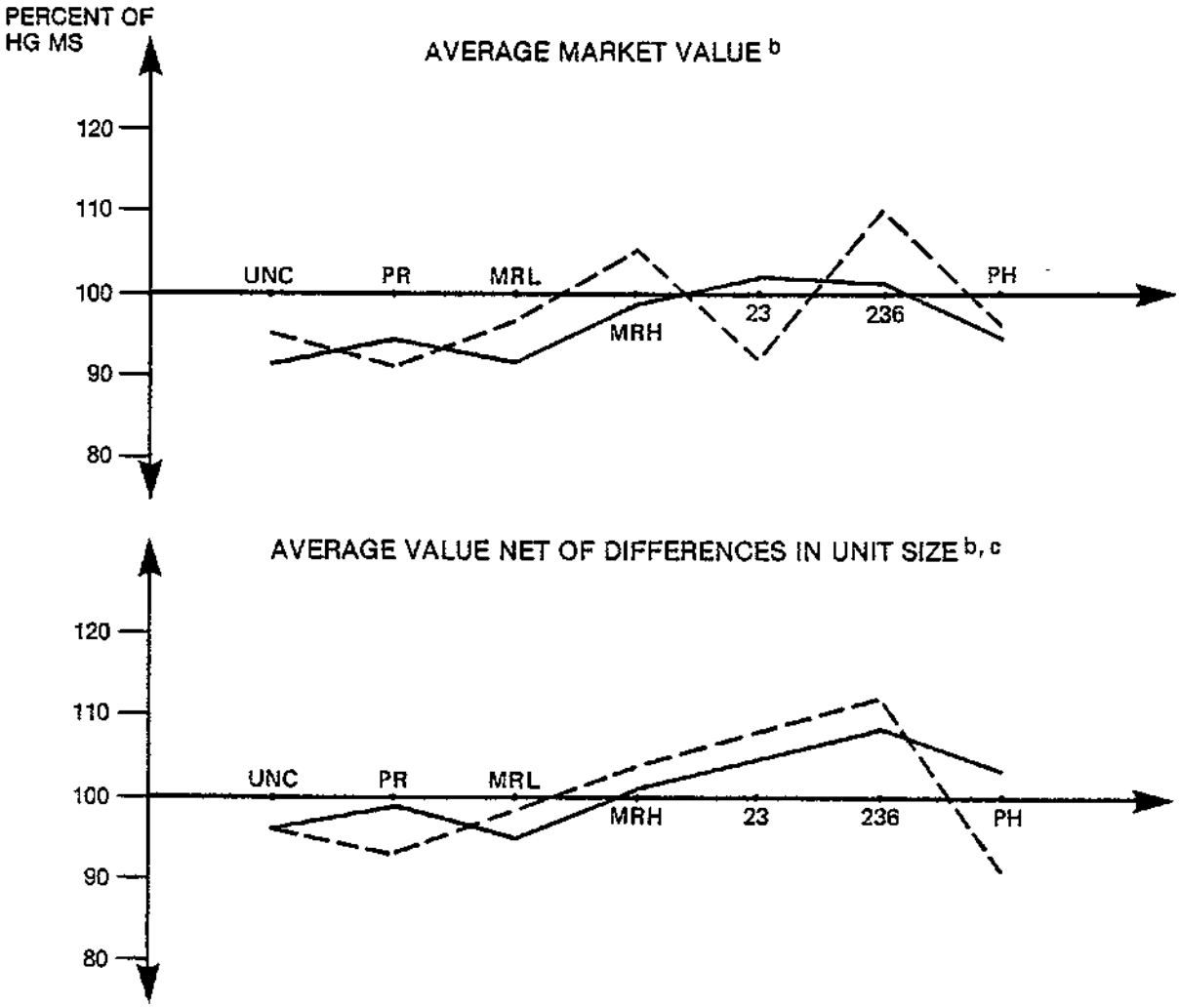
Remarkably, and despite their many differences, all of the programs studied in the Demand Experiment provided very similar overall levels of housing in terms of market rental value. At the same time, programs often differed considerably in terms of compliance with standards of physical adequacy, crowding, and rent burden. These observed differences do not, however, appear to be deeply rooted in program structures. It does appear that programs without explicit physical and occupancy standards will generally end up subsidizing a large proportion of substandard units. Once the decision to impose requirements is made, however, it appears that remaining differences among housing allowances, Section 23, Public Housing, and Section 236 could all be removed if the same standards and payment schedules were imposed. Attainment of housing standards among program recipients is not dependent on the method used to find and acquire housing.

Unit Rental Value

One very general measure of housing is the estimated rental value of similar units in the private market. The detailed information on unit and neighborhood amenities collected in the Demand Experiment was used by Merrill (1977) to estimate normal market rents as a function of unit size and a variety of unit and neighborhood characteristics. Such estimates, called "hedonic indices," are widely used in economics to estimate the cost of goods that involve combinations of different qualities such as number of rooms, size of rooms, condition of surfaces, airiness, quality of plumbing and appliances, access to good schools, public safety, and so forth. Since similar information on unit characteristics was collected for both allowance and nonallowance households, Merrill's results can be used to estimate the average private market rental value of units in all programs.[1] The results are shown in Figure 3-2, which

[1] In addition to unit and neighborhood characteristics, Merrill's estimates take account of whether various features are provided by the landlord (and hence reflected in the rent) and of various conditions of tenure including length of tenure, whether the household is related to the landlord, and so forth. The estimated market values reflected in Figure 3-2 are for newly rented units where tenants are not related to the landlord. In addition, in Pittsburgh values include the value of landlord-provided stoves and refrigerators, when these appliances are present in the unit. This is important because, while almost all households have stoves and refrigerators, most low-income households in the private market in Pittsburgh provide their own, while almost all households in Public Housing and Section 236 have them provided by their landlord. The estimated rental value of tenant-provided stoves and refrigerators (about $15 per month) was added to avoid underestimating the housing of private market renters simply because of differences in who gets paid for those appliances.

Figure 3-2
AVERAGE MARKET VALUE OF UNITS IN DIFFERENT PROGRAMS
AS A PERCENT OF HOUSING GAP MINIMUM STANDARDS VALUES[a]



KEY

——— Pittsburgh
– – – – Phoenix

HG Housing Gap
MS Minimum Standards
UNC Unconstrained
PR Percent of Rent
MRL Minimun Rent Low
MRH Minimum Rent High
23 Section 23
236 Section 236
PH Public Housing

a. Tables for figures are presented in Appendix II.
b. Average estimated market value of the unit including utilities other than telephone, unfurnished, with stove and refrigerator provided.
c. Market value with the average number of rooms set equal to that for Housing Gap Minimum Standards.

graphs the average private market rental value of units in each program as a percent of the value of units in the Housing Gap Minimum Standards program. All programs had average values within plus or minus 10 percent (or about 14 to 17 dollars per month, depending on the site) of the average for Minimum Standards recipients.

Different households may, of course, require different levels of housing. Most obviously, larger households need more rooms and hence higher rental values in order to obtain the same level of housing quality as smaller households. The lower graph in Figure 3-2 plots market values for units where the average unit size has been set equal to that in Minimum Standards. Again, all of the programs provide relatively similar levels of overall quality. The only important consistent difference seems to be Section 236, which had values from 8 to 12 percent (or roughly 18 dollars per month) higher than Minimum Standards. Thus, the average value of the "quality per room" provided by the different programs is again similar across program types.

Physical Deficiencies

Compliance with physical and areal standards differs much more markedly than average rental values. Consider first the various allowance programs tested in the Demand Experiment. Table 3-2 shows the proportion of recipients in each program that met various standards. The contrast is most dramatic for the Minimum Standards program. All Housing Gap Minimum Standards recipients necessarily met these standards. In contrast, only 35 percent of recipients in the other allowance programs met the Minimum Standards, although they occupied units with similar market values, as shown in Figure 3-2. Indeed, as noted in Table 3-2, the percentage of recipients in other allowance programs that lived in units that met Minimum Standards was not significantly different from that found for low-income households without subsidies (the Control households).

The Minimum Standards used in the Demand Experiment are not the only possible housing standards. Budding's (1978) measures of physical adequacy, discussed in Chapter 2, for example, categorized households' units as clearly inadequate, questionable, or apparently adequate. While Budding's measures were not developed as program standards, they can be used to evaluate outcomes under alternative measures of acceptable housing. Accepting housing

Table 3-2

PERCENT OF RECIPIENTS IN ACCEPTABLE HOUSING UNDER ALTERNATIVE PHYSICAL STANDARDS

PERCENT THAT	COMBINED SITES			PITTSBURGH			PHOENIX		
	MINIMUM STANDARDS	OTHER[a]	DIFFERENCE (t-statistic)	MINIMUM STANDARDS	OTHER[a]	DIFFERENCE (t-statistic)	MINIMUM STANDARDS	OTHER[a]	DIFFERENCE (t-statistic)
Passed Minimum Standards	100%[b]	35%	65%** (16 70)	100%[b]	31%	69%** (12.84)	100%[b]	40%	60%** (10 70)
Were not in clearly inadequate units (Budding)	92	65	27** (7.31)	90	65	25** (4 79)	94	65	29** (5 54)
Were in apparently adequate units (Budding)	61	33	28** (7 39)	51	27	24** (4 75)	72	41	31** (5.55)
SAMPLE SIZE	(178)	(1,609)	NA	(89)	(896)	NA	(89)	(713)	NA

SAMPLE: Allowance households in the Demand Experiment that were receiving full allowance payments at the end of two years, plus Controls (excluding households ineligible at enrollment).

a. "Other" includes Minimum Rent High, Minimum Rent Low, Percent of Rent, Unconstrained and Controls. Rates for these groups are not significantly different (χ^2-test) except for Minimum Rent High which had a significantly higher percentage of households not in clearly inadequate housing in Phoenix (and for the combined sites).

b Since the Minimum Standards measures were only enforced for Minimum Standards households, the measures for other households in Table 3-2 are not completely comparable. They are very close, however Under the derived measures used for non-Minimum Standards households, 97 percent of the Minimum Standards recipients would have been classified as passing Minimum Standards. The difference between this and the 100 percent figure in Table 3-2 reflects program errors and certain special opportunities afforded Minimum Standards households to qualify for payments.

† Significant at the 0 10 level.
* Significant at the 0.05 level.
** Significant at the 0.01 level.

not classified as clearly inadequate under Budding's measure involves an obviously less stringent standard than Minimum Standards, for example. Households tend to be in clearly inadequate units much less often than they fail Minimum Standards, while households that pass Minimum Standards are rarely in units classified as clearly inadequate. Only accepting housing classified as apparently adequate under Budding's measure, on the other hand, appears to offer more of an alternative standard than a more stringent one. Except for Minimum Standards recipients, households pass Minimum Standards and occupy apparently adequate units at about the same rate, though, as the figures for Minimum Standards households in Table 3-2 indicate, many households that pass one standard would not pass the other.[1]

Comparison of acceptability rates under the different measures in Table 3-2 illustrates two important points. First, passing one standard is not necessarily a guarantee of passing another. While Minimum Standards households were rarely in clearly inadequate housing, 40 percent of them were not in apparently adequate units under Budding's measure. Second, the difference between the standardness ratings of Minimum Standards recipients and other allowance plan recipients tends to be much greater under the standards actually used for the Minimum Standards plans than under alternative standards. Less stringent standards such as those implied by Budding's "not clearly inadequate" category are, of course, met more often by other households, while equally stringent alternative standards, such as those implied by Budding's "apparently adequate" category, are met less often by Minimum Standards households.

This pattern of results under alternative standards is quite reasonable. Program housing tends to follow the same pattern as that found for unsubsidized Control housing unless specific housing requirements are imposed. The imposition of requirements forces program housing away from these patterns in the ways dictated by the requirements. Compliance with alternative standards then varies from unsubsidized patterns to the extent that these standards share elements with the requirements actually imposed.

---

[1] In fact, as discussed later, there is considerable overlap between the "apparently adequate" category and the physical component of the Minimum Standards physical and occupancy requirements. This is not accidental. Both measures use the same housing evaluations, and Budding took account of Minimum Standards requirements in developing his classification.

Thus, to give another example, Minimum Rent High allowance recipients met the Minimum Rent High requirement significantly more often than recipients under other programs, including Minimum Standards recipients. They were no more likely to meet Minimum Standards or to be in apparently adequate units. As indicated in the notes to Table 3-2, however, they were significantly less likely than non-Minimum Standards recipients to be in clearly inadequate units (at least in Phoenix). At low enough quality levels, rent requirements may imply that units will more often meet physical standards as well.

Unfortunately, compliance with the housing requirements actually used in the Demand Experiment cannot be measured for recipients in other housing programs. All the requirements in the Demand Experiment had a sort of "grandfather clause"--once a household met the requirement in a unit, it automatically continued to meet as long as it remained in that unit. An allowance household that never moved, for example, would meet requirements if its unit met them at any time during the first two years after enrollment. But information on recipients in housing programs other than those tested in the Demand Experiment is available only for 1975. Thus, the "grandfather clause" cannot be applied to units occupied by these households.

Instead, housing quality under the different programs may be rated in terms of contemporaneous compliance with several alternative standards. Five such standards are listed in Table 3-3. As indicated by the compliance rates for unsubsidized Control households, these standards vary in their stringency. One of them--MS Program--represents the physical components of the Minimum Standards physical and occupancy requirements (without the grandfather clause) and involves 14 basic categories of dwelling unit adequacy.[1] The least stringent standard--MS Low--involves only five of the 14 MS Program components, requiring only complete plumbing, complete kitchen facilities, adequate heat, a firm roof structure and exterior walls not in need of replacement. These are very basic requirements, which were indeed passed by 77 percent of the unsub-

[1]The 14 categories are adequate light and ventilation, complete plumbing, adequate light fixtures, adequate electrical service, adequate kitchen facilities, adequate heat, adequate exits, and acceptable ceiling height, room and floor surface and structure, roof structure, and exterior walls. These categories involved over 100 individual elements. For further details, see Bakeman et al. (1979).

Table 3-3

ALTERNATIVE STANDARDS OF HOUSING ADEQUACY

STANDARD	BRIEF DESCRIPTION	PERCENT OF CONTROL HOUSEHOLDS WHOSE UNITS PASSED THE STANDARD AT TWO YEARS AFTER ENROLLMENT (c. 1975)
MS Low	Basic version of MS Program requiring only complete plumbing, complete kitchen facilities, adequate heat, firm roof structure, and walls not in need of replacement.	77%
Not Inadequate	Requires that unit not be classified as inadequate under Budding's measure; these cover many items in MS Program, but frequently require less stringent standards. The major difference was that plumbing or kitchen facilities present but not working, inadequate electrical fixtures, use of electric heaters as major source of heat, inadequate ceiling height and light and ventilation did not fail a unit unless the evaluator's overall rating confirmed the presence of serious deficiencies that required major repairs.	62%
MS Program	The physical standards included in the Minimum Standards physical and occupancy requirements used in the Demand Experiment. Require complete working plumbing and kitchen facilities, adequate light fixtures and electrical service, adequate fire exits and heating equipment, interior and exterior surface and structure not in need of major repairs, ceiling height of at least seven feet for one-half of core rooms, and adequate light and ventilation.	32%
Apparently Adequate	Requires that unit be classified as apparently adequate under Budding's measure. Very similar to MS Program, with differences in detail.	31%
MS High	Covers the same elements as MS Program but does not allow window and surface conditions requiring even minor repairs.	15%

sidized Control households in the two sites. Because the standards used in MS Low are components of the MS Program standard, they must be passed in order to pass the MS Program standard. Another, somewhat more stringent standard, is obtained by requiring that units not be classified as clearly inadequate under Budding's measure. This standard was met by 62 percent of Control households and is less tightly tied to the MS Program standards.

The standard obtained by requiring units to be apparently adequate under Budding's measure was met by Control households about as often as the MS Program standards. It is, however, somewhat less tightly tied to the Minimum Standards actually imposed. It thus offers an example of an alternative standard of roughly comparable stringency.[1] Finally, the MS High standard includes all of the requirements of the MS Program standard but imposes more stringent rules for window condition and interior and exterior surfaces. Basically, the MS High standard requires that the unit need no repairs, while the MS Program standard allows conditions that would involve minor repairs. As indicated in Table 3-3, only 15 percent of Control households passed this standard.

None of these standards is identical to the requirements actually imposed in any of the allowance or nonallowance programs. Among the allowance programs, the MS Program standard is closest to the physical standards used for Minimum Standards households; it only differs by not including the "grandfather clause" discussed earlier. For the nonallowance programs, analysis by Marda Mayo and Carl White suggests that Section 23 standards were generally somewhat less stringent than MS Program, while the HUD Minimum Property Standards used for Public Housing and Section 236 were generally more stringent than MS Program and more often comparable to the MS High Standard.[2]

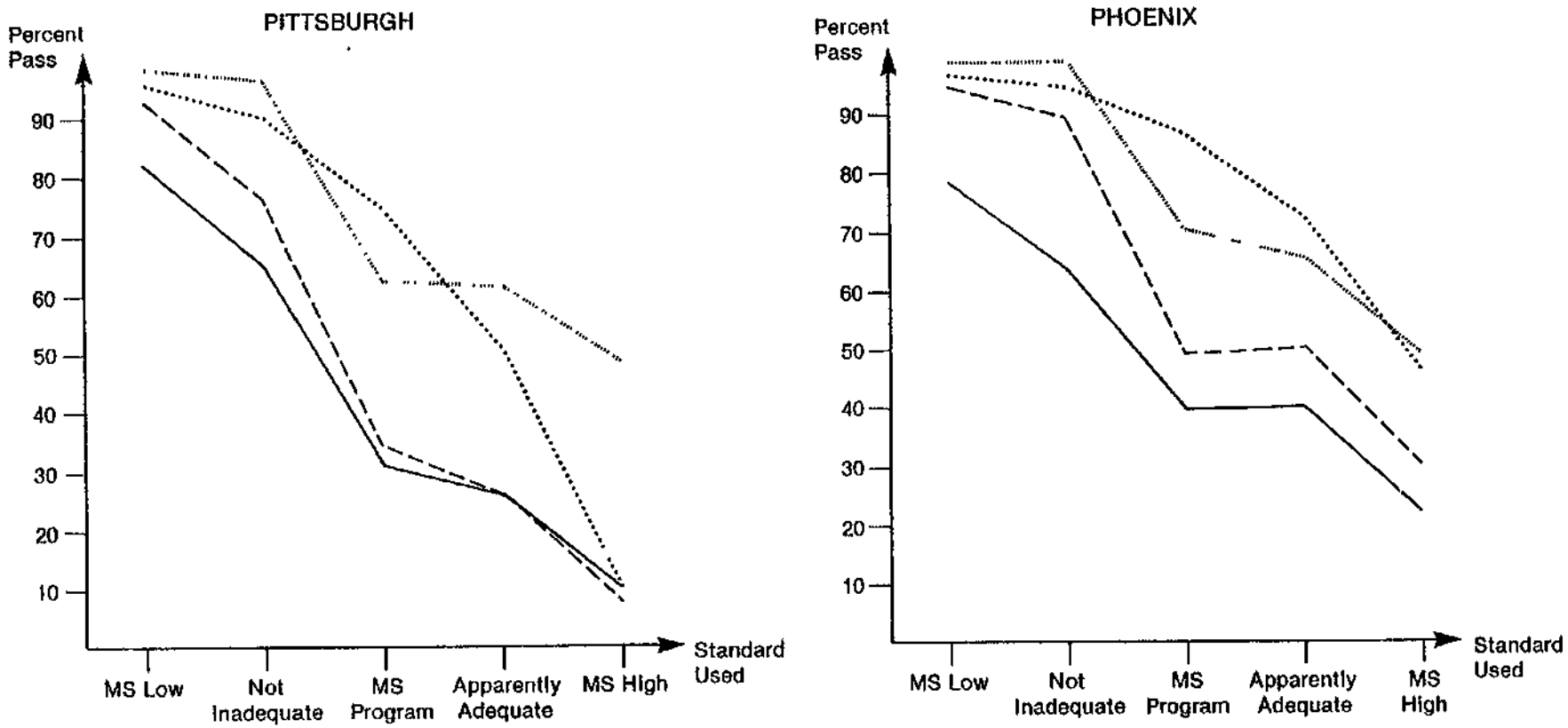
The proportions of units passing the various standards are shown in Figure 3-3 for recipients in four program groups--Public Housing and Section 236, Minimum Standards, Minimum Rent High and Section 23, and the remaining allowance programs (Minimum Rent Low, Percent of Rent, and Unconstrained) plus

---

[1] Analysis of enrolled households showed that the Apparently Adequate and MS Program standards gave consistent ratings for 90 percent of enrolled households. See Bakeman et al. (1979), Table 2-9.

[2] See Mayo et al. (1979), Part 1, Table 4-4.

Figure 3-3
PERCENT OF UNITS PASSING UNDER ALTERNATIVE PHYSICAL STANDARDS[a]



KEY
——— Control, Unconstrained, Percent of Rent and Minimum Rent Low
– – – – Minimum Rent High and Section 23
····· Minimum Standards
····· Public Housing and Section 236

a Tables for figures are presented in Appendix II

AFA#6742/27-34,AFA#3913

Controls.[1] The results conform very closely to the pattern suggested by Table 3-1 and the standards imposed under the various programs. Recipients in the Unconstrained allowance program, the rent-conditioned Percent of Rent program (which had no housing requirements), and the Minimum Rent Low allowance program are grouped with Controls in Figure 3-3, because they were not significantly more likely to occupy acceptable housing than Control households under any standard in either site. Likewise, the Minimum Rent High and Section 23 programs are presented together because results for these programs were generally similar to each other and usually somewhat better than those for recipients with no housing requirements. (It appears that reasonably stringent rental expenditure requirements could substitute for the relatively loose Section 23 standards.)

Among the programs with more stringent standards, the pattern of results depended on the relation between the standard used to measure adequacy and the standards imposed by the program. The housing of Public Housing, Section 236, and Minimum Standards recipients was rated acceptable significantly more often than other programs and Controls under almost all measures.[2] Results for the three were generally comparable under the two least stringent standards (MS Low and Not Inadequate). Minimum Standards recipients were rated higher under the MS Program standard (the standard closest to the Minimum Standards requirements) and lower under the MS High standard (the standard closest to the requirements used for Public Housing and Section 236) in both sites. As in Table 3-1, program differences are most apparent for standards similar to those actually imposed. The pattern is more dramatic in Pittsburgh, where Minimum Standards recipients, although rated acceptable significantly more often than Public Housing and Section 236 units under MS Program, were rated well below Public Housing and Section 236 under the MS High standard and no better than Controls. In Phoenix, on the other hand, Minimum Standards requirements were apparently a better

---

[1]Results for programs within each group were not significantly different (χ^2-test) under any measure. Results were significantly different between the groups for some measure in both sites, with the exception of the Minimum Rent High and Section 23 groups and the Control, Unconstrained, Percent of Rent and Minimum Rent Low groups, which were not significantly different in Pittsburgh (but were in Phoenix).

[2]The only exception was the MS High standard for Minimum Standards households in Pittsburgh.

proxy for MS High than in Pittsburgh, and Minimum Standards units were not rated significantly worse than Public Housing and 236, even under the MS High standard.

It appears, then, that programs without explicitly imposed physical standards are not likely to offer recipients housing that meets physical standards materially more often than unsubsidized low-income units. Reasonably stringent rent conditions may substitute for relatively unstringent physical standards, but Unconstrained programs or programs with moderate rent-conditioning do not do even this much. Furthermore, one set of standards may or may not be an adequate proxy for another. Public Housing, Section 236 and Minimum Standards units all passed the less stringent MS Low and Not Inadequate standards at high rates. However, Minimum Standards units were rated acceptable most often under the MS Program standards, even though these appeared to be generally less stringent than the requirements used for Public Housing and Section 236. Public Housing and Section 236 units were rated higher as the measure used moved away from the requirements used for Minimum Standards households and closer to those used for Public Housing and Section 236. The difference was only substantial in Pittsburgh, but the pattern suggests that adoption of similar standards would have resulted in similar results for all of the programs.

Crowding

The incidence of crowding under the various programs shows similar patterns, as illustrated by Table 3-4. As discussed in Chapter 2, crowding is rare among households with fewer than five persons. Accordingly, the figures in Table 3-4 refer only to larger households with five or more persons. Detailed analysis is hampered by small sample sizes, but the basic patterns are clear. Explicit occupancy requirements were only imposed for Minimum Standards housing allowances, Section 23, Public Housing, and Section 236, though Minimum Rent requirements did vary by household size. Each of these programs generally set a maximum of two persons per bedroom, though somewhat higher limits were allowed in certain Public Housing and Section 23 projects in Phoenix. These maximum limits were not strictly enforced, however. Under housing allowances, Minimum Standards households that met the minimum physical and occupancy standards continued to qualify for payments as long as they remained in that unit. Thus, households that gained additional members after

Table 3-4

INCIDENCE OF CROWDING AMONG LARGE HOUSEHOLDS

PROGRAM	PERCENT OF HOUSEHOLDS WITH FIVE OR MORE MEMBERS WHERE		SAMPLE SIZE
	MORE THAN TWO PERSONS PER BEDROOM	MORE THAN ONE PERSON PER ROOM	
Public Housing	19.4%	46.5%	(94)
Section 236	20.6	17.6	(34)
Section 23	37.0	44.4	(81)
Minimum Standards	34.8	26.1	(23)
Other[a]	62.9	48.6	(348)

a. "Other" includes Control, Unconstrained, Percent of Rent, Minimum Rent Low and Minimum Rent High households. These were not significantly different from one another (χ^2), though rates for Minimum Rent Low were unusually low.

AFA#879/23-26

they had qualified could exceed the maximum (unless they moved). Likewise, regulations for Public Housing, Section 236, and Section 23 all permit exceptions to the occupancy limits.

As with physical standards, programs without explicit requirements do not provide significantly less crowded conditions than those found among unsubsidized households. The incidences of crowding among recipients in the Unconstrained, Percent of Rent, and Minimum Rent allowance plans were not significantly different from each other or from that for unsubsidized Control households. Programs with requirements all show significantly lower incidences of crowding when crowding is measured in terms of the standard used in the program (more than two persons per bedroom). When crowding is measured in terms of persons per room, on the other hand, only Minimum Standards and Section 236 show significantly lower incidence of crowding than that found among recipients in programs without occupancy requirements and unsubsidized households.

While all programs with requirements provided less crowded conditions, the requirements actually enforced seem to have differed somewhat, though the difference varies depending on the measure used. Under both measures, Section 236 has a lower and Section 23 a higher incidence of crowding. Public Housing ranks with Section 236 under the two persons per bedroom standard but ranks with Section 23 under the one person per room standard. Conversely, Minimum Standards ranks with Section 23 under the two persons per bedroom standard but with Section 236 under the persons per room standard.

Rent Burden

As described in the beginning of this chapter, tenant contributions are set in different ways under allowance and nonallowance programs. Under Percent of Rent allowances, rent burdens are directly reduced by the rent rebates, but (as tested in the Demand Experiment) the program has no particular rent burden target.[1] Under Housing Gap allowances, payments to recipients are set so that tenants might be expected to achieve an average target contribution rate. Individual recipients will, however, spend more or less than average

[1] Percent of Rent programs could be designed to achieve a target average rent burden. (See Friedman and Weinberg, 1978, Chapter 2.)

and hence have higher or lower rent burdens. Under nonallowance programs, tenant contributions are determined by the program and, with the exception of Section 236 (without Rent Supplements), determined to be no more than 25 percent of income. Thus, with the exception of Section 236 without Rent Supplements, one would expect less variation in rent burden under the nonallowance programs. (Some variation will arise because of differences in income definitions among programs, lags in adjusting rent to current income, and errors in data collection.)

Table 3-5 shows the median rent burden and percent of recipients with rent burdens greater than 25 percent in each of the major types of allowance programs. Program rent burdens are generally well below those of unsubsidized Control households, with the exception of Minimum Rent High recipients in Pittsburgh. Minimum Rent High and Percent of Rent recipients in Phoenix also have higher incidences of high rent burdens than other allowance plans, though still lower than that for Phoenix Controls. As might be expected, fairly stringent Minimum Rent requirements tend to result in higher rent burdens. The Unconstrained, Minimum Rent Low and Minimum Standards allowance plans, on the other hand, all produced median rent burdens of from 20 to 23 percent of income, with about a third of recipients having rent burdens greater than 25 percent.

Comparisons of Minimum Standards with the nonallowance programs are presented in Table 3-6. In both sites, Section 236 without Rent Supplements has the highest median rent burden and the highest percent of recipients with rent burdens greater than 25 percent. Indeed, rent burdens under this program are generally higher than those borne by unsubsidized Control households. Otherwise, median rent burdens are quite similar across all programs, with the exception of Section 23, which had unusually low rent burdens in Pittsburgh and unusually high rent burdens in Phoenix.

Close examination of Table 3-6 also illustrates the role which payment mechanisms play in determining the distribution of rent burdens. As expected, the variation in rent burdens is usually lower among the nonallowance programs other than Section 236 without Rent Supplements than among Control households (the exception is Section 23 in Pittsburgh). It is also somewhat lower among Minimum Standards households, though not generally as low as in the nonallowance programs. This is worth noting primarily because it helps

Table 3-5

RENT BURDEN AMONG ALLOWANCE RECIPIENTS

	MINIMUM STANDARDS	MINIMUM RENT HIGH	MINIMUM RENT LOW	PERCENT OF RENT	UNCONSTRAINED	CONTROL
			PITTSBURGH			
Percent with rent burdens greater than 25 percent	32%	63%	38%	37%	33%	56%
Median rent burden	.21	.29	.22	.22	.23	.27
SAMPLE SIZE	(82)	(51)	(94)	(358)	(60)	(291)
			PHOENIX			
Percent with rent burdens greater than 25 percent	38%	48%	36%	53%	36%	72%
Median rent burden	.21	.25	.22	.26	.23	.31
SAMPLE SIZE	(85)	(48)	(62)	(265)	(28)	(236)

ATD#1887/45-46
ATC#6469

Table 3-6

RENT BURDENS AMONG NONALLOWANCE PROGRAMS

	MINIMUM STANDARDS	SECTION 236 WITH RENT SUPPLEMENTS	PUBLIC HOUSING	SECTION 23	SECTION 236 WITHOUT RENT SUPPLEMENTS	CONTROL
			PITTSBURGH			
Percent with rent burden above 25 percent	32%	35%	13%	9%	74%	56%
Median rent burden	0.21	0.23	0.20	0.16	0.33	0.27
Mean rent burden	0.21	0.24	0.21	0.19	0.37	0.30
Standard deviation	0.11	0.09	0.07	0.13	0.16	0.13
SAMPLE SIZE	(82)	(66)	(253)	(93)	(222)	(291)
			PHOENIX			
Percent with rent burden above 25 percent	38%	29%	23%	45%	89%	72%
Median rent burden	0.21	0.22	0.21	0.25	0.38	0.31
Median rent burden	0.22	0.23	0.20	0.27	0.39	0.34
Standard deviation	0.13	0.07	0.12	0.11	0.13	0.15
SAMPLE SIZE	(85)	(31)	(217)	(144)	(56)	(236)

ATD#1887/45-46
ATC#6469
AFA#879/33-36

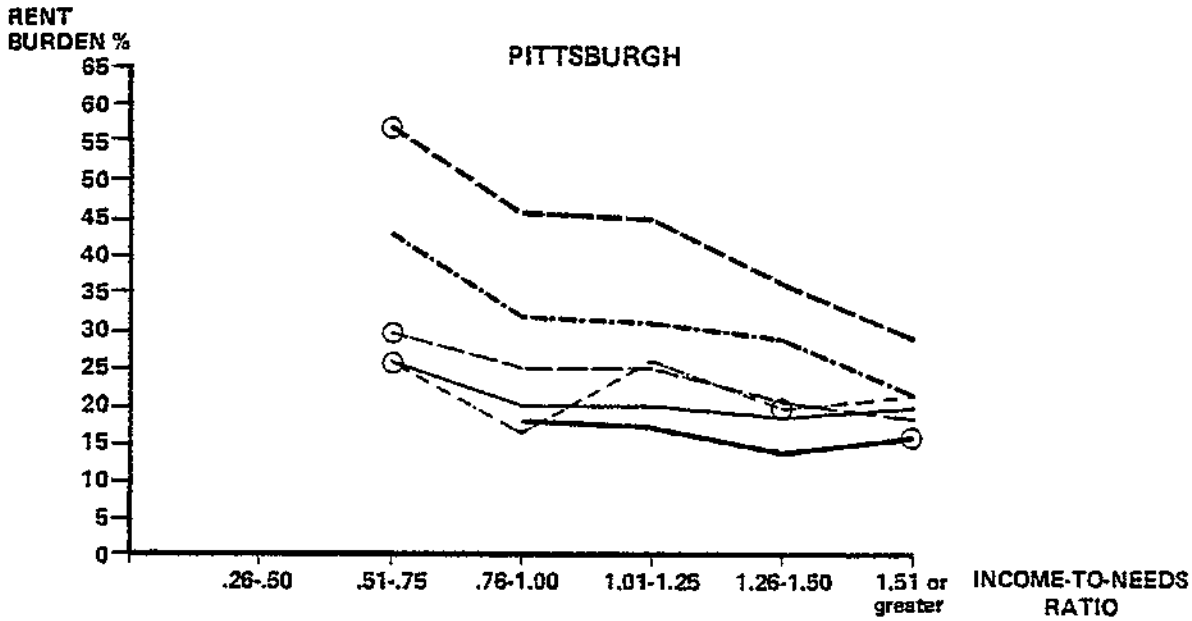
to explain the pattern in the proportion of recipients with rent burdens greater than 25 percent of income. Because allowances permit recipients more leeway in deciding how much to spend for rent, they would be expected to have more households with high rent burdens than a nonallowance program with the same mean rent burden. This is exemplified by the situation in Pittsburgh where Public Housing, with the same average rent burden as Minimum Standards allowance recipients, has a much lower proportion of recipients paying more than 25 percent of income. Likewise in Phoenix, Section 236 with Rent Supplements has a slightly higher mean rent burden but again a lower proportion of recipients with burdens greater than 25 percent. This situation would be less likely in an allowance program that, like the current Section 8 (Existing) program, set an upper limit on what households could pay for rent.[1]

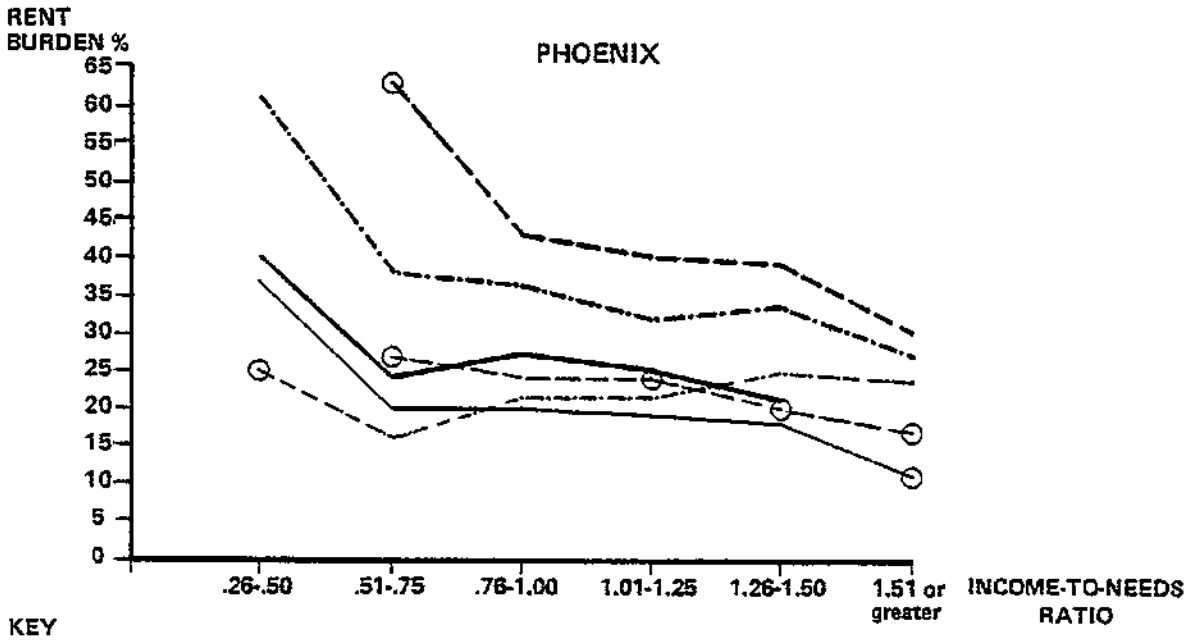
The discussion of Chapter 2 suggested that a 25 percent rent burden was probably more onerous for very poor households. Figure 3-4 shows the median rent burden of households in Minimum Standards housing allowances, Section 23, Public Housing and Section 236 as a function of the ratio of households income to poverty income. With the exception of Section 236 without Rent Supplements, programs show lower median rent burdens than unsubsidized Control households, with the largest difference for households below poverty. At the same time, rent burdens within programs do not appear to be lower, and are sometimes slightly higher, for very poor households. This perverse pattern is extreme for Section 236 without Rent Supplements. Under this program, median rent burdens were generally higher than those for Control households and (especially in Phoenix) higher yet for poorer households.

In sum, there seem to be few important differences in the housing provided by the various allowance and nonallowance programs. The overall market value of units is similar. Differences with respect to standards of physical quality, crowding, and rent burden appear to be quite immediately related to the standards imposed by the program and the depth of subsidy offered. Programs

[1]This does not mean that such a limit is desirable. The issue, as discussed in Chapter 2, is whether allowance households with higher rent burdens chose to spend more in order to obtain better housing or whether they for one reason or another simply had to spend more to qualify for allowance payments. Furthermore, as discussed in Chapter 4, even in the latter case, imposition of maximum rents may do more to limit participation than promote lower rents.

Figure 3-4
RENT BURDEN IN RELATION TO INCOME-TO-NEEDS RATIO





KEY
- Public Housing
- Section 23
- Section 236 With Rent Supplement
- Section 236 Without Rent Supplement
- Housing Allowance
- Control
- ⊙ Fewer than 10 observations

(Fewer than 5 observations not plotted)

SOURCE. Mayo et al. (1979), Part 1, Figure 4-12.

with similar standards and similar payment schedules appear likely to result in similar housing conditions for recipients regardless of the degree to which they rely upon agency staff or recipients to find housing or upon the private market or public construction to provide it.

Location

Such flexibility among program strategies is less apparent with respect to the location of units. In theory, both leased existing housing and construction programs could ultimately achieve any desired set of locations. In practice, of course, both are limited. Households and agencies attempting to rent units in the private market are limited by the availability of affordable, acceptable units, various forms of discrimination, and ease of access. Construction programs require local approval and once built cannot be moved.[1]

These constraints are apparent in the locations of participants under the different programs. In general, housing allowance recipients seem to locate in neighborhoods very similar to those occupied by similar unsubsidized low-income households. The housing provided by construction programs, on the other hand, while geographically scattered, offers a more limited set of locations. These sometimes force households into poorer or more heavily minority areas than they would normally occupy. They also, however, appear to have an important effect on program participation. Programs with units in unusually poor neighborhoods or neighborhoods with unusually high minority concentrations tend to draw participants from similar neighborhoods. Thus, the locational restrictions implicit in construction programs not only force households into certain neighborhoods but also help to determine which households will enroll in the program.

The analysis of location in the Demand Experiment has not attempted to develop a detailed rating of neighborhood adequacy comparable to that developed by Budding (1978) for the physical adequacy of dwelling units. Instead, analysis has focused on issues of economic and racial concentration. Low-income households tend to live in low-income neighborhoods, which in turn tend to

[1]Local approval was also required for Section 23 during the period analyzed.

be older, dirtier, more crime-ridden, and generally provide fewer amenities.[1] One simple question that can be asked of a program is the extent to which it allows its recipients to escape from poorer neighborhoods. This is far from a perfect measure of neighborhood improvement but at least provides some sense of the overall direction of change.

The specific measure of neighborhood income used in the analysis of the Demand Experiment was the proportion of households in the surrounding Census tract with incomes under $5,000 (in 1970). As shown in Table 3-7, households enrolled in the various allowance plans started out in neighborhoods with the same average level of low-income concentration as Control households and two years later were in almost equally poor neighborhoods. More detailed analysis by Reilly Atkinson and Dowell Myers, reported in Atkinson et al. (1979), which examined impacts for households that moved, for those that became recipients, for each of the various allowance plans, and taking account of household pre-enrollment demographic and locational characteristics, confirmed the finding that the allowance offers had no perceptible impact on the neighborhoods chosen by allowance households in terms of low-income concentration.

Analysis by Shirley Mansfield of locations offered by nonallowance programs, reported in Mayo et al. (1979, Part 1), shows that while allowance programs provided housing in similar neighborhoods to those occupied by unsubsidized households, nonallowance programs often did not. Table 3-8 shows the average low-income concentration of Census tracts in which units provided by the various nonallowance programs were located. For comparison, similar information is also shown for Minimum Standards allowance recipients and unsubsidized Control households. Except for Section 236, all nonallowance programs were located on average in poorer neighborhoods than those occupied by Minimum Standards recipients. However, programs frequently differed considerably among themselves and between the two sites.

Public Housing had, by far, the highest level of low-income concentration. Indeed, over two-thirds of the Public Housing units in both sites were located in neighborhoods where over half the households had incomes of less than $5,000 in 1970 as compared with 8 percent of the Housing Allowance

[1] Atkinson and Phipps (1977), pp. A-78 to A-79.

Table 3-7

MEAN LOW-INCOME CONCENTRATION[a] OF ALLOWANCE AND CONTROL HOUSEHOLDS

	ALL ALLOWANCE HOUSEHOLDS	CONTROL HOUSEHOLDS
AT ENROLLMENT		
Mean	37%	37%
	(14)	(14)
AFTER TWO YEARS		
Mean	35	34
	(14)	(14)
SAMPLE SIZE	(1,631)	(602)

SOURCE: Atkinson et al. (1979), Table 2-3, p. 18.

NOTE: Standard deviation in parentheses.

a. Low-income concentration is the mean low-income concentration for Census tracts occupied by enrolled households, where the low-income concentration for each tract is the percentage of tract households with incomes under $5,000 in 1970.

Table 3-8

LOW-INCOME HOUSEHOLD CONCENTRATION BY PROGRAM

PROGRAM TYPE	PITTSBURGH			PHOENIX		
	LOW-INCOME CONCENTRATION OF PROGRAM RECIPIENTS[a]	STANDARD DEVIATION	SAMPLE SIZE	LOW-INCOME CONCENTRATION OF PROGRAM RECIPIENTS[a]	STANDARD DEVIATION	SAMPLE SIZE
Public Housing	55%**	14	(286)	51%**	11	(141)
Section 23	46**	13	(106)	34*	14	(159)
Section 236	40**	19	(330)	28	9	(98)
Minimum Standards housing allowance	32	10	(91)	30	14	(94)
Control	33	13	(318)	36	16	(282)

SAMPLES: Comparison Program households--a sample of households participating in the Public Housing, Section 23 and Section 236 programs in Allegheny and Maricopa counties. Housing Allowance households--Housing Gap Minimum Standards households active and receiving full payments at two years after enrollment in the Demand Experiment. Control households--active at two years after enrollment in the Demand Experiment.

SOURCE: Mayo et al. (1979), Part 1, Table 5-1.

NOTE: t-tests represent contrast between Comparison Programs and Housing Allowance result.

a. Low-income concentration is the mean low-income concentration for Census tracts occupied by enrolled households, where the low-income concentration for each tract is the percentage of tract households with incomes under $5,000 in 1970.

† Significant at the 0.10 level.

* Significant at the 0.05 level.

** Significant at the 0.01 level.

units in Pittsburgh and 11 percent in Phoenix.[1] Average low-income concentration levels were lower for Public Housing projects built after 1970, but still high--46 percent in Pittsburgh and 43 percent in Phoenix. Section 23 and Section 236 had lower levels of low-income concentration than Public Housing, with Section 236 somewhat lower than Section 23 in both sites. The difference between these programs and Public Housing was, however, much larger in Phoenix than in Pittsburgh.

The higher average level of low-income concentration for Section 23 in Pittsburgh may reflect the program's special focus in that city. As noted earlier, Section 23 in Pittsburgh was confined to the City of Pittsburgh and was targeted for large "problem" families that had been living in Public Housing. Three housing authorities ran Section 23 programs in Phoenix. Of these one was targeted for elderly households, while the others appeared to serve a mix of household types. Section 23 units in Pittsburgh were heavily concentrated in very low-income neighborhoods (where over half of the households had incomes of less than $5,000 in 1970). While a substantial proportion of Section 23 units in Phoenix were also located in such neighborhoods, these were balanced by an almost equal number of units in higher income neighborhoods.

The difference between the two sites for Section 236 partly reflects the presence of rehabilitated units in Pittsburgh. All Section 236 units in Phoenix were new construction units. In contrast, 54 percent of the Section 236 units in Pittsburgh were rehabilitated units. Almost half (43 percent) of the rehabilitated units were located in very low-income areas, as compared with only 17 percent of newly constructed Section 236 units in Pittsburgh. Nevertheless, there were still substantial differences for new construction units between the two sites. The average level of low-

---

[1]The particularly high percentages of low-income households in Public Housing neighborhoods cannot be entirely explained by the existence of Public Housing per se. Rough calculations indicate that the median percentage of households in Census tracts containing Public Housing units that were in Public Housing was approximately 28 percent in Pittsburgh, and 7 percent in Phoenix (for the Public Housing sample used in this study). Mean percentages were 37 percent in Pittsburgh, and 11 percent in Phoenix. Moreover, there is no reason to believe that high concentrations of Public Housing households are of less concern than high concentrations of low-income households due to other circumstances.

income concentration for newly constructed Section 236 units in Pittsburgh was 35 percent as compared with 28 percent in Phoenix.

Despite the variation in the degree of low-income concentration found in the various programs, only Public Housing shows clear evidence of actually having moved households into neighborhoods with substantially different levels of low-income concentration than those they would otherwise have occupied. This is exemplified by Table 3-9, which presents information on where households lived before they enrolled in a housing program. This information is available only for households that had enrolled within the three years prior to the study (which includes all allowance recipients). The first two rows of Table 3-9 show the average low-income concentration for all recipients in each program as compared to Minimum Standards recipients. The next rows show, for recent enrollees, the low-income concentration of the neighborhoods they lived in before enrollment. The last rows show the difference between the low-income concentration of their pre-enrollment and program neighborhoods.

In general, programs with average low-income concentrations that were higher or lower than those of Minimum Standards units also had recent enrollees who originally came from neighborhoods with correspondingly higher or lower low-income concentrations. Indeed, the only program that shows a substantial and significant change in low-income concentration as compared to Minimum Standards recipients is Public Housing at both sites. Recent enrollees in Public Housing moved from neighborhoods with an average low-income concentration of 37 and 45 percent in Pittsburgh and Phoenix, respectively, to neighborhoods with concentrations of 50 percent in both sites.

The connection between location and program participation is much more dramatic with respect to racial and ethnic segregation than it is with respect to economic concentration. As with low-income concentration, housing allowances did nothing to disturb prevailing patterns of racial and ethnic segregation. As indicated in Table 3-10, households enrolled in the various allowance programs started out in highly segregated neighborhoods. White enrollees in Pittsburgh lived in tracts where an average of 6 percent of the households were black; black enrollees lived in tracts where an average of 58 percent of the households were black. Similarly, in Phoenix, white enrollees lived in tracts where on average 16 percent of the house-

Table 3-9

CHANGE IN LOW-INCOME CONCENTRATION

	PITTSBURGH				PHOENIX			
	PUBLIC HOUSING	SECTION 236	SECTION 23	MINIMUM STANDARDS	PUBLIC HOUSING	SECTION 236	SECTION 23	MINIMUM STANDARDS
ALL RECIPIENTS								
Low-income concentration of all recipients	55%	40%	46%	32%	51%	28%	34%	30%
Difference from Minimum Standards	+23**	+8**	+14**	-	+21**	-2	+4*	-
SAMPLE SIZE	(286)	(330)	(106)	(92)	(141)	(98)	(159)	(95)
RECENT ENROLLEES								
Low-income concentration of origin neighborhoods	37%	37%	51%	33%	45%	30%	38%	35%
Difference from Minimum Standards	+4*	+4*	+18**	-	+10**	-5*	+3	-
Change in low-income concentration (final vs. origin neighborhood)	+13	-1	-5	-1	+5	-1	-4	-5
Difference from Minimum Standards	+14**	0	-4	-	+10**	+4†	+1	-
SAMPLE SIZE	(87)	(150)	(7)	(92)	(51)	(59)	(86)	(95)

SOURCE: Mayo et al. (1979), Part 1, Tables 5-1, 5-2.

† Significant at the 0.10 level.

* Significant at the 0.05 level.

** Significant at the 0.01 level.

Table 3-10

CHANGES IN RACIAL CONCENTRATION AMONG HOUSEHOLDS ENROLLED IN THE DEMAND EXPERIMENT

	PITTSBURGH PERCENT OF HOUSEHOLDS IN CENSUS TRACT THAT ARE BLACK				PHOENIX PERCENT OF HOUSEHOLDS IN CENSUS TRACT THAT ARE SPANISH AMERICAN			
	BLACK HOUSEHOLDS		WHITE HOUSEHOLDS		SPANISH AMERICAN HOUSEHOLDS		WHITE HOUSEHOLDS	
	AT ENROLLMENT	CHANGE AFTER TWO YEARS	AT ENROLLMENT	CHANGE AFTER TWO YEARS	AT ENROLLMENT	CHANGE AFTER TWO YEARS	AT ENROLLMENT	CHANGE AFTER TWO YEARS
CONTROL								
Mean	47.1%	+2.6%	5.6%	-0.3%	44.7%	-4.8%	17.4%	-1.6%
Standard Deviation	31 0	16 8	12 3	7.1	24.0	16.9	16.0	7.6
SAMPLE SIZE	(63)	(63)	(255)	(254)	(69)	(69)	(180)	(180)
ALLOWANCE HOUSEHOLDS								
Mean	57 6%	-4.0%	6.1%	-0.6%	40.1%	-4 0%	16.4%	-0.8%
Standard Deviation	31.2	23.2	13 1	7 5	26.0	19.7	15.6	10.5
SAMPLE SIZE	(211)	(211)	(700)	(698)	(208)	(207)	(440)	(438)

SOURCE: Atkinson et al (1979), Tables 3-1, 3-3, 4-1, 4-3

holds were Spanish American, as compared with 40 percent for Spanish American enrollees.[1]

Against these sharp contrasts between minority and nonminority locations, the changes registered over two years are trivial--never more than four percentage points and never significantly different from those found for Control households. Again, more detailed analysis by Atkinson and Myers, reported in Atkinson et al. (1979) found no significant effects for recipients, for households that moved, or for any individual allowance plan. Indeed, Atkinson et al. point out that since patterns of segregation in housing do not seem to be primarily due to economic disadvantages there is little reason to believe that the financial assistance afforded by the allowance program would have a strong impact on racial or ethnic segregation.

In fact, however, the allowance programs in the Demand Experiment did involve both counseling sessions devoted to discrimination in housing and the provision of free legal services for anti-discrimination support. Neither of these had any apparent effect. Households attending the counseling sessions were no more likely than other households to report discrimination in their search for housing (Vidal, 1978, Table IV-2), while the legal services were almost unused. About 57 minority households in Pittsburgh and Phoenix reported in interviews that they had experienced racial or ethnic discrimination while searching for housing. Only four of these called the anti-discrimination lawyer (Vidal, p. A-43, n.1). Overall, from mid-1973 to the end of 1975, only 12 households in Pittsburgh and Phoenix called the anti-discrimination lawyer about possible instances of discrimination, and in no case was there enough evidence to file a formal complaint.

---

[1]Minority groups in both Pittsburgh and Phoenix made up about one-fourth of the lower-income renter households in both sites. In Pittsburgh, almost all minority households were black. In Phoenix, Spanish Americans were the major minority group, comprising 15 percent of the lower-income households, followed by black households (6 percent). (These figures are estimates based on 1970 Census Public Use Sample data for renter households that met Housing Allowance income limits in 1970--adjusted for inflation.)

Sample sizes for black households in Phoenix are too small to permit general comparative analysis of outcomes for blacks in that site. (There are only two black households in the Phoenix Minimum Standards housing allowance sample and only nine in the Phoenix Section 236 sample.)

Indeed, analysis by Avis Vidal of the search patterns of black households in Pittsburgh suggests that programs of passive support may be unlikely to yield substantial changes in the location of minority households. Vidal found that the racial composition of neighborhoods chosen by black households very much reflected the composition of the neighborhoods in which they searched for housing. Furthermore there was no evidence that either experienced or expected discrimination or problems of transportation played a major role in limiting search among black households to largely black areas. This does not mean that these factors were not important, but it does suggest that they were not so much in the forefront of households' minds that simply offering anti-discrimination assistance was likely to be effective. If search tends to be restricted to segregated areas, there may be relatively little opportunity to use anti-discrimination services.

One important factor in the conservative search patterns of black households suggested by Vidal's analysis is the importance of friends and relatives as sources of information about housing; 49 percent of black households and 60 percent of white households found their housing through friends or relatives.[1] Unfortunately, sample sizes were too small to see whether this in fact tended to reinforce existing patterns of segregation by channeling moves. It does, however, suggest that conservative search patterns may be difficult to overcome without very active efforts to encourage much more search in racially mixed areas.

Allowance programs left existing patterns of racial and ethnic segregation undisturbed, because they imposed no direct restrictions in the location of households. In contrast, the nonallowance programs generally offered a limited set of location choices. These sometimes exacerbated existing patterns of segregation and generally appear to have played an important role in determining which households were willing to participate in the various programs.

Table 3-11, taken from Mansfield's analysis (Mayo et al., 1979, Part 1, Chapter 5), shows the average percent of households that were minority households in the tracts occupied by units under the three nonallowance programs and the Minimum Standards housing allowance. Units provided by nonallowance programs

[1]The parallel to similar findings concerning the advantages of whites in finding jobs through friends and relative is obvious.

Table 3-11

MINORITY CONCENTRATION OF NEIGHBORHOODS IN PITTSBURGH AND PHOENIX BY PROGRAM

	PITTSBURGH					PHOENIX				
				MINIMUM STANDARDS					MINIMUM STANDARDS	
	PUBLIC HOUSING	SECTION 23	SECTION 236	HOUSING ALLOWANCES	CONTROLS	PUBLIC HOUSING	SECTION 23	SECTION 236	HOUSING ALLOWANCES	CONTROLS
MEAN PERCENT MINORITY IN CENSUS TRACT:										
All units	49%	51%	45%	14%	14%	50%	26%	17%	17%	30%
(Newly constructed units)	(36)		(29)			(44)		(17)		
PERCENT OF UNITS WITH										
0-15% minority population in tract	26	18	46	73	75	0	38	64	66	44
15-50% minority	15	36	7	16	14	63	31	31	30	32
Greater than 50% minority	59	46	47	11	11	37	30	5	4	23
SAMPLE SIZE	(286)	(106)	(330)	(91)	(318)	(142)	(159)	(98)	(95)	(280)

SAMPLES: Comparison Program households--a sample of households participating in the Public Housing, Section 23, and Section 236 programs in Allegheny and Maricopa counties. Housing Allowance households--Housing Gap Minimum Standards households active and receiving full payments at two years after enrollment in the Demand Experiment. Control households active at two years after enrollment in the Demand Experiment

DATA SOURCES: Program Comparison and Third Periodic Interviews and the 1970 Census of Population.

NOTE: Newly constructed units refers to units built after 1970.

were on average located in neighborhoods with a higher concentration of minority households than Minimum Standards housing allowances. As with low-income concentration, however, there are important differences between the two sites. In Pittsburgh, all three nonallowance programs show similar average levels of minority concentration. In Phoenix, Public Housing had a high average minority concentration, but Section 23, and especially Section 236 had much lower concentrations.

As Mansfield points out, the site differences for Section 23 and Section 236 parallel those observed for low-income household concentration. As for low-income household concentration, reasons for these differences are likely to include the different policies pursued by Section 23 housing authorities with regard to tenant selection and, in the case of Section 236, the significant component of rehabilitated units in Pittsburgh.[1] Most important, differences in the minority concentration of units in the different programs are closely related to differences in the racial and ethnic composition of participants. Figure 3-5 indicates the proportion of minority participants relative to the proportion of units in neighborhoods with above average levels of minority concentration.[2] There is a strong, almost linear relationship between the two. Programs with large numbers of units in minority areas also have relatively large numbers of minority participants.

The impact of this on racial and ethnic concentration depends, of course, on which households are placed in concentrated neighborhoods by the programs. Minority households in the private market were substantially segregated in both sites. Thus, for example, among white Control households enrolled in the Demand Experiment, the average level of minority concentration was 5 percent in Pittsburgh and 16 percent in Phoenix, as compared with levels for minority households of 50 and 40 percent, respectively. Some increase in the minority concentration of neighborhoods occupied by white households would be necessary to integrate program housing.

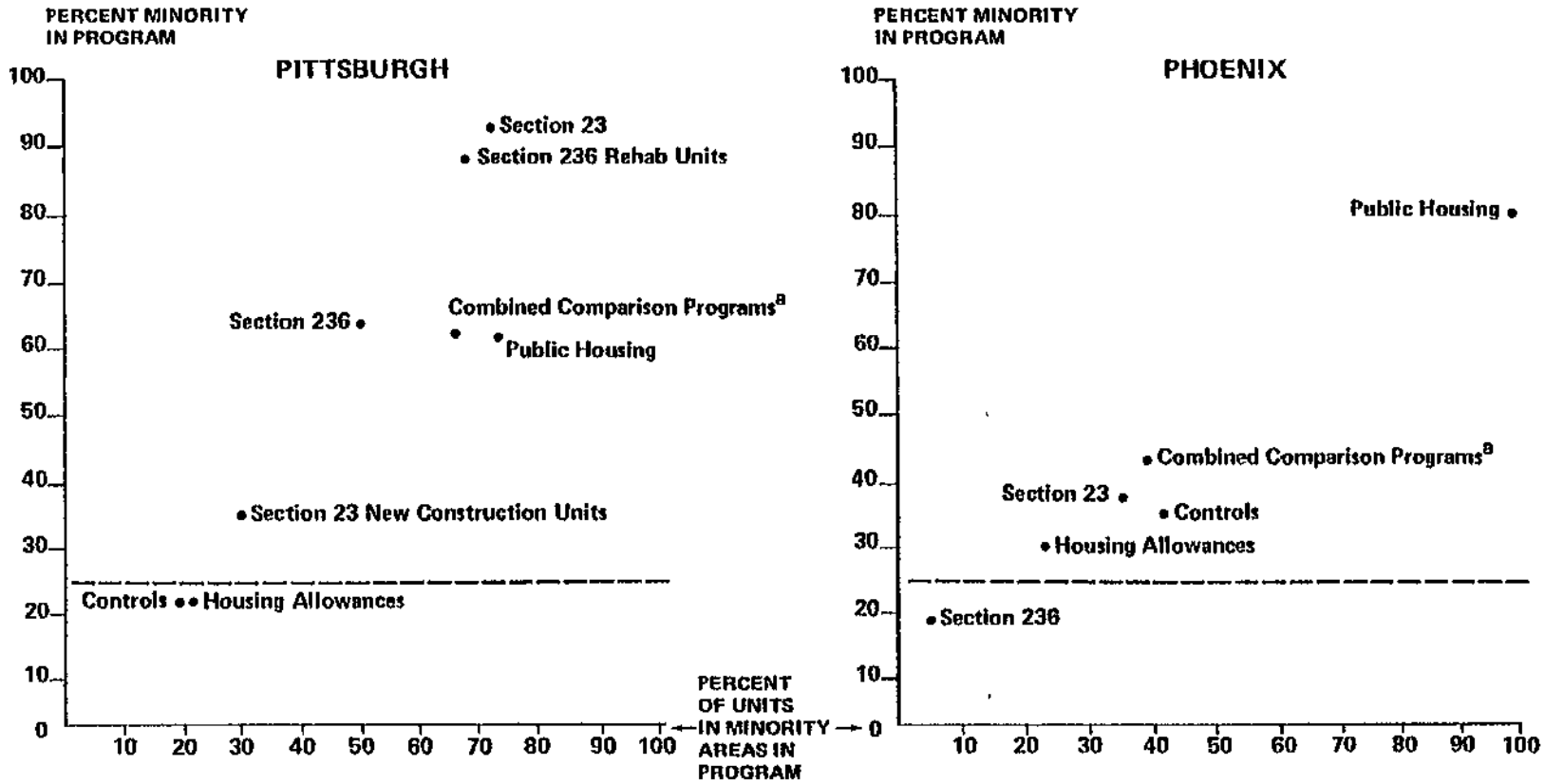
---

[1] Minority concentration averaged 59 percent for rehabilitated units in contrast to 29 percent for new construction units.

[2] Areas with above-average minority concentration are defined as those Census tracts in which the percentage of minority population to the total population exceeds 25 percent. The 25 percent figure corresponds to the approximate percentages of minority households at each site among the lower-income renter population and therefore represents the "expected" minority concentration.

Figure 3-5

RELATIONSHIP BETWEEN LOCATION OF UNITS AND PARTICIPATION OF MINORITY AND NONMINORITY HOUSEHOLDS IN PROGRAMS



KEY: ——— Percent minority in eligible population

SOURCE: Mayo et al. (1979), Part 1, Figure 5-7.

NOTE. Minority areas defined as those Census tracts where the minority population exceeds 25 percent of the total population of the tract. Twenty-five percent corresponds to the approximate percentage of minority households in each site in the lower income 'eligible' population.

a. Weighted averages for Comparison Programs are based on proportional representation of each program in the study (not the sampled) population. Weights are 0.687, 0.013, and 0.300 in Pittsburgh and 0.349, 0.071, and 0.580 in Phoenix for Public Housing, Section 23, and Section 236, respectively.

In fact, as shown in Table 3-12, with the notable exception of Public Housing in Phoenix, all programs maintained a strong pattern of racial separation. In general, white participants were located in neighborhoods with considerably lower levels of minority concentration than were black or Spanish American participants. It is true that Public Housing in both sites and Section 23 and Section 236 in Pittsburgh did place white households in more integrated neighborhoods, on average, than Housing Allowances.[1] These programs also, however, placed minority households in less integrated neighborhoods than Housing Allowances. Furthermore, there is some evidence that white households in these programs were households that had previously lived in unusually integrated neighborhoods. Thus to some extent at least, the greater integration required of white households served to limit participation by whites as much as it promoted integration.

Tables 3-13 and 3-14 present information on the origin neighborhoods of recent enrollees similar to that presented in Table 3-9 for low-income concentration. Among white households (shown in Table 3-13), programs whose white recipients lived in more integrated neighborhoods than those occupied by housing allowance recipients all also came from more integrated neighborhoods originally. Differences between origin and program neighborhoods were correspondingly modest, though there was a significant effect for Public Housing in Pittsburgh.[2]

Table 3-14 shows somewhat similar patterns for black households in Pittsburgh and Spanish American households in Phoenix, though the results are sometimes confused by small samples and a special situation for allowance households in Phoenix. In Pittsburgh, black households in Public Housing and Section 236 were located in areas with significantly higher minority

---

[1]Movement into more integrated neighborhoods for white households refers here to movement into neighborhoods with greater minority concentration (that is, proportionately fewer white households) whereas for minority households, movement into more integrated neighborhoods refers to the opposite situation--movement to areas with lower minority concentration (e.g., proportionately more white households).

[2]There was also a significant, albeit modest effect for Section 236 in Phoenix, primarily because recipients were drawn from somewhat less integrated neighborhoods than housing allowance recipients. It is also worth noting, as Figure 3-5 suggested, that the programs with the highest minority concentrations--Section 23 in Pittsburgh and Public Housing in Phoenix--had relatively few nonminority participants.

Table 3-12

MINORITY CONCENTRATION OF NEIGHBORHOODS BY RACE/ETHNIC GROUP OF PROGRAM PARTICIPANTS

	PUBLIC HOUSING	SECTION 23	SECTION 236	HOUSING ALLOWANCES	CONTROLS
		PITTSBURGH			
WHITE HOUSEHOLDS					
Mean percent minority (black) in Census tract	20%**	[24]%**	12%**	5%	5%
SAMPLE SIZE	(112)	(7)	(122)	(72)	(252)
BLACK HOUSEHOLDS					
Mean percent minority (black) in Census tract	68**	53	64*	47	50
SAMPLE SIZE	(174)	(99)	(208)	(19)	(63)
		PHOENIX			
WHITE HOUSEHOLDS					
Mean percent minority (Spanish American or black) in Census tract	49**	20**	12	13	18
SAMPLE SIZE	(27)[a]	(99)	(79)	(66)	(180)
SPANISH AMERICAN HOUSEHOLDS					
Mean percent minority (Spanish American or black) in Census tract	48**	42**	[31]	26	47
SAMPLE SIZE	(72)[a]	(41)	(9)	(22)	(69)

SOURCE: Mayo et al. (1979), Part 1, Table 5-5.

NOTE: t-tests represent contrast between Comparison Programs and Housing Allowance result with respect to percent minority in tract. Brackets indicate amounts based on ten or fewer observations.

a. Weighted average of sample sizes in the elderly and nonelderly strata in Phoenix Public Housing; see Mayo et al. (1979), Part 1, Appendix II, for a description of the calculation of statistics based on this sample.

† Significant at the 0.10 level.

* Significant at the 0.05 level.

** Significant at the 0.01 level.

Table 3-13

CHANGE IN MINORITY CONCENTRATION FOR WHITE HOUSEHOLDS

	PITTSBURGH				PHOENIX			
	PUBLIC HOUSING	SECTION 236	SECTION 23	MINIMUM STANDARDS	PUBLIC HOUSING	SECTION 236	SECTION 23	MINIMUM STANDARDS
ALL RECIPIENTS								
Minority concentration	20%	12%	24%	5%	49%	12%	20%	13%
Difference from Minimum Standards	+15**	+7**	+19**	-	+36**	-1	+7**	-
SAMPLE SIZE	(112)	(122)	(7)	(72)	(27)	(79)	(99)	(66)
RECENT ENROLLEES								
Minority concentration of origin neighborhoods	12%	10%	-	5%	48%	11%	25%	17%
Difference from Minimum Standards	+7*	+5†	-	-	+31**	-6*	+8*	-
Change in minority concentration (final vs. origin neighborhood)	+7	0	-	-1	+3	+2	-8	-4
Difference from Minimum Standards	+8*	+1	-	-	+7	+6*	-4	-
SAMPLE SIZE	(47)	(74)	(0)	(73)	(8)	(45)	(54)	(66)

SOURCE: Mayo et al. (1979), Part 1, Tables 5-5, 5-6, 5-7.

† Significant at the 0.10 level.

* Significant at the 0.05 level.

** Significant at the 0.01 level.

Table 3-14

CHANGE IN MINORITY CONCENTRATION FOR MINORITY HOUSEHOLDS

	PITTSBURGH (Black Households)				PHOENIX (Spanish American Households)			
	PUBLIC HOUSING	SECTION 236	SECTION 23	MINIMUM STANDARDS	PUBLIC HOUSING	SECTION 236	SECTION 23	MINIMUM STANDARDS
ALL RECIPIENTS								
Minority concentration	68%	64%	53%	47%	48%	31%	42%	26%
Difference from Minimum Standards	+21**	+17*	+6	--	22**	5	16**	--
SAMPLE SIZE	(174)	(208)	(99)	(19)	(72)	(9)	(41)	(22)
RECENT ENROLLEES								
Minority concentration of origin neighborhoods	52%	56%	70%	47%	49%	36%	35%	46%
Difference from Minimum Standards	+5	+9	+23†	--	+3	-10	-11	--
Change in minority concentration (final vs. origin neighborhood)	+17	+11	[-10]	0	-4	-11	+3	-21
Difference from Minimum Standards	+17	+11	[-10]	--	+17*	+10	+18*	--
SAMPLE SIZE	(40)	(77)	(7)	(19)	(28)	(7)	(21)	(22)

SOURCE: Mayo et al. (1979), Part 1, Tables 5-5, 5-6, 5-7.

† Significant at the 0.10 level.

* Significant at the 0.05 level.

** Significant at the 0.01 level.

concentrations than those of black housing allowance recipients. Recent enrollees also came from more segregated neighborhoods, but the differences are not large, and it appears that these programs may indeed have placed black recipients in more segregated neighborhoods than they would otherwise have occupied. Section 23 participants were not in significantly more segregated neighborhoods than black housing allowance recipients. Interestingly, the admittedly few recent enrollees in this program (seven households) came from much more segregated nieghborhoods initially.[1]

The situation in Phoenix is quite different. There were very few Spanish American households in Section 236 in Phoenix. Both Public Housing and Section 23 located Spanish American recipients in more heavily minority neighborhoods. Among recent enrollees in these programs, however, program locations were not very different from their pre-program neighborhoods. The major program difference is the much lower levels of minority concentration among Spanish American housing allowance recipients relative to other programs and to pre-program neighborhoods. This suggests that the allowance program resulted in a substantial deconcentration of Spanish American households in Phoenix. Analysis by Atkinson et al. (1979), however, indicates that all or most of this apparent effect is spurious. It appears that Spanish American households were very unlikely to participate in the allowance program unless they were already living in or prepared to move to neighborhoods with relatively low minority concentrations. The reasons for this are not clear. However, some unpublished work by Budding suggests that relatively few units in very heavily Spanish neighborhoods met the Minimum Standards requirements. Thus, movement out of these neighborhoods may frequently have been a prerequisite for participation.

Satisfaction With Housing

The effect of restrictions on locational and unit choices were also apparent in the level of satisfaction expressed by participants with their dwelling unit and neighborhood, analyzed by David Warner and reported in Mayo et al. (1979, Part 1). Table 3-15 shows the average level of expressed satisfaction

[1] This does not reflect the fact that Section 23 in Pittsburgh was targeted toward large "problem" households in the (mostly black) Pittsburgh Public Housing program. Households that moved to one program from another were not included in the sample of recent enrollees.

Table 3-15

MEAN SATISFACTION WITH DWELLING UNIT AND NEIGHBORHOOD, AND DIFFERENCES FROM CONTROL GROUP AND HOUSING ALLOWANCES, BY PROGRAM TYPE

SATISFACTION AND PROGRAM TYPE	PITTSBURGH			PHOENIX		
	MEAN SATISFACTION LEVEL	DEVIATION FROM HOUSING ALLOWANCE	SAMPLE SIZE	MEAN SATISFACTION LEVEL	DEVIATION FROM HOUSING ALLOWANCES	SAMPLE SIZE
DWELLING UNIT SATISFACTION						
Housing Allowances	3.463	-	(82)	3.373	-	(67)
Control Group	3.083	-0.380**	(312)	3.197	-0.176	(238)
Public Housing	3.098	-0.365**	(215)	3.391	+0.018	(122)[a]
Section 23	2.988	-0.475**	(82)	3 388	-0.015	(129)
Section 236	3.072	-0 391**	(249)	3 494	+0 121	(79)
NEIGHBORHOOD SATISFACTION						
Housing Allowances	3.341	-	(82)	3.478	-	(67)
Control Group	3.343	+0.002	(312)	3.361	-0.117	(238)
Public Housing	2 819	-0 522**	(215)	2.827	-0.651**	(122)[a]
Section 23	2.866	-0.475**	(82)	3.372	-0 106	(129)
Section 236	3.044	-0.297*	(249)	3.152	-0.326*	(79)

SOURCE: Mayo et al. (1979), Part 1, Chapter 6, Table 6-1.

a. Weighted average of sample sizes in the elderly and nonelderly strata in Phoenix Public Housing; see Appendix II for a description of the calculation of statistics based on this sample.

† Significant at the 0.10 level.

* Significant at the 0.05 level.

** Significant at the 0 01 level.

among Minimum Standards allowance recipients, unsubsidized Control households, and participants in each of the three nonallowance programs. In Pittsburgh, participants in all three nonallowance programs show significantly lower levels of expressed satisfaction with both dwelling unit and neighborhood than do allowance recipients. In Phoenix, significantly lower levels are only found for the two construction programs, and only with respect to satisfaction with neighborhood.

Differences in expressed satisfaction could reflect differences in households' underlying propensity to express satisfaction as well as differences in the housing, neighborhoods, and rents afforded by each program. In order to take some account of these factors, Warner regressed expressed satisfaction on the various programs plus a variety of demographic descriptors as well as variables describing housing quality and tenant rents.[1] While descriptors of demographic factors, housing quality and rents were significant in themselves, taking account of these generally had modest effects on estimated differences in participant satisfaction under the various programs. The only exception was Section 23, where it usually resulted in much smaller differences from housing allowances in Pittsburgh and somewhat larger (but still insignificant) differences in Phoenix.

The most important difference in the pattern of recipient satisfaction found by Warner related to elderly households and especially those in elderly projects. Table 3-16 shows the estimated differences in expressed satisfaction for elderly and nonelderly households in (for Public Housing and Section 236) elderly and family projects. These estimates are taken from regressions that take account of a variety of other demographic characteristics as well as measures of unit and neighborhood quality and tenant rent.[2] As shown in Table 3-16, among elderly households, only those in Pittsburgh Public Housing family projects had significantly lower levels of expressed satisfaction with their dwelling unit or neighborhood in comparison to elderly housing allow-

---

[1] The housing quality variables used were the estimated market value of units in terms of unit and neighborhood characteristics. Compliance with Minimum Standards was also used for some regressions, but with no important change in results.

[2] The other demographic descriptors included income, education, household size and the race, sex, age, and occupation (white collar, blue collar) of the head of household.

Table 3-16

COMPARISON OF ADJUSTED SATISFACTION LEVELS BETWEEN
VARIOUS CATEGORIES OF HOUSEHOLDS AND BOTH THE CONTROL GROUP AND HOUSING ALLOWANCES

HOUSEHOLD AND PROGRAM TYPE	COMPARISON WITH CONTROL GROUP				COMPARISON WITH HOUSING ALLOWANCES			
	PITTSBURGH		PHOENIX		PITTSBURGH		PHOENIX	
	DWELLING UNIT SATISFACTION	NEIGHBORHOOD SATISFACTION	DWELLING UNIT SATISFACTION	NEIGHBORHOOD SATISFACTION	DWELLING UNIT SATISFACTION	NEIGHBORHOOD SATISFACTION	DWELLING UNIT SATISFACTION	NEIGHBORHOOD SATISFACTION
ELDERLY HOUSEHOLDS								
Housing Allowances	0.185 (0.223)	0.043 (0.220)	0.068 (0.216)	0.230 (0.218)	--	--	--	--
Section 23	--	--	0.047 (0.166)	0.201 (0.167)	--	--	-0.021 (0.215)	-0.029 (0.216)
Family Projects:								
Public Housing	0.021 (0.164)	-0.446** (0.163)	0.054 (0.197)	-0.149 (0.198)	-0.164 (0.224)	-0.489* (0.222)	-0.014 (0.239)	-0.379 (0.241)
Section 236	0.084 (0.155)	-0.102 (0.154)	0.048 (0.193)	0.006 (0.195)	-0.101 (0.223)	-0.145 (0.221)	-0.020 (0.241)	-0.225 (0.242)
Elderly Projects:								
Public Housing	0.035 (0.156)	-0.103 (0.154)	--	--	-0.150 (0.221)	-0.146 (0.218)	--	--
Section 236	0.098 (0.163)	0.240 (0.162)	--	--	-0.088 (0.231)	0.198 (0.229)	--	--
NONELDERLY HOUSEHOLDS								
Housing Allowances	0.296* (0.137)	-0.094 (0.136)	-0.056 (0.150)	0.117 (0.151)	--	--	--	--
Section 23	0.048 (0.133)	-0.335* (0.132)	-0.227† (0.135)	-0.102 (0.135)	-0.249 (0.167)	-0.241 (0.165)	-0.171 (0.164)	-0.219 (0.165)
Family Projects:								
Public Housing	-0.342** (0.114)	-0.806** (0.113)	-0.019 (0.127)	-0.480** (0.128)	-0.639** (0.147)	-0.712** (0.146)	0.037 (0.155)	-0.597** (0.156)
Section 236	-0.280** (0.103)	-0.463** (0.102)	-0.025 (0.133)	-0.325* (0.134)	-0.576** (0.150)	-0.369* (0.148)	0.031 (0.170)	-0.442** (0.171)

SOURCE: Mayo et al. (1979), Part 1, Chapter 6, Table 6-6.

NOTE: The coefficients are derived from the regression coefficients reported in Mayo et al. (1979), Part 1, Table 6-5. Differences reported here may not equal exactly those implied by the regressions because of rounding. Standard errors are shown in parentheses

† Significant at the 0.10 level

* Significant at the 0.05 level.

** Significant at the 0.01 level.

ance recipients or Control households. Nonelderly households in both Public Housing and Section 236, on the other hand, had significantly lower levels of neighborhood satisfaction than either unsubsidized Control or housing allowance recipients in both sites.

While these lower levels of satisfaction cannot be directly tied to restriction on unit and neighborhood choice, there is some evidence that this is an important factor. Participants in the three nonallowance programs were asked if they would prefer a housing allowance program to their current program. About half said that they would and, of these, the most common reason offered was that they would be able to choose where they wanted to live. This evidence is not conclusive, however. In particular, it applies as much to Section 23 as to Public Housing and Section 236, despite the lack of any significant difference in satisfaction for Section 23 households in Table 3-16.

3.3 PROGRAM COSTS

While the various programs studied in the Demand Experiment provide housing that is in many ways similar from program to program, costs differ dramatically. A major reason for considering housing allowance programs originally was the expectation that they might be much less expensive than new construction programs and somewhat less expensive than programs in which agencies rather than households bore the major responsibility and discretion in finding and acquiring units. Analysis of program costs in Pittsburgh and Phoenix confirm both hypotheses. The estimated costs of providing additional units under new construction programs in 1975 in Pittsburgh and Phoenix were 67 percent higher than the cost of providing comparable units under a Minimum Standards housing allowance program. Evidence on administrative costs under alternative leased housing programs is less clear, but does tend to support the hypothesis that an allowance program could have substantially lower administrative costs than programs such as Section 23, in which agencies bear the major responsibility for obtaining units. Beyond this, there is also evidence that alternative housing allowance programs do encourage more or less careful shopping by households with correspondingly lower or higher costs per unit. These variations are not, however, nearly as important as those found between construction and private market programs.

Program costs under a Minimum Standards housing allowance and nonallowance programs were analyzed by Stephen Mayo and reported in Mayo et al. (1979),

Part 2. The heart of Mayo's analysis is a comparison of annual program costs with the estimated private market rental value of units, which yields the large cost differences indicated above. Equally important is Mayo's investigation of why construction costs are so high. While the reasons cannot be completely established without additional data on private construction, Mayo presents substantial evidence that the bulk of extra costs reflect not technical inefficiencies on the part of agency administrators but rather underlying market conditions that make construction of rental housing, or at least of the sort of rental housing involved in low-income assistance programs, simply unprofitable.

In simplest terms, Mayo suggests the price of moderate-income rental housing has risen much more slowly than construction costs. As a result, it has been increasingly cheaper for the government to lease or buy existing units than to arrange for the construction of additional units. This hypothesis, if correct, means that the higher costs of construction programs will not be wiped out by improved efficiency on the part of agency or program managers and staff. However useful such improvements might be in controlling the costs of existing construction program units, they are unlikely to make a material dent in the excess costs of additional new construction. If Mayo's hypothesis is correct, the higher cost of new construction programs is a fact to be faced, not a call for efforts to correct it. On the other hand, if higher new construction costs largely reflect market conditions that are beyond the reach of government programs to remedy, they may also change as market conditions change. Indeed, Mayo's analysis suggests that the large cost differential between new construction and existing leased housing programs in 1975 was generally much smaller and in some cases possibly even non-existent in the early 1960s. The cost advantages of leased programs are not immutably fixed for all times and all places.

Estimated Costs

It should be noted at the outset that most of Mayo's analysis is framed in terms of annualized costs. This is done partly for convenience and to aid comparison with previous studies and partly to emphasize that most of the available data came in the form of annual cost figures. The relevant comparison, however, is the total costs (and benefits) of projects over their entire lifetime. These can always be expressed in terms of annualized costs, as is

done here. Unfortunately, the correct annualization depends on the pattern of costs and benefits over time and need not equal annual costs in any one year. Mayo explored the implications of a variety of assumptions for lifetime costs. The results, discussed later in this section, strongly suggest that these will mirror the results based on annual costs in 1975.

Mayo's analysis starts with a careful accounting of both direct and indirect program costs. These include all costs incurred by both tenants and government and reflect both budgeted items such as annual operating costs or debt service and unbudgeted costs such as the loss in tax revenues involved in financing public housing through tax-exempt bonds or the special depreciation provisions attached to Section 236. Fortunately, most of the major cost items are budgeted items for which data are directly available on an annual basis. Others must be estimated and where necessary, annualized. Furthermore, while some cost data is available at the unit level, much is only available by project (in the case of Public Housing and Section 236), local agency, or even total program. These costs must be allocated to units within each project, agency, or program to provide estimated per unit costs.

Mayo's results do not, however, appear to be very sensitive to the procedures used to estimate unbudgeted costs. First, most costs are accounted for by items that are reported directly. Second, where costs had to be estimated, Mayo examined alternative procedures and found that these made little difference in overall costs.[1] Finally, allocation of costs to individual units was done in a manner that preserved observed totals for individual projects or housing authorities, so that total program costs are not altered. Indeed, the major limit placed on Mayo's data by estimated costs appears to lie in detailed comparison of various subprograms. In particular, it seems possible that estimated costs overstate differences between Section 236 limited dividend and non-profit sponsors or between turnkey and conventional Public Housing.[2]

For Public Housing, annual costs are directly reported for debt amortization covering both original and modernization capital costs, for annual operating costs and for payments to local governments in lieu of taxes. Additional

---

[1] See Mayo et al. (1979), Part 2, Chapter 2 and Appendices IV-VII.

[2] Ibid., Chapter 2 (Section 2.1) and Chapter 3 (Section 3.3).

costs that had to be estimated consisted of the federal revenue loss associated with tax-exempt financing, foregone local property taxes associated with the difference between the value of municipal services provided to project residents and the payment made in lieu of taxes, and overall HUD administrative costs. These estimated costs accounted for about 21 percent of total costs.[1]

For Section 236, information is again directly reported for debt service, mortgage insurance premiums, operating costs, and property taxes paid to local governments. Estimated costs consist of costs associated with GNMA purchases of Section 236 mortgages at close to par value, expected losses associated with the Section 236 portion of the FHA Special Risk Insurance Fund, federal revenue losses associated with special depreciation allowances for Section 236 projects, the value of property tax abatements granted to Section 236 projects by local governments, and HUD administrative expenses. Estimated items accounted for about 18 percent of total program costs on average.

Annual costs for Section 23 consist primarily of lease payments to private landlords and operating costs, both of which are directly reported. The only estimated costs for this program were HUD administrative expenses and tax losses from depreciation allowances for private housing above true depreciation rates. These accounted on average for only 3 percent of Section 23 costs. The same situation applied to costs of housing allowances, except with respect to operating costs. The Experimental allowance programs in Pittsburgh and Phoenix included a variety of special administrative expenses associated with analytic data collection, verification, and transmission. Unfortunately, these costs were not identified separately, so that operating costs associated with the program per se had to be estimated. This was done based on results from the Administrative Agency Experiment. As a result estimated costs for housing allowances comprised 17 percent of total costs.

Table 3-17 shows the average costs estimated by Mayo for additional two-bedroom units in 1975 under each program. Costs under the two new construc-

---

[1]Allocations between directly reported and estimated costs are based on Mayo et al. (1979), Part 2, Tables 4-4 and 4-5 and refer to two-bedroom units only. They should not, however, be substantially different for all units.

Table 3-17

ESTIMATED ANNUAL COST OF TWO-BEDROOM UNITS IN 1975

	PITTSBURGH	PHOENIX
Public Housing	$4,155	$3,561
Section 236	4,136	3,571
Section 23	2,528	2,083
Minimum Standards Housing Allowance	1,869	2,361

SOURCE: Mayo et al. (1979), Part 2, Figure 3-1.

tion programs are similar in both sites and well above those for the two leased housing programs. The Minimum Standards allowance program has the lowest costs in Pittsburgh while Section 23 had lower costs in Phoenix. Neither had costs nearly as high as those for the construction programs. In each site, the least expensive construction program had costs more than one and a half times those of the most expensive leased housing program.

It should be noted that these are total costs rather than federal costs or budgeted costs. Program costs are borne by tenants, local government, and the federal government. These shares vary considerably from one program to another. Mayo found that federal share was, as expected, highest in Section 236 with Rent Supplements, amounting to 72 percent of total costs, with about 3 percent of costs borne by local government (in the form of reduced property taxes) and 25 percent borne by tenants (through tenant rent payments). The federal share was somewhat lower for Public Housing (roughly 60 percent) due to larger local government and tenant shares (about 10 percent and 30 percent, respectively). It was lowest in Section 236 without rent supplements, where tenants bore 54 percent of total costs, local government about 3 percent, and the federal government about 43 percent.[1] In addition, total federal or local costs are not all reflected in government budgets for the programs. Local costs consist of reduced property taxes, which are not budgeted items, but losses in revenue that must be made up by additional taxes on non-subsidized units (or reduced spending for other purposes). Likewise, federal costs for Public Housing and Section 236 are partly financed through special tax incentives and future, as yet unrealized, insurance losses.

The relevant figure for program comparisons is, however, the total costs. Any program may reduce its federal costs by increasing tenant shares. Likewise, federal costs must be paid eventually, whether or not they are included in program budgets. The limiting factor is not who bears what costs, but the total cost that must be borne.

---

[1]The lower total costs for the existing programs were borne by tenants and federal government with no local government contribution. On average, the tenant share under both Housing Allowances and Section 23 was roughly 36 percent with a federal share of 64 percent. See Mayo et al. (1979), Part 2, Chapter 4, Table 4-2.

Comparisons of Costs to Unit Value

Such cost differences could, of course, reflect differences in the quality of units provided. As discussed earlier, one direct way of accounting for differences in unit quality is to compare program costs with the cost of similar units in the private market. The ratio of program costs to market value directly measures the relative efficiency of the program in providing housing of similar quality.[1] Average private market rents in Pittsburgh and Phoenix for units of various sizes, amenities, and locations were estimated by Merrill (1977) based on the detailed information on unit rents and neighborhood and unit characteristics collected for households enrolled in the Demand Experiment. Since similar information was collected for housing and neighborhoods provided by the nonallowance program, Merrill's estimates can be used to estimate the private market rental value of those units as well.

There are issues in the use of such estimates to establish private market values. Although Merrill's equations include a large number of variables and account for two-thirds to four-fifths of the variation in rents among Demand Experiment enrollees, they clearly do not capture every aspect of every unit. Overall this presents no problem as long as individual errors in estimating unit costs tend to cancel each other. Problems could arise if units in the nonallowance programs tended to include unusual amenities or deficiencies not captured by Merrill's variables. This could arise in three ways. First, it seems possible that low-income construction programs might

---

[1]As discussed earlier, programs also varied in terms of physical standardness, crowding, and rent burdens, as well as locational choice and tenant satisfaction. In many cases, comparisons of costs with those housing measures would only exacerbate the cost differences shown in Table 3-17. More generally, variations in compliance with normative standards appear to reflect variations in specific program rules which are not closely related to unit costs. Thus, for example, the high rent burdens found in Section 236 (without Rent Supplements) could be altered by changing the division of costs between tenants and government without changing total costs (which is exactly what the Rent Supplement program does). Likewise program ratings in terms of physical standards vary depending on the standard used to evaluate units and how closely this standard conformed to the program's housing requirements. Changing housing requirements might well change unit costs, but it appears that the two are not always closely related (as comparisons of standardness and rents under the different allowance programs indicates) and that changing the physical requirements for program housing should not affect the relationship between program costs and unit value.

deliberately restrict the provision of "luxury" features normally found in newly built units of otherwise comparable quality. This would mean that Merrill's estimates would tend to overvalue units in these programs.[1] Second, if public programs provide unusual services to tenants, the value of these services would not be reflected in estimated private market values. The extent of such services is not known, though it should be noted that where they are funded under other programs, their costs are not included either. Finally, to the extent that a program concentrates on "problem tenants," it is possible that program participants would have to pay above average rents in the private market. In this case, Merrill's estimates while accurately estimating private market rents for similar units would underestimate the private market rents for program participants in similar units.[2,3]

Table 3-18 presents Mayo's estimates of the average costs required under each program to obtain an additional unit of housing with an annual rental value of $2,000 in 1975. Public Housing is the most expensive program in each site, followed closely by Section 236. In no case is the estimated cost under a construction program less than 35 percent higher than that estimated for Housing Allowances, and the average cost for the four construction

---

[1] It is also possible that the Demand data did not adequately reflect additional amenities associated with newly built units, so that Merrill's estimates would undervalue newly constructed units. Comparisons by Mayo of the estimated value of new units with actual rents of new units from the 1974 Annual Housing Survey for Pittsburgh and Phoenix suggest that this is not the case.

[2] Evidence of such problems is hard to come by. However, it appears that tenants' own perceptions of Public Housing and Section 236, at least, agree with the estimates provided by Merrill. As part of the Program Comparisons interview tenants were asked to rate how good a deal they enjoyed on a four point scale. If the estimated market value of units in fact mirrors tenant perceptions of value, these ratings would be expected to be a function of the difference between the rent paid by tenants and the estimated market value. Regression of ratings in the rents charged and the estimated market rental value did in fact yield equal coefficients of opposite sign.

[3] It should also be noted that estimated rental values are inflated to 1975. Merrill's estimates were based on rents in 1973. The estimated coefficients of the hedonic regression did not change significantly over the next two years (based on Control households) after allowance was made for a proportional shift in values due to an estimated rental inflation of 13 percent in Pittsburgh and 7 percent in Phoenix. This confirmed the stability of Merrill's estimates and provided the inflation factors used to estimate 1975 rental values.

Table 3-18

ESTIMATED ANNUAL COSTS REQUIRED TO OBTAIN AN ADDITIONAL UNIT WITH AN ANNUAL RENTAL VALUE OF $2,000 IN 1975

	PITTSBURGH	PHOENIX
ANNUAL COSTS		
Public Housing	$4,400	$3,580
Section 236	4,020	2,940
Section 23	2,540	2,220
Minimum Standards housing allowance	2,300	2,180
RATIO TO HOUSING ALLOWANCE COSTS		
Public Housing	1.91	1.64
Section 236	1.75	1.35
Section 23	1.10	1.02

SOURCE: Mayo et al. (1979), Part 2, Table 5-1.

programs in the two sites is 67 percent higher than that for housing allowances. The other leased housing program, Section 23, has costs very similar to housing allowances in Phoenix, but much higher costs in Pittsburgh--though still well below those for the two new construction programs. It appears that housing allowances are, as expected, much less expensive than new construction programs and at least somewhat less expensive than leased housing programs in which agencies rather than households bear the major responsibility for finding and acquiring units.

Lifetime Costs

The ratios of costs to market value presented above are subject to some reservations. The basic problem is that comparisons of construction projects and leased housing cannot be based on a single year. Thus, for example, if there is fairly rapid inflation in rents over a project's lifetime it could be relatively more expensive to construct than to rent in early years and less expensive in later years. Put another way, costs and rental value must be compared over the project's entire lifetime. If this is to be done on the basis of rental value in a single year, costs must be allocated to follow the pattern of rental values. If rents inflate over a project's lifetime, for example, then a larger share of initial capital costs should be allocated to later years when rental dollar values are higher. The problem becomes even more difficult when operating costs and rental values have different patterns over time due to differences in inflation or due to depreciation.

Since operating costs and rental values are essentially only observed for a single year (1975), lifetime patterns cannot be known with certainty. They can, however, be computed under a variety of plausible assumptions. The basic cost comparisons presented above essentially compare current market values with the sum of current operating and other costs and mortgage payments for capital expenditures. This is technically appropriate only if there is no inflation in rents or operating expenses and no depreciation in unit values (until the very end of the project's life). These are obviously implausible assumptions. Indeed, they were used by Mayo only because they lead to a very direct comparison of annual rental value with spending in the same year and because they conform, in general, to the practice of other studies (and hence aid in comparing results). As

it turns out, however, they do not in fact seem to lead to substantially different results from those obtained under more plausible assumptions.

The reasons for this are essentially that when account is taken of both rent inflation and operating cost inflation and unit depreciation, the two tend to offset each other. This is indicated in Table 3-19, which shows different lifetime cost-to-value ratios for Public Housing in 1975 assuming an inflation rate for rental values and operating costs of 5 percent and depreciation rates of 0, 1, and 2 percent per year.[1,2]

As shown in the table, a depreciation rate of 2 percent per year gives roughly the same estimated lifetime cost-to-value ratio as the representative year calculation reported in Table 3-18. Even when projects are assumed to last forever with no diminution in real value, lifetime cost-to-value ratios are still above those found for housing allowances.[3] Thus, it seems unlikely that consideration of lifetime costs and values would remove the finding of substantial excess costs for construction programs.

---

[1] If the inflation rate seems low in the light of recent experience, it is worth noting that the consumer price index for rent actually only increased at the rate of 6.1 percent per year from 1975 to 1979. In addition, the rate of increase for the first five months of 1979 was less than two-thirds the rate of increase estimated for all goods and services (U.S. Department of Commerce, Table 791). Further, the relevant inflation rate is the expected rate over the next 40 yeras (or the project's lifetime). Finally, while projects undertaken today might expect a higher inflation rate, they would also face much higher interest rates.

It does seem more likely that the inflation rate for operating costs would be higher. Higher operating cost inflation rates would increase cost-to-value ratios.

[2] Given operating costs equal to about half the initial rental value, these depreciation rates imply project lifetimes (the period for which rental value exceeds operating costs) of 69 and 35 years, respectively. It should be noted, however, that Mayo's calculations indicate initial operating costs in the order of 85 percent of rental value for recently built Public Housing projects. This is the value used in the example of Table 3-19, and helps to explain why cost-to-value ratios are relatively insensitive to inflation.

[3] For further discussion see Mayo et al. (1979), Part 2, Chapter 3 (Section 3.5), Chapter 5 (Section 5.4) and Appendix III. The numbers reported in Table 3-19 represent appropriate adjustments to the estimates of Table 3-18 and could be faulted on the grounds that the initial estimates overproject 1975 costs. In Appendix III, however, Mayo examines capital costs and values across all programs and finds even larger inefficiencies for 1975 than those reported in Table 3-19. (See Mayo et al., 1979, Part 2, Table III-3.)

Table 3-19

ESTIMATED LIFETIME COST-TO-VALUE RATIOS FOR PUBLIC HOUSING UNDER ALTERNATIVE ASSUMPTIONS

	NO INFLATION NO DEPRECIATION[a]	DEPRECIATION = 0[b]	INFLATION = 5 PERCENT 1%[a]	2%[a]
Pittsburgh	2.20	1.45	1.84	2.10
Phoenix	1.79	1.25	1.56	1.78

a. Calculated for a 40-year life.
b. Calculated for an infinite life.

Indeed, HUD experience provides fairly direct evidence that new construction projects are simply not worth what they cost. Mayo points out that sales of foreclosed Section 236 and Section 221(d)(3) properties have generally yielded amounts far below the outstanding mortgage principle. Thus, FHA Actuarial Division data show that sales price of Section 236 units from 1973 to 1976 averaged from 17 to 37 percent of the outstanding principal. Even if foreclosed properties are regarded as special cases, the losses involved seem large.[1]

Other direct evidence is available from the Fair Market Rent schedules set by HUD for the Section 8 New Construction and Section 8 Existing Housing programs.[2] These schedules set the maximum rent allowed for units obtained under each program. Thus they may not accurately reflect actual costs. Furthermore, actual rents may exceed the Fair Market Rents in special cases. Nor do total program costs consist entirely of unit rents. Both programs incur additional administrative expenses, and the New Construction program involves further costs associated with various other financing and income tax incentives.

In addition, the Fair Market Rent schedules for the two programs are themselves not directly comparable. Whereas the Existing Program has one schedule of rents by unit size for each area, the New Construction program has five, depending on building type. The lowest New Construction Fair Market Rents are usually for walk-ups, with higher rents for multifamily structures with elevators and for detached or semi-detached structures. Thus the differences in costs depend on the type of unit involved. In addition, the Fair Market Rent schedules are projected to different dates. The New Construction schedule reported here, for example, was effective April 1, 1979 and based on projections to April 1, 1981, while the Existing Housing schedule was effective March 29, 1980 and based on projections to October 1, 1980 (six months before the reference date for New Construction).

Given the fact that the two sets of rent schedules are not directly comparable and do not necessarily reflect actual differences in program costs,

---

[1] Mayo et al. (1979), Part 2, Chapter 5 (Section 5.3).

[2] This comparison was suggested to me by James Wallace.

comparisons are at most suggestive. They do, however, indicate that the cost differences found by Mayo are at least to some extent directly recognized in HUD in its regulations for construction and existing housing programs.

Table 3-20 presents two comparisons of the Section 8 Fair Market Rent schedules for Pittsburgh and Phoenix. The first compares the Existing Program Fair Market Rents schedule with the lowest New Construction Fair Market Rents schedule (that for walk-ups). Even in this case, New Construction Fair Market Rents were about 45 percent above the Existing Program's in Pittsburgh and 6 to 13 percent higher in Phoenix. The second comparison presents a weighted average of the New Construction Fair Market Rent schedules, based on the types of units occupied by households enrolled in the Demand Experiment. Unfortunately, the Demand Experiment data do not include information on the number of stories in the building or the presence of elevators. To be conservative, therefore, all multiunit structures are assigned to the walk-up schedule. Detached units are assigned the scheduled rents for detached (or, absent these, for semi-detached structures). On this basis the New Construction schedule is roughly 50 percent higher than the Existing schedule in each site.

These comparisons are admittedly crude and could no doubt be substantially improved by more detailed information on the actual rents under the two Section 8 programs. Nevertheless, they strongly suggest that HUD estimates also find that the rents necessary to support the costs of new construction are often far greater than those paid for existing units in the private market. What may not have been recognized so clearly before is that the market value of the units obtained are so similar. The higher costs associated with new construction do not purchase commensurately better housing.

Sources of Higher Construction Costs

The reasons for these excess costs may not, however, be those that were expected. Mayo points out that the classic reasons advanced for the expected higher costs of new construction programs have to do with direct inefficiencies in the production and maintenance of units. These alleged inefficiencies have variously included high construction costs resulting from Davis-Bacon Act requirements on wages paid to construction workers, locational

Table 3-20

COMPARISON OF FAIR MARKET RENTS FOR
SECTION 8 EXISTING AND NEW CONSTRUCTION PROGRAMS

	NUMBER OF BEDROOMS				
	0	1	2	3	4
EXISTING HOUSING PROGRAMS[a]					
Pittsburgh	$200	$243	$286	$329	$373
Phoenix	222	269	317	366	413
NEW CONSTRUCTION WALK-UPS[b]					
Pittsburgh	289	359	414	469	543
Phoenix	235	284	353	415	460
RATIO OF NEW CONSTRUCTION WALK-UPS TO EXISTING					
Pittsburgh	1.45	1.48	1.45	1.43	1.46
Phoenix	1.06	1.06	1.11	1.13	1.11
NEW CONSTRUCTION AVERAGE[c]					
Pittsburgh	NA	371	422	482	557
Phoenix	NA	406	480	545	615
RATIO OF NEW CONSTRUCTION AVERAGE TO EXISTING					
Pittsburgh	NA	1.53	1.48	1.47	1.49
Phoenix	NA	1.51	1.51	1.49	1.49

a. Fair Market Rents for the Section 8 Existing Housing program are those effective April 26, 1980, projected to October 1, 1980, and are taken from the Federal Register, Vol. 45, #60, March 26, 1980, pp. 19885 and 20003.

b. Fair Market Rents for the Section 8 New Construction program are those effective April 1, 1979, projected to April 1, 1981, and are taken from the Federal Register, Vol. 44, #136, July 13, 1979, pp. 41101 and 41135.

c. The average is calculated as the weighted average of the schedules for detached (or semi-detached) and walk-up structures, with weights given by the overall proportion of Demand Experiment enrollees in each type of structure (0.183 in Pittsburgh and 0.494 in Phoenix).

decisions that placed units in areas with high land costs, excessive architectural and materials standards, and a multiplication of intermediaries, as well as inefficient management and administrative procedures. Mayo does not deny these factors, though he does present some evidence that operating costs are not unreasonable compared to those found in the private market. What Mayo suggests is that much of the excess cost of new construction programs may arise not because the government is less efficient than the private market in building housing but because the private market would not have built the units at all.

Mayo in effect proposes three sorts of candidate inefficiencies to explain the higher costs of construction programs--operating inefficiencies, construction inefficiencies, and market inefficiencies. Operating and construction inefficiencies involve the standard reasons for higher costs described above. For one reason or another, the government is simply not functioning as efficiently as private suppliers. Market inefficiencies are quite different. These arise in cases where the government functions just as efficiently as a private supplier in terms of the costs of projects that it undertakes, but undertakes projects that private suppliers would not undertake (at least without loss). If, for example, a local building boom has temporarily depressed real estate prices, the government might find that it was much cheaper to buy or lease an existing office building than to build a new one--even if it could build new buildings at the same cost as private developers. Alternatively, in a very tight market, the cost of buying existing units could well be greater than the cost of building new ones, so that it might be cheaper for the government to build new offices, even if its costs were greater than those of private developers.

Sorting out operating and construction inefficiencies from market inefficiencies requires comparison of public and private costs. Unfortunately, the Demand Experiment did not collect information on private real estate and development costs. Available evidence at least suggests, however, that market inefficiencies are a major source of the large excess costs found for new construction.

Some information on private operating expenses in Pittsburgh and Phoenix is available from the Apartment Building Income/Expense Analysis compiled by the Institute of Real Estate Management (1972-1978). While the samples

involved are small and the definitions not strictly comparable to Mayo's, these data can still be used to obtain at least a rough estimate of the relationship between operating costs and market value in the private market. Mayo used this ratio to estimate the operating costs that might be expected for private units with the same market values as those found in recently built Public Housing and Section 236 projects. He then compared these estimates with the actual operating costs for these units, as shown in Table 3-21. Except for Section 236 in Phoenix, actual operating costs are higher than estimated private costs. However, this difference may in part be explained by necessary costs associated with running a program (including eligibility determination and payment calculations), and in any case accounts for less than a third of the excess of program costs over estimated market value. Most of the excess costs involved in construction programs appear to have arisen at construction.

Mayo's disaggregation of excess construction costs into construction inefficiencies and market inefficiencies is even more tenuous than his assessment of operating inefficiencies, but nevertheless persuasive. First, he presents evidence that the estimated inefficiency of new construction units has apparently increased over time. Projects built in the 1950s and early 1960s appear to be more efficient than later projects. Furthermore, this relation holds regardless of whether costs are allocated in terms of current goals or lifetime costs. Indeed, under some estimates it appears that Public Housing projects in the 1950s and 1960s may have had construction costs that were no greater than market value.

Mayo then shows that the apparent increase in construction program inefficiency over time is coincident with general market trends that should have made new construction increasingly less desirable. In particular, from 1950 to 1975, construction costs rose by 186 percent, interest rates by 121 percent, and rents by only 86 percent. The disparity between cost and rent inflation was especially acute after 1965. From 1950 to 1965, the cost of financing a new unit rose by 87 percent, or at an annual rate of 4.3 percent, reflecting the combined effect of increased construction costs and higher interest rates. Rental values increased less than half as fast (31 percent or 1.8 percent per year). From 1965 to 1975, the cost of financing a new unit rose by 216 percent (an annual rate of 12.2 percent) while rental values

Table 3-21

OPERATING COSTS FOR RECENTLY BUILT PUBLIC HOUSING AND SECTION 236 UNITS RELATIVE TO EXPECTED OPERATING COSTS FOR PRIVATE UNITS OF COMPARABLE VALUE[a]
(Dollars Per Year)

PROGRAM	(1) TOTAL COST	(2) ESTIMATED MARKET RENTAL VALUE	(3) COST-MARKET VALUE	(4) OPERATING COST Actual[b]	(5) OPERATING COST Expected[c]	(6) ACTUAL MINUS EXPECTED OPERATING COSTS	OPERATING INEFFICIENCY ÷ TOTAL INEFFICIENCY (6) ÷ (3)
			PITTSBURGH				
Public Housing	$3,195	$1,752	$1,443	$1,300	$1,011	$289	0.20
Section 236	3,580	1,895	1,685	1,331	1,082	249	0.15
			PHOENIX				
Public Housing	3,073	2,071	1,002	1,409	1,137	272	0.27
Section 236	3,135	2,344	789	1,252	1,287	-35	-0.04

SOURCE: Mayo et al. (1979), Part 2, Table 5-5.

a. The sample for Public Housing is all units built between 1970 and 1974; the sample for Section 236 is all units.

b. Actual operating costs are equal to the sum of all maintenance, utilities, operating, and administration costs, "full" property taxes (including foregone property taxes) and tenant administration costs for utilities.

c. Expected operating costs are obtained by multiplying estimated market rental values by the adjusted operating cost ratio for private apartment buildings (described in the text).

increased less than a third as fast (42 percent or 3.6 percent per year).[1]

It is important to understand what these numbers do and do not say. They do not say that operating and construction inefficiencies are unimportant. The operating inefficiencies estimated by Mayo, while relatively small in relation to the total inefficiency, would still involve considerable amounts of money. Applied to all Public Housing units in Pittsburgh, for example, the $289 operating inefficiency found in Table 3-21 represents an annual cost of almost 4.3 million dollars or over 2,800 additional two-bedroom units.[2] Likewise, even if Mayo's admittedly speculative finding that Public Housing construction costs in Phoenix may have been at or below the rental value of newly constructed units prior to 1967 is accepted at face value, it does not mean that public construction was as efficient as private suppliers. This could only be established if it were shown that private developers in Phoenix were operating at break-even at that time. There may well be considerable room for improved operating and construction efficiency in new construction programs.

What Mayo's analysis does suggest is that, whatever the level of operating and construction inefficiencies, market forces played a major role in making new construction increasingly less efficient from 1950 to 1975. This hypothesis, if true, has three major implications. First, short of truly remarkable accomplishments which would make public programs far more efficient than private suppliers, no improvements in efficiency are likely to make construction programs as cost-effective as existing housing programs. Existing housing need not mean leased housing, however. The second implication of Mayo's hypothesis is that the government could have bought as well as rented existing buildings for far less than it paid to construct new ones. Indeed, if this were not the case, Mayo's analysis would have to be incorrect. Finally, as Mayo points out, the market conditions that mitigate against construction programs could change over time and need not apply to all areas. If rents are high enough, the cost of renting or buying existing units may be greater than the cost of construction. Given a period in which rents

---

[1] For details, see Mayo et al. (1979), Part 2, Chapter 3 (Section 3.5).

[2] This is based on a tenant share of 32 percent of costs and estimated 1975 costs for a two-bedroom unit of $2,474 minus the $289 operating inefficiency (Mayo et al., 1979, Part 2).

inflate more rapidly than construction and operating costs and interest rates are relatively low, new construction could become cost-effective as a means of providing low-income housing.

While the two leased housing programs were always more cost-efficient than the new construction programs, they also displayed considerable variation among themselves. Cost-to-value ratios for Section 23 were almost the same as those for Minimum Standards allowances in Phoenix, but much higher in Pittsburgh. More detailed examination of the reasons for these variations tends to support the hypothesis that an allowance program, by transferring responsibility and discretion in finding and acquiring units from agencies to households, will reduce administrative costs.

Almost all of the excess of unit costs over estimated market value for the Minimum Standards allowance program reflects administrative costs associated with enrollment, certification, counseling, payments, and housing inspection. These were set at $274 per household based on the experience of the Administrative Agency Experiment. Comparison with Section 23 suggests that these estimated administrative costs are, if anything, too high. Administrative costs under the original Section 23 program in Phoenix were $211 per household--lower than the figure used for housing allowances. Phoenix also had one revised Section 23 program, however. The revised Section 23 program, which like a housing allowance, placed more responsibility for obtaining units on households, reported administrative costs of only $76 per household. This suggests that in Phoenix, at least, the administrative costs required for an allowance program may be considerably overstated by the Administrative Agency Experiment figure of $274. Administrative costs in Pittsburgh were somewhat higher than those used for housing allowances--$352 per household as opposed to $274. Given the difference between administrative costs under the original and revised programs in Phoenix, however, the lower housing allowance figure seems quite reasonable (there was no revised Section 23 program in Pittsburgh).[1]

Apart from administrative expenses, housing allowances in both sites and both Section 23 programs in Phoenix generally had unit costs close to market

---

[1]It should also be noted that a substantial portion of the costs estimated from the Administrative Agency Experiment were for counseling and supportive services costs.

value. This was not the case in Pittsburgh. Lease amounts in Pittsburgh Section 23 are quite reasonable. In addition, however, the agency made payments for maintenance and utilities that, for two-bedroom units, for example, amount to about two-thirds of the lease amount. This inflated costs per unit considerably and accounts for much of the excess costs for this program.[1]

It is clear that allowance recipients were able to shop effectively for housing in both sites. The differences in Section 23 results, however, are not so conclusive. Mayo points out that most units leased under the revised Section 23 program in Phoenix were acquired at a time when vacancy rates were quite high, so that landlords may have been quite willing to offer bargain rents in return for guaranteed three- to five-year leases. Conversely, the Pittsburgh Section 23 program's extreme inefficiency may be an anomaly. A comparison of total costs to estimated rental value for Section 23 in eight sites by Morrall and Olsen (1979) found Pittsburgh to be usually inefficient, even taking account of tenant characteristics and special administrative conditions.

Housing allowances do not always produce efficient results, however. Rent-conditioned payments that reduce a household's incentive to shop carefully do lead households to pay more on average than they normally would. This topic is discussed extensively in Chapter 4. The basic results are illustrated by Table 3-22, which shows the ratio of program costs (including operating expenses) to unit values for each of the major housing allowance programs. Estimated operating costs are the same for all programs so that differences in cost to value ratios simply reflect differences in rent paid.[2]

Both Minimum Rent programs exclude low rent units from the program. While many of these will be low quality units, some are also simply good deals. As a result, participants under these programs would be expected to pay more than average, and they do indeed have significantly higher per unit costs. Similarly, the Percent of Rent offers also reduce household incentives to shop for better deals. Under a 50 percent rebate, for example, the allow-

---

[1] See Mayo et al. (1979), Part 2, Tables 3-6, 3-7, and Figure 5-1.

[2] This, of course, fails to take account of the lower operating costs presumably associated with the absence of housing inspection under the Minimum Rent, Percent of Rent, and Unconstrained programs.

Table 3-22

AVERAGE COST-TO-VALUE RATIOS UNDER ALTERNATIVE ALLOWANCE PROGRAMS

	MINIMUM STANDARDS	MINIMUM RENT LOW	MINIMUM RENT HIGH	PERCENT OF RENT	UNCONSTRAINED
		PITTSBURGH			
Average Cost to Value Ratio	1.178	1.272	1.330	1.247	1.218
Difference from Minimum Standards	-	+0.094	+0.152	+0.069	+0.040
(t-statistic)[a]		3.60**	5.15**	3.37**	1.36
SAMPLE SIZE	(83)	(81)	(52)	(338)	(53)
		PHOENIX			
Average Cost to Value Ratio	1.066	1.137	1.174	1.175	1.096
Difference from Minimum Standards		+0.071	+0.108	+0.109	+0.030
(t-statistic)[a]		2.22*	3.21**	4.55**	0.83
SAMPLE SIZE	(68)	(52)	(44)	(235)	(35)

a. t-statistics are based on the variance for Minimum Standards households.
† Significant at the 0.10 level.
* Significant at the 0.05 level.
** Significant at the 0.01 level.

ance program absorbs half the cost of any bad deal and takes half of the benefit of any good deal. The returns to households associated with careful shopping are reduced accordingly. As expected, Percent of Rent recipients also had significantly higher unit costs than Minimum Standards recipients. Payments under the Unconstrained program are not tied to rent and thus should have no effect on shopping behavior. In fact, Unconstrained recipients do not have significantly higher per unit costs.

The cost differences noted in Table 3-22 are small in comparison to the differences between new construction and existing housing programs. Furthermore, they may overstate the effect of the allowance offer per se. Analysis of the Minimum Rent plans by Friedman and Weinberg (1979) suggests that much of the overpayment found among these households comes from the fact that households with high rents are more likely to participate rather than that other households are led to shop less carefully. In addition, as discussed in Chapter 4, there are technical problems in the comparison of actual and estimated rental values, which may tend to misstate the change in overpayment associated with the different programs; it is possible that changes in housing not reflected in the estimating equations may produce over- or under-estimates of rental value. Nevertheless, there is clear evidence that shopping incentives do matter. Analysis of the shopping behavior of Percent of Rent households by Kenendy and Merrill (1979) found that, even after correcting for the effect of changes in omitted items, a 50 percent Percent of Rent rebate led to a median overpayment of about 11 percent.

3.4 CONCLUSIONS

All of the programs described in this chapter offered participants similar overall levels of housing. The average estimated market value of units under the different programs ranged from 10 to 20 percent above the average found for unsubsidized households and were within 10 percent of the average for Minimum Standards allowance households. Programs did differ substantially in terms of compliance with normative standards. This appears to reflect quite directly the housing requirements imposed by the programs themselves. Programs with no housing requirements and programs with general rent requirements do not usually guarantee that most participants will live in standard housing. Programs with explicit physical and occupancy requirements, on the other hand, can all achieve high levels of compliance with the standards

included in their requirements, regardless of whether they rely on individual or agency initiative or on the existing stock of private housing or new construction.

This is quite reasonable on the face of it. Put most directly, it simply says that within the income and rent levels supported by these programs, substantial compliance with normative standards will usually require explicit imposition of the standards. Left to their own devices, participants will often select substandard housing. On the other hand, if standards are enforced, it makes little difference whether the housing is acquired by agencies or households or by rental in the private market or through new construction. The only area where some differences arose was in the relative rigidity of choice and particularly locational choice afforded by construction programs.

The major differences found relate to program costs. There is strong evidence that in the Demand Experiment sites at least, new construction programs were far more expensive than programs that relied on the existing stock of rental housing. Furthermore, there is some evidence that placing the initiative and responsibility for finding and acquiring units with households instead of local agencies can reduce administrative costs. Finally, it appears that, when initiative is placed with households, shopping incentives do make some difference.

Furthermore, there is little reason to believe that these findings would not apply to the two Section 8 housing programs developed since the data for these analyses were collected. The Section 8 New Construction program differs from Section 236 primarily by replacing a relatively shallow interest subsidy with a deeper subsidization of tenant rents. The fact that the government bears a greater share of total costs would not in itself be expected to reduce the total. Indeed, even the government share may not be larger in contrast to Section 236 with Rent Supplements. It is true that, in theory, the interest subsidies in Section 236 could have promoted inefficient over capitalization (since the subsidy was attached to construction costs). However, Mayo's analysis strongly suggests that this sort of construction inefficiency could not begin to account for the higher costs found for construction programs. It seems likely that the Section 8 New Construction program is likely to be just as expensive as its predecessors,

a finding that is supported by the Fair Market Rent schedules for this program.

The Section 8 Existing Housing program is in many ways similar to housing allowances. The major differences are the direct involvement of landlords and the shopping incentives provided by the Section 8 payment formula. Since no allowance program required landlord participation, the effect of this provision cannot be inferred from the Demand Experiment. There is evidence that the shopping incentives under the Section 8 Existing Housing program are likely to result in higher than necessary rents for program recipients. This topic is discussed further in the next chapter. In the meantime, there seems to be little reason to expect that the Section 8 New Construction program offers housing that would justify the large cost differentials indicated by Mayo or even the higher Fair Market Rent schedules established by HUD.

REFERENCES

Atkinson, Reilly, William L. Hamilton and Dowell Myers, Economic and Racial/Ethnic Concentration in the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., January 1979 (revised June 1980).

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

Bakeman, Helen E., Carol Ann Dalto and Charles S. White, Jr., Minimum Standards Requirements in the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., February 1979 (revised June 1980).

Budding, David W., Housing Deprivation Among Enrollees in the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., November 1978 (revised June 1980).

Friedman, Joseph and Daniel H. Weinberg, The Demand for Rental Housing: Evidence From a Percent of Rent Housing Allowance, Cambridge, Mass., Abt Associates Inc., September 1978 (revised June 1980).

_____, Housing Consumption Under a Constrained Income Transfer: Evidence From a Housing Gap Housing Allowance, Cambridge, Mass., Abt Associates Inc., April 1979 (revised June 1980).

Institute of Real Estate Management, Apartment Building Income/Expense Analysis, Chicago, Ill., Institute for Real Estate Management, 1972 through 1978 editions.

Kennedy, Stephen D. and Sally R. Merrill, "The Use of Hedonic Indices to Distinguish Changes in Housing and Housing Expenditures: Evidence From the Housing Allowance Demand Experiment," paper presented at the Research Conference on the Housing Choices of Low-Income Families, Washington, D.C., March 1979.

Mayo, Stephen K., Shirley Mansfield, David Warner and Richard Zwetchkenbaum, Housing Allowances and Other Rental Housing Assistance Programs--A Comparison Based on the Housing Allowance Demand Experiment, Part 1: Participation, Housing Consumption, Location and Satisfaction; and, Part 2: Costs and Efficiency, Cambridge, Mass., Abt Associates Inc., November and August 1979 (revised June 1980).

Merrill, Sally R., Hedonic Indices as a Measure of Housing Quality, Cambridge, Mass., Abt Associates Inc., December 1977 (revised June 1980).

Morrall, John F. and Edgar O. Olsen, "A Cost-Effectiveness Study of Leased Public Housing," mimeo, 1979 (to appear in Policy Analysis).

U.S. Department of Commerce, Bureau of the Census, Statistical Abstract of the United States, 100th Edition, Washington, D.C., U.S. Government Printing Office, 1979.

Vidal, Avis, The Search Behavior of Black Households in Pittsburgh in the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., July 1978 (revised June 1980).

CHAPTER 4

PROGRAM IMPACT

The results of the previous chapter are apparently quite favorable to a Minimum Standards housing allowance. Housing programs that place less reliance on the private market or on the individual initiative of recipients provide comparable housing at far higher cost. Expanded welfare payments or allowance programs without explicit physical and occupancy standards, on the other hand, end up subsidizing a large number of households in substandard units with relatively small savings in program costs per recipient. It appears, then, that a Minimum Standards allowance offers an efficient and effective vehicle for improving the housing quality of low-income households in comparison either to nonallowance housing programs, which are far more expensive, or to a program of expanded welfare payments, which leaves most of its recipients in substandard housing.

The direct analysis of program impacts permitted by the Demand Experiment substantially modifies this picture. There is no question that housing requirements exclude substandard units from direct or indirect government support. They also, however, limit a program's ability to reach eligible households in a way that sharply reduces program impact on the housing of low-income households. Furthermore, the additional changes in housing that are obtained through housing requirements tend to be focused on the specific details of the requirements imposed by the program. Under more general measures of housing quality a Percent of Rent program may offer an effective alternative to a Housing Gap approach. The specificity of response to housing requirements also suggests that even a large-scale Housing Gap Minimum Standards allowance would have only limited impacts on housing prices or housing supply. Finally, there is evidence that some allowance programs do induce households to shop less carefully. As a result, recipients under these programs tend to pay higher than average prices for their units, which further reduces program effects on recipient housing.

The same results may apply to other housing programs, so that the relative advantages of a housing allowance over alternative housing programs are not directly challenged by these findings. The same pattern of limited housing change would be expected to apply to similar programs like the current Sec-

tion 8 Existing Leased Housing program, though with one important exception. It appears that Section 8 recipients might have substantially smaller incentives to shop carefully for their housing than Housing Gap Minimum Standards recipients. They may also, however, apply to very different housing programs, like the Public Housing or Section 8 New Construction programs. It is quite possible that these programs have the same limited impacts on recipient housing as allowances. This would also suggest that they have correspondingly little impact on the eventual supply of housing as well.

There are, however, important questions still unanswered. First, direct information on the impacts of nonallowance programs comparable to that provided by the Demand Experiment for allowance programs is simply not available. Analysis to date does not suggest that these impacts would be very different from those of housing allowances, but this is not known. Second, it may be possible to use allowances to target housing assistance more effectively than general welfare programs would. This, however, cannot be known without more detailed understanding of the participation process. Finally, it appears that allowances may have been more effective in Phoenix than in Pittsburgh. The reasons for this are not known, however, so that the implications for allowance program results are not clear.

The following two sections present detailed discussions of participation and housing impact. The last section briefly summarizes the findings of the report, discusses their implications for both allowance and nonallowance programs, and indicates areas for further research.

4.1 PROGRAM PARTICIPATION[1]

The central finding of the analysis of participation is that the imposition of housing requirements sharply reduces participation among households that would not normally live in required housing in the absence of the allowance program. This has important implications for the potential size of an allowance program, the demographic composition of program recipients, and the nature of program impacts. This section discusses these implications and

[1] The material in this section is based almost entirely on analysis by Stephen D. Kennedy, T. Krishna Kumar, Jean MacMillan, Steven Sicklick, Michael Murray, and Glen Weisbrod, reported in Kennedy et al. (1977) and Kennedy and MacMillan (1979).

the extent to which participation may be altered by changes in program payments or housing requirements.

The section starts with a description of the participation process in the Demand Experiment and the way in which it relates to participation in non-Experimental programs. This is followed by presentation of the overall participation rates under the different programs. These rates are then analyzed in terms of two stages--the acceptance of the enrollment offer and the subsequent participation of enrolled households once enrolled. Acceptance largely isolates factors common to all programs, including Unconstrained welfare programs. Subsequent participation identifies the special effects of housing requirements. The implications of these findings for program impact and coverage are then briefly discussed, followed by a description of the effects of changes in program requirements or payment schedules. The final subsection summarizes the findings in terms of the evaluation of program alternatives and indicates several areas for further research.

The Participation Process in the Demand Experiment

The actual process by which households became participants in the various programs tested in the Demand Experiment involved a number of steps, only some of which relate to households' decisions about participation in the program. These steps are different from those in an operating program and, in general, it appears that participation rates in the Demand Experiment should be regarded as upper bounds on the participation rate that would be observed in a similar operating program.

In a typical housing assistance program, eligible households may learn about the program from a variety of sources. They may see or hear public service announcements or advertisements sponsored by the housing agency; they may learn about the program from friends or relatives; or they may be referred to the program from another social service agency.[1] A number of eligible households may never hear about the program, and still others may hear about it but decide not to apply. Households that apply to the pro-

[1] These were in fact the three major sources from which households learned about the housing allowance program in the Administrative Agency Experiment. Friends and relatives were the most important source, with referrals second and media announcements third. See MacMillan and Hamilton (1977).

gram may or may not be selected to be enrolled and, once enrolled, may have to locate a unit which meets certain requirements before they can begin to receive benefits. Several participation rates are of interest in such a program--the proportion of households in the eligible population that hear about the program, the proportion of these households that then apply for the program, the proportion of applicants that are enrolled, and the proportion of enrolled households that become payment recipients.

In the Housing Allowance Demand Experiment, application and enrollment were handled differently from the typical program procedures described above. The outreach process used in the Experiment was structured to provide equal access to a sample of potentially eligible households within certain geographic areas. First, a sample of dwelling units was drawn at each site.[1] Households in these units were briefly interviewed in a Screening Interview to determine whether they were likely to be eligible for the Experimental program. Households that were apparently eligible were then re-interviewed (the Baseline Interview) to obtain information on their pre-Experimental situation. At no time during either the Screening or Baseline Interviews were households told about the Experiment or offered enrollment. Thus, households that did not complete these interviews represent a pure interviewing loss.[2]

Households that completed both the Screening and Baseline Interviews were randomly assigned to the various Experimental housing allowance plans and offered enrollment. This was the first time that households were told about the Experimental Housing Allowance Program. Households that accepted the offer completed a detailed report on their income, assets, rent, and

---

[1]The sample was drawn from lists of all units within Allegheny and Maricopa counties excepting those in Census tracts with median (1970) incomes of over $12,000, blocks with fewer than 10 percent rental units or fewer than five rental units in number, blocks with Public Housing or Section 23 units, and blocks scheduled for demolition.

[2]Completion rates for the two interviews were as follows:

	Pittsburgh	Phoenix
Screening Interview	83.4%	82.3%
Baseline Interview	84.1	83.0

In addition, some apparently ineligible households were eliminated as a result of each interview.

household size. This information was reviewed and the reported income verified to determine actual household eligibility. Eligible households were then enrolled in the Experiment.

Not all of the households that enrolled in the Experiment became allowance recipients. In a number of the allowance plans, households were required to live in units that met certain requirements before they could receive an allowance payment. Enrolled households that already met these requirements or that were assigned to allowance plans that did not have housing requirements began to receive payments immediately after enrollment. Other households had to move to new units or upgrade their current units in order to meet the housing requirements and become program participants.

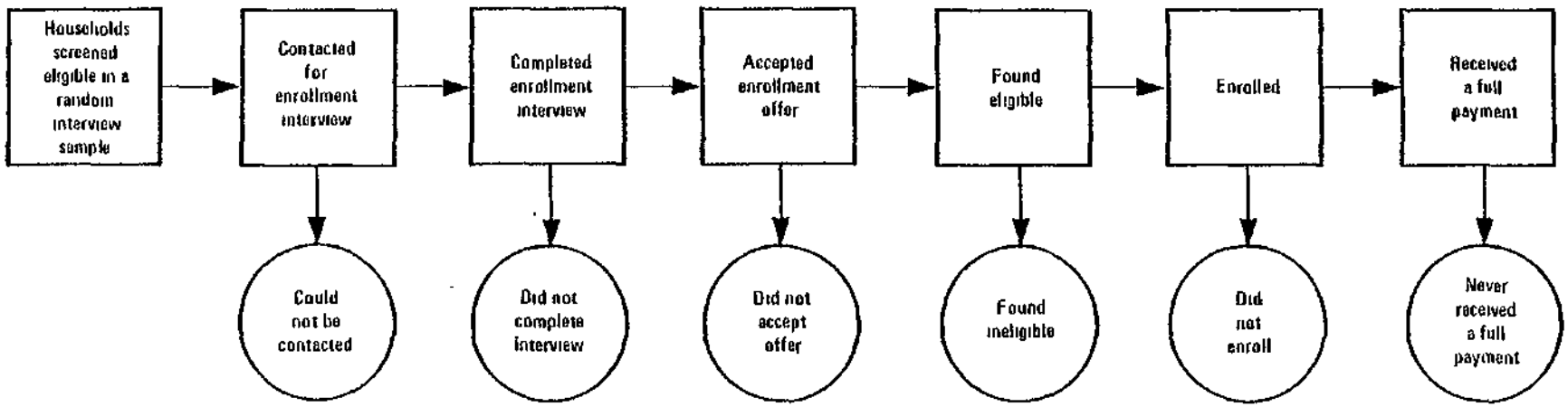
Participation in the Demand Experiment thus involved a number of stages as shown in Figure 4-1--being selected for the enrollment sample, being contacted for enrollment, completing the enrollment interview, deciding to accept the enrollment offer, being determined eligible, enrolling, and becoming a recipient. For the analysis of program participation, these stages can be combined into two major participation decisions--first, accepting the enrollment offer and enrolling in the Experiment and second, once enrolled, actually participating in the program and receiving an allowance payment. The analysis of acceptance is based on households that got far enough in the enrollment process to receive a complete description of the program offer. The analysis of subsequent participation is based on enrolled households. Participants are defined as all enrolled households that ever received an allowance payment over the two years of the Experiment. Overall participation rates are the product of the acceptance rate and the subsequent participation rate.[1]

These two stages do not correspond exactly to the stages of participation observed in a typical housing program. Participation rates in the Experiment can yield information that is relevant to other programs, however. Most obviously, the Experiment provides information on the relative partic-

---

[1]The step between acceptance and enrollment indicated in Figure 4-1 can be ignored for analysis, since it was almost entirely a matter of eligibility review. Among accepting households that were determined to be eligible, 99 percent in Pittsburgh and 98 percent in Phoenix actually enrolled in the Experiment.

Figure 4-1
THE PARTICIPATION PROCESS IN THE DEMAND EXPERIMENT



SOURCE Kennedy and MacMillan (1979), Chapter 2, Figure 2-1.

ipation of various groups in a stiuation in which an important initial variable--hearing about the program--is held constant. Furthermore, since the probability of hearing about a program is likely to vary by demographic group,[1] using a sample of households contacted in their homes allows the analysis to concentrate on households' reactions to the offer, rather than on their probability of hearing about the program. Likewise, differences in participation rates associated with different payment levels or housing requirements indicate relative participation under different types of housing allowance programs.

At the same time, absolute participation rates are also of interest. As indicated above, the participation rates presented here are based on households that got far enough in the enrollment interview to receive a complete description of the program offer, adjusting for households that were found to be ineligible for the program (and hence could not participate). The implications of this definition will be discussed seriatim. In general, however, it appears that the absolute participation rates estimated in the Demand Experiment should overestimate participation in a similar operating program, though the differences in rates may not be large.

Overall Participation Rates

Table 4-1 shows the overall participation rates for each of the three major allowance program types and for Control households in each site, as well as further breakdowns by the Housing Gap subprograms defined by the different housing requirements. As can be seen from the table, participation rates were generally somewhat higher in Phoenix than in Pittsburgh. Within each site, they are very similar and reasonably high (about 84 percent) for Percent of Rent and Unconstrained households, the two program types that did not impose housing requirements. They are much lower for the Housing Gap plans--45 percent or roughly half as large as for the programs without any housing requirements. Furthermore, there is considerable variation in participation rates among different housing requirements used in the Housing Gap plans. The Minimum Rent Low plans have rates about half again as large as the rates for Minimum Standards and Minimum Rent High.

---

[1] See MacMillan and Hamilton (1977).

Table 4-1

OVERALL PARTICIPATION RATES BY TYPE OF HOUSING ALLOWANCE PROGRAM

ALLOWANCE PLAN	COMBINED SITES		PITTSBURGH		PHOENIX	
	NUMBER IN GROUP	OVERALL PARTICIPATION RATE	NUMBER IN GROUP	OVERALL PARTICIPATION RATE	NUMBER IN GROUP	OVERALL PARTICIPATION RATE
TYPE OF HOUSING ALLOWANCE PROGRAM						
Housing Gap households	2,093; 1,254[a]	45%	1,086; 592[a]	41%	1,007; 662[a]	49%
Percent of Rent households	1,499	84	821	82	678	87
Unconstrained households	209	83	120	78	89	90
Control households	1,613	69	863	61	750	78
TYPE OF REQUIREMENT FOR HOUSING GAP HOUSEHOLDS						
Minimum Standards requirement	959; 575[a]	38	489; 268[a]	30	470; 307[a]	45
Minimum Rent Low requirement	545; 323[a]	60	287; 156[a]	60	258; 167[a]	61
Minimum Rent High requirement	589; 356[a]	43	310; 168[a]	42	279; 188[a]	44

SOURCE: Kennedy and MacMillan (1979), Table 2-1.

a. For Housing Gap households, participation rates are calculated as the product of the acceptance rate and the subsequent participation rate for enrolled households. The sample sizes for Housing Gap participation rates show the samples for each of these two rates.

Most of the differences in overall participation arise from differences in subsequent participation after enrollment rather than differences in acceptance of the enrollment offer. Conceptually, these two stages both relate to the same decision, whether or not to participate. In fact, they effectively isolate general factors common to all the programs and the special effects of the housing requirements imposed by the Housing Gap plans.

All households had to decide whether or not to accept the enrollment offer. Once enrolled, eligible Percent of Rent and Unconstrained households began to receive payments immediately. Housing Gap households, on the other hand, had to meet the housing requirements of the program. Thus, the second stage in the participation process is a direct result of the imposition of housing requirements. In theory, households could, of course, anticipate the effect of housing requirements and change their acceptance behavior in response to the housing requirements. In fact, the effect of housing requirements was largely confined to the second stage.

Acceptance of the Enrollment Offer

The first half of Table 4-2 shows the overall participation rate, acceptance rate, and subsequent participation rate for each of the three program types--Housing Gap, Percent of Rent, and Unconstrained--and for Control households. Acceptance rates did differ among the three programs. The differences are, however, relatively minor compared to the difference in overall participation. In particular, while Housing Gap acceptance rates were lower than those for Percent of Rent and Unconstrained in both sites, the difference is swamped by the effects of housing requirements on subsequent participation. Even if Housing Gap households had had the same acceptance rate as Percent of Rent households, their overall participation rates in the two sites would still have been 46 percent in Pittsburgh and 51 percent in Phoenix, only marginally different from the actual rates of 41 and 49 percent, respectively. The same pattern is apparent among the three Housing Gap subprograms, as shown in the second half of Table 4-2. Acceptance rates for Housing Gap households are essentially the same within each site, regardless of the specific housing requirement used. Overall participation rates, however, vary considerably. This suggests that analysis of acceptance will mostly identify factors common to all programs, while analysis of subsequent participation will capture most of the effects of housing requirements.

Table 4-2

STAGES IN PARTICIPATION

	COMBINED SITES			PITTSBURGH			PHOENIX		
	OVERALL PARTIC-IPATION RATE	ACCEPT-ANCE RATE (N)	SUBSE-QUENT PARTIC-IPATION RATE (N)	OVERALL PARTIC-IPATION RATE	ACCEPT-ANCE RATE (N)	SUBSE-QUENT PARTIC-IPATION RATE (N)	OVERALL PARTIC-IPATION RATE	ACCEPT-ANCE RATE (N)	SUBSE-QUENT PARTIC-IPATION RATE (N)
Housing Gap households	45%	78% (2,093)	58% (1,254)	41%	74% (1,086)	56% (592)	49%	83% (1,007)	59% (662)
Percent of Rent households	84	84 (1,499)	100 (960)	82	82 (821)	100 (484)	87	87 (678)	100 (476)
Unconstrained households	83	83 (209)	100 (143)	78	78 (120)	100 (73)	90	90 (89)	100 (70)
Control households	69	69 (1,613)	100 (952)	61	61 (863)	100 (431)	78	78 (750)	100 (521)
Minimum Standards requirement	38	79 (959)	47 (575)	30	75 (489)	40 (268)	45	84 (470)	54 (307)
Minimum Rent Low requirement	60	78 (545)	77 (323)	60	74 (287)	81 (156)	61	82 (258)	74 (167)
Minimum Rent High requirement	43	77 (589)	56 (356)	42	73 (310)	58 (168)	44	81 (279)	54 (188)

SOURCE: Kennedy and MacMillan (1979), Chapter 2, Tables 2-3 and 2-4.

The reasons given by households for declining the enrollment offer are displayed in Table 4-3. These are based on interviews with a sample of households that declined enrollment. Households were allowed to give up to six different reasons for failing to enroll, so the table presents responses in two different ways. The first column for each site shows the percentage of all respondents that gave a particular reason at least once. The second column shows the percentage of respondents giving a particular reason as their only reason for not enrolling.

Objection to program requirements was the reason most frequently given for turning down the enrollment offer. About half of the households at both sites mentioned this as a reason for not enrolling. Objections to requirements included objections to the housing requirements imposed on Housing Gap households, but they were apparently predominantly concerned with various reporting requirements (including monthly income reports and periodic interviews as well as regular housing inspections and submission of rent receipts).[1] Objection to participating in a government program was second in frequency. Over 40 percent of the households at both sites mentioned that they did not enroll because they did not want to accept charity or otherwise objected to the idea of accepting money from the government. A number of other reasons were cited, but none accounts for more than about a quarter of the households that rejected the offer at either site.

The second column for each site in Table 4-3 shows that only about one-third of the households gave only one reason for turning down the offer, and no more than 12 percent of the households at either site cited any particular reason as the only reason they did not enroll. In Pittsburgh, the bother of program requirements and objection to participating in government programs were given with equal frequency by respondents as their only reason for not enrolling. In Phoenix, objection to government programs was the most frequently given single reason for declining the enrollment offer. Households appear to have had a variety of reasons for turning down the enrollment offer, with no single reason clearly predominating. The bother and paperwork of participating and general objections to accepting money from government programs were the most frequently mentioned reasons, but most households cited some other reason as well.

---

[1] See Kennedy and MacMillan (1979), Chapter 3, Table 3-6.

Table 4-3

REASONS FOR DECLINING THE ENROLLMENT OFFER

REASON FOR NOT ENROLLING[a]	PITTSBURGH		PHOENIX	
	PERCENTAGE GIVING REASON	PERCENTAGE GIVING REASON AS THEIR ONLY REASON FOR NOT ENROLLING	PERCENTAGE GIVING REASON	PERCENTAGE GIVING REASON AS THEIR ONLY REASON FOR NOT ENROLLING
(Number of cases)	(170)	(170)	(168)	(168)
Requirements, bother, paperwork	50% } 73%[b]	12% } 31%[c]	49% } 74%[b]	5% } 29%[c]
Objected to participating in a transfer program	41	12	47	12
Benefits from other programs would be reduced	8	1	5	1
Thought they were ineligible	14	1	24	4
The payment was too small	18	1	26	1
Didn't want to move	14	2	14	1
Personal reasons	18	4	18	1
Didn't understand the offer	12	1	11	2
Mean number of reasons given	1.8		1.9	

SOURCE: Kennedy and MacMillan (1979), Chapter 3, Table 3-5.

a. A household could give more than one reason.

b. Percentage giving either of the two reasons indicated. This is less than the sum of the incidences for each reason, since some households gave both reasons.

c. Percentage giving no reason except the two indicated. This is larger than the sum of the individual incidences, since some households gave both reasons.

Overall, the same considerations seem to have influenced acceptance in both sites. Indeed, the only statistically significant differences were the more frequent expressions of concern about eligibility and payment amounts in Phoenix.[1] On the other hand, the relation between acceptance and demographic characteristics, while not strong, was quite different in the two sites. The largest difference in acceptance rates across demographic groups in either site was that associated with age in Pittsburgh. The acceptance rate among elderly households in Pittsburgh was 61 percent, 20 points lower than the 81 percent rate for households where the head of household was under 30. In Phoenix, on the other hand, the difference was only 7 points (79 percent for elderly households as compared to 86 percent for young households) and not statistically significant. Other differences among demographic groups were smaller, but also inconsistent across the two sites. Black households accepted enrollment somewhat more often than whites in Pittsburgh, but both blacks and Spanish Americans were less likely to accept in Phoenix. The poorest households (those with incomes of less than $2,000) accepted less often in Pittsburgh but not Phoenix. Welfare recipients were more likely to accept in Pittsburgh, but not Phoenix, and when other demographic factors were taken into account, welfare status had no significant effect in either site.

Overall, then, it appears that program acceptance will vary across demographic groups, but that it will vary differently from place to place. This was confirmed in analyses that examined the simultaneous effect of demographic characteristics, as well as payment amount and program type. These again showed generally modest, but different, patterns of demographic differences across the two sites. Furthermore, demographic differences in acceptance were not related to differences in program type.[2] Thus, it appears that these differences, when they arise, might be expected to apply equally to all programs in an area.

---

[1] Differences in the incidence of concerns in Phoenix may reflect the fact that the allowance program income limits were higher in Phoenix than in Pittsburgh, while income limits for other housing programs were generally lower. Thus, households in Phoenix might have been more often surprised at the idea that they were eligible for a government transfer.

[2] See Kennedy and MacMillan (1979), Chapter 3.

Indeed, the only consistent patterns found in both sites were a positive relation between acceptance rates and allowance payment and the somewhat lower acceptance rates for Housing Gap as compared to Percent of Rent households noted in Table 4-2. The relationship between average acceptance rates and payment estimate is shown in Figure 4-2. Between payments of roughly $10 and $40 per month, higher payment estimates were associated with sharply higher acceptance rates. Average acceptance rates in the two sites rose from 60 to 67 percent for households with $10 payment estimates to over 85 percent for those with estimates of about $40 per month. Thereafter, acceptance rates are almost level. This pattern was confirmed in analyses that took account of various household characteristics and program types.[1] These showed no significant differences among the different program types in the relationship between acceptance and payment estimate, once demographic factors were taken into account.

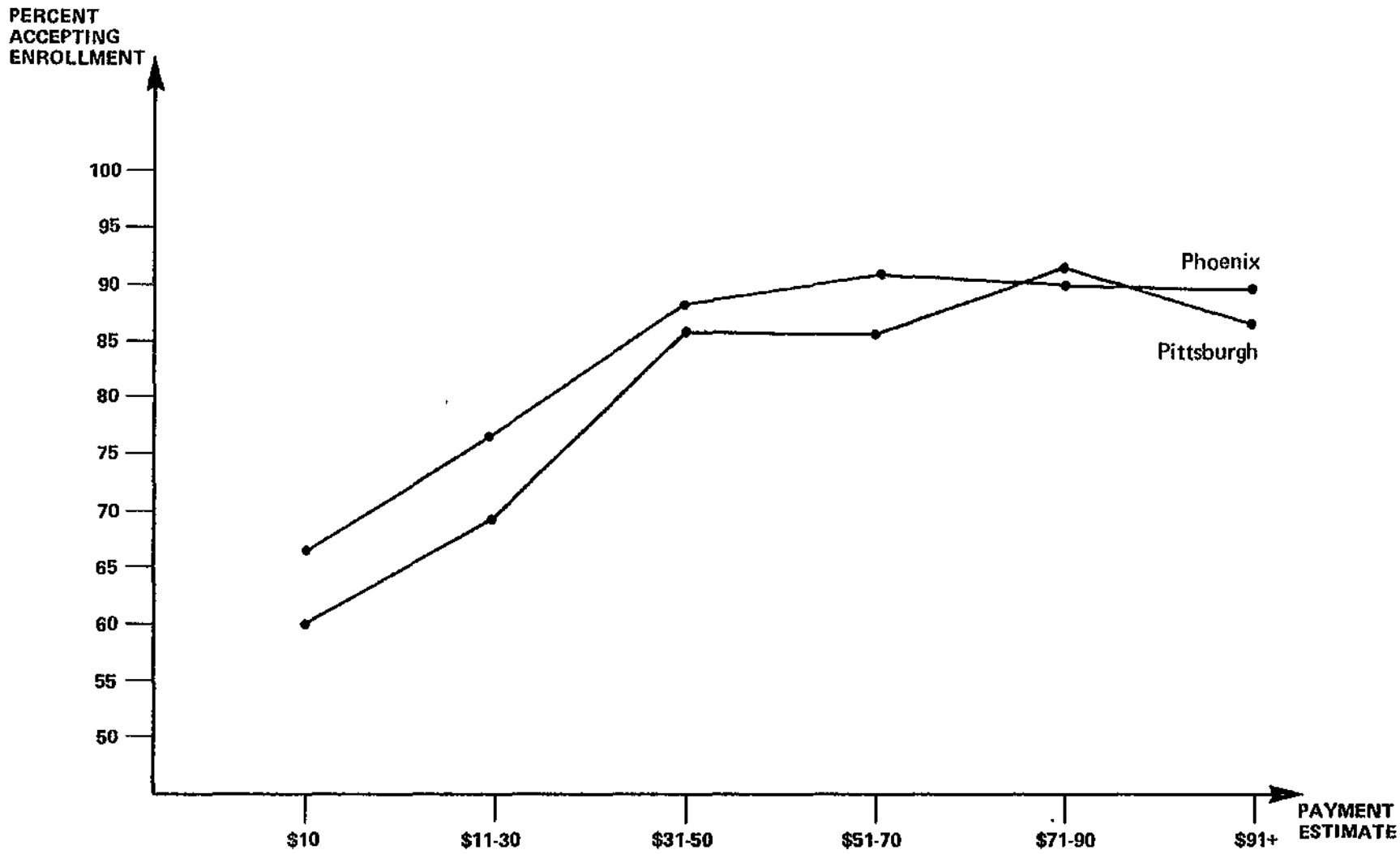
In sum, household decisions to accept or decline enrollment showed much the same pattern for each major program type. While there were differences in acceptance rates among different demographic groups, these showed no consistent pattern across the two sites and were not significantly different across program types (once payment estimates were taken into account). Thus demographic differences in acceptance appear to be geographically idiosyncratic and likely to apply equally to programs with and without housing requirements. Similarly, all programs showed sharply lower acceptance rates among households offered very small payments. Once payments reached a level of about $40 a month, however, acceptance rates were effectively the same (Phoenix) or only very slightly higher (Pittsburgh) across a wide range of payments. Again, this pattern was not significantly different across program types (once household characteristics were taken into account).

Despite these apparently similar patterns in acceptance across the different program types, the somewhat lower acceptance rates found for Housing Gap, as compared with Percent of Rent, households in Table 4-2 were confirmed in analyses that took account of household characteristics and payment amount. These analyses showed, however, that Housing Gap acceptance rates were lower only among higher income households with incomes greater

---

[1] See Kennedy and MacMillan (1979), Chapter 3, Table 3-3.

Figure 4-2
ACCEPTANCE RATES AND PAYMENT ESTIMATE[a]



SOURCE: Kennedy and MacMillan (1979), Chapter 2, Table 2-5.
a. Tables for figures are presented in Appendix II.

than 80 percent of the eligibility limits. This was not apparently due to differences in payment amount or in household responses to variations in payment amount.[1] Rather it seems to reflect either the housing requirements imposed by the Housing Gap allowance plans or differences in payment formulas (and hence in prospective as opposed to initial payments). Which of these factors was actually involved cannot be established with certainty. The evidence suggests, however, that the housing requirements did make the Housing Gap offers modestly less attractive, but that this effect, if it was present, represented a general reaction to any requirements, without concern for specific details.

The ideal candidate for sorting out the reasons for the difference in acceptance rates between the Housing Gap and Percent of Rent plan is the Unconstrained plan, which has a payment formula like the Housing Gap plans but no housing requirements like the Percent of Rent plans. Unfortunately, the sample assigned to the Unconstrained plan is too small to yield conclusive results. Unconstrained acceptance rates are similar to those for Percent of Rent and significantly higher than those for Housing Gap in Phoenix, but are midway between Housing Gap and Percent of Rent rates in Pittsburgh. The evidence from the Unconstrained plan is more consistent with the hypothesis that lower Housing Gap acceptance rates reflect the presence of housing requirements, but is not conclusive.[2]

In any case, responses to differences in payment formulas or housing requirements was very general. Once the payment amount estimated at enrollment was taken into account, there was no evidence of significant differences in acceptance associated with variations in the Percent of Rent or Housing Gap formulas. Likewise, among the Housing Gap households, acceptance rates were essentially the same for the three different requirements (Minimum Standards, Minimum Rent Low and Minimum Rent High requirements).

---

[1] Kennedy and MacMillan (1979), Chapter 3, Table 3-3.

[2] Examination of the reasons given by households for declining enrollment, was similarly suggestive, but hardly conclusive. The only significant differences in the reasons given by Housing Gap and Percent of Rent households were a somewhat greater tendency for Housing Gap households in Pittsburgh to cite requirements and small payments and in Phoenix to cite not wanting to move as reasons for declining enrollment. See Kennedy and MacMillan (1979), Chapter 3, Table 3-6.

Indeed, there is no evidence that households' actual probability of meeting the requirements or their perceptions about whether they already met the requirements had any effect on their propensity to accept enrollment.[1]

In many ways, then, the key finding in the analysis of acceptance is what does not matter. There are no consistent demographic differences and small differences among programs. Once payments offered reach a level of even $40 a month, acceptance rates for most programs will apparently reach 80 to 90 percent. The remaining 10 to 20 percent will refuse the program for a variety of reasons, most commonly having to do with the bother of program requirements and reluctance to accept money from the government. Application rates for actual programs may, of course, differ from the acceptance rates found in the Demand Experiment. The door-to-door outreach undertaken in the Demand Experiment is unlikely to be duplicated in an operating program, though there is evidence that reasonable outreach may lead to near universal awareness of at least a program's existence.[2] Likewise, actual experience with a program may lead households to revise their acceptance decision.[3] On the other hand, established programs may over time gain greater acceptance than that accorded to the Experimental programs tested in the

---

[1]The apparent lack of connection between the specifics of requirements and acceptance is shown by the lack of any significant difference in acceptance rates among plans with different requirements. This is true despite the fact that Minimum Standards requirements were very different in content from Minimum Rent requirements and that households were roughly three times as likely to have met the Minimum Rent Low requirement before they enrolled as they were to have met the Minimum Standards requirement (Kennedy and MacMillan, 1979, Tables 2-9, 3-12). Likewise, there was no significant difference in acceptance among Housing Gap households associated with differences in pre-enrollment rent, even though pre-enrollment rent is strongly associated with later participation (Kennedy and MacMillan, Table 3-13). Finally, among Housing Gap households declining enrollment, most reported that they either did not remember the housing requirements or thought that they already met them. Furthermore, households that reported that they did think that they did not meet requirements were no more likely to give program requirements or small payments as reasons for declining enrollment than other households (Kennedy and MacMillan, Table 3-8).

[2]See Ellickson and Kanouse (1978), MacMillan and Hamilton (1977), and Kennedy and MacMillan (1979), Appendix IV. Basically, these confirm the perception that most people are aware of the existence of welfare or public housing programs, though they may not be aware of their details.

[3]Evidence based on attrition during the first six months after enrollment suggests that this is minor. See Kennedy and MacMillan (1979), Appendix V.

Demand Experiment simply through being better known or because they offer longer commitments.[1] Available evidence suggests that these factors might have only modest effects, though none can be entirely discounted. In any event, they seem unlikely to alter the basic pattern of results found for the Demand Experiment.

The result that does seem much less likely to hold for actual program applications is the compartmentalization of acceptance and subsequent participation. In particular, it seems likely that households that actually go into a program office to apply for an ongoing program are much more likely to take account of their ultimate probability of participating in the program than was apparent in the decision to accept enrollment in the Demand Experiment. Households in the Demand Experiment were approached individually and offered the opportunity to enroll in a new program. If they accepted the enrollment offer, they could always change their minds later. It seems quite reasonable that these households should have concentrated on the payment offer and reporting requirements and ignored the details of the more novel housing requirements until they had a chance to see what meeting the requirements would actually involve. In an ongoing program, households may have a clearer idea of what the program involves, based on the experience of friends or relatives, and must actively seek out the program when they decide that they are interested in participating. Because of this, the distinction between acceptance and subsequent participation in the analysis of the Demand Experiment should be viewed as an important analytic tool for identifying the reasons for participation rather than an attempt to simulate the application/enrollment process in an ongoing program.[2]

---

[1]The limited (three-year) duration of the Demand Experiment poses a variety of theoretical problems for analysis. Analysis to date, though hardly conclusive, has been unable to find evidence of any material effect on households responses. See, for example, Friedman and Weinberg (1978), Chapter 6.

[2]As discussed below, subsequent participation in the Housing Gap programs was strongly influenced by whether or not households already met or were about to meet the program's housing requirements. The hypothesis of this paragraph is essentially that applicants to an ongoing program would, unlike households that accepted enrollment in the Demand Experiment, be more likely than nonapplicants to meet or be about to meet the program's requirements before they applied. This remains to be proven, however, and is further discussed at the end of this chapter.

Subsequent Participation of Enrolled Households

After households had enrolled, housing requirements played a critical and highly specific role in participation. For Percent of Rent and Unconstrained households, the decision to enroll was the participation decision. Once these households accepted the enrollment offer and were certified as eligible they began to receive allowance payments immediately. For Percent of Rent and Unconstrained programs, therefore, the participation rate in the Demand Experiment is simply the acceptance rate. This was also true for Housing Gap households that already lived in housing that met housing requirements when they enrolled. For Housing Gap households that did not already meet housing requirements, however, program participation involved another step. In order to participate in the Housing Gap program, these households either had to arrange to meet requirements in their enrollment unit or move to a different unit that did meet the requirements. It is this additional step that accounts for most of the difference in overall participation rates shown in Table 4-2.

It is probably worth emphasizing again that this distinction between acceptance and subsequent participation after enrollment is partly analytic. Indeed, it was originally dictated by the structure of data collection in the Demand Experiment; because additional data were collected at enrollment, it was analytically convenient to analyze enrollees separately. The distinction is maintained here because it turned out that the behavior involved in the two stages was quite different. Because acceptance decisions were so similar across the different programs, differences in overall participation could be most clearly identified by separate analysis of subsequent participation after enrollment. Ultimately, however, the two stages have to be combined to estimate program participation rates.

The subsequent participation rate of Housing Gap households after enrollment depends on two factors--the proportion of households that already met requirements when they enrolled (all of which participated immediately) and the willingness of households not already in acceptable housing to change their housing in order to meet requirements and participate. Table 4-4 shows how the subsequent participation rate for each type of requirement was determined by these two factors. Requirements that had the highest proportion of households already meeting them at enrollment also tended to have higher participation rates among households that did not meet the re-

Table 4-4

INITIAL PAYMENT STATUS AND SUBSEQUENT PARTICIPATION

	PITTSBURGH				PHOENIX			
	ALL HOUSING GAP HOUSEHOLDS	MINIMUM STANDARDS REQUIREMENT	MINIMUM RENT LOW REQUIREMENT	MINIMUM RENT HIGH REQUIREMENT	ALL HOUSING GAP HOUSEHOLDS	MINIMUM STANDARDS REQUIREMENT	MINIMUM RENT LOW REQUIREMENT	MINIMUM RENT HIGH REQUIREMENT
Percentage of enrolled households that received a full payment at enrollment	33%	15%	64%	35%	29%	19%	53%	27%
(Number of cases)	(592)	(268)	(156)	(168)	(662)	(307)	(167)	(188)
Subsequent participation rate for households that received a full payment at enrollment	100	100	100	100	100	100	100	100
(Number of cases)	(197)	(39)	(100)	(58)	(195)	(57)	(88)	(50)
Subsequent participation rate for households that did not receive a full payment at enrollment	34	30	48	35	42	44	46	37
(Number of cases)	(395)	(229)	(56)	(110)	(467)	(250)	(79)	(138)
Subsequent participation rate for all enrolled households	56	40	81	58	59	54	74	54
(Number of cases)	(592)	(268)	(156)	(168)	(662)	(307)	(167)	(188)
Percentage of all participants that received a full payment at enrollment	60	36	79	60	50	34	71	50
(Number of cases)	(331)	(107)	(127)	(97)	(391)	(166)	(124)	(101)

SOURCE: Kennedy and MacMillan (1979), Chapter 2, Table 2-9.

quirements at enrollment. The relationship is by no means exact, however. Differences in subsequent participation rates for households that did not meet requirements at enrollment are much less pronounced than differences in the rates for those initially meeting requirements.

Analysis by Kennedy and MacMillan (1979) of the decision to participate among enrolled households that did not already meet requirements suggests that this decision may be characterized in rather simple terms. Essentially, Kennedy and MacMillan find that the probability that a household participates is simply the probability that it would meet housing requirements normally, without the allowance program, increased by a function of the allowance payment. At one level, this finding is almost trivial. It simply says that once households enrolled, they participated if they either already met requirements or were about to do so (that is, if they would normally meet requirements) or if the allowance payment offered was large enough to induce them to meet requirements. What is interesting about Kennedy and MacMillan's analysis is what does not affect participation. Participation rates do vary with a household's characteristics, housing, and willingness to move, but only as these affect a household's normal propensity to live in or move to required housing. Given this normal propensity, participation depends only on the amount of the allowance payment offered, with no further significant differences associated with willingness to move, demographic characteristics, or housing.[1]

Implications for Program Coverage and Impact

The implications of limited participation under Housing Gap programs depend to some extent on which households are excluded from the program. Say, for example, that nonparticipation was largely confined to higher income households that would generally have received only minor payments. In this case, low participation rates might be of little or no concern. Excluded households would have received only limited assistance in any case and may not be of direct policy concern to begin with.[2] Likewise, nonparticipation might

---

[1] Kennedy and MacMillan (1979), Chapter 4, Section 4.2.

[2] As noted in Chapter 2, considerations of equity and work incentives may lead program designers to extend eligibility limits well beyond the original target population.

not be of concern if it could be shown that nonparticipants were households that, although offered access to acceptable housing at reasonable cost, refused the offer either because they were not concerned enough with their housing to be willing to spend even reasonable (to policymakers) amounts for program-acceptable housing or because they already enjoyed unusually good deals. If the goal of a housing allowance program is simply to provide reasonable access to "standard" housing, there may be little concern if households that have found marginally substandard units at very low rents refuse the program's assistance. The implications of low participation rates depend therefore on the reasons for nonparticipation. Unfortunately, these have not been completely identified so far. There is, however, some evidence which at least suggests that nonparticipation is not likely to be concentrated among households in less need of assistance.

As noted in the previous section, participation depended on the households' normal propensity to live in required housing and the amount of the allowance payment offered. This allows us to calculate participation rates for households that would and would not normally have lived in standard housing, as shown in Table 4-5.[1] It is clear that the burden of nonparticipation

---

[1]The participation rates for the two groups are simply calculated as

$$\pi_W = \pi_A$$

$$\pi_{WN} = \pi_A \frac{\pi_S - \pi_N}{1 - \pi_N}$$

where

π_A = the probability of accepting the offer

π_S = the subsequent participation rate for enrolled households

π_N = the proportion of enrolled households that would normally have met requirements

π_W = the overall participation rate for households that would normally have met requirements

π_{WN} = the overall participation rate for households that would not normally have met requirements.

Since acceptance is unaffected by a household's propensity to meet requirements normally, as discussed earlier in this section, π_W is simply equal to π_A. For π_{WN}, we have: $(\pi_S - \pi_N)$ as the proportion of enrolled households that were induced to meet requirements and $(1 - \pi_N)$ as the proportion that would not normally have met requirements. The ratio of these is the participation rate among enrolled households that would not have met requirements normally. This times the acceptance rate is the overall participation rate for such households.

Table 4-5

ESTIMATED PARTICIPATION RATES AMONG HOUSEHOLDS
THAT WOULD AND WOULD NOT HAVE MET REQUIREMENTS NORMALLY

	REQUIREMENT		
	MINIMUM STANDARDS	MINIMUM RENT LOW	MINIMUM RENT HIGH
Estimated participation rate for:			
Households that would normally have occupied required housing in the absence of the program	78%	78%	78%
Households that would normally have occupied housing that did not meet program requirements	19%	23%	20%

SOURCE: Kennedy and MacMillan (1979), Table 4-6.

falls most heavily on households that would not normally meet program requirements. Under a Minimum Standards requirement, for example, the participation rate among households in standard housing is more than four times that for households that would normally have lived in substandard housing.

Being less likely to meet requirements is not the same thing as needing assistance, however. Some households may fail to meet requirements because they are not interested in spending even modest (to the policymaker) amounts of their own money for housing. Others may fail because they live in housing with minor defects but unusually low rents, which they are unwilling to give up. Analysis to date has not identified how many nonparticipants fall into these categories.

Interestingly, the analysis does not suggest that moving per se poses an important barrier to participation, though aid in finding housing may be useful. Early analyses of the Demand Experiment noted that relatively few households were induced to move by any of the Experimental programs.[1] At the same time, moving was necessary for participation unless a household either already met requirements when it enrolled or could upgrade its enrollment unit to meet requirements. This led to the surmise that participation would be paced by moving and that households that were unlikely to move would also be less likely to participate. The analysis of participation by Kennedy and MacMillan confirms the role of moving, but only as it affects households' normal propensities to meet requirements. In other words, among households that would not normally meet requirements, participation was apparently unaffected by whether or not they were planning to move.[2] This confirms a finding by Weinberg, Friedman and Mayo (in Friedman and Weinberg, 1978, Appendix VII) concerning the effects of the Percent of Rent offers on mobility. Their analysis suggested that these programs had little effect on mobility rates not because moving was a major barrier but because the program on average offered little incentive to move.

This does not mean that no services in aid of moving are desirable. Analysis of counseling services in the Administrative Agency Experiment, for

---

[1] See MacMillan (1978) and Weinberg et al. (1977).

[2] This was also true when terms in the probability of moving were added for households that were unlikely to be able to upgrade their enrollment units to meet requirements. See Kennedy and MacMillan (1979), Chapter 4.

example, found that individualized help in finding and obtaining units was effective in tight housing markets and especially for minority households in tight housing markets.[1] Thus, there may well be room for help in finding program-acceptable units. What does not seem required is efforts to overcome reluctance to move or help in actually moving from one unit to another.

The effects of housing requirements in selecting which households receive assistance are also apparent in differences across demographic groups. Thus, for example, minorities, large households, and very low-income households were significantly less likely to participate in the Housing Gap programs than other households in both sites, as indicated in Table 4-6. The lower participation of these groups is completely accounted for by the fact that they were less likely to meet housing requirements in the absence of the program and accordingly less likely either to want to or to be able to participate in an allowance program.[2]

These contrasts in who participates are summarized in a slightly different form in Table 4-7, which compares the demographic profiles of programs with and without housing requirements, based on the average results under the different allowance plans. The major difference is in the proportion of recipient households drawn from those in substandard housing (as defined by the program requirements). Other demographic differences, which are induced by their association with households' probability of occupying standard housing, are smaller.

Program participation also has important implications for program effects on housing. Most obviously, programs do not help households that do not participate. In addition, however, the effect of an allowance program on recipient housing would also be expected to depend on which households participate. A Housing Gap form of housing allowance is only distinguished from a program of expanded unrestricted welfare payments by its housing requirements. Households that would normally occupy housing that meets the requirements are effectively Unconstrained; they are not required to select different housing from that that they would normally occupy or would occupy under a similar Unconstrained program. But the housing changes generated by Unconstrained

---

[1] See Holshouser (1976).

[2] See Kennedy and MacMillan (1979), Tables 4-7 and 4-8.

Table 4-6

SELECTED DEMOGRAPHIC DIFFERENCES IN THE SUBSEQUENT PARTICIPATION OF HOUSING GAP HOUSEHOLDS

	SUBSEQUENT PARTICIPATION RATE			
	PITTSBURGH		PHOENIX	
	PERCENT	(SAMPLE SIZE)	PERCENT	(SAMPLE SIZE)
RACE/ETHNICITY				
Nonminority	59%	(448)	66%	(439)
Black	45	(144)	39	(41)
Spanish American	-	-	47	(182)
HOUSEHOLD SIZE				
1-4 persons	58	(470)	64	(514)
5+ persons	47	(121)	43	(148)
ANNUAL INCOME				
Less than $4,000	53	(337)	51	(249)
Greater than or equal to $4,000	61	(253)	64	(413)
INCOME TO POVERTY RATIO				
Below poverty	52	(370)	46	(253)
At or above poverty	63	(222)	68	(409)

SOURCE: Kennedy and MacMillan (1979), Chapter 2, Table 2-14.

Table 4-7

EFFECT OF HOUSING REQUIREMENTS ON PARTICIPANT PROFILES

	WITHOUT HOUSING REQUIREMENTS	WITH HOUSING REQUIREMENTS[a]
PARTICIPATION RATE	84%	45%
PERCENT OF RECIPIENT HOUSEHOLDS THAT		
Would not have lived in required housing without the program[a]	57	25
Are minority households	29	23
Have more than five persons	21	16
Have annual incomes less than $4,000	47	42
Are in poverty	50	42
SAMPLE SIZE	(1,253)	(722)

SOURCE: Comparisons of enrolled and participating households in Kennedy and MacMillan (1979), Tables 2-14, 4-6.

a. Weighted average of the different plans tested.

programs are generally modest. Thus, households that would normally meet requirements will generally use the allowance for nonhousing expenditures, reducing their rent burden, but leaving their housing largely unchanged. Other households, in contrast, must change their housing in order to participate. Only when they have done this can they use any remaining funds from the allowance payment for other purposes. Accordingly, most of the change in housing (apart from reduced rent burdens) generated by an allowance program, and all of the change beyond that generated by a similar Unconstrained program, would be expected to come from the recipients that are constrained by the housing requirements to change their housing.

This distinction in program effects is quite deliberate. In effect, a Housing Gap form of allowance attempts to focus housing change among households in inadequate housing, while at the same time offering financial assistance to those that would occupy adequate housing without the program, frequently at the cost of very high rent burdens. The advantages of this approach depend in part, however, on the program's ability to reach households in inadequate housing. To the extent that its recipients are effectively Unconstrained, a Housing Gap allowance will look like an Unconstrained program, providing less justification for its particular focus on housing.

In fact, as discussed above, households are much more likely to participate in a Housing Gap allowance program if they would normally occupy housing that meets the requirements. Thus, for many, and frequently most, recipients, the major effect of the allowance is purely financial. For these households, the program simply offers assistance in paying for the same type of housing as they would normally occupy and should in theory have no more effect on their housing than a similar Unconstrained payment. About one-third of the recipients in the Minimum Standards programs tested in the Demand Experiment, for example, were households that would not normally have occupied Minimum Standard housing. The changes in recipient housing produced by the program should accordingly be different from those produced by a similar Unconstrained transfer program for one-third of recipients and be essentially the same (and modest) for the remaining two-thirds.

Relative program impacts on housing are smaller when program impacts are assessed in terms of all eligible households instead of recipients. Since programs do not help households that they do not reach, the average effect on the housing of eligible households is lower than that for recipients. Thus,

for example, while 34 percent of Minimum Standards recipients were induced by the allowance to obtain Minimum Standard housing, only 38 percent of eligibles participated. As a result, less than 13 percent of all eligible households were moved from substandard to Minimum Standard housing conditions.

These comparisons are summarized in Table 4-8, which approximates the results found for the Minimum Standards and Unconstrained programs tested in the Demand Experiment. As many as 20 percent of eligible households may not participate in either program. Another 25 percent would participate in either program and would normally occupy standard housing. For these households, the two programs would be expected to have similar effects. Another 13 percent consists of households that would participate in both programs, but would not normally occupy Minimum Standard housing. For these households, the allowance program leads to a larger change in housing. The allowance program moves these households from substandard to Minimum Standard units, while the Unconstrained program results in only modest changes in housing, with little or no increase in the proportion in standard units. Finally, the remaining 42 percent of households may have modestly larger housing changes under an Unconstrained program. These households do not occupy Minimum Standard housing, do not participate in the housing allowance program, but do receive financial assistance under the Unconstrained program with perhaps some modest change in their housing, but no material increase in the proportion in standard units. In sum, in terms of all eligible households, a housing allowance program generates larger changes in housing for about 13 percent of all households and modestly smaller changes for the 42 percent that participate under an Unconstrained program but not under the (Minimum Standards) allowance program.

It is worth noting that these estimates of program impact rest on the special data generated by the Experiment, which included observations over time of both a sample of Control households and a sample of eligible households including both participants and nonparticipants. In particular, estimates of impact based on the sort of data that is usually available for housing programs would have grossly overstated actual program impact. This is illustrated in Table 4-9 for Minimum Standards households. All Minimum Standards recipients lived in housing that met the Minimum Standards requirements. By two years after enrollment, only 31 percent of apparently comparable unsubsidized Control households had satisfied the Minimum Standard requirements. This

Table 4-8

COMPARISON OF HYPOTHETICAL HOUSING CHANGE UNDER MINIMUM STANDARDS AND UNCONSTRAINED PROGRAMS

	PERCENT OF ELIGIBLE HOUSEHOLDS	PROGRAM EFFECT		
		HOUSING ALLOWANCES	UNCONSTRAINED TRANSFERS	DIFFERENCE IN HOUSING CHANGE
1. Do not participate in either program	20%	None	None	None
2. Households that would normally occupy Minimum Standards Housing and that participate in either program	25	Financial assistance with modest housing change	Financial assistance with modest housing change	None
3. Households that would not normally occupy Minimum Standards housing and that				
a. Participate in either program	13	Move to Minimum Standard housing	Financial assistance with modest housing change	Greater housing change under Minimum Standards allowance
b. Participate in Unconstrained program only	42	None	Financial assistance with modest housing change	Modestly smaller housing change under Minimum Standards allowance

Table 4-9

IMPACT OF A MINIMUM STANDARDS PROGRAM ON THE PERCENTAGE OF HOUSEHOLDS IN STANDARD HOUSING

1. Apparent Impact on Recipient Housing

	(1)	(2)	(3)
A.	Percentage of Minimum Standards Recipients in Minimum Standard Housing	Percentage of Apparently Similar Unsubsidized Control Households in Minimum Standard Housing	Apparent Impact on the Percentage of Recipients in Minimum Standard Housing
	100%	31%	69%
B.	Percentage of Minimum Standards Recipients in Minimum Standard Housing	Percentage of Minimum Standards Recipients in Minimum Standard Housing Before They Enrolled	Apparent Impact on the Percentage of Recipients in Minimum Standard Housing
	100%	35%	65%

2. Actual Impact on Recipients

Percentage of Minimum Standards Recipients in Minimum Standard Housing	Percentage of Minimum Standards Recipients That Would Normally Have Occupied Minimum Standard Housing	Actual Impact on the Percentage of Recipients in Minimum Standard Housing
100%	66%	34%

3. Impact on Enrolled Households

Percentage of Minimum Standards Enrollees in Minimum Standard Housing	Percentage of Minimum Standards Enrollees That Would Normally Have Occupied Minimum Standard Housing	Actual Impact on the Percentage of Enrolled Households in Minimum Standard Housing
47%	31%	16%

4. Impact on Eligible Households

Percentage of Minimum Standards Eligibles in Minimum Standard Housing	Percentage of Minimum Standards Eligibles That Would Be in Minimum Standard Housing	Actual Impact on Eligibles
43%	31%	12%

SOURCE: Kennedy and MacMillan (1979), Chapter 4, Table 4-6.

suggests a substantial program impact on the housing of recipients, with a 69 percentage point increase in the proportion of Minimum Standards recipients living in standard housing. Alternatively, since only 35 percent of recipients already lived in Minimum Standard housing when they enrolled, it might appear that 65 percent were induced to obtain Minimum Standard housing by the program.

These sorts of estimates fail for two reasons. First, households' housing is not immutably fixed. Households repair or wear down their existing units and move to better or worse units as part of their normal behavior. Second, enrolled households that normally came to occupy Minimum Standard housing automatically became participants (unless they became ineligible or dropped out of the program first).[1] Unless all other enrolled households also participate, those that normally occupy Minimum Standard housing will be much more likely to participate. This is, in fact, what happened. It appears that 66 percent of recipients would actually have occupied Minimum Standard housing in the absence of the allowance offer. The impact of the allowance on the proportion of recipients in standard housing was, therefore, not 69 or 65 percentage points, but 34 percentage points.

Furthermore, most enrolled households did not become recipients; thus, the impact on all enrolled households was only a 16 percentage point increase in the percentage in Minimum Standard housing, while the impact on all those offered enrollment, further reduced by the average acceptance rate of 78 percent in the two sites, was only 12 percentage points.[2]

Participation Rates Under Alternative Requirements and Payment Schedules

Participation rates and program impacts can be changed by changing the stringency of the housing requirements. Perhaps the most remarkable result in Kennedy and MacMillan's (1979) analysis is the fact that the underlying estimated relationship between participation rates and the probability that a household would normally meet requirements is essentially the same, regard-

---

[1] This was literally true in the Demand Experiment, since enrollees' housing was evaluated whenever they moved and at least annually if they did not move.

[2] The 12 percentage point figure in Table 4-9 results from the use of the actual acceptance rate of 78 percent as opposed to the approximate 80 percent rate used in the example of Table 4-8.

less of whether the requirement is posed in terms of physical standards or unit rent, and regardless of the rent level required.[1] Thus, the effects of changes in requirements on participation can apparently be expressed in terms of changes in the stringency of the requirements as measured by the proportion of eligible households that normally meet the required conditions, without regard to the specific requirements imposed.

---

[1]This is indicated by the similarity in participation rates across the different requirements for households that would not normally meet requirements, shown in Table 4-5. The exact relationship posed in Kennedy and MacMillan (1979), is:

$$\pi = \pi_E + \left(1 - \pi_E\right)\left[1 + \exp\left(-\ln\left(\frac{\pi_N}{1-\pi_N}\right) - \beta(S)\right)\right]^{-1} \tag{i}$$

where

π = the participation rate (proportion of all enrolled households that ever participate)

π_E = the probability that households already meet requirements at enrollment

π_N = the probability that households that do not already meet requirements will do so normally in the absence of the allowance

$\beta(S)$ = the effect of the allowance offer (a function of payment, S).

The basic finding is that the estimated value of β is not significantly different across requirements. The estimated values of β for the three requirements were (Kennedy and MacMillan, 1979, Table 4-5),

	Minimum Standards	Minimum Rent Low	Minimum Rent High
β	0.875	0.883	0.925
(Standard error)	(0.136)	(0.224)	(0.171)

These are very small differences. Thus, for example, the largest difference in the estimated coefficients (between Minimum Rent High and Minimum Standards) corresponds to about a one percentage point difference in participation rates.

Estimated differences were larger, but still not significant when β was estimated as a function of payments. Indeed, when participation is examined in terms of participation at the end of two years, so that meeting requirements at enrollment no longer automatically implies receiving payments, it appears that (i) could be reduced to

$$\pi = \left(1 + \exp\left[-\ln\left(\frac{\pi_N}{1-\pi_N}\right) - \beta(S)\right]\right)^{-1} \tag{ii}$$

It should be noted, however, that these conclusions could be subjected to more extensive tests than those used by Kennedy and MacMillan. (See Kennedy and MacMillan, 1979, Chapter 4 and 5.)

Table 4-10 shows participation rates and program impact for each of the three housing requirements tested in the Demand Experiment. More stringent requirements lead to additional housing change for more recipients (in terms of meeting requirements) and thus, for a given average payment per household, more housing change per dollar. The programs with Minimum Standards and Minimum Rent High requirements, for example, each moved roughly a third of their recipients from housing that did not meet program requirements to housing that did. The less stringent Minimum Rent Low requirement, on the other hand, moved only about an eighth of its recipients from housing that did not meet the Minimum Rent Low requirement into housing that did. In this sense, programs with more stringent requirements clearly have a greater impact on recipient housing than those with less stringent requirements.

For a universal entitlement program, on the other hand, the picture is somewhat different. The more frequent housing change engendered by more stringent requirements is purchased at the price of lower participation. Indeed, in terms of impact on all eligible households, the differences among the programs are negligible. Impacts in Table 4-10 are, of course, measured in terms of each program's requirements. Thus, the actual housing change for the 12 percent of eligible households that were induced by the program to meet Minimum Standards may be quite different from that for the 8 percent induced to meet Minimum Rent Low requirements. Subject to this reservation, Table 4-10 indicates that the major differences among the programs under universal entitlement funding would be the larger program costs (and coverage) associated with higher participation rates under less stringent standards.[1]

Higher payments can also be used to increase participation. Unless higher payments can be closely targeted to households in substandard housing, however, the increase in costs required may be prohibitive. The average payment offered to Housing Gap households at enrollment was $65 per month ($56 per month in Pittsburgh and $73 per month in Phoenix) or $780 per year. Analysis

---

[1]This pattern partly reflects the fact that although requirements varied considerably in terms of the proportion of households that already met them at enrollment, there was much less variation in the probability that a household that did not already meet requirements at enrollment would normally do so after enrollment. Thus, in this sense, the stringency of requirements for households that did not already meet them was relatively similar across the three requirements. (See Kennedy and MacMillan, 1979, Chapter 4.)

Table 4-10

IMPACT AND PARTICIPATION UNDER DIFFERENT REQUIREMENTS

	MINIMUM STANDARDS	MINIMUM RENT HIGH	MINIMUM RENT LOW
Stringency of requirements (probability of not meeting requirements in the absence of an allowance program)	69%	60%	32%
Impact on recipients (change in percentage meeting requirements)	34	29	13
Subsequent participation rate	47	56	78
Impact on enrolled households	16	16	10
Acceptance rate	78	78	78
Impact on eligible households	12	12	8

SOURCE: Kennedy and MacMillan (1979), Chapter 4, Table 4-6.

of results in the Demand Experiment, shown in Table 4-11, indicates that, for a Minimum Standards program, doubling this payment to $1,560 per year would have increased participation from 37 percent to 56 percent. Almost all of this increase would come from households that would not normally have lived in Minimum Standard housing. Participation among these households would increase from less than 20 to over 40 percent. As a result, households that would not normally have lived in standard housing would constitute over half of the recipients instead of one-third.

Demographic patterns can also be offset by appropriate payment schedules. More detailed analysis of demographic effects suggests, for example, that participation in the Housing Gap programs increased sharply with household income (taking into account household size and other household characteristics) up to incomes of about $4,000 per year and thereafter rose little or not at all. This was true despite the fact that payments to higher income families were reduced at the rate of 25 cents per dollar of income. Participation rates were sensitive to payments, however.[1] It appears that differences in participation by income group could have been eliminated by payment formulas involving much larger differences in payments to higher- and lower-income households. Specifically, the estimates in Kennedy and MacMillan suggest a contribution rate of 40 to 45 percent of the first $4,000 of annual income, with a rate of 25 to 30 percent thereafter.[2] Such manipulations would not, however, change the fact that within each income class the program would still be less likely to serve the households that were least likely to meet the Minimum Standards requirements on their own.

---

[1] Payment amounts only had statistically significant effects for Minimum Standards. The payment effects for Minimum Rent programs, however, while not significant, were also not significnatly different from those estimated for Minimum Standards. See Kennedy and MacMillan (1979), Chapter 4, Table 4-4.

[2] It should be noted that a higher contribution rate does not mean that payments to low-income households are reduced. Payment levels may be maintained by increasing the basic grant level (C^*) in the Housing Gap formula ($A = C^* - bY$). The effect of higher contribution rates is to increase the difference in benefits between higher- and lower-income households. This might be very roughly comparable in Public Housing to imposing rent burdens of 10 percent on households with annual incomes of $2,000, rising sharply to about 30 percent for households with annual incomes of $4,000 or more.

Table 4-11

ESTIMATED PARTICIPATION FOR MINIMUM STANDARDS PROGRAMS WITH DIFFERENT PAYMENT SCHEDULES

	EXPERIMENTAL AVERAGE	AVERAGE PAYMENT LEVEL x 1.33	x 1.66	x 2.00
	$65/month	$87/month	$108/month	$130/month
Overall participation rate	37%	43%	49%	56%
Participation rate among households that would normally occupy Minimum Standard housing[a]	78	78	78	78
Participation rate among households that would not normally occupy Minimum Standard housing	19	28	36	45
Proportion of recipients that are induced by the allowance program to occupy standard housing	34	44	51	56

a. Approximate average rate for these households. This could increase with higher payments if some of these households had payments of less than $40 per month. This effect is not accounted for here (see Kennedy and MacMillan, 1979, Chapter 3).

b. Based on Kennedy and MacMillan (1979), Tables 2-3, 4-4, 4-6ff.

Implications for Program Evaluation

The relationship between participation and housing requirements raises serious questions about the desirability of a universal entitlement housing allowance program. It does appear that less stringent requirements might be used to assure that participants do not live in very seriously dilapidated units. If requirements were truly minimal, this could be done without seriously reducing program coverage. It would also mean that all but a few households would already be living in housing that met program requirements. Conversely, many recipients would occupy housing that was less than adequate by contemporary standards, and program impacts on housing might be too small to justify the administrative costs involved in imposing and enforcing standards.

Reasonably stringent standards, such as the Minimum Standards used in the Demand Experiment, on the other hand, will effectively exclude most eligible households from participation. Furthermore, while they may result in considerable housing change for recipients, they also mean that the program will have a much more limited impact on the housing of all low-income households. Nor does it appear that the households excluded from the program can be easily dismissed as less needy or worthy of assistance.

At the same time, it must be noted that the reasons for nonparticipation and the possible program remedies implied by these are not well understood. The limited evidence on the extent to which nonparticipation reflects the presence of exceptionally good deals or exceptional lack of interest in housing has already been mentioned. In addition, it is not clear how much nonparticipation simply reflects the financial inadequacy of the offer. Table 4-12 compares the participation rate for households not meeting requirements at enrollment with the proportion offered positive net payments, where net payments are defined as the difference between the allowance payment and the estimated increase in housing expenditures that would be necessary to obtain housing that met requirements. The proportion of Minimum Rent households that participated is somewhat greater than the proportion with positive expected net payments. For Minimum Standards households, on the other hand, participation rates are well below the proportion of households with positive expected net payments and closer to the proportion with expected net payments greater than $20 per month.

Table 4-12

PERCENTAGE OF HOUSEHOLDS WITH POSITIVE EXPECTED NET PAYMENTS[a]

HOUSING GAP HOUSEHOLDS THAT DID NOT RECEIVE A FULL PAYMENT AT ENROLLMENT	PITTSBURGH		PHOENIX	
	MINIMUM STANDARDS REQUIREMENT	MINIMUM RENT REQUIREMENT	MINIMUM STANDARDS REQUIREMENT	MINIMUM RENT REQUIREMENT
Proportion that participated	30%	40%	44%	40%
Proportion with positive expected net payments	57	37	59	35
Proportion with expected net payments greater than $20/month	40	17	40	23
(Number of cases)	(229)	(166)	(250)	(217)

SOURCE: Kennedy and MacMillan (1979), Chapter 4, Table 4-7.

a. Expected net payments at enrollment are defined as the difference between the allowance payment offered at enrollment and the expected increase in rent needed to meet requirements. The expected increase in rent needed to meet requirements is estimated by the mean rent of Control households that met the requirements at enrollment, controlling for household size and site.

This suggests that households under the Minimum Rent plans participated if the allowance payment was sufficient to cover most of the increased costs involved in meeting the Minimum Rent requirement. Meeting Minimum Standards requirements, on the other hand, involved more than simply agreeing to spend a certain amount on housing. Households also had to live in units that met a fairly extensive list of requirements. This might both involve giving up some features that the household would prefer (or spending even more to obtain them) and expending more time and effort to find a unit that met the requirements.

The figures in Table 4-12 may not, however, accurately estimate the financial costs of participation. They assume that households all can meet requirements by spending a given amount for rent.[1] In fact, however, the rents required may vary considerably across households. In this case, the proportion of households with positive net payments shown in Table 4-12 might well overestimate the actual proportion for Minimum Rent and underestimate it for Minimum Standards. Absent more careful modeling, we do not yet know the extent to which the financial offer posed by the allowance failed to take account of individual variation in the cost of meeting requirements. This is important because there are alternative payment formulas, such as those used in the Section 8 Existing Housing program, which tailor payments more closely to individual household costs instead of to the average cost of existing standard housing. (As discussed later in this chapter, however, these payment formulas create other problems in terms of household shopping incentives.)

Another issue in understanding Minimum Standards participation has to do with households' ability to find Minimum Standard housing. Say, for exam-

---

[1]For Minimum Standards households, the average level of spending necessary to meet requirements may be at least roughly estimated by the average rents paid by Control households that met the requirements after enrollment. For Minimum Rent requirements, on the other hand, the necessary expenditure levels would seem to be defined directly by the Minimum Rent specified in the requirement. In fact, however, this does not seem to be the case. Minimum Rent households were rarely able to meet the requirements exactly. Comparison of the actual expenditures of Minimum Rent and Control households that met requirements after enrollment show that both groups exceeded the Minimum Rent requirements by about the same amount. This suggests that a better estimate of necessary expenditure levels for Minimum Rent households as well is the average rent paid by Control households that met the requirement at enrollment.

ple, that some of the Minimum Standards requirements were never understood by households or alternatively that households understood the requirement, but had little idea of how to find such units. ("Mt min stds" is not a usual entry in real estate ads, for example.) This could reduce participation, not because households were unwilling to participate, but because they were unable to. This would in turn suggest the desirability of more assistance in locating units.[1] These are important topics for further analysis and may yield a better understanding of the potential for improved design of allowance programs. For the moment, however, the problems posed by low participation present a serious drawback for a universal entitlement Housing Gap form of housing allowance.

Low participation rates may not be so serious for limited entitlement programs. Most obviously, a program that is only funded to serve 10 or even 30 percent of eligible households may not be concerned that its potential coverage is only 50 percent. In addition, judicious outreach and selection of applicants may go far to offset the patterns of differential participation among different demographic groups. At the same time, limited entitlement programs, like universal entitlement programs, must face the fact that their impact on recipients is affected by the participation decisions associated with housing requirements. Here again, of course, program operators could in theory undo the patterns of housing change dictated by differences in the propensity to participate. In practice, however, it may be hard for programs to identify households that are about to move to standard housing or to exclude these or households already in standard housing from consideration, if only because of the obvious incentives to excluded households to move to or create substandard conditions. Thus, although a limited entitlement Minimum Standard allowance program would move a substantial proportion of its recipients from substandard to Minimum Standard housing, it would still be likely to draw most of its recipients from households that were already either living in or about to move to Minimum Standard housing.

Since some demographic groups are less likely to live in required housing than others, a limited entitlement program could select more participants from among households that would not normally meet requirements by selecting

---

[1] It should be noted that such problems, if they were present at all, could not be expected to apply to meeting Minimum Rent requirements.

applicants from appropriate demographic groups. Thus, for example, very poor applicants are likely to include more households in poor housing than higher-income applicants. The connection, however, is not strong enough to overcome the strong tendency for households that are already in or about to move to required housing to participate much more readily than other households.

One example of the difficulty in selecting applicants that would not normally occupy standard housing is provided by a policy of excluding households that already occupy standard housing. Whether a household already occupied Minimum Standard housing was the strongest single predictor of whether it would normally occupy such housing in the future. Among unsubsidized households that already lived in Minimum Standard housing at enrollment, 83 percent were still in Minimum Standard housing two years later, as opposed to only 18 percent of households that were in substandard housing at enrollment. Thus, one simple step would be to confine program benefits to households that were in substandard housing before they joined the program.

Even if a policy of denying benefits to households that were willing to incur high rent burdens in order to occupy decent housing were politically acceptable, the incentives created for households to move to substandard units (or create them by appropriately accelerated depreciation) would seem to make it operationally unreasonable.[1] More important, however, even this extreme selection of applicants would not completely undo the relative advantage of households that would normally occupy Minimum Standard housing. In the Minimum Standards allowance programs tested in the Demand Experiment, 66 percent of recipients were households that would normally have occupied Minimum Standard housing. Excluding all households that already lived in Minimum Standard housing when they enrolled would have reduced this proportion, but only to 46 percent.[2]

---

[1]Households living in substandard housing are one of the target groups for Rent Supplements, however, and are also one of the selection criteria permitted Public Housing Agencies (PHAs) in establishing priorities for admission to Public Housing.

[2]This figure is based on the fact that among Minimum Standards participants that did not already live in Minimum Standard housing when they enrolled, an estimated 46 percent were households that would normally have come to occupy Minimum Standard housing (Kennedy and MacMillan, 1979, Table 4-6). It thus ignores any effect of the incentives to households in Minimum Standard housing to temporarily alter their housing in order to qualify for the program.

Another selection would be to require that households move in order to participate, as is in fact the case under construction programs or under existing housing programs like the original Section 23 program in which units are selected by the local housing agency. This selection has not been fully modeled in the Demand Experiment analysis, but there are adequate data to indicate its probable effects. First, consider the situation that would arise if no additional households should move in order to participate under this reuqirement. In this case, the results of a program that required households to move would be estimated by the behavior of households that actually moved. About 13 percent of all Control households in the two sites moved to Minimum Standard housing during the first two years, as compared with 25 percent of Minimum Standards households.[1] Thus, it would seem that, among households that moved, about 52 percent (13/25) were households that would have lived in Minimum Standard housing in the absence of the program--not very much lower than the 66 percent figure for all households.

In fact, however, the analysis of the Demand Experiment suggests that the 52 percent figure is low. Minimum Standards households that met requirements without moving had little incentive to move, since they in fact qualified for payments. In a program that required households to move in order to receive payments, more of these households would be expected to move. Since about 76 percent of these participants would apparently have lived in Minimum Standard housing in the absence of the allowance program, this would increase the proportion of recipients that normally met requirements above the 52 percent figure based on actual movers. It seems likely, therefore, that even limited enrollment allowance programs would tend to appeal more strongly to households that would normally meet housing requirements on their own and would draw many or most of their recipients from among such households.

These patterns are not completely unexpected. As noted earlier, allowances were intended to focus housing change among households in inadequate housing. Although participation among such households is limited, allowances do induce additional households to obtain housing that meets the program's requirement. Whether the housing change generated by this is sufficient to justify the reduced participation and increased administrative costs associated with enforcing housing requirements is examined in the next section.

---

[1] Friedman and Weinberg (1979), Tables IV-1 and IV-2.

4.2 PROGRAM IMPACTS ON RECIPIENT HOUSING[1]

Analysis by Friedman and Weinberg (1979) of the housing change generated by the various Housing Gap allowance programs finds that these programs do in fact move more households into housing that meets program requirements than a similar Unconstrained program. There is also evidence that, as intended, housing change is focused among recipients that would not normally occupy standard housing. At the same time, the additional changes generated by housing requirements are very tightly tied to the specific requirements and may often be relatively small. Further, the alternative program suggested by Percent of Rent rebates apparently induces changes in household shopping behavior that absorb much of the extra spending generated by this form of allowance.

Friedman and Weinberg's analysis of program impacts is based on recipients and other households that were still active in the Demand Experiment two years after they enrolled. In contrast, the analysis of participation discussed in the previous section was based on all enrolled households, regardless of how long they remained in the Experiment; households were counted as participants if they ever met requirements and received an allowance payment.

Analysis based on households still enrolled at the end of two years represents a more permanently eligible (or at least more permanently eligible and interested) population than that represented by all enrolled households.[2] These households would be expected to have higher participation rates and larger housing changes both because they had more time to participate and more reason, in terms of total payments over time, to change their housing. Thus, for example, a housing allowance program might serve the temporarily and permanently poor in quite different ways. For the temporarily poor, it

---

[1]The results in this section are largely based on analyses by Joseph Friedman and Daniel H. Weinberg, reported in Friedman and Weinberg (1978 and 1979). These in turn benefited from earlier analyses by Stephen K. Mayo (1977), and Joseph Friedman and Stephen D. Kennedy (1977).

[2]Of the 1,254 households enrolled in the Housing Gap plans, 806 or 64.3 percent were actively enrolled at the end of two years. Of the 448 dropouts, 238 or 53.1 percent are known to have left the Experiment for reasons that made them ineligible (there may have been more). Thus, the retention rate among eligibles was almost 80 percent.

might provide a form of emergency assistance, essentially helping to relieve the financial strain of remaining in decent housing. For the permanently poor, an allowance might more often provide the means for obtaining the decent housing that they otherwise would not possess. Large differences between the participation rates for two groups might suggest, therefore, that the preponderance among participants of households that would have met requirements normally in the absence of the allowance offer in part simply reflects the program's effect for temporarily poor households.[1]

In fact, the participation rates are not that different. Kennedy and MacMillan (1979) also analyzed participation among the more permanently eligible and interested households that remained eligible and enrolled for at least two years after initial enrollment. The results, summarized in Table 4-13 show only slightly higher participation rates and program impacts than those for all enrolled households shown in Table 4-10. While the allowance

---

[1]Estimates of participation based on all enrolled households would still be expected to provide better estimates of participation in an ongoing program, however. In an ongoing program, turnover in the eligible population would result in a corresponding turnover in the enrolled population as households that ceased to be eligible were replaced by newly eligible households. This would also, however, be expected to reduce participation rates both in the Experiment and in an ongoing program. Households that did not meet requirements at enrollment needed time, and in some cases considerable time, to meet the requirements and participate. If some households did not remain eligible for long periods, they may not have participated simply because they were not eligible for long enough.

Households that became ineligible were not replaced in the Demand Experiment. Under certain circumstances, however, the cumulative participation rate of all enrolled households will estimate the current participation rate in an ongoing program. In effect the time that enrolled households remained eligible matches the time profile of the enrolled population. Thus, households that would not remain eligible long enough to participate in an ongoing program are matched by enrolled households that did not remain eligible long enough to participate in the Demand Experiment programs. Turnover need not only be a matter of eligibility. Enrolled households were both eligible and, in a general sense, interested in participating. Changes in household circumstances over time may leave households eligible, but also make participation more or less appealing, by changing their prospective allowance payment or making reporting requirements appear more or less onerous. As long as such revision in the households' pre-enrollment assessment of the program in fact represents a turnover process, the same conclusions apply as for turnover in the eligible population alone.

These sorts of issues were first brought to my attention by analysts at RAND. For further discussion, see Kennedy and MacMillan (1979), Appendix VII.

Table 4-13

IMPACT AND PARTICIPATION UNDER DIFFERENT REQUIREMENTS FOR HOUSEHOLDS STILL ENROLLED AND ELIGIBLE AT THE END OF TWO YEARS

	MINIMUM STANDARDS	MINIMUM RENT HIGH	MINIMUM RENT LOW
Stringency of requirements (probability of not meeting requirements in the absence of an allowance program)	71%	67%	40%
Impact on recipients (change in percentage meeting requirements)	41	35	25
Subsequent participation rate	49	51	80
Impact on enrolled households	20	18	20
Acceptance rate	78	78	78
Impact on eligible households	16	14	16

SOURCE: Kennedy and MacMillan (1979), Chapter 5, Table 5-5.

offer does, as expected, have more effect for households that had a considerable period of time in which to respond, the differences are not large. Analysis based on this group of more permanently eligible households should not, therefore, materially misrepresent conditions in an ongoing program.[1,2]

The basic focus of Friedman and Weinberg's analysis is on comparisons with two alternatives to housing allowances--having no program and adding a comparable unrestricted cash transfer or income maintenance program to the current welfare system. The comparison with no program is based on comparisons of allowance recipients with appropriate Control households. The comparison with unrestricted cash transfers is based on comparisons with Unconstrained households. As with participation, impacts can be examined both in terms of the average impact on recipients (or per dollar of payment) or in terms of impacts on all eligible households. The former is appropriate for evaluation of alternative limited entitlement programs, while the latter is relevant to alternative universal entitlement programs.

Consider first the Minimum Standards allowance program tested in the Demand Experiment. Table 4-13 indicates that among the more permanently eligible recipients represented by households receiving payments at the end of two years, 41 percent were moved from substandard to Minimum Standard housing by the allowance program. In terms of all eligible households, impacts were smaller; 16 percent of eligible households were moved from substandard to Minimum Standard housing by the allowance. Friedman and Weinberg made a similar analysis of the impact of the Unconstrained program on the propor-

---

[1]The acceptance rate in Table 4-13 is simply the overall Housing Gap acceptance rate. No attempt was made to determine whether acceptance rates were higher or lower among households that would remain eligible for two years or more.

[2]There is a technical issue involved in analysis of households at the end of two years that deserves some mention. The problem is that estimates of program effects may be biased if there is differential attrition between Experimental and Control households. It is possible to incorporate such effects directly in the estimation procedure following, e.g., Heckman (1976), and Hausman and Wise (1977). This was not done here. Instead, analyses by both Kennedy and MacMillan and Friedman and Weinberg exploited strong serial correlation of housing behavior to estimate differences between households that dropped out and those that remained in the program. The results indicated that differential attrition, if it occurred, did not materially affect the estimates. (See Kennedy and MacMillan (1979), Appendix VI; Friedman and Weinberg (1978), Appendix XI; and, Friedman and Weinberg (1979), Appendix VI (Tables VI-14 and VI-15).)

tion of households in Minimum Standard housing and found trivial and insignificant effects in both sites.[1] As a result, the impacts of a Minimum Standards allowance program on the proportion of households in Minimum Standard housing presented in Table 4-13 apply equally to comparisons with Control and Unconstrained households.

In comparison to a limited entitlement unrestricted cash transfer, then, a Minimum Standards allowance with reasonably stringent requirements would move a much larger proportion of recipients from substandard to Minimum Standard housing. The difference in impact for all eligible households would be much smaller. An Unconstrained program might reach roughly 85 percent of households with little or no imapct on the proportion in standard housing. A Minimum Standards program would reach roughly half as many households with accordingly much lower total program costs and an additional 16 percent of households in standard housing.

Housing impacts need not be evaluated exclusively in terms of the requirements imposed by an allowance program. Almost any set of reasonable standards may be simultaneously faulted as woefully incomplete and arbitrarily petty in its details. The number of potentially serious hazards and unacceptable conditions that may be identified from conversation with experts or examination of housing codes startle the uninitiated and are probably completely avoided by very few households, regardless of income. At the same time, many individual items, even if potentially important, may seem of such unlikely consequence that they will be regarded as unduly onerous, excluding apparently desirable units on the basis of absurdly rigid and capricious rules. This is especially likely when standards are clearly defined enough to serve as the basis for objective evaluation independent of an evaluator's subjective impressions and tastes. Objective rules require exact definitions, which are always somewhat arbitrary. The Minimum Standards used in

---

[1]Friedman and Weinberg (1979) estimated the impact of both the Minimum Standards programs tested in the Demand Experiment and the Unconstrained program, but only for households that did not meet requirements at enrollment. They used the same sort of logistic specification as Kennedy and MacMillan (1979), but different variables. Nevertheless, their results for Minimum Standards households were quite similar to the estimates in Kennedy and MacMillan. Given similar households to those enrolled in the Minimum Standards plans, their estimates of effects for Unconstrained households would imply overall effects for all Unconstrained recipients of about four percentage points.

the Demand Experiment, for example, included a requirement that rooms have operable windows with an area equal to 10 percent of the floor area. While some sort of light and ventilation requirement seems quite reasonable, the 10 percent minimum is clearly arbitrary (9 or 11 would surely do as well).

One approach to the problems involved in posing a reasonable set of standards is to argue that while any set of standards is somewhat arbitrary, reasonable sets of standards will by and large either agree with each other or be clearly recognizable as more or less stringent. Thus, for example, Budding (1978), in developing the standards used to classify housing as clearly inadequate, pointed out that most units failed several items, so that while elimination or alteration of specific details might affect particular units, it would not materially change the overall findings on unit adequacy. Likewise, when Budding developed a deliberately more stringent standard for classifying units as apparently adequate, he created a standard very much like the Minimum Standards in overall effect, and even specific unit evaluations, though different in several details.

The imposition of housing requirements may, therefore, be justified not because meeting the specific requirements themselves are the goals of housing policy, but because the requirements are regarded as proxies for general standards of decent housing. If this is true, then program impacts should not be tightly focused on the specific Minimum Standards requirements, but should be apparent under alternative standards as well. In fact, a central finding of Friedman and Weinberg's analysis is that this is not the case. When Friedman and Weinberg estimated the impact of the Minimum Standards allowance on the proportion of households in acceptable housing using Budding's measures of housing adequacy, estimated effects were generally much smaller than those found in terms of the required Minimum Standards and were no longer significantly different from the impacts of the Unconstrained program.

Table 4-14 compares the estimated impact of Minimum Standards allowances on the proportion of households in acceptable housing when acceptability is determined using Minimum Standards or Budding's measures. Table 4-14 is restricted to households that did not meet Minimum Standards requirements at enrollment, since these are the households for which the Minimum Standards allowance had the greatest effect. Impacts on the proportion of households in apparently adequate housing are much smaller than impacts on the propor-

Table 4-14

ESTIMATED EFFECT OF THE MINIMUM STANDARDS ALLOWANCE ON THE PERCENTAGE OF HOUSEHOLDS IN ACCEPTABLE HOUSING AT THE END OF TWO YEARS UNDER ALTERNATIVE MEASURES OF ACCEPTABILITY: FOR HOUSEHOLDS THAT WERE NOT IN MINIMUM STANDARDS HOUSING AT ENROLLMENT

	PERCENT OF CONTROL HOUSEHOLDS IN ACCEPTABLE HOUSING AT THE END OF TWO YEARS UNDER EACH MEASURE	ESTIMATED PERCENTAGE POINT IMPACT OF THE MINIMUM STANDARDS ALLOWANCE ON THE PERCENTAGE OF ENROLLEES IN ACCEPTABLE HOUSING AT THE END OF TWO YEARS	
		Impact[a]	t-statistic
	PITTSBURGH		
Minimum Standards	10%	20%	5.65**
At least apparently adequate	18	6	1.39
Not clearly inadequate	60	-[b]	0.08
SAMPLE SIZE	(243)	(155)	NA
	PHOENIX		
Minimum Standards	24%	28%	5.16**
At least apparently adequate	30	13	2.30*
Not clearly inadequate	50	18	3.54**
SAMPLE SIZE	(218)	(133)	NA

SOURCE: Friedman and Weinberg (1979), Tables 2-2, 2-3, 2-4, VII-1, VII-10, VII-14.

a. Impacts are estimated impact above the acceptability rate of Control households.

b. Less than one percentage point.

† Significant at the 0.10 level.

* Significant at the 0.05 level.

** Significant at the 0.01 level.

tion in Minimum Standard housing in both sites and are not significantly different from zero in Pittsburgh. This is true despite the fact that Budding's apparently adequate standard is very closely related to the Minimum Standards requirements.[1] Estimated impacts on the proportion of households not in clearly inadequate housing are again near zero in Pittsburgh and larger (but still less than the change in the percentage of households in Minimum Standard housing) in Phoenix. The impact of a Minimum Standards requirement appears to be quite specific to the requirements imposed, with much smaller impacts in terms of alternative criteria of unit acceptability.[2]

The difference between the two sites in Table 4-14 is also worth noting, since it is typical of a recurring pattern in Friedman and Weinberg's analysis. While the estimated proportion of Minimum Standards enrollees that were moved into Minimum Standard housing is larger in Phoenix than in Pittsburgh, the difference is not statistically significant and may in part at least reflect differences in payment levels. In contrast, Phoenix shows significantly higher impacts than Pittsburgh under either of Budding's measures and substantially larger impacts in terms of reducing the proportion of households in clearly inadequate housing. It appears that the Minimum Standards households that were induced by the allowance to obtain Minimum Standard hous-

---

[1]Budding's (1978) "apparently adequate" standard gave the same classification as the physical component of Minimum Standards for 90 percent of enrollment units. The relation is not so close at two years, however. Some of the difference in impact under the two measures reflects the "grandfather clause" in the Minimum Standards requirements indicated in Chapter 3. Once households met the Minimum Standards, they continued to meet requirements as long as they remained in that unit. Thus, some Minimum Standards recipients did not meet the standards at two years. Tabulations by Kennedy and MacMillan (1979, Table III-4) suggest that evaluating housing in terms of the Minimum Standards requirements without the "grandfather clause" would have reduced estimates of program impact by about seven percentage points in Pittsburgh and four in Phoenix. Thus, the rest of the 14 percentage point difference between impact measured in terms of Minimum Standards and impact measured in terms of minimally adequate housing must reflect occupancy requirements or the details of the differences in physical requirements. All of these differences, including the "grandfather clause" effects, indicate very specific responses to the details of requirements.

[2]As noted earlier, Friedman and Weinberg's estimate of the impact on the proportion of households in Minimum Standard housing is almost identical with that of Kennedy and MacMillan for this same group (households at the end of two years that did not meet Minimum Standards at enrollment). See Friedman and Weinberg (1979), Table II-1 and Kennedy and MacMillan (1979), Tables XV-6 and XV-7.

ing in Pittsburgh were generally not drawn from households that would have occupied clearly inadequate housing under Budding's measure. Rather, they appear to have been households in ambiguous or even apparently adequate units. In contrast, under the Minimum Standards allowance program in Phoenix, a large portion (perhaps two-thirds)[1] of the households induced to obtain Minimum Standard housing were drawn from households in clearly inadequate housing. While the allowance program appears to have led the same proportion of households to make additional housing changes in each site, the changes involved seem to be larger in Phoenix.

This pattern recurs in other analyses. The reasons, however, are not clear. Specifically, Friedman and Weinberg were not able to account fully for site differences in terms of differences in payments, in the demographic characteristics of enrollees, or in mobility. Interestingly, though again inexplicably, the Unconstrained program also had larger effects in Phoenix.

The obvious hypothesis is that these differences in response reflect differences in the housing markets in the two sites as opposed to differences in program payments and household mobility or demographic characteristics. Thus, the Housing Gap analysis, like the results for Minimum Standards and Minimum Rent High in Figure 3-3, gives the impression that various measures of housing quality were more highly correlated in Phoenix. Why this would be true, and whether it is true, is not clear. Beyond this, as noted at the beginning of Chapter 3, Pittsburgh was an older, stable metropolitan area, with a declining central city population and moderate vacancy rates at the beginning of the Demand Experiment. In contrast, Phoenix was newer, rapidly growing, with a high vacancy rate (following a substantial construction boom). In addition, the estimated inflation in rents during the Experiment was about 13 percent in Pittsburgh and 7 percent in Phoenix (see Appendix I).

One of the problems in understanding site differences, however, is the many areas in which the sites gave similar results. Thus, estimated expenditure responses to changes in housing prices discussed later in this chapter were almost identical (Friedman and Weinberg, 1978). Likewise, analyses of participation (Kennedy and MacMillan, 1979) and mobility (MacMillan, 1978) were also able to pool the two sites. Understanding why differences did and did not arise is clearly an important area for further research.

---

[1] Eighteen percent/28 percent = 0.64.

Although the Minimum Standards allowance did place more enrollees in Minimum Standard units than the Unconstrained program in both sites, when housing is evaluated using the alternative standards provided by Budding's measure, it has no greater impact on recipients than the Unconstrained program in either site. Table 4-15 compares the estimated impact for the Minimum Standards and Unconstrained programs on the percentage of households in minimally adequate and not clearly inadequate housing at the end of two years. The top half compares implied effects for recipients. When housing is measured in terms of different standards from those explicitly enforced by the Minimum Standards requirements, the estimated impact on enrolled Minimum Standards households is neither materially larger nor significantly different from that estimated for Unconstrained households. In terms of a universal entitlement program, then, the two programs have the same overall impact on housing under these measures. The only difference is that the Unconstrained program reaches about twice as many households.

The estimated impact per recipient of housing allowances is, of course, larger. Since only 49 percent of Minimum Standards households still enrolled in the Demand Experiment at the end of two years were participants, the estimated impact per recipient for this program is roughly twice that shown for all enrollees. Even in terms of recipients, however, estimated impacts of the Minimum Standards programs are materially larger than those for the Unconstrained program in only one instance--for the proportion in minimally adequate housing in Phoenix.

The comparisons with Unconstrained households in Table 4-15 are hampered by the relatively small number of households assigned to the Unconstrained program in the Demand Experiment.[1] Nevertheless, it seems clear that if specific program standards are thought of not as goals in themselves, but as proxies for a more general concept of decent housing, a Minimum Standards program may produce little or no greater housing change than a similar Unconstrained

---

[1]The sample of Unconstrained households was reduced in part on the assumption that data generated from the income maintenance experiments could be used to supplement the information from the Demand Experiment. This has been done to some extent (see Ohls and Thomas, 1979). More can be done to the extent that issues are clearly identified and responses do not seem to involve unexplained site effects which would vitiate comparisons of data from different cities. Unfortunately, as indicated in the text, the latter condition has not yet been met.

Table 4-15

PROGRAM IMPACTS AT THE END OF TWO YEARS UNDER ALTERNATIVE STANDARDS OF EVALUATION: ALL HOUSEHOLDS

	ESTIMATED CHANGE IN THE PERCENTAGE OF HOUSEHOLDS LIVING IN		
	HOUSING THAT WAS ADEQUATE AT TWO YEARS	HOUSING THAT WAS NOT CLEARLY INADEQUATE AT TWO YEARS	SAMPLE SIZE
ALL HOUSEHOLDS ENROLLED AT THE END OF TWO YEARS			
Pittsburgh			
Minimum Standards enrollees	+4%	+2%	(198)
Unconstrained enrollees	+8	+3	(61)
Difference	-4	-1	
Phoenix			
Minimum Standards enrollees	+11*	+14**	(166)
Unconstrained enrollees	+10	+22**	(39)
Difference	+1	-8	
ALL RECIPIENTS AT TWO YEARS[a]			
Pittsburgh			
Minimum Standards enrollees	9	4	(87)
Unconstrained enrollees	8	3	(61)
Difference	+1	2	
Phoenix			
Minimum Standards enrollees	20*	25**	(93)
Unconstrained enrollees	10	22**	(39)
Difference	10	3	

SOURCE: Friedman and Weinberg (1979), Chapter 2, Table 2-4.

a. Estimated effects for Unconstrained recipients are the same as those for all enrolled Unconstrained households since all enrolled Unconstrained households were recipients. For Minimum Standards households, estimated effects for recipients are inferred from those for enrolled households by dividing by the proportion of enrolled households that were recipients (0.44 in Pittsburgh and 0.56 in Phoenix).

† Significant at the 0.10 level.

* Significant at the 0.05 level.

** Significant at the 0.01 level.

program without housing requirements. The additional housing change generated by requirements is focused on the requirements themselves.

The idea that the details of program standards are frequently not of concern in themselves may be carried a step further. It seems possible to argue that what is of concern to many people in thinking about adequate housing is not any specific set of items but rather some overall average of unit features and defects. While there may be some conditions so serious that they must automatically exclude a unit from the roster of acceptable dwellings, in most cases, concerns may not involve passing or failing some specific requirement as much as the overall quality of the unit reflected in the number and importance of compensating defects and amenities. Such weighted rating schemes have been created by the American Public Health Association. Indeed, it can be argued that the housing market itself provides an overall rating of unit and locational quality in terms of the rent which a unit commands.[1]

Unit rents are, however, clearly not simply determined by unit and locational amenities. Most obviously, housing prices differ from place to place, so that the housing provided by a $130 per month apartment is undoubtedly different in Pittsburgh and Phoenix. But unit prices vary within a city as well. Most people who have searched at all extensively for rental housing have found that apparently comparable units in comparable neighborhoods rent for sometimes quite different amounts. This may be due to a variety of factors, but in any case means that unit costs do not always reflect their average market value.[2]

---

[1]Specifically, it can be argued that if the market places a higher price on a unit, it is in some general sense a better unit or at least provides "more" housing services than a cheaper unit. Even apart from the price heterogeneity discussed below, however, this does not mean that unit costs reflect a consensus about the relative importance or desirability of different housing amenities. A direct analogy is bundles of groceries. In a certain sense a $40 bundle has "more food" than a $20 bundle, but will not necessarily be better from a policymaker's or individual consumer's perspective. (See Merrill, 1977, Appendix I, e.g., for a further discussion of these issues.)

[2]The basic reason for such cost differentials should be limited information. It takes time for tenants and landlords to assemble information about going rents and would be prohibitive for them to attempt a detailed inventory. Given this uncertainty, the pattern of cost differentials around average market value would be expected to be conditioned by tenant search behavior and landlord rent/vacancy rate strategies, as well as other systematic factors. (Merrill, 1977, e.g., finds strong evidence that long-term tenants tend to pay less on average than new tenants either because landlords discount rents to encourage good tenants to stay and/or avoid the vacancy and maintenance costs of unit turnover or because tenants with good deals tend to stay put.)

On average, of course, such exceptionally good or bad deals cancel out, so that the average rents paid by a group of households may well reflect the average market value of their units. There is reason to believe, however, that some groups of households may be better or worse shoppers than others and that housing programs may affect the shopping behavior of recipients. This means that average rents paid by recipients could systematically over- or under-estimate the market value of their units.[1]

One way around this problem is to estimate the market value of units directly in terms of physical and locational characteristics. As was discussed in Chapter 3, the Demand Experiment collected detailed information on the rent and physical and locational attributes of every dwelling unit occupied by enrolled households during the course of the Experiment. This information was used to estimate average rental value as a function of unit and neighborhood characteristics. Thus, these estimated market values may be used instead of actual rents to take account of possible systematic over- or under-payments.[2]

Evaluation of housing change in terms of unit rents or estimated market value again illustrates the specificity of the Minimum Standards requirements. Table 4-16 presents Friedman and Weinberg's (1979) estimates of the percentage change in rents and market value for all enrollees and for recipients under the Minimum Standards and Unconstrained programs.[3] The figures represent the

---

[1]Alternatively, some classes of units may represent unusually good or bad deals, on average, regardless of any changes in shopping behavior. In particular, units that have rents above a Minimum Rent level will tend to exclude very good deals (exceptionally low rents) by definition.

[2]There are potential problems with the use of estimated market rents, however. The list of unit descriptors cannot possibly be complete. Thus, differences between unit rents and estimated market values may reflect not cost differentials but rather differences in unit quality not included in the hedonic index. This problem is discussed further in Kennedy and Merrill (1979). It was carefully addressed only for the Percent of Rent plans discussed later in this chapter.

[3]The procedure used to estimate program effects was as follows. The experience of Control households was used to predict normal expenditures (or market values) at the end of two years as a function of demographic characteristics at enrollment and at the end of two years and taking account of serial correlation. Comparison of actual and predicted values for program recipients provides the basic estimates of program effects. These estimates were then corrected for the bias introduced by recipient self-selection based on results for nonrecipients (or estimated Control "nonrecipients"). As noted earlier, corrections for differential attrition were found to be unnecessary. For details, see Friedman and Weinberg (1979).

Table 4-16

IMPACT ON EXPENDITURES AND MARKET VALUE

	PERCENTAGE INCREASE ABOVE NORMAL LEVELS FOR					
	PITTSBURGH			PHOENIX		
	MINIMUM STANDARDS	UNCONSTRAINED	DIFFERENCE[a]	MINIMUM STANDARDS	UNCONSTRAINED	DIFFERENCE[a]
FOR ALL ENROLLED HOUSEHOLDS[b]						
Percentage increase in expenditures	1.7% (1.7)	2.6% (3.1)	-1.1% (3.5)	7.3%** (2.7)	16.0%** (5.6)	-8 7% (6.2)
Percentage increase in market value	0.1 (1.4)	3.4 (2.5)	-3.3 (2.9)	2.7 (2.3)	12.6** (4.7)	-9.9† (5.2)
SAMPLE SIZE[c]	(186)	(59)		(161)	(37)	
FOR RECIPIENTS[d]						
Percentage increase in expenditures	4.3% (2.7)	2.6% (3.1)	1.5% (2.6)	16.2% (3.9)	16.0% (5.6)	0.3% (3.4)
Percentage increase in market value	3.1 (2.5)	3.4 (2.5)	-0.3 (3.4)	10.2 (3.7)	12.6 (4.7)	-2.2 (5.2)
SAMPLE SIZE[c]	(84)	(59)		(90)	(37)	

SOURCE. Friedman and Weinberg (1979), Tables IX-9, IX-23, IX-4, IX-8, 5-1, 5-8, IX-37, 6-8, and 6-11.

NOTE· Standard deviation in parentheses.

a. The difference is calculated as the difference in estimated effects for all enrolled households. For recipients it is the estimated effect of housing allowances beyond that of Unconstrained payments from a regression which controlled for differences in payments across the two programs.

b. Estimates for all enrolled households are constructed from separate regressions for recipients and nonrecipients.

c. Sample sizes are those for expenditure change. Samples for estimated market value are slightly lower due to missing data.

d. Unlike Table 4-15, estimates for recipients are not derived directly from estimates for all enrolled households. For details, see Friedman and Weinberg (1979), Chapter 4.

† t-statistic significant at the 0.10 level.
* t-statistic significant at the 0.05 level.
** t-statistic significant at the 0.01 level.

median percentage increase in rental expenditures or market value above the normal values that would have prevailed in the absence of the program. Both programs show small and insignificant effects for recipients in Pittsburgh and much larger, but still similar effects, for recipients in Phoenix. The estimated effects for all enrolled households are lower for Minimum Standards in all cases (and significantly so in terms of market value in Phoenix).

Again, there is a marked difference in the impact of programs between the two sites. At the same time, when housing change is measured either in terms of expenditures or market value, the Minimum Standards program had no greater impact on the housing of recipients than the Unconstrained program in either site. Thus, the additional effect of the Minimum Standards requirements in placing households in Minimum Standard housing was not translated into larger changes in the overall cost or estimated market value of units.

The advantages of a Minimum Standards housing allowance over a similarly formed Unconstrained program depend, therefore, on the extent to which placing households in housing that meets some specific set of physical and occupancy standards is regarded as critically important. The additional housing impact created by the imposition of Minimum Standards housing requirements is generally smaller when housing is evaluated in terms of alternative standards than those specifically required; indeed, there appears to be no additional impact for enrolled households and there may be none for recipients. When housing is eavluated in terms of costs or market value, there is clearly no additional impact, even for recipients.

Minimum Rent requirements were originally proposed as an alternative to Minimum Standards on the grounds that they might provide a reasonably effective proxy for physical standards that would be much easier for recipients to meet and for program administrators to enforce. The specificity of response to requirements found for Minimum Standards requirements suggests that Minimum Rent requirements would not in fact provide a very good proxy for physical standards. This is indeed the case. Analysis by Friedman and Weinberg found that the Minimum Rent programs had no effect on the percentage of households in Minimum Standard housing in either site. Likewise, the standards based on Budding's measure of housing adequacy yielded no effect on the percentage of households in apparently adequate units. There was a significant estimated reduction in the percentage of households in clearly inadequate units in Phoenix, but less than that estimated for Unconstrained house-

holds. This finding is further confirmed by the observation in Chapter 3 that households that met even the Minimum Rent High requirements were only marginally more likely to live in housing that met any of several physical standards.

Even if Minimum Rent requirements cannot be used as a proxy for physical standards, they might still provide an alternative program focused on the notion of housing adequacy as an average of deficiencies and amenities represented by, for example, market value. Since Minimum Rent requirements specifically relate to rent, they might be expected to yield larger impacts on recipient expenditure and, accordingly, on market value. A Minimum Rent program does in fact achieve higher spending levels by recipients. By setting a floor on rent, however, it also denies households access to exceptionally low-cost units. Because of this, Minimum Rent recipients tend to pay above-average rents for their units. The net result is that when units are evaluated in terms of their market value as opposed to their cost, the Minimum Rent allowance programs tested in the Demand Experiment show only marginally greater impact per recipient (or per dollar) than a similar Unconstrained program.

This is shown in Table 4-17, which presents the estimated effects of the Minimum Rent programs tested in the Demand Experiment for both recipients and all enrolled households. As with Minimum Standards, effects were much larger in Phoenix than in Pittsburgh. Among recipients, the higher Minimum Rent requirements produced larger increases in expenditures than the lower Minimum Rent requirement in both sites. These increases were also significantly larger than those for Unconstrained households. Differences in terms of market value were smaller and not significantly or substantially different from those found for Unconstrained households.

Among all enrolled households, on the other hand, increases in expenditures under the Minimum Rent requirement were significant and substantial only in Phoenix and were essentially the same for both requirement levels. Indeed, increases in expenditures are almost identical to those found for the Unconstrained program. The lower participation rate under the Minimum Rent requirements effectively offsets their greater effect for recipients to produce essentially equal effects for programs with no requirements, with moderate requirements (Minimum Rent Low), and with reasonably stringent requirements (Minimum Rent High). As with recipients, changes in market

Table 4-17

IMPACT OF MINIMUM RENT ALLOWANCES ON EXPENDITURES AND MARKET VALUE

	PITTSBURGH		PHOENIX	
	MINIMUM RENT LOW	MINIMUM RENT HIGH	MINIMUM RENT LOW	MINIMUM RENT HIGH
FOR ALL ENROLLED HOUSEHOLDS[a]				
Percentage increase in expenditures				
Above normal levels	2.3% (2.2)	4.3% (2.2)	17.1%** (3.8)	16.5%** (3.7)
Difference from Unconstrained[b]	-0.3 (3.8)	1.7 (3.8)	1.1 (6.7)	0.5 (6.7)
Percentage increase in market value				
Above normal levels	0.4 (1.8)	-1.1 (1.7)	8.7 (3.1)	6.4 (2.8)
Difference from Unconstrained[b]	-3.0 (3.1)	-4.5 (3.0)	-3.9 (5.6)	-6.2 (5.4)
SAMPLE SIZE[c]	(120)	(107)	(89)	(91)
FOR RECIPIENTS[d]				
Percentage increase in expenditures				
Above normal levels	2.8% (2.5)	8.5% (3.6)	15.7%** (4.4)	28.4%** (6.3)
Difference from Unconstrained[b]	0.1 (3.9)	-5.8† (3.5)	-0.2 (3.8)	10.7* (5.4)
Percentage increase in market value				
Above normal levels	0.0 (2.0)	0.9 (2.6)	11.0** (3.8)	18.0** (4.9)
Difference from Unconstrained[b]	-3.4 (3.0)	-2.4 (3.5)	-1.5 (5.3)	4.8 (6.2)
SAMPLE SIZE[c]	(101)	(57)	(68)	(45)

SOURCE: Friedman and Weinberg (1979), Tables IX-2, IX-3, IX-6, IX-7, IX-8, 5-8, 5-10, 5-11, 5-14, 6-9, 6-10, 6-11, IX-43, and IX-44.

NOTE: Standard deviation in parentheses.

a. Estimates for all enrolled households are constructed from separate regressions for recipients and nonrecipients.

b. The difference is calculated as the difference in estimated effects for all enrolled households. For recipients it is the estimated effect of housing allowances beyond that of Unconstrained payments from a regression which controlled for differences in payments across the two programs.

c. Sample sizes are those for expenditure change. Samples for estimated market value are slightly lower due to missing data.

d. Unlike Table 4-15, estimates for recipients are not derived directly from estimates for all enrolled households. For details see Friedman and Weinberg (1979), Chapter 4

† t-statistic significant at the 0.10 level.

* t-statistic significant at the 0.05 level.

** t-statistic significant at the 0.01 level.

value under the Minimum Rent programs are smaller than changes in expenditures and uniformly (but not significantly) lower than those found for the Unconstrained program.

A Minimum Rent program is not, however, the only alternative if program goals are focused on the weighted average of deficiencies and amenities represented by market value. A rent rebate program might also be used to encourage general increases in the housing expenditures or market value of units occupied by low-income households. Unlike Minimum Rent or Minimum Standards programs, a rent rebate plan does not need to involve housing requirements. Thus, potential participation under this sort of housing allowance is essentially the same as that for an Unconstrained program. In addition, while rent rebates, like Unconstrained transfers, have little or no effect in terms of physical standards, they can achieve substantially greater increases in housing expenditures than comparable Unconstrained programs.

At the same time, there are drawbacks to a rent rebate plan. First, it is apparent that such plans reduce incentives to shop carefully and do result in some average overpayment among rebate recipients. These overpayments are modest in relation to overall rent but absorb almost half of the change in expenditures. As a result, the advantages of a rent rebate program may be marginal within the payment ranges considered in the Demand Experiment. Furthermore, while the Percent of Rent rebates tested in the Demand Experiment yielded clear and consistent results for nonminority households, their effectiveness for minorities is much less clear, though the results in the two sites are mixed.

The Percent of Rent plans tested in the Demand Experiment simply offered households assigned to them rent rebates equal to some fraction of their total rent. Five plans were tested using rebates of 20, 30, 40, 50, and 60 percent of rent. These plans essentially reduced the price to recipients of any unit in the Experimental area by the amount of the rebate. Thus, for example, a household with a 40 percent rebate would only pay 60 percent of the cost of a unit from its own pocket. Unlike the Housing Gap plans, the Percent of Rent plans were not intended to provide direct tests of possible programs. Instead, by providing data on how households respond to different rebate offers, they provide the basis for estimating responses under a variety of possible programs. Thus, for example, an actual rent rebate program would probably offer higher rebates to lower-income households

and might also offer rebates only up to some target rent level.

Kennedy and MacMillan found that responses to the Housing Gap offers in terms of participation and changes to meet requirements were not significantly different in the two sites once differences in the normal propensity to meet requirements were taken into account. Friedman and Weinberg's analysis of responses to the Housing Gap programs measured in terms of other standards, housing expenditures, or market value, on the other hand, showed very different responses in the two sites, although the patterns across different requirements were similar. This was not true for Percent of Rent. Friedman and Weinberg's (1978) analysis of changes in housing expenditures under the various Percent of Rent rebates tested in the Demand Experiment found that responses were essentially the same in the two sites when differences in housing prices and mobility rates were taken into account. The same was true of changes in market value, but only for nonminority households. The results presented below are accordingly presented first for nonminority and then for minority households and represent the average of estimated responses in the two sites.

Interestingly, Friedman and Weinberg's Percent of Rent analysis also found that responses to changes in income were the same in Pittsburgh and Phoenix, despite the substantial differences in response to the Unconstrained offers. In the Percent of Rent analysis, Friedman and Weinberg estimated the effects of income changes by examining cross-sectional differences in housing expenditures and market value across households with different income levels. These yielded very similar estimates in the two sites. Furthermore, these estimates were close to estimates based on analysis of responses to Unconstrained income maintenance payments in the Seattle-Denver Income Maintenance Experiment.[1] Yet, as noted above, direct estimates of the effects of the cash transfers offered by the Unconstrained program were very different in the two sites. This may in part reflect sampling variations associated with the small samples assigned to the Unconstrained plan in the Demand Experiment. In any case, the comparisons of responses under Percent of Rent and Unconstrained plans presented here reflect these cross-sectional estimates.

---

[1]See Ohls and Thomas (1979).

Rather than attempt to devise and estimate responses to actual rent rebate programs, Table 4-18 simply compares the rent rebate and Unconstrained payments needed to achieve a given percentage change in housing expenditures for a "typical" nonminority household with an annual income of $4,500 and a rent burden of 33 percent (or $125 per month). Similar differences would be apparent at other income and rent levels.[1] As shown in Table 4-18, the rebates and rebate payments required rise sharply with the percentage increase in expenditures desired. Indeed, increases of over 30 percent would require rebates beyond the range tested in the Demand Experiment and average payments above those offered under the Housing Gap formulas.

Results for a comparable Unconstrained program are indicated in two ways in Table 4-18--first by comparing the Unconstrained payment needed to achieve the same increase in expenditures and then by comparing the change in expenditures for an Unconstrained program with the same average payment as the rent rebate. The Unconstrained payments needed to obtain the same increase in expenditures would vary from almost 2.5 to 4.2 times those required under a rent rebate program. Likewise, the increases in expenditures obtained under an Unconstrained program are from less than half to less than a third of those obtained under a rent rebate with the same average payment.

Unfortunately, rent rebates, like Minimum Rent requirements, have significant effects on recipient shopping behavior. A rent rebate reduces household incentives to shop carefully for housing. Since the rent rebate payments are determined by unit rent, the program in effect pays for part of the loss associated with any overpayment. Similarly, gains from careful shopping are reduced by the loss of the rebate on rent saved. As a result, Percent of Rent recipients paid significantly more than average market value for their units. This is shown in the first line of Table 4-19, which estimates the increase in market value associated with the increases in expenditures from Table 4-18. Increases in market value were only a little more than half the increases in expenditures. Thus, in this example, recipients would on average pay from 4

---

[1]Estimates are based on a log-linear expenditure function. Under the log-linear specification, the amount of the payment under each program would vary with income and rent level, but the ratio of payments under the two programs depends only on rent burden (see Friedman and Weinberg, 1978, Chapter 2). Friedman and Weinberg also estimated a linear expenditure function (the "Stone-Geary" formulation) without any material difference in results.

Table 4-18

COMPARISON OF RENT REBATE AND UNCONSTRAINED PROGRAMS IN TERMS OF CHANGES IN HOUSING EXPENDITURES FOR NONMINORITY HOUSEHOLDS[a]

	DESIRED CHANGE IN EXPENDITURES			
	10%	20%	30%	40%
RENT REBATE				
Required rebate rate	0.31	0.50	0.63	0.72
Monthly payment	$43	$75	$102	$126
Ratio of change in expenditures to payment	0.29	0.33	0.37	0.40
UNCONSTRAINED				
Required monthly payment	$106	$229	$370	$530
Ratio of change in expenditures to payment	0.12	0.11	0.10	0.09
COMPARISON				
Ratio of Unconstrained payments to rent rebate payments to obtain equal changes in expenditures	2.47	3.05	3.63	4.21
Change in expenditures under an Unconstrained program with the same average payment as a rent rebate program	4%	7%	9%	12%

a. Estimates are for a nonminority household with an annual income of $4,500 ($375 per month) and a rent burden of 33 percent ($125 per month) and are based on a log-linear expenditure function of the form

$$\ell nR = \beta_o + \beta_1 \ell n\ (1 - a) + \beta_2 \ell nY$$

where

β_o = the constant term (which varies between sites to account for differences in price levels)

β_1 = the price elasticity of housing demand, the response to change in relative price generated by the rebate fraction, a.

β_2 = the income elasticity of housing demand.

The estimates from Friedman and Weinberg (1978) for nonminority households are:

	Pittsburgh	Phoenix	Two-Site Average
β_1	-0 233	-0.290	-0.262
(Standard deviation)	(0.070)	(0.073)	(0.051)
β_2	0.358	0.406	0.382
(Standard deviation)	(0.059)	(0.050)	(0.039)

percent (under a 31 percent rebate) to 19 percent (under a 72 percent rebate) more than market value for their units.

These shopping effects sharply reduce the relative effectiveness of rent rebates over Unconstrained programs in achieving similar changes in market value. As shown in Table 4-19, the Unconstrained payments necessary to achieve the same increase in market value would still be from 35 to 91 percent larger. However, the actual difference in market value obtained under the two programs is trivial until rebates reach levels of $100 to $125 per month. Even in this case, the difference is only 9 percent or slightly more than $11 per month.

As noted elsewhere in this discussion, the estimated market value of units is based on estimates of market rent as a function of unit and neighborhood characteristics. These estimated values may misstate actual changes in market value associated with changes in characteristics not included in the estimating function. To account for this, the estimates in Table 4-19 are corrected to take account of any general tendency to understate changes in market value. In effect, changes in market value associated with income changes are set equal to changes in expenditures. Changes in market value associated with rent rebates are then inflated in the same proportion. Thus, the comparison of the two programs is made on an equal basis.[1]

The expected effects of rent rebates for minority households are much less clear. In brief, estimates suggest that there is no shopping response among minorities in Pittsburgh and a very large shopping response among minorities in Phoenix. Standard errors are very large, however, so that it is impossible to assert that these differences actually exist. Analysis is further complicated by the fact that different minorities are involved in the two sites (blacks in Pittsburgh and mostly Spanish Americans in Phoenix). Moreover, it has been argued that racial and ethnic discrimination may create distorted price structures for minority households, so that differ-

---

[1]This procedure, developed in Kennedy and Merrill (1979), is in fact intended to provide an accurate estimate of shopping effects as well as simply providing comparable results across the two programs. In effect, the procedure assumes that income is not associated with differences in shopping behavior. Differences between estimated market value and expenditures at different income levels are thus used to estimate the expenditure on unobserved amenities at any rent level, and these in turn provide corrected estimates of total value.

Table 4-19

COMPARISON OF RENT REBATES AND UNCONSTRAINED PROGRAMS IN TERMS OF CHANGES IN MARKET VALUE FOR NONMINORITY HOUSEHOLDS[a]

	INCREASE IN EXPENDITURES UNDER RENT REBATE			
	10%	20%	30%	40%
RENT REBATE				
Increase in market value	6%	11%	16%	21%
Payment	$43	$75	$102	$126
Ratio of increase in market value to payment	0.17	0.18	0.20	0.21
COMPARISON WITH UNCONSTRAINED				
Unconstrained payment needed to obtain the same increase in market value				
Dollar amount	$58	$116	$178	$241
Ratio to rebate payment	1.35	1.55	1.75	1.91
Increase in market value under Unconstrained program with the same payment as rebate program				
Percentage	4%	7%	9%	12%
Difference from rebate	-2%	-4%	-7%	-9%

a. Estimates are for a nonminority household with an annual income of $4,500 ($375 per month) and a rent burden of 33 percent ($125 per month). Estimates are based on a log-linear "market value" function

$$\ell nH = \alpha_0 + \alpha_1 \ell n\ (1 - a) + \alpha_2 \ell nY$$

where H is estimated market value (based on Merrill, 1977), and on the estimated expenditure function used in Table 4-18.

$$\ell nR = \beta_o + \beta_1 \ell n\ (1 - a) + \beta_2 \ell nY$$

The actual estimates, $\hat{\hat{\alpha}}$, are created by setting the market value income elasticity (α_2) equal to the expenditure income elasticity ($\hat{\hat{\alpha}}_2 = \hat{\beta}_2$) and correcting the price term (α_1) by

$$\hat{\hat{\alpha}}_1 = \hat{\alpha}_1(\hat{\beta}_2/\hat{\alpha}_2).$$

For details, see Kennedy and Merrill (1979). Estimated values are

	Pittsburgh	Phoenix	Two-Site Average
$\hat{\hat{\alpha}}_1$	-0.181 (0.075)	-0.117 (0.060)	-0.149 (0.048)
$\hat{\hat{\alpha}}_2$	0 358 (0.059)	0.406 (0 050)	0.382 (0.039)

Standard errors for $\hat{\hat{\alpha}}_1$ (in parentheses) are approximate asymptotic standard deviations.

ences in the effectiveness of rent rebates might be expected. Analysis by Merrill (1977) found little evidence of overall differences in housing prices, but there could still be differences for specific types of housing. At this point, the results for minority households are neither conclusive nor well understood.

It should also be noted that the increases in market value estimated for Percent of Rent plans are not very different from the increases found under the Minimum Rent programs in Phoenix. The apparent advantage of the Percent of Rent plans in terms of effects on recipients is thus confined to Pittsburgh. This again emphasizes the importance of understanding the site differences found in the analysis of responses to the Housing Gap plans.

The shopping incentives created by rent rebates and Minimum Rent requirements place important limits on program design. Allowance programs with explicit physical and occupancy standards are apparently desirable only to the extent that achieving very specific standards outweighs the administrative and equity costs involved in enforcing requirements that effectively exclude many eligible households from receiving program assistance. A program aimed at achieving more general improvements through reduced rents or rent requirements leads to overpayments that substantially undermine the program's effect on the actual housing of recipients.

At the same time, the fact that households apparently do pay different amounts for similar housing suggests that housing programs might be used to direct financial and other assistance to households that have not been fortunate enough to obtain good or even average deals in the housing market. The extent of such price deviations is not known and indeed turns out to be difficult to calculate. It is apparent, however, that the prices paid for housing are not simply a matter of luck. Programs aimed at reducing differences in housing costs by compensating households for overpayments are likely to lead to generally higher prices because they also reduce incentives to shop carefully.

The effects of the shopping incentives created by the various allowance programs have strong implications for the design of other housing programs as well. As noted in Chapter 3, a major difference between a Minimum Standards allowance program and Section 23 or Section 8 is that under the allowance, the amount of the subsidy to households is set on the basis of the average market cost of standard housing. Differences between this average and what

households actually pay are either retained by the household (if it finds a unit at below average cost) or paid for by the household (if it rents a unit at above average cost). As a result, household shopping incentives are essentially undisturbed, and households in fact pay no more or less on average than the normal market price for their units.

The Section 23 or Section 8 Existing Housing programs start from a different calculation. Households are paid the difference between their rent and 25 percent of income. In this situation, there is literally no incentive to the household to control its spending; the program absorbs all costs. This immediately results in the imposition of a ceiling on program rents; participants are not permitted to pay more than the Fair Market Rent for their units. This undoubtedly cuts out very high-priced units and should in itself create some incentive for tenants to shop more carefully. It also restricts tenant choices, denying them access to better units. Furthermore, it seems likely that the price households pay is not simply a matter of (reasonable) effort and diligence. There is also a certain amount of luck involved in finding less expensive units, as well as systematic variations. Households that have lived in the same unit for some time, for example, generally pay less than they would if they were new tenants. Thus, households whose current unit already qualifies for Section 8 would have a cost advantage over those that must find another unit. Likewise, there is some evidence that minorities often pay more for similar units than nonminorities.[1] Thus, an absolute ceiling on participant rents may deny assistance to some households in greatest need.[2]

Even with a ceiling, there is no incentive to hold rents below the ceiling price. As a result, the Section 8 program includes a shopping incentive provision under which tenants share in the savings associated with paying less than the ceiling rents. The analysis of the effects of such cost-sharing in Percent of Rent suggests that incentives will be effective, and in-

---

[1]Merrill (1977) found that housing prices in black neighborhoods in Pittsburgh were about 4 percent higher than those in other neighborhoods. Other authors have found larger differences in other cities.

[2]Indeed, a nationwide evaluation of Section 8 reported that 40 percent of moving recipients and 70 percent of searching nonrecipients said they had difficulty in finding acceptable units at rents less than the Fair Market Rent ceiling (Drury et al., 1978, p. 31).

creasingly effective the larger the share of savings allocated to households. The shopping incentive offered does not, however, appear to have been large; on average, the government would apparently take about 60 percent of the savings realized, and even more for very low-income households.[1] Nor is it clear that it is well understood by households.[2] In any case, it appears that the shopping incentives were not sufficient to offset the strong signals to landlords provided by the Fair Market Rent ceilings. Early analyses of Section 8 indicate very large changes in rent with few or no repairs, apparently to conform to the permissible ceiling.[3]

One important result suggested by these analyses is that a universal entitlement Minimum Standards program might generate only modest pressure on the general housing market.[4] To the extent that requirements are stringent, a relatively large proportion of recipients (but still only a third for the Minimum Standards program tested in the Demand Experiment) will be induced to move from substandard to standard housing. The overall effect for the entire eligible population, however, will be much smaller, since many households will not participate. To the extent that requirements are easily met, participation rates will be higher, but relatively few recipients will have to change their housing, so that the overall demand for standard units may not be substantially increased. These patterns in participation are also apparent in the analysis of impacts on all eligible households from Friedman and Weinberg (1979). Indeed, separate examination of impacts for households

---

[1]The shopping incentive under Section 8 is equal to the recipients' share of unit costs. On average, recipients paid roughly 40 percent of unit costs in 1976 and hence would receive roughly 40 percent of any savings (Drury et al., 1978, p. 60). Very low-income recipients, with low shares and larger potential rent changes, were offered the least incentive to shop carefully.

[2]See Drury et al. (1978), p. 39. It should be noted, however, that there is some evidence from the Demand Experiment that questions about program understanding and household motivation may indicate more about understanding of the questions than understanding of the program. See Friedman and Weinberg (1978), Chapter 6.

[3]Drury et al. (1978), pp. 64-67. Donna Davis has suggested to me that these increases may have arisen because households (and, in particular, elderly households) that were facing large increases in rents after long periods of paying below market rents were especially attracted to or referred to the Section 8 program for assistance. In other words, the rent increases may have led to program participation rather than the other way around.

[4]This was pointed out to us by John Kain and is discussed more fully in his paper in Downs and Bradbury (forthcoming).

that did and did not already meet requirements at enrollment frequently show, as expected, substantial changes in expenditures, market value, and standards among recipients that did not already meet requirements at enrollment and small or non-existent changes for households that were already in required housing.

Even modest increases in the overall proportion of households in Minimum Standard housing could generate a substantial increase in the demand for such housing. Thus, for example, Kennedy and MacMillan found that Minimum Standards allowances tested in the Demand Experiment increase the proportion of all eligible households demanding standard housing from 31 to 43 percent. This is a 12 percentage point increase in terms of the total low-income rental housing stock, and a 39 percent increase in the demand for standard low-income rental housing. Several factors suggest that this would not lead to substantial price increases, however. First, of course, the supply of affordable Minimum Standard housing (given the allowance) may be much larger than that already occupied by low-income households. In theory, the allowance might permit households to compete for higher priced units and hence diffuse the increase in demand across a larger base. On the other hand, Friedman and Weinberg show that participation in the Minimum Standards plans was accompanied by relatively small increases in expenditures. Furthermore, the level of spending was not very different from that maintained by Control households that met Minimum Standards. This suggests that the larger market tapped by allowance recipients would consist of units with similar rents to those already paid by low-income households in standard housing.

The second factor that might mitigate substantial pressures on the price of housing is the fact that participation falls off fairly sharply as the cost of obtaining standard housing increases. The average rent paid by Minimum Standards recipients at the end of two years was $142 per month in Pittsburgh and $170 per month in Phoenix.[1] Kennedy and MacMillan estimate that a 10 percent increase in these prices would have wiped out roughly half of the additional demand for standard housing generated by the allowance (even if all households already in standard housing stayed where they were).[2]

---

[1] See Friedman and Weinberg (1979), Table V-1.

[2] These estimates must be treated gingerly, since they include effects on the normal behavior of households that did not already occupy standard housing at enrollment and may overstate the response involved.

Most important, perhaps, is that many households that met requirements after enrollment directly increased the supply of Minimum Standard housing by upgrading their enrollment units. Analysis by Merrill and Joseph (1979) of upgrading among Minimum Standards and Control households indicates that, among households still enrolled at the end of two years, the Minimum Standards allowance increased the probability of upgrading to meet Minimum Standards among households that did not meet requirements at enrollment by roughly eight percentage points. This accounts for one-third of the households that were induced to meet Minimum Standards requirements. Thus, a third of the additional demand for standard housing was accompanied by an increase in supply through upgrading.

These figures should not be taken to indicate any substantial impact on the overall quality of the housing stock. Merrill and Joseph found that upgrading was clearly focused on relatively minor repairs to better units. Indeed, they found no evidence that the additional upgrading led to any overall increase in the percentage of households that said they or their landlords had made repairs, the average number of repairs, or the reported household expenditures for repairs. Almost all households reported some sort of repairs over the two years involving, on average, about $90 of expenditures by the households themselves (no information is available on landlord costs). It appeared that additional upgrading generally refocused household repairs on items included in the Minimum Standards rather than producing any overall increase in repair activity.

The analysis in this chapter has shown that much of the greater compliance with standards under a Minimum Standards housing allowance is achieved by the fact that about four-fifths of the households that would not normally occupy standard housing simply did not participate in the program. Still, the Minimum Standards program did induce about a third more of its participants to improve their housing from substandard to Minimum Standard conditions. These additional housing changes were very tightly connected to the exact housing requirements used in the program, however. There was little or no difference in the program impact of Minimum Standards and Unconstrained programs in terms of alternative standards, housing expenditures, or general market value. It appears that the housing changes generated by the Minimum Standards requirements were different rather than generally greater, and better only to the extent that compliance with the specific requirements

employed by the program is itself a policy goal of sufficient importance to justify the effective exclusion of many households in substandard housing from program participation.

The same patterns in program participation and specificity of program impacts are apparent for Minimum Rent allowances. Again, about four-fifths of the households that were not already in units that met the Minimum Rent requirements or about to move to such units refused to participate. Furthermore, the additional impact on the housing expenditures of recipients beyond that obtained under Unconstrained payments almost entirely reflected higher prices paid, with no commensurate increase in unit value. This apparently reflected the reduced shopping incentives provided by a Minimum Rent allowance program.

Similar shopping effects were apparent under the Percent of Rent allowance programs. Almost half of the additional housing expenditures induced by these programs reflected higher prices rather than increased unit quality. The Percent of Rent programs still resulted in larger changes in unit value than comparable Unconstrained transfers, but the difference was often small.

It appears, then, that a Housing Gap Minimum Standards allowance can be used to obtain greater compliance with specific housing standards than would be achieved by a similar expansion of Unconstrained income transfer programs. This will not in general lead to materially greater housing expenditures nor compliance with standards not specifically included in the Minimum Standards requirements. Furthermore, the additional program impact is largest for limited entitlement programs. In a universal entitlement program, the lower participation rates associated with a Minimum Standards requirement mean that average program impact on all eligible households is much smaller than the impact on recipients.

Alternatively, a Percent of Rent program could be used to generate modestly larger changes in market value than a similar Unconstrained program. Because there are no housing requirements, potential participation in such a program would not be different from that for an Unconstrained program offering similar payments. The Percent of Rent program would also induce recipients to shop less carefully, leading to additional increases in housing expenditures.

Finally, it appears that no allowance program is likely to have a material effect on the neighborhoods chosen by recipients on existing patterns of

racial and economic segregation.[1]

The analyses discussed in this chapter have focused on the impacts of allowance programs tested in the Demand Experiment for the simple reason that these are the only programs for which there are direct data on participation and program impact. Chapter 3 indicated that the housing provided under the various allowance and nonallowance programs was frequently quite similar in terms of market values, physical standards, crowding, and rent burden. This does not, however, automatically imply that program impacts on recipient housing are the same. That depends as well on what sort of housing recipients would have occupied without the program. All low-income housing programs have a similar basic structure in that they offer households housing that meets certain requirements at reduced rents. The details of the program offer differ dramatically, however, on two counts. First, the construction programs and the original Section 23 program select units for tenants rather than requiring tenants to find units that meet requirements in the private market.[2] Second, the nonallowance programs offer tenants program-fixed rent burdens.[3]

These differences in program design may or may not result in considerable differences in program appeal and impact. The simple comparisons of expected rent changes with payment amount presented in Table 4-12 suggest that households might be unlikely to participate in any program that required higher out-of-pocket payments than the households would normally incur. But this suggestion has not yet been well modeled and tested. Likewise, the analysis of participation in the Demand Experiment showed that households were much more likely to participate in a Minimum Standards program if they either already met requirements or were about to meet requirements. If this reflected strong household tastes for specific housing, it would suggest that nonallowance programs would also be unlikely to place most tenants in housing very

---

[1] See Chapter 3.

[2] In addition, of course, households in these programs had to move in order to participate. This, however, may not be a major issue, as indicated in the discussion of the previous section.

[3] The Percent of Rent programs, like the shopping incentives in the current Section 8 existing leased housing program, provide for cost sharing based on rents paid. The Housing Gap payments are fixed without regard for actual rents paid (within the ranges permitted by program requirements).

different from that which they would normally have occupied in the private market. On the other hand, this pattern could also simply reflect problems in finding program acceptable housing. In this case, programs that provided such housing might have less tendency to enroll households that would normally occupy standard housing and thereby achieve larger program impacts.

These issues could be more fully examined with existing data. It seems possible, for example, that more detailed modeling of normal changes for Minimum Rent and Minimum Standards households could help to clarify the specific factors involved in the participation decision. Likewise, although there are no direct data on participation decisions in nonallowance programs, it may be possible to infer the effects of any household self-selection by careful examination of tenant characteristics and perceptions of program benefits.[1]

One example of estimated program effects from Mayo et al. (1979, Part 1), will serve to illustrate the problem involved. At one point, Mayo et al. compare the estimated market value of housing for participants in Public Housing, Section 236, Section 23, and the Minimum Standards housing allowances tested in the Demand Experiment with the estimated market value of the housing of similar Control households, taking account of various household characteristics. To the extent that the Control estimates accurately predict the normal out-of-program market value of participant housing, these comparisons estimate the effect of the program on participant housing. In fact, as indicated in the first row of Table 4-20, the Control estimates do not take adequate account of the participation patterns for Minimum Standards allowances. Estimated effects are 13 percent in Pittsburgh and 21 percent in

---

[1]There have been considerable advances in recent years in taking account of the effects of self-selection on estimates of program impact, largely based on the seminal work of James Heckman. The most interesting of these rely on direct observation of selections, but the principles involved could be extended to other situations. The Demand Experiment data, for example, would seem to provide at least three possible approaches. One would be to develop a fine enough understanding of participation in the allowance programs to simulate other housing programs. A second would be to use differences in the distribution of various characteristics (especially income) between program participants and eligible households to infer differences in normal housing not simply as covariates but in explicit modeling of self-selection. A third, suggested by Shirley Mansfield, would be to use tenant perceptions of program benefits in terms of reduced rents and better housing, collected as part of the interviews of program participants, to infer normal behavior.

Table 4-20

DIFFERENCES IN MARKET VALUE OF PARTICIPANT HOUSING FROM APPARENTLY SIMILAR CONTROL HOUSEHOLDS

	PITTSBURGH				PHOENIX			
	MINIMUM STANDARDS HOUSING ALLOWANCES	SECTION 23	PUBLIC HOUSING	SECTION 236	MINIMUM STANDARDS HOUSING ALLOWANCES	SECTION 23	PUBLIC HOUSING	SECTION 236
Mean percentage difference from similar controls[a]	13% (2.0)	13% (1.8)	22% (1.2)	26% (1.2)	21% (3.7)	31% (2.8)	35% (2.0)	31% (2.1)
Difference from housing allowance[a]	-	0	9**	13**	-	10**	14**	10**
Difference from housing allowance taking account of participant characteristics[b]	-	6*	7*	14*	-	4	-3	9*
Adjusted for stove refrigerator payments[c]	-	5	-2	5	-	4	-3	9

NOTE: Standard errors in parentheses.

a. Comparison of estimated market value to predicted estimated market value based on regression of Control market values against household income and size and education, job status, race/ethnicity, age, and sex of head. See Mayo et al. (1979), Part 1, Table 3-8.

b. From regression of actual and predicted differences on dummies for race/ethnicity, income below Public Housing limits, and program dummies. See Mayo et al. (1979), Part 1, Section 3.5.

c. Approximate correction obtained by calculating the average increase in estimated market value for each program and Control household obtained if all stoves and refrigerators are included in market value.

† Significant at the 0.10 level.

* Significant at the 0.05 level.

** Significant at the 0.01 level.

Phoenix, well above Friedman and Weinberg's estimates of 3 and 10 percent.[1]

At the same time, there are apparent further differences in estimated effects for the nonallowance programs. These, however, appear to be artifacts. Mayo et al. regressed the estimated participant-Control differences on participant income and race, plus dummies for each program. As expected, some of the differences in program effects represented differences in the income limits and racial composition of programs. In particular, differences for Public Housing and Section 23 in Phoenix disappear. Furthermore, the differences for Public Housing and Section 236 in Pittsburgh appear to reflect the fact that most households in the private rental market in Pittsburgh (including Control and housing allowance and Section 23 participants) all tend to pay for their stoves and refrigerators separately, so that these are not included in unit value. Adjusting for this would reduce the figures for these programs by about nine percentage points.

These adjustments leave small differences for Section 23 and Section 236 in Pittsburgh and a more substantial, but still modest, difference for Section 236 in Phoenix. But Section 236 without rent supplements (which accounts for 76 percent of the sampled Section 236 participants in Pittsburgh and 67 percent in Phoenix) generally imposes average rent burdens above those found among similar Control households. Thus, if the figures for these programs in Table 4-20 are valid, they successfully induced one group of households to spend more out of their own pocket, a result that seems unlikely in view of the experience with housing allowances. Thus, remaining differences from housing allowances may also reflect failures to take adequate account of participant self-selection. The only "unexplained" difference is the six percentage point difference for Section 23 in Pittsburgh (which was purchased with program costs per unit 36 percent higher than those under the housing allowance program).

---

[1] In addition, it appears that most of the differences in estimates do not depend on modeling the selection process. Simply taking account of known pre-enrollment positions for Minimum Standards recipients may account for most of the difference in estimates. Because the Demand Experiment collected data on housing conditions both before and after households entered the Experiment, much of the self-selection effect is directly reflected in the higher pre-enrollment market values of participant housing.

In any case, however, there is still a question as to whether the estimates, which are known to overstate effects for housing allowances, also overstate differences for other programs. Thus, even if estimates for other programs were shown to be no different from those for housing allowances, there is no guarantee that the actual effects are not greater (or smaller). It simply is not known whether these programs increase the demand for housing.

Similar problems arise in assessing program impacts on housing supply. The results of the previous section led to the suggestion that even a full scale allowance program might have little effect on the supply of housing. This is admittedly speculation and remains to be confirmed or refuted by the actual results of the Supply Experiment. In any case, it would appear that a construction program should at least increase the supply of units. However, if these programs do not increase the demand for such housing, they will, in the long run, simply transfer the supply of adequate units from the private to the public market. If, like housing allowances, most of the tenants in a Public Housing or Section 8 New Construction project are households that would have occupied similar or better housing in the private market, then the project will have successfully reduced the demand for standard housing in the private market. This would in turn be expected to lead to reduced private supplies.

Even the short-run impacts of construction programs on construction activity may be far less than expected, however. Analysis by Swan (1973) and Murray (1980) suggests that construction programs such as 236 or Section 8 withdraw financing that would have been used to fund private developers. Indeed, Murray estimates that these programs may reduce private construction on a one for one basis. While there are still unanswered questions about housing allowances, almost nothing is known about the effects of nonallowance programs. The clearest facts are those recounted in Chapter 3--other housing programs provide apparently comparable housing to that obtained under housing allowances at higher, and frequently, much higher costs. Whether these programs have the same, greater, or lesser impacts on recipient housing conditions and on the supply of housing is simply not known.

REFERENCES

Budding, David W., Housing Deprivation Among Enrollees in the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., November 1978 (revised June 1980).

Downs, Anthony and Katharine Bradbury, eds., Do Housing Allowances Work, Washington, D.C., The Brookings Institution, (forthcoming).

Drury, Margaret, Olson Lee, Michael Springer and Lorene Yap, Lower Income Housing Assistance Program (Section 8): Nationwide Evaluation of the Existing Housing Program, Washington, D.C., U.S. Government Printing Office, November 1978.

Ellickson, Phyllis L. and David E. Kanouse, "Public Perceptions of Housing Allowances: The First Two Years," (RAND/WN-9817-HUD) Santa Monica, Cal., The Rand Corporation, January 1978.

Friedman, Joseph and Stephen D. Kennedy, Housing Expenditures and Quality, Part 2: Housing Expenditures Under a Housing Gap Housing Allowance, Cambridge, Mass., Abt Associates Inc., May 1977.

Friedman, Joseph and Daniel H. Weinberg, The Demand for Rental Housing: Evidence From a Percent of Rent Housing Allowance, Cambridge, Mass., Abt Associates Inc., September 1978 (revised June 1980).

_____, Housing Consumption Under a Constrained Income Transfer: Evidence From a Housing Gap Housing Allowance, Cambridge, Mass., Abt Associates Inc., April 1979 (revised June 1980).

Hausman, Jerry A. and David A. Wise, "Attrition in Experimental and Panel Data: The Gary Income Maintenance Experiment," (mimeo), May 1977.

Heckman, James J., "The Common Structure of Statistical Models of Truncation, Sample Selection and Limited Dependent Variables and a Simple Estimator for Such Models," Annals of Economic and Social Measurement, May 1976.

Holshouser, William L., Jr., Report on Selected Aspects of the Jacksonville Housing Allowance Experiment, Cambridge, Mass., Abt Associates Inc., 1976.

_____, Supportive Services in a Housing Allowance Program, Cambridge, Mass., Abt Associates Inc., 1977.

Kennedy, Stephen D., "Sample Selection and the Analysis of Constrained Transfers: Some Evidence From the Housing Allowance Demand Experiment," paper presented at the summer meetings of the Econometric Society, June 1978.

Kennedy, Stephen D., T. Krishna Kumar and Glen Weisbrod, Participation Under a Housing Gap Form of Housing Allowance, Cambridge, Mass., Abt Associates Inc., May 1977 (revised June 1980).

Kennedy, Stephen D. and Jean MacMillan, Participation Under Alternative Housing Allowance Programs: Evidence From the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., October 1979 (revised June 1980).

Kennedy, Stephen D. and Sally R. Merrill, "The Use of Hedonic Indices to Distinguish Changes in Housing and Housing Expenditures: Evidence From the Housing Allowance Demand Experiment," paper presented at the Research Conference on the Housing Choices of Low-Income Families, Washington, D.C., March 1979.

MacMillan, Jean, Mobility in the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., June 1978 (revised June 1980).

MacMillan, Jean and William L. Hamilton, Outreach: Generating Applications in the Administrative Agency Experiment, Cambridge, Mass., Abt Associates Inc., February 1977.

Mayo, Stephen K., Housing Expenditures and Quality, Part 1: Housing Expenditures Under a Percent of Rent Housing Allowance, Cambridge, Mass., Abt Associates Inc., 1977.

Mayo, Stephen K., Shirley Mansfield, David Warner and Richard Zwetchkenbaum, Housing Allowances and Other Rental Housing Assistance Programs--A Comparison Based on the Housing Allowance Demand Experiment, Part 1: Participation, Housing Consumption, Location, and Satisfaction; and, Part 2: Costs and Efficiency, Cambridge, Mass., Abt Associates Inc., November and August 1979 (revised June 1980).

Merrill, Sally R., Hedonic Indices as a Measure of Housing Quality, Cambridge, Mass., Abt Associates Inc., December 1977 (revised June 1980).

Merrill, Sally R. and Catherine A. Joseph, Housing Improvements and Upgrading in the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., February 1979 (revised June 1980).

Murray, Michael, "Subsidized and Unsubsidized Housing Starts, 1961-1977," Center for the Study of Policy Analysis, Institute of Policy Sciences, Duke University, Working Paper No. 680, June 1980.

Muth, Richard F., Public Housing, Washington, D.C., American Enterprise Institute for Public Policy Research, 1973.

Ohls, James C. and Cynthia Thomas, The Effects of the Seattle and Denver Income Maintenance Experiments on Housing Consumption, Ownership, and Mobility, Denver, Col., Mathematica Policy Research, Inc., December 31, 1979.

Swan, Craig, "Housing Subsidies and Housing Starts," in U.S. Department of Housing and Urban Development, Housing in the Seventies Working Papers, Vol. 2, 1976, pp. 833-841.

U.S. Department of Housing and Urban Development, Housing in the Seventies, Washington, D.C., 1973.

Weicher, John C., "Urban Housing Policy," in Peter Mieszkowski and Mahlon Straszheim, eds., Current Issues in Urban Economics, Baltimore, Md., Johns Hopkins University Press, 1979.

Weinberg, Daniel H., Reilly Atkinson, Avis Vidal, James Wallace and Glen Weisbrod, Locational Choice, Part 1: Search and Mobility in the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., April 1977 (revised August 1977).

CHAPTER 5

SUMMARY OF FINDINGS AND AREAS FOR FUTURE RESEARCH

The report started, in Chapter 2, by describing the housing situation of low-income households in the two Demand Experiment sites in terms of unit quality, crowding, rent burden, and location. The physical condition of U.S. housing has improved materially, even dramatically, over the last 50 years. Indeed, some analyses of standardly available data have suggested that physically inadequate housing might be disappearing and that the remaining housing problem in the United States is almost entirely a matter of high housing costs and low income.

The detailed housing information collected in the Demand Experiment makes it clear that physically inadequate and/or overcrowded housing conditions are far more common than standardly available national data would indicate. While there has been real improvement in the housing stock, standards of physical and areal adequacy have also changed. Analysis of the housing situation of low-income renters enrolled in the Demand Experiment by David Budding (1978) showed that over half of these households lived in units that failed to meet contemporary standards for physical or areal adequacy. High rent burdens, commonly defined as rents in excess of 25 percent of income were also common; over two-thirds of the low-income renters enrolled in the Demand Experiment were spending more than 25 percent of their income for housing when they enrolled. Only 12 percent of the low-income households enrolled in the Demand Experiment escaped both physically inadequate or overcrowded housing and high rent burdens.

Such overall figures conceal important differences in the nature and extent of housing deprivation among different income groups. While some form of housing deprivation was epidemic among all low-income renters, the most severe deficiencies were concentrated among the very poor. Almost half of the households enrolled in the Demand Experiment with incomes below poverty suffered from both poor housing and high rent burdens as compared with about a seventh of the low-income households with incomes at or above poverty. Furthermore, the physical inadequacies found in units occupied by poverty households were generally more severe and the high rent burdens less supportable than those found at higher incomes.

One important aspect of housing not considered in Budding's analysis is neighborhood quality. No attempt has yet been made to quantify the incidence of inadequate neighborhoods in the Demand Experiment. Instead, analysis has focused on the extent to which various programs allowed households to leave predominantly low-income neighborhoods. This is a crude, but probably effective, proxy for measuring at least potential improvements in the neighborhoods occupied by program participants.

Nor is recipient housing the only policy concern involved in low-income housing assistance programs. Reduced racial and economic segregation in housing are direct policy goals, apart from their effects on housing per se. In addition, some housing programs have also been justified in terms of countercyclical effects or more general needs to intervene in the housing market.

While Budding's analysis makes it clear that housing problems are not simply a matter of high costs and low incomes, nothing in Budding's analysis establishes a need for specifically housing-oriented programs. There is a continuing debate in the United States about the need for special purpose programs as compared with general income assistance for low-income households. Proponents of general income assistance argue that poor housing is simply one of the many problems associated with low incomes and that there is no reason to create programs specifically aimed at housing instead of generally increasing incomes. Proponents of housing programs may variously point to special benefits from improved housing, special needs for housing assistance, or considerable variation in the need for assistance among low-income households to justify the need for housing assistance programs in addition to programs of general income assistance.

The Demand Experiment cannot entirely resolve this debate. Instead, it attempts to quantify it. Budding's analysis documents the existence of serious housing deficiencies. Other concerns not measured by Budding include improved neighborhood quality, reduced racial and economic segregation, and support of construction or housing markets. Whether these might justify special concerns for housing is in part a matter of policy preference and beyond the scope of the Demand Experiment, though the continued funding of housing programs suggests that they have done so in the past. What the Demand Experiment can do is to inform the debate by measuring differences in the extent to which these possible goals are actually met by housing and nonhousing programs.

Even if programs that provide access to adequate housing at reasonable cost are granted a special place in federal policy, however, it is still difficult to assess the need for assistance in individual cases. Some households apparently chose to occupy less desirable housing although they could (from a policy perspective) apparently have afforded adequate housing, at reasonable cost. Others incurred high rent burdens in order to obtain better than minimally adequate housing. Many, however, did not have these options and, while they sometimes avoided one form of deprivation or another, frequently ended up paying large fractions of their limited incomes to obtain inadequate housing.

Yet the need to estimate the extent of housing deprivation and establish priorities for assistance is pressing. Programs of low-income housing assistance typically start by setting a general goal of providing decent housing at reasonable cost. Considerations of equity and work incentives then suggest that households should be eligible for the program if they are worse off than program participants. This quite commonly indicates a large eligible population. In terms of the households enrolled in the Demand Experiment, for example, a program aimed at eliminating any incidence of poor housing or high rent burdens would potentially be targeted at almost all low-income renter households, with almost equal attention to those with incomes above and below poverty.

At the same time, housing programs in the United States are never funded at anywhere near the levels needed to serve their entire eligible population. In one way or another, assistance is granted to only some of those in need. This allocation of limited assistance necessarily involves giving up some considerations of equity and work incentives or reducing program benefits to less than adequate levels.

Budding's work only begins to address these issues. Much more could be done with existing data to develop a better understanding of the importance of adequate housing to households by examining the relationship between housing deficiencies and household satisfaction and by more careful examination of the choices faced and made by low-income households in selecting their housing. In addition, it would be desirable to attempt to develop national data bases that better reflect contemporary housing standards.

Having examined the housing situation of low-income households in Chapter 2, Chpater 3 described the housing provided the various housing programs studied

in the Demand Experiment. These included both the housing allowance programs tested in the Demand Experiment and the other major low-income rental housing programs in existence at the time of the Demand Experiment (Public Housing, Section 236, and Section 23 Existing Leased Housing). Taken together, these programs cover a wide range of alternative assistance plans. Indeed, in total, the Demand Experiment studied over 40 different program options. For the analyses in this report, however, these were generally grouped into nine alternatives.

These alternatives are no program (represented by the unsubsidized Control households enrolled in the Demand Experiment), expanded welfare or income maintenance programs (represented by the Unconstrained Housing Gap plan in the Demand Experiment), rent rebates (a form of "housing stamp" program represented by the five Percent of Rent plans in the Demand Experiment), two forms of Minimum Rent housing allowances (the six Housing Gap Minimum Rent High and Minimum Rent Low plans included in the Demand Experiment), a Minimum Standards housing allowance (represented by the five Housing Gap Minimum Standards plans included in the Demand Experiment), the Section 23 Existing Leased Housing program (represented by samples of Section 23 participants in the two Demand Experiment sites and including both the original and revised Section 23 program), and two new construction programs--Public Housing (represneted by samples of participants in the two Demand sites and including both conventional and Turnkey programs and elderly and family projects) and Section 236 (represented by samples of participants in the two Demand sites and including participants with and without rent supplements, elderly and family projects, limited dividend and nonprofit sponsors, and newly constructed and rehabilitated projects).

All of the programs essentially offered their participants financial assistance either in the form of direct cash payments or reduced rents. Indeed, although payment schedules varied among programs, most offered quite similar levels of benefits. The major exception was Section 236, which offered much lower benefits than the other programs unless combined with assistance under the Rent Supplement program. The programs varied much more in terms of the type and level of housing requirements imposed. No housing requirements were imposed under the Unconstrained or Percent of Rent allowance programs. Minimum Rent allowance programs set a floor on participant housing expenditures, but had no requirements for physical or areal adequacy. The other programs--Minimum Standards housing allowances, Section 23, Public Housing

and Section 236--all involved explicit physical and areal requirments, though the exact standards used varied from program to program. Programs also differed in the mechanisms used to obtain housing. Under the various allowance programs, participants arranged for their own housing, using the private rental market. Under Section 23 (existing), housing was leased in the private market by the local housing authority and then sublet to participants, though there was also a revised Section 23 program in Phoenix, which operated more like housing allowances. Under Public Housing and Section 236, housing was constructed for the program and then rented to participants.

These differences in payment schedules, housing requirements, and program mechanisms are reflected in differences in participant housing and program costs analyzed by Mayo et al. (1979, Parts 1 and 2). All of the programs examined appear to offer participants relatively similar overall levels of housing. The estimated average private market rental value of units under the eight program groups was always within 10 percent of the value for Housing Gap Minimum Standards participants. Despite this overall similarity, however, program outcomes varied substantially in terms of physical standards, crowding, rent burden, location, tenant satisfaction, and costs.

Differences in physical and areal adequacy and participant rent burdens largely reflect differences in program rules. In terms of Budding's measures of physical adequacy, for example, participants in unrestricted cash transfer programs generally occupied housing similar to that occupied by unsubsidized Control households. The major difference in the housing situation of participants in unrestricted programs was the lower rent burdens that resulted from having levels of housing expenditures similar to those of unsubsidized Control households offset by fairly substantial monthly subsidy payments. The same pattern was observed for participants in general rental assistance programs without explicit physical housing requirements, such as the Percent of Rent or Minimum Rent programs. The only exception to this was the Minimum Rent High allowance program in Phoenix, which generally resulted in somewhat higher quality levels than those found among unsubsidized households.

Even among programs with explicit physical housing requirements, there were sometimes substantial differences in the physical adequacy of units depending on the relationship between the standards used to assess the units and the requirements imposed by the program. In general, programs ranked highest when they were evaluated by their own requirements. As evaluation stand-

ards deviated from program requirements, rankings would frequently reverse. Thus, for example, the HUD Minimum Property Standards imposed on Public Housing and Section 236 were generally more stringent than the Minimum Standards required in the Demand Experiment. Nevertheless, a larger proportion of Minimum Standards than Public Housing or Section 236 recipients lived in housing that passed standards similar to Minimum Standards. On the other hand, more Public Housing and Section 236 units passed other standards. These reversals in program rankings were much more dramatic in Pittsburgh than in Phoenix, but the pattern held in both sites.

While explicit imposition of housing standards does result in important differences in the housing of participants, the differences appear to be closely tied to the explicit requirements used in the program. This suggests that if programs are to be assessed in terms of specific housing standards, the standards used should be justified as directly desirable and not as proxies for more general notions of adequacy. It also suggests that any reasonable standard can be met by explicitly imposing it on the program, regardless of whether units are obtained by households or public agencies, from existing units or by new construction.

Differences in rent burdens among the different programs were also directly related to program rules. Minimum Rent allowance programs, which did not allow households with unusually low rents to participate, generally had participants with higher rent burdens than other programs. Even higher rent burdens were encountered in Section 236. Because of this, Section 236 assistance was frequently supplemented by Rent Supplement payments, which tended to bring rent burdens into line with those found in other assistance programs.

In general, then, differences in physical and areal adequacy or participant rent burdens were closely related to the specific housing requirements and payment schedules used. Furthermore, it seems apparent that use of similar standards and payment schedules could result in similar housing and rent burdens under both housing allowances or other forms of housing assistance.

Differences with respect to unit location and tenant satisfaction, on the other hand, seemed to be more deeply embedded in program mechanisms. With the exception of Section 236 in Phoenix, units in the programs with locations selected by the government (Section 23, Public Housing, and Section 236) were on average located in lower income neighborhoods with higher minority concentrations than those selected by housing allowance recipients.

Only Public Housing, however, shows strong evidence of actually moving participants into areas with higher concentrations of minorities or low-income households than those that they would normally have occupied. In other programs, and to some extent in Public Housing, much of the effect of restricted locations seems to be on who participates rather than where they live. Analysis by Mansfield, reported in Mayo et al. (Part 1), indicates that participants tend to come from similar areas to those offered by the program rather than being forced into more heavily minority or low-income neighborhoods. Nevertheless, compared to housing allowances, other current programs and especially construction programs, give some evidence that their relative locational inflexibility does affect either who joins the program or where they live or both.

The evidence on participant satisfaction is more clearcut. Nonelderly participants in both construction programs (Public Housing and Section 236) express themselves as less satisfied with their housing and particularly with their neighborhood than participants in the Minimum Standards housing allowance program. This is true both in terms of overall averages and when participant characteristics and program housing and subsidies are taken into account. Furthermore, lower levels of expressed satisfaction are concentrated in family projects. Taking account of participants' characteristics and housing situations, there are no significant differences for households in elderly Public Housing or Section 236 projects or for Section 23 households in general. There are substantially lower levels of satisfaction for households in Public Housing and Section 236 family projects.

By far the most dramatic differences among the different programs, however, are in their costs. Relative program costs were analyzed by Stephen Mayo and are reported in Mayo et al. (Part 2). Mayo's analysis takes account of both budgeted costs such as payments and operating costs under housing allowances, debt service, maintenance and operating costs, and payments in lieu of local taxes under Public Housing, and unbudgeted indirect costs such as the loss in federal tax revenues involved in financing Public Housing with tax-exempt bonds or in the accelerated depreciation provisions associated with Section 236. The results are startling, though generally consistent with the patterns of relative program costs found in other analyses.

Both costs and cost allocations vary substantially. In terms of cost allocations, the major differences are a relatively large local government con-

tribution (in the form of property tax abatements) for Public Housing and the relatively large share of costs borne by tenants under Section 236 (without Rent Supplement assistance). These cost allocations reflect the specific funding mechanisms adopted for each program and could in theory be adjusted at will. Thus, for example, Rent Supplement assistance in the Section 236 program transfers a substantial share of costs from tenants to the federal government.

Much more important are differences in total program costs. Each of the programs studied in effect divides the cost of tenant housing among the federal government, local governments, and tenants. While the type of housing provided and the allocation of costs vary among programs, the total cost must be paid by someone. These costs will tend to be larger than the simple rental value of recipient housing, if only because they must cover the administrative costs of program outreach, income certification, housing inspections, and nonfinancial services. Thus, for example, Mayo's analysis suggests that program costs per unit under a Minimum Standards housing allowance might exceed rental values by from 9 to 15 percent, almost entirely because of the costs of program administration and nonfinancial services to enrollees. Similar comparisons for new construction programs (Public Housing and Section 236), however, show costs for newly built (1975) units ranging from one-and-a-half to more than two times the estimated market rental value of the housing provided. Overall, estimated annual costs required to obtain additional units under construction programs in 1975 were two-thirds again as high as those estimated for Minimum Standards housing allowances. Given fixed total budgets with identical tenant contributions, construction programs could serve only six families for every ten assisted by housing allowances.

Although the large excess costs encountered in new construction programs were estimated for only two sites, Pittsburgh and Phoenix, they are consistent with other studies involving different cities. Furthermore, they hold up under reasonable projections of trends in inflation and depreciation over the life of new construction projects. Mayo's results clearly confirm the hypothesis that programs such as housing allowances, which make use of the existing housing stock, can provide similar housing at far lower costs than new construction.

Furthermore, while Mayo's analysis cannot deny the possibility of important construction and operating inefficiencies in Public Housing and Section 236, he suggests that a major portion of the excess costs in these programs is due to market forces. Mayo shows that the relative price of renting existing units as opposed to building new ones has declined considerably over the last 25 years. As a result, the excess costs involved in constructing new units have grown; indeed, Mayo suggests that some construction projects in Phoenix may have yielded reasonable returns as late as 1965. This hypothesis, if correct, has three important implications.

First, it suggests that, however, valuable they may be, attempts to improve the efficiency of construction programs are not likely to reduce costs enough to overcome the underlying difference in market prices. Second, however, Mayo's hypothesis also suggests that the relative cost of construction programs can change from place to place and over time. Given a rapid enough inflation in rents relative to construction costs and interest rates, it is possible that construction programs would provide a cheaper means of providing low-income housing than housing allowances. Indeed, this could hold true even if public construction was less efficient than private construction. Finally, it should be noted that Mayo's results are not statements about owned versus leased housing. Mayo's hypothesis of the role of market inefficiencies in construction costs suggests that, in theory, the government might be able to purchase existing units for Public Housing at no greater (eventual) cost than leasing them.

There are also clear cost variations across different forms of housing allowances, although they are nowhere near as large as those observed for new construction programs as compared with various forms of leased housing. First, there is some, admittedly tenuous, evidence that programs like housing allowances or the revised Section 23 program, which place more responsibility and discretion with recipients, do successfully reduce administrative costs in comparison with leased housing programs in which the local housing authority selects and leases units. Second, it is apparent that different programs offer prospective tenants different incentives to shop carefully for housing. To the extent that the program absorbs variations in unit costs, there is less incentive for tenants to shop carefully. As a result, tenants in Minimum Rent and Percent of Rent programs were apparently willing to pay somewhat more than average for their units.

Mayo's analysis of program costs suggests three important areas for further research. First is the question of lifetime costs. Mayo's analysis is based on annual cost data for 1975. The relationship between annual costs and lifetime costs will vary, however, depending on the pattern of rental values, operating costs, capital investments, and depreciation over time, as well as the relevant discount rates. Mayo does investigate this issue, but more could be done to (1) develop a more systematic parametric analysis, (2) investigate actual patterns of operating and capital costs over the prior lifetimes of the projects studied, and (3) investigate actual patterns of depreciation based on cross-sectional analysis of projects of different ages.

In addition, the implications of Mayo's suggestions concerning the source of high construction costs are clearly important enough to warrant direct investigation. Thus, for example, Mayo has suggested that collection of comparable cost data for the privately-owned units occupied by Demand Experiment enrollees in 1975 would allow direct comparison with costs for publicly-owned units and help to identify the extent to which the high costs of government construction programs reflect construction, operating, or market inefficiencies.

Finally, the extent of the market inefficiencies suggested by Mayo's analysis at least suggests that the private rental market may be in serious disequilibrium with rents well below the level needed to support replacement of the current stock. If this were true it would suggest either a long-term decline in the stock of rental housing or a substantial future rise in rental costs. Such conjectures are highly speculative but seem important enough to warrant much more research into the returns to private ownership, the expected levels of future demand for rental housing, and the mechanisms for increasing or decreasing the supply of rental housing in the private market (construction/demolition, deconversion/conversion of condominiums or other owner-occupied housing, and so forth).

The results of Chapter 3 provided strong support for housing allowances, especially of the Housing Gap Minimum Standards form. In comparison with unrestricted cash transfers, allowances do provide participants with better housing. In comparison with other forms of housing assistance, and especially new construction programs, they provide comparable housing at substantially reduced costs. The results of Chapter 4, however, showed that Minimum Standards housing requirements substantially reduce program participation.

Furthermore, the actual impact of the program on recipient housing is both much smaller than simple comparisons with Unconstrained or Control recipients would suggest and very specifically focused on the exact requirements imposed. On the other hand, the relative cost advantages of housing allowances over other housing programs are not challenged by these findings. While it is possible that other programs have larger impacts on the housing of recipients, there is currently no evidence that this is the case.

Minimum Standards housing requirements exclude substandard units from program subsidies. Analysis of program participation by Kennedy and MacMillan (1979) shows that they effectively exclude many of the households in substandard units as well. Among households offered enrollment in the Minimum Standards allowance plans, 38 percent accepted the enrollment offer and participated in the program. The participation rate for the Percent of Rent and Unconstrained programs, which had no housing requirements, was 84 percent, over twice as large. Furthermore, most of the households that did participate in the Minimum Standards allowance programs were households that either already lived in Minimum Standard housing or were about to move to such housing on their own. Among households that would not normally have lived in Minimum Standard housing without the allowance program, less than 20 percent participated. Among those that already lived in or were about to move to Minimum Standard housing, almost 80 percent participated.

As a result, demographic groups that were relatively less likely to live in Minimum Standard housing were also relatively less likely to participate in a Minimum Standards allowance program as compared with a Percent of Rent or Unconstrained program. Minorities, large households, and very poor households were all less likely to live in Minimum Standard housing and accordingly less likely to participate in a Minimum Standards allowance program. Participation among larger and poorer households was increased by the fact that they received larger allowance payments, but these larger payments were not large enough to offset these households' relative disadvantage in meeting housing requirements.

Participation rates under Housing Gap allowances can be altered by using less stringent housing requirements or offering higher payments. Less stringent requirements, which are normally met by more households, increase participation rates. Thus, for example, less than a third of eligible households lived in Minimum Standard housing, and only 38 percent of the households offered

enrollment in programs with this requirement participated. In contrast, more than two-thirds lived in housing that passed the Minimum Rent Low requirement, and 60 percent of households offered enrollment in programs with this requirement participated. Less stringent requirements also mean that there is less difference in the housing of housing allowance and Unconstrained recipients. Furthermore, at least within the ranges tested in the Demand Experiment, the difference in participation rates between households that would normally meet requirements and those that would not were not materially affected by changes in requirements. Programs with less stringent requirements have higher participation rates because more households already meet (or are about to meet) the requirements.

Higher payments can also increase participation. If average payments offered under the Minimum Standards program had been doubled from about $800 to roughly $1,600 per year, the participation rates among households that would not normally have lived in Minimum Standard housing would have increased from less than 20 to more than 40 percent, and overall program participation would have been about 56 percent instead of 38 percent. Alternatively, payment schedules could be changed to adjust participation among various demographic groups while leaving the overall participation rate unchanged. Thus, for example, for most of the Housing Gap programs tested in the Demand Experiment, a household with an annual income of $2,000 would receive $500 more per year than a household with an annual income of $4,000 (or 25 percent of the difference in incomes). Nevertheless, the odds in favor of the $4,000 annual income household participating were roughly one and three-quarters larger than those for the $2,000 household. It appears, however, that if payments to the $2,000 household had been $800 higher (or 40 percent of the difference in incomes), participation rates would have been the same for households at both incomes.

The participation rates analyzed in the Demand Experiment estimate the percentage of eligible households that would be willing to participate in different programs. Under a universal entitlement program, in which all eligible households may qualify for payments, participation rates directly determine the number of households reached by the program and the total program costs. Outside of the allowance Experiments, however, no housing program in the United States has ever been run on a universal entitlement basis. Instead, low-income housing programs as a whole are on average funded at levels sufficient to support less than 10 percent of the eligible low-

income households. Funded at such low levels, programs almost always have many more applicants than openings. Thus, the fact that most households would not participate if the program were fully funded may be irrelevant. If program funding levels exclude 90 percent of eligible households, there seems to be little reason to worry about the fact that housing requirements exclude 60 percent.

Even if the level of participation under a Housing Gap allowance is not of concern, however, the differences in participation among different demographic groups may still be important. These can, of course, be offset by judicious selection of applicants. Thus, if under a limited entitlement program, relatively fewer very poor households apply for the program and qualify for payments, the imbalance in recipients can be remedied by selecting more very poor applicants for enrollment.

It is difficult, however, to see how even a limited entitlement program could overcome the underlying difference in participation rates between households that are already living in or about to move to housing that meets program requirements and those that are not. It is true that some demographic groups are less likely to live in required housing than others. Thus, for example, selecting very poor applicants for enrollment is likely to enroll more households in poor housing than selecting higher income applicants would. The connection between future housing conditions and demographic characteristics that might be used in selecting applicants is not, however, strong enough to overcome the strong tendency for households that are already in or about to move to required housing to participate much more readily than other households.

The strongest predictor of whether or not a household is planning to live in Minimum Standard housing, for example, is whether or not it is already in Minimum Standard housing. Among unsubsidized Control households that already lived in Minimum Standard housing at enrollment, 83 percent were still in Minimum Standard housing two years later, as opposed to only 18 percent of the households that were in substandard housing at enrollment. Thus, one simple step would be to confine program benefits to households that were in substandard housing before they joined the program. Even this extreme selection of applicants would not completely undo the relative advantage of households that would normally occupy Minimum Standard housing. In the Minimum Standards allowance programs tested in the Demand Experiment, 66 percent of recipients were households that would normally have occupied Minimum Standard

housing. Excluding all households that already lived in Minimum Standard housing when they enrolled would have reduced this proportion, but only to 46 percent.

It seems likely, therefore, that even on a limited enrollment basis, allowance programs would tend to appeal much more strongly to households that would normally meet housing requirements on their own and would draw many or most of their recipients from among such households.

These patterns of participation are not only important in determining which households are helped by a program. They also have strong implications for the nature and extent of program impacts on housing. A Housing Gap form of housing allowance essentially divides households into two groups--those that would normally occupy housing that meets the program requirements (or would normally do so given the extra income provided by the allowance) and those that are forced by the housing requirements to change their housing to meet requirements. The first group is not constrained by the housing requirements. Because they would meet the requirements anyway, they are free to use the allowance payment in the same way that they would use an Unconstrained income transfer. As a result, these households participate in an allowance program at about the same rate that they would participate in an Unconstrained program. Likewise, an allowance program would not be expected to change their housing any differently from a similar Unconstrained program.

Households that would not normally meet requirements, on the other hand, do have to change their housing from normal patterns. Many, and frequently most, of these will not participate. Those that do participate, however, will have to change their housing differently, and supposedly more, than they would under an Unconstrained program.

The difference in the housing changes generated by Housing Gap housing allowances as compared with an Unconstrained program thus comes from two sources. First, the additional Housing Gap recipients that are induced to meet requirements would be expected to change their housing more under an allowance program. Second, the additional eligible households that do not participate in a Housing Gap allowance would not receive the payments that they would receive from an Unconstrained program and thus would change their housing less (or, to be exact, not at all). Under a limited entitlement program, only the first difference matters, since the level of participation is set by program

funding rather than household desires. Under a universal program, the second source will reduce the relative advantage of an allowance program (in terms of additional housing changes).

This pattern of relative program impacts is quite intentional. Once households are in acceptable housing, there may be little reason to force them to spend more to occupy even better housing. A Housing Gap allowance is designed to get households into acceptable housing or at least to offer them decent housing at affordable cost, while at the same time offering them as much discretion as possible about how to live and how to spend their limited resources. Assistance is directly targeted towards housing improvement only for those that need to change their housing in order to obtain decent living conditions. For other households, many of whom have obtained decent housing at the cost of very high rent burdens, the allowance offers general financial assistance in supporting their housing costs.

This targeting of housing change fails, however, to the extent that the allowance is unable to reach households in substandard housing. The larger the proportion of recipients drawn from households that would normally occupy standard housing, the more the allowance program would be expected to have the same effects as an Unconstrained transfer. It is true that all Minimum Standards Housing Gap recipients occupied Minimum Standard housing, as compared with only 32 percent of Unconstrained recipients. It is also apparent that the Unconstrained payments had little or no effect on the proportion of households in Minimum Standard housing. This does not, however, mean that the allowance program placed an additional 68 percent of its recipients in Minimum Standard housing. Two-thirds of Minimum Standards recipients were households that would normally have lived in Minimum Standard housing. Thus, the Minimum Standards requirements moved one-third of its recipients from substandard to Minimum Standard housing. The difference between the two programs' impacts on the housing of recipients is not, therefore, as great as simple comparisons of recipient housing would indicate.

Differences between the two programs are, moreover, much smaller when they are projected to universal entitlement programs. Under universal entitlement, an allowance program would still have the same larger effect for recipients. It would, however, have fewer recipients. As a result, program effects on the entire eligible population would be much smaller than those for

recipients. In comparison to a similar Unconstrained program, the Minimum Standards programs tested in the Demand Experiment, would, for example, have reached less than half as many households and increased the proportion of eligible households in standard housing by about 12 percentage points (from 31 to 43 percent).

This is not the end of the story, however. Analysis by Friedman and Weinberg (1979) of the housing changes generated by the various allowance programs suggests that Minimum Standards requirements might be better characterized as generating different rather than more housing changes. Friedman and Weinberg compared the housing of Minimum Standards recipients with that of unsubsidized Control households and Unconstrained recipients two years after enrollment in terms of housing expenditures, estimated market value, and the proportion in Minimum Standard housing as well as the proportions in clearly inadequate and apparently adequate housing as measured by Budding's classification. They took account of the effects of differential participation, so that their estimates reflect program impacts on recipients rather than simply comparisons of recipient housing.

Like Kennedy and MacMillan, Friedman and Weinberg found that the Minimum Standards requirements moved about a third more of its recipients from substandard to Minimum Standard units than the Unconstrained program. They also found that Minimum Standards recipients that met requirements after enrollment had much larger changes in housing expenditures above normal levels than households that were already in Minimum Standard housing when they enrolled. Nevertheless, the overall increase in expenditures above normal levels was almost identical for Minimum Standards and Unconstrained recipients--about 10 percent in each case. Furthermore, when housing was evaluated in terms of Budding's measures, the two programs again had very similar impacts on recipient housing.

The percentage of recipients passing either of the two standards based on Budding's classifications (not living in clearly inadequate housing or living in apparently adequate housing) was, of course, much larger for the Minimum Standards programs. This difference was almost entirely due, however, to the fact that Minimum Standards requirements kept many households in substandard housing out of the program. In terms of changing recipient housing, about 15 percent of the Minimum Standards recipients were moved from acceptable housing in terms of either of Budding's measures. The estimated impact for

Unconstrained households was only marginally (and statistically insignificantly) lower.

It appears, then, that the extra housing change induced by the Minimum Standards requirements over a similar Unconstrained program was very specifically focused on the requirements themselves. Indeed, it is possible that, in comparison to the Unconstrained program, the requirements did not induce additional spending on housing or overall increases in the market value of recipient units, as they did a reallocation of expenditures to obtain the specific features imposed by the Minimum Standards requirements.

This finding presents serious problems for the design of a Minimum Standards housing allowance. While there are, no doubt, conditions that would be almost universally regarded as unacceptable in the context of modern American standards, most housing standards both include items that many people would find unnecessarily burdensome and omit items that the same people would regard as critical. Given the extent to which the effect of Minimum Standards requirements is closely tied to the specifics of the requirements used in the program and the importance of the standards in determining which households receive assistance, the advantage of a Minimum Standards allowance apparently rests directly on the extent to which meeting each item of the requirements is itself regarded as critically important. This poses a more severe test for housing requirements than has yet been applied in designing housing programs.

The apparent specificity of responses to Minimum Standards requirements suggests that while a Minimum Rent requirement might not place households in Minimum Standard housing, it might be more useful in generating more general housing changes usually associated with increased housing expenditures. The Minimum Rent High Housing Gap program tested in the Demand Experiment did indeed lead to increases in housing expenditures almost twice as large as those found for Unconstrained households (19 percent as compared with 10 percent). That these additional expenditures were not associated with any additional impact on the proportion of households passing various physical standards might be expected. Unfortunately, it appears that they were not associated with any material change in recipient housing at all.

A reasonably stringent Minimum Rent requirement does force some recipients to spend more for housing. It also, however, does not allow them to take advantage of especially good deals. It is apparent that quite similar units

in similar locations rent for different amounts. Although luck undoubtedly plays a considerable role, households can to some extent find better deals, paying less for similar housing than they otherwise would, by longer or more extensive search. A Minimum Rent requirement reduces the incentives to search for the simple reason that if a household finds a very good deal it will not meet the Minimum Rent requirement. As a result, Minimum Rent High recipients paid more than average for their units. Indeed, the increase in the estimated market value of Minimum Rent High recipient units was only 1.2 percentage points greater than that estimated for Unconstrained households.

Similar problems afflict Percent of Rent programs. Because these programs do not impose housing requirements, they have the same high participation rate as Unconstrained programs. They also lead to larger increases in housing expenditures. A 50 percent rebate program, for example, would be expected to cause an "average" household to increase its expenditures by 20 percent, or about 13 percentage points more than an Unconstrained program with similar average payments. Again, however, because the program shares in the costs of units, shopping incentives are reduced. On the one hand, the program pays for half of any overpayment and on the other, it keeps half of any saving realized by careful shopping. As a result, almost half of the increase in expenditures goes to increased average overpayments. The estimated average market value of units increases only 11 percent, or four percentage points more than a similar Unconstrained program.

These findings substantially reduce the apparent advantages of housing allowances over similar Unconstrained programs. The additional housing change generated by allowances is either very tightly focused on specific requirements or largely absorbed by changes in recipient shopping behavior. They do not, however, undermine the relative cost-efficiency of allowances over other housing programs discussed earlier. In particular, there is no evidence that the effects of other housing programs on recipient housing are any greater than the effects of housing allowances.

The findings on the effects of housing allowances reported above all are based on the way in which households respond to the allowance program. But from households' viewpoints, all low-income housing programs are in many ways quite similar. They all offer housing that meets certain requirements at reduced rents. Indeed, in these terms, the only really unusual allowance programs were the Percent of Rent programs, which had no housing re-

quirements. This suggests that other programs might show the same patterns of participation and housing changes as allowances, with similar impacts on recipient housing.

In this connection, it is important to realize that the analysis of housing allowances rests very heavily on the special data generated by the Demand Experiment. Had these programs been evaluated using the sort of data that is usually available for other programs, they would have seemed to have much larger effects on recipient housing. Consider, for example, the effect of the Minimum Standards allowances on the proportion of households in Minimum Standard housing. All recipients were in Minimum Standard housing. About two-thirds of these households moved to Minimum Standard housing or upgraded their units to meet requirements after they enrolled in the Experiment, suggesting that two-thirds of recipients were induced by the allowance program to obtain better (Minimum Standard) housing. This might be confirmed by comparison with apparently similar unsubsidized Control households. Again, two-thirds of Control households were in substandard housing, suggesting that the allowance program induced two-thirds of its recipients to move from substandard to standard units.

The actual figures are just the opposite. The allowance program in fact induced only about one-third of its recipients to move to Minimum Standard housing. This reflects the fact that allowance participants are not directly comparable to Control households. Controls represent the total eligible population, where participants are more heavily drawn from households in required housing. Thus, the actual impacts found for the allowance programs in the Demand Experiment are compatible with much larger apparent impacts based on the sort of data that is usually available for program evaluations.

At the same time, there are differences between allowances and other programs. In contrast to housing allowances or the Section 8 Existing Housing program, construction programs and the old Section 23 Leased Housing programs directly provide program-required housing to recipients. This difference could have important ramifications in terms of program impact on the proportion of households in standard housing. The very strong connection between households' normal probability of occupying Minimum Standards housing and their probability of participating in a Minimum Standards program is in part definitional. Among households that apply for the Minimum Standards program, those that already occupy or are about to move to standard housing partici-

pate automatically. If the low participation rate among other households reflects difficulty in finding standard units rather than strong cost-preference tradeoffs, construction programs and Section 23 could attract more households that would not normally occupy standard housing.

Another potentially important difference has to do with the way in which payments are calculated. Under a Housing Gap form of housing allowance, payments are determined by the difference between the average cost of modest existing standard housing and the amount that the household is deemed able to contribute towards housing. The actual household contribution, however, depends on whether its actual rent is greater or less than the average cost of standard housing. In contrast, other housing programs generally set payments to achieve program mandated rent burdens for each household. This could in theory affect patterns of program participation, though the direction of the effect is not clear.

This sort of payment calculation has special implications for the Section 8 Existing Housing program. Since the program absorbs the entire difference between unit rent and the program-specified tenant contribution, there is no reason for households to limit their rents. Thus, the Section 8 program starts by placing a ceiling on allowable rents. This may encourage more careful shopping, since households must find an acceptable unit with less than the ceiling rent (unless they are granted an exception). It may also exclude households that want to spend more to obtain better housing or that are not lucky enough to find adequate units below the ceiling rent. On the other hand, there is still no incentive for households to keep rents below the ceiling. In order to counteract this, the Section 8 program includes a shopping incentive provision under which households share in the savings realized by finding acceptable units at below ceiling rents. The experience with Percent of Rent in the Demand Experiment suggests that these incentives may not be large enough to be effective. Furthermore, the ceiling rents themselves may provide a strong signal to landlords. (Again, unlike housing allowances, landlords are directly involved in the Section 8 program.)

The limited housing impacts associated with housing allowances suggest that allowance programs would have a relatively small impact on housing demand and thus on the supply of low-income rental housing. This may also apply to other housing programs. The similarities between the Section 8 Existing Housing program and the Housing Gap form of housing allowance suggest similar

effects on housing demand and supply. Even construction programs may not, however, have greater impacts. Construction programs directly increase the supply of acceptable low-income rental housing. If they draw most of their recipients from households that were occupying similar housing in the private market, however, they undermine private demand. Thus, they may to a large extent simply shift households from private to public housing with little eventual impact on the total supply of adequate low-income rental units.

In short, very little is now known about the effects of other housing programs. What is known is that they are relatively very expensive. More could be done, even with existing data, and even more if additional data were collected. In the absence of such analyses, however, it will always be possible for proponents of these programs to justify their additional costs with unsubstantiated claims of added program benefits.

The lack of direct information on the imapcts of nonallowance programs indicates several important areas for further research. First, better understanding of housing allowances could allow better predictions of the effects of the differences in program payment calculations and search requirements discussed above. In addition, better understanding of the rate of search and good or bad deals in determining participation could suggest improved allowance program design to increase participation among those in substandard housing. In addition, there are techniques available which might permit direct estimation of the impacts of nonallowance programs.

There are also important and unexplained site differences in the estimated effects of both Housing Gap and Unconstrained programs. While many analyses yielded similar results in both sites, there is evidence that these programs yielded much larger changes in housing in Phoenix than in Pittsburgh. The reasons for this are unclear. They may be part of a more general problem, however. The estimates of housing changes developed by Friedman and Weinberg do not, in many ways, match the estimates of participation developed by Kennedy and MacMillan. The patterns of response match, but the quantitative values have unexplained discrepancies.

The role of household shopping behavior is also relatively unexplored. Analysis by Kennedy and Merrill (1979) and Friedman and Weinberg (1978) establishes that shopping is important and that households respond to changes in incentives to shop. There is still, however, no estimate of the overall variation

in housing prices or of the extent to which luck or diligence determine how much households actually pay.

The housing allowance Experiments are probably the largest sustained effort ever made to understand what a housing program does. They have yielded much detailed information about allowances and considerable insight into other housing programs as well. At the same time, they emphasize the limited and often misleading information available on other housing programs and our still rudimentary understanding of housing markets.

REFERENCES

Budding, David W., Housing Deprivation Among Enrollees in the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., November 1978 (revised June 1980).

Friedman, Joseph and Daniel H. Weinberg, The Demand for Rental Housing: Evidence From a Percent of Rent Housing Allowance, Cambridge, Mass., Abt Associates Inc., September 1978 (revised June 1980).

_____, Housing Consumption Under a Constrained Income Transfer: Evidence From a Housing Gap Housing Allowance, Cambridge, Mass., Abt Associates Inc., April 1979 (revised June 1980).

Kennedy, Stephen D. and Jean MacMillan, Participation Under Alternative Housing Allowance Programs: Evidence From the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., October 1979 (revised June 1980).

Kennedy, Stephen D. and Sally R. Merrill, "The Use of Hedonic Indices to Distinguish Changes in Housing and Housing Expenditures: Evidence From the Housing Allowance Demand Experiment," paper presented at the Research Conference on the Housing Choices of Low-Income Families, Washington, D.C., March 1979.

Mayo, Stephen K., Shirley Mansfield, David Warner and Richard Zwetchkenbaum, Housing Allowances and Other Rental Housing Assistance Programs--A Comparison Based on the Housing Allowance Demand Experiment, Part 1: Participation, Housing Consumption, Location, and Satisfaction; and, Part 2: Costs and Efficiency, Cambridge, Mass., Abt Associates Inc., November and August 1979 (revised June 1980).

APPENDIX I

DESCRIPTION OF THE DEMAND EXPERIMENT

This appendix presents a brief overview of the Demand Experiment. It is organized as follows:

Section	Topic
I.1	Purpose of the Demand Experiment
I.2	Design of the Demand Experiment, a description of the Experimental allowance plans tested
I.3	Sample Selection in the Demand Experiment, a brief description of the two sites, the sample selection procedures, and the sample size and allocation among the allowance plans
I.4	Data Collection in the Demand Experiment, a brief description of the major data sources used
I.5	Design of the Program Comparisons Study, a description of the nonallowance programs studied as part of the Demand Experiment, including sample selection and data sources.

I.1 PURPOSE OF THE DEMAND EXPERIMENT

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

Under a housing allowance program, money is given directly to individual low-income households to assist them in obtaining adequate housing in the private market. 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 housing and the burden of meeting housing requirements are placed upon households rather than upon developers, landlords, or the government.

[1]The other two Experiments are the Housing Allowance Supply Experiment and the Administrative Agency Experiment.

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 and 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, nonfinancial 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

---

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

formulas and housing standards requirements. The analyses and reports are designed to answer six policy questions:

1. Participation

Who participates in a housing allowance program? How does the form of 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?

3. Locational Choice

For participants who move, how does their locational choice compare with existing residential patterns? Are there nonfinancial 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 these 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.

I.2 DESIGN OF 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 housing at each site.[3] Thus, payment under the Housing Gap formula can be

---

[1] The basic design and analysis approach, as approved by the HUD Office of Policy Development and Research, is presented in Abt Associates Inc. (June 1973), and in Abt Associates Inc. (August 1973). Details of the operating rules of the Demand Experiment are contained in Abt Associates Inc. (April 1973).

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

[3] 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. (January 1975), Appendix II.

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.[1]

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.[2]

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, specific housing requirements are needed to tie the allowance to housing. Two types of housing requirement were used: Minimum Standards and Minimum Rent.

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

---

[1] As long as their housing met certain requirements (discussed below), Housing Gap households could spend more or less than C* for housing, as they desired, and hence contribute more or less than "b" of their own income. This is in contrast to other housing programs, such as Section 8 (Existing).

[2] 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.

a straightforward housing requirement (and one that is relatively inexpensive to administer) would be that recipients spend more than a 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 I-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, 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 of housing requirements can be estimated for all the major responses. In addition, interactions between the allowance level and the

Table I-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

CONTROL:

With Housing Information	Without Housing Information
Plan 24	Plan 25

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 payment 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 I-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 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.

---

[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.

I.3 SAMPLE SELECTION IN THE DEMAND EXPERIMENT

The Sites

The Demand Experiment was conducted in two sites, Allegheny County, Pennsylvania (Pittsburgh) and Maricopa County, Arizona (Phoenix).[1] These sites were selected by HUD 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. Each site had a large enough population and rental market to accommodate the Experimental programs without materially changing either the total demand for, or the supply of, rental housing. As indicated in Table I-2, the households enrolled in the Demand Experiment constituted less than 5 percent of the eligible low-income renter households and less than 2 percent of total renter households in each site. Otherwise, however, the two sites were very different in several respects.

At the time of the Demand Experiment, the Pittsburgh SMSA was an older Northeastern urban area, with a stable overall population, a declining central city, and a moderate rental vancancy rate. The population of the Pittsburgh SMSA was almost unchanged from 1960 to 1970, while the population of the City of Pittsburgh declined by about 14 percent. In the years immediately before the completion of enrollment in the Demand Experiment (1970 to 1974), the number of renter-occupied housing units fell by about 1 percent, while the rental vacancy was fairly stable at 5 to 6 percent.

The Phoenix SMSA, in contrast, was a newer Southwestern urban area, with a rapidly growing population, substantial new construction, and fairly high rental vacancy rates. The population of the Phoenix SMSA grew 46 percent from 1960 to 1970, while that of the City of Phoenix grew 32 percent. In the years immediately prior to the completion of enrollment in the Demand Experiment, the number of renter-occupied units grew by 27 percent. At the same time, the rental vacancy rate increased substantially, from 7.5 percent in 1970 to 14.4 percent in 1974.

---

[1] In this, as in all Demand Experiment reports, the two sites are referred to by their city names (Pittsburgh and Phoenix). Unless specifically indicated, these always refer to the entire county rather than the city proper.

Table I-2

SELECTED DESCRIPTORS OF
DEMAND EXPERIMENT SITES

LOCAL HOUSING MARKETS	PITTSBURGH SMSA[a]	PITTSBURGH CITY	PHOENIX SMSA[a]	PHOENIX CITY
POPULATION				
1960	2,405,400	604,300	663,500	439,200
1970	2,401,200	520,100	969,400	581,600
Percentage Change	-0.17%	-13.9%	+46.1%	+32.4%
YEAR ROUND HOUSING UNITS	PITTSBURGH SMSA		PHOENIX SMSA	
1970	788,600		317,000	
1974	822,500		462,000	
Percentage Change 1970-1974	4.3%		45.7%	
OCCUPIED RENTAL UNITS				
1970	245,100		101,900	
1974	244,800		129,200	
Percentage Change 1970-1974	-0.1%		+26.8%	
RENTAL VACANCY RATE				
1970	5.9%		7.5%	
1974	5.1%		14.4%	
DEMAND EXPERIMENT ENROLLMENT IN RELATION TO LOCAL HOUSING MARKETS	ALLEGHENY COUNTY (Pittsburgh)		MARICOPA COUNTY (Phoenix)	
Households enrolled in the Demand Experiment (1974)[b]	1,645		1,780	
AS A PERCENT OF:				
Estimated eligible renter households not in other subsidized housing (1970 Census)	4.0%		4.8%	
(N)	(40,700)		(36,800)	
Total number of occupied rental units	0.9%		1.7%	
(N)	(179,400)		(101,900)	
Total number of occupied dwellings	0.3%		0.6%	
(N)	(512,500)		(302,600)	

SOURCE: Annual Housing Survey, Table 1.

a. The Pittsburgh SMSA is larger than Allegheny County (the area in which the Demand Experiment was conducted). Allegheny County had a population of 1,605,016 in 1970, 1.4 percent less than in 1960. The Phoenix SMSA is identical with Experimental boundaries in that site (Maricopa County).

b. Excludes certain enrolled households that were ineligible at enrollment.

Eligible Households

Households enrolled in the Demand Experiment were selected from potentially eligible households in each site. Potentially eligible households consisted of all renter households in Allegheny or Maricopa Counties with incomes[1] at or below the program income eligibility limits, excluding nonelderly single person households,[2] members of the armed forces, full-time students, and households already receiving federal housing assistance or residing in blocks scheduled for demolition and relocation. Income eligibility limits included basic limits, which applied to all households and special limits, which applied only to certain allowance plans.

The basic income eligibility limits were set equal to the income level at which a household would receive no payment under the basic Housing Gap plan (Plans 2, 5, 8, and 12 in Table I-1), where monthly payments (P) were equal to the difference between the estimated monthly cost of modest existing standard housing for various household sizes in each site (C*) and 25 percent of the household's monthly income (Y)--that is,

$$P = C^* - .25Y.$$

The basic monthly income limits, therefore, were given by four times C* and the annual limits by 48 times C*. Actual annual values are shown in Table I-3. The estimated cost of standard housing (C*), and hence the income limits, were from 20 to 40 percent higher in Phoenix than in Pittsburgh.

These basic income eligibility limits applied to all households.[3] In addition, there were special limits for households assigned to certain allowance plans. Specifically, households in Housing Gap plans with lower payment levels (Plans 3, 6, 9 and 11) had to have incomes at enrollment low enough to receive payment under these plans. Further, only households with incomes

---

[1] For program purposes, net income was defined as total earnings from all sources (excepting the value of Food Stamps, but including welfare, Social Security, and alimony or child support), net of taxes and alimony payments and deductions for work-related expenses.

[2] Disabled nonelderly single person households were eligible in Phoenix but not in Pittsburgh.

[3] The only exception was Control households. Eligibility limits for Controls were higher in order to provide a group of higher income households. Direct comparisons between Controls and Experimentals generally exclude these households.

Table I-3

MODAL INCOME ELIGIBILITY LIMITS AT ENROLLMENT

SITE	HOUSEHOLD SIZE 1	2	3-4	5-6	7+
Pittsburgh	$5,050	$5,800	$6,750	$ 7,700	$ 9,150
Phoenix	6,000	7,450	8,650	10,600	12,750

Table I-4

REVISED MODAL INCOME ELIGIBILITY LIMITS

SITE	HOUSEHOLD SIZE 1	2	3-4	5-6	7+
Pittsburgh	$5,540	$6,260	$7,220	$ 8,180	$ 9,860
Phoenix	6,500	7,940	9,140	11,300	13,460

NOTE: Indicated amounts are $500 greater than formal eligibility limits. A $500 margin of error is allowed. Only households with incomes more than $400 above the formal limits are considered to be over-income.

in the lower third of the eligible population were eligible for enrollment in Plan 13 (the 60 percent Percent of Rent rebate) and only those with incomes in the upper two-thirds were eligible for Plan 23 (the 20 percent Percent of Rent rebate). The C* schedule and eligibility limits were revised approximately 12 months after the end of enrollment to reflect rent inflation. The revised income limits, shown in Table I-4, remained in effect for the rest of the Experiment. These revised limits only affected continuing eligibility, which was determined differently from initial eligibility for enrollment.

To be eligible for enrollment, a household's annual income for the 12 months prior to enrollment had to be at or below the eligibility limits. Thereafter, however, changes in income only affected payments. Payments to households assigned to the Housing Gap plan were automatically adjusted for changes in household income. If a household's income rose above the eligibility limits in any month, it could still receive $10 for completing monthly reporting requirements (like the Control households). If its income later again fell below the eligibility limits, it would begin to receive larger payments. Under the Percent of Rent plans, of course, monthly payments were not directly affected by household income. Accordingly, payments under these plans were only reduced if a household's monthly income rose above 4.8C* and fell to zero at incomes of 6.67C*.[1]

Sampling Procedures

The sampling process is summarized in Table I-5. It started with a listing of all dwelling units in selected blocks. The blocks chosen were cluster samples of blocks in Census tracts with median (1970 Census) household incomes of less than $12,000, except that blocks where less than 10 percent of the units were renter-occupied or where there were fewer than five renter-occupied units were excluded, as well as blocks scheduled for demolition and blocks containing federally subsidized low-income housing (including

[1] The actual calculation, almost never invoked, was that for monthly incomes above 4.8C*, payments were calculated on the basis of a_p, where

$$a_p = \left(\frac{6.667C^* - Y}{6.667C^* - 4.8C^*}\right) a$$

where C* is the estimated cost of standard housing, a is the normal Percent of Rent rebate, and Y is household income.

Table I-5

SUMMARY OF THE SAMPLE SELECTION PROCESS

	NUMBER OF HOUSEHOLDS	
	PITTSBURGH	PHOENIX
STEP IN SAMPLING PROCESS		
Units listed	Approximately 150,000	Approximately 150,000
Screening Interviews completed	50,938	43,341
Apparently eligible households assigned to Baseline Interviews	5,439	5,748
Households that completed the Baseline Interview and were still apparently eligible (names sent to site for enrollment)	4,127	3,834
Households that accepted enrollment and were verified eligible[a]	1,645	1,780

SOURCE: Abt Associates Inc. (1974), pp. 47-49, and Abt Associates Inc. (February 1975), pp. 124-129.

a. Some Control households (65 in Pittsburgh and 51 in Phoenix) were enrolled with incomes above the basic eligibility limits to provide additional data. In addition, towards the end of the enrollment process, it became worthwhile to enroll some households before income verification was completed. This permitted the analytic period to begin earlier at the cost of enrolling some over-income households in various allowance plans. These households were not, however, used in analysis and are not included here, though they sometimes appear in other published enrollment figures.

Section 23 units). This listing gave a sample of about 150,000 units in each site.

Samples of eligible households were then drawn from this list of units by means of a series of interviews. A brief Screening Interview was used to identify apparently eligible low-income renter households in this sample. As shown in Table I-5, about 90,000 Screening Interviews were required to produce a sample of about 11,000 apparently eligible households in the two sites. These households were then randomly assigned to the various Experimental programs and Control groups[1] and re-interviewed to provide Baseline data on the households' pre-enrollment situation.[2] This yielded a sample of about 8,000 still apparently eligible households with completed Baseline Interviews.

Households that completed the Baseline Interviews and were still apparently eligible were then approached by site office staff and offered enrollment in the Experiment. This was the first time that households were told about the Demand Experiment. The eligibility of households that accepted enrollment was then reviewed in detail based on current information provided by the households as well as verification of reported income by income sources (employers, government agencies, and so forth). The net result of this process was the enrollment of 3,425 eligible Experimental and Control households in

---

[1]If a household passed basic eligibility limits, but not the special eligibiltiy limits for its assigned plan, it was excluded from the sample. In addition, in order to achieve enrollment targets within each plan as closely as possible, initial samples of listed units were broken into from eight to 17 subsamples, which were then interviewed in sequence. In this way, the outcomes from earlier subsamples could be used to determine the sampling proportions used to allocate later subsamples to the different allowance plans. This procedure preserved random assignment while still allowing targets for the number of enrolled households in each plan to be met (within 10 percent).

[2]Most of the Screening and Baseline Interviews were conducted by the National Opinion Research Center (NORC) under subcontract to Abt Associates Inc. All interviews used a variety of procedures to assure that all selected households had an equal opportunity to complete the interview (including mail, phone and personal attempts to arrange for an interview at various times of day and days in the week) and were conducted by fully trained interviewers subject to extensive quality control procedures. Neither interviewers nor respondents knew the allowance plan to which the household was assigned. Nor were respondents told about the Experiment until some time after interviews were completed. The minimum completion rate on each interview was 80 percent.

the two sites (1,645 in Pittsburgh and 1,780 in Phoenix). The enrollment process ran from April, 1973 to March, 1973, with the bulk of enrollment completed between November and March.

Selected demographic characteristics of enrolled households are shown in Table I-6. Minorities made up from one-fourth to one-third of the enrolled households in each site. Minority households were almost entirely black in Pittsburgh and predominantly Spanish American in Phoenix. While Pittsburgh households tended to be somewhat older, the age distribution in the two sites was not dramatically different; roughly half were younger households (with heads of household less than 35 years old) while about one-fifth were elderly households (with heads aged 62 or more). The distribution of household sizes was also quite similar across the two sites. About 20 percent were large households with five or more members, while 15 percent were single person households (almost exclusively confined, under the program rules, to elderly households). Household income was somewhat higher in Phoenix than in Pittsburgh, due to the higher Phoenix eligibility limits. Overall, the average and median incomes were both about $4,500. Almost 90 percent of households had incomes less than or equal to twice the poverty level, while 45 percent were in poverty (as compared, for example, to 15 percent of all U.S. households in 1969). There were major differences in the distribution of sources of household income in the two sites. Earnings were the major source of income for two-thirds of the enrolled households in Phoenix, as compared with one-third in Pittsburgh. Correspondingly, over a third of the households in Pittsburgh had welfare as their major source of income as opposed to only 10 percent in Phoenix.[1] The remaining important category, Other Transfers, was also somewhat more prevalent to Pittsburgh.[2]

There are few substantial differences between the demographic profiles of enrolled households and the estimated profile of all eligible households

---

[1]This difference is not simply due to the higher income limits in Phoenix. Among households with incomes below poverty earnings were the major source of income for 11 percent and welfare for 64 percent in Pittsburgh as compared with 39 and 28 percent, respectively, in Phoenix.

[2]This category consists of a variety of institutional transfers such as pensions, Social Security, SSI, Workmen's Compensation, and Unemployment Insurance. This category was the major source of income for 85 percent of elderly households as compared to 7 percent of nonelderly households.

Table I-6

SELECTED DEMOGRAPHIC CHARACTERISTICS OF ENROLLED HOUSEHOLDS

	COMBINED SITES	PITTSBURGH	PHOENIX
RACE/ETHNICITY OF HEAD OF HOUSEHOLD			
Percent white	71%	76%	66%
Percent black	15	24	7
Percent Spanish American	13	0	24
Percent other	2	1	3
AGE OF HEAD OF HOUSEHOLD			
Less than 35 years	48	42	54
35 to 61 years	30	32	27
Greater than 61 years	22	26	19
HOUSEHOLD SIZE			
1	15	18	13
2	26	25	26
3-4	38	37	39
5-6	14	14	14
7+	7	5	8
HOUSEHOLD INCOME			
Mean income	$4,632	$4,168	$5,057
Median income	4,445	3,996	4,992
Percent in poverty[a]	45%	55%	36%
Percent twice poverty or below[a]	89	97	83
MAJOR SOURCE OF INCOME[b]			
Earnings	51	33	67
Welfare	23	37	10
Other transfers	24	28	21
Other	2	2	2
SAMPLE SIZE	3,334	1,595	1,739

SAMPLE. Enrolled households excluding those over-income or in owned homes or subsidized housing at enrollment, as well as households with missing income data or with reported incomes of less than $1,000 per year.

a. Poverty Income limits are based on the 1974 poverty matrix for male-headed urban households (by elderly and nonelderly status). The use of male-headed values modestly inflates the proportion of households classified as being in poverty. For the values used, see Budding (1978), Appendix II.

b. Major Source of Income categories are defined as follows:

Earnings = salaries, wages, and net business income
Welfare = payments from AFDC, General Assistance, and other welfare, plus the bonus value of Food Stamps
Other Transfers = pensions, Social Security, SSI, Workmen's Compensation, and Unemployment Insurance
Other = other income from assets, alimony, gifts, charity, and so forth.

The major source is the source that accounts for the largest share of a household's income.

ATI #6180

based on 1970 Census data. Indeed, such differences as these apparently reflect differences in data collection and definition, and changes in population between 1970 and 1973 as much as differences in households' willingness to be interviewed or accept the enrollment offer.[1] Most important, it appears that enrollment was not directly affected by a household's housing situation.[2] Thus, the households enrolled in the Demand Experiment provide a good picture of the housing needs of low-income households in each site.

Allocations to the Experimental Allowance Plans

Tables I-7 and I-8 show the sample sizes at enrollment and at the end of two years. Sample sizes at enrollment include all eligible households. Samples at two years include all eligible enrolled households still in the Experiment two years after enrollment, regardless of their income eligibility. Overall, 74 percent of the enrolled sample in Pittsburgh and 56 percent in Phoenix were still actively enrolled in the Experiment at the end of two years. At least some of the attrition in the sample was due to changes in household circumstances rather than a direct decision to drop out of the Experiment. Thus, for example, households that moved out of the county were dropped from the Experiment unless they moved back within three months. While this decision did involve giving up the Experiment, it seems unlikely that it was materially affected by the allowance.

Table I-9 shows retention rates for the major Experimental groups, first based on all enrolled households, and then excluding households that were known to have been dropped from the Experiment due to changes in circumstances. The "voluntary" retention rates reflected in the second calculation are, of course, higher--about 88 percent in Pittsburgh and 77 percent in Phoenix. Nevertheless, sample losses over two years were large enough to raise concerns about the effects of self-selection and differential attrition across the different allowance plans. These were addressed directly in the various analyses of household responses.

---

[1] See Abt Associates Inc. (February 1975), pp. 34-38, 84-113.

[2] See Kennedy and MacMillan (1979), Chapter 3.

Table I-7

SAMPLE SIZE AT ENROLLMENT

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 =57 PHX = 64			
b = 0.25	1.2C*	Plan 1 PIT = 43 PHX = 48	Plan 4 PIT = 43 PHX = 42	Plan 7 PIT = 45 PHX = 43	
	C*	Plan 2 PIT = 59 PHX = 74	Plan 5 PIT = 62 PHX = 70	Plan 8 PIT = 67 PHX = 78	Plan 12 PIT = 75 PHX = 70
	0.8C*	Plan 3 PIT = 62 PHX = 66	Plan 6 PIT = 61 PHX = 63	Plan 9 PIT = 67 PHX = 70	
b = 0.35	C*	Plan 11 PIT = 60 PHX = 77			

Total Housing Gap: 701 households in Pittsburgh, 765 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 = 34 PHX = 32	Plans 14 - 16 PIT = 121 PHX = 114	Plans 17 - 19 PIT = 145 PHX = 120	Plans 20 - 22 PIT = 118 PHX = 140	Plan 23 PIT = 92 PHX = 84

Total Percent of Rent. 510 households in Pittsburgh, 490 households in Phoenix

CONTROLS:

With Housing Information	Without Housing Information
Plan 24 PIT = 210 PHX = 262	Plan 25 PIT = 224 PHX = 263

Total Controls 434 households in Pittsburgh, 525 households in Phoenix

Table I-8

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

Table I-9

TWO-YEAR RETENTION RATES

	HOUSING GAP	UNCON-STRAINED	PERCENT OF RENT	CONTROL	ALL
		PITTSBURGH			
Number of enrolled households	626	75	510	434	1,645
Percent still actively enrolled at the end of two years	72%	84%	80%	69%	74%
"Voluntary" retention rate[a]	84%	92%	94%	87%	88%
		PHOENIX			
Number of enrolled households	695	70	490	525	1,780
Percent still actively enrolled at the end of two years	55%	57%	61%	54%	56%
"Voluntary" retention rate[a]	76%	83%	78%	74%	77%

SOURCE: Kennedy and MacMillan (1979), Appendix VI, Table VI-1.

a. Excludes enrolled households (from both numerator and denominator) that moved to their own home, to subsidized housing, or outside the county or became ineligible due to changes in household composition, institutionalization, or death.

I.4 DATA COLLECTION IN THE DEMAND EXPERIMENT

The major data sources used in the analysis of the Demand Experiment were the Baseline, Periodic and Exit Interviews, Housing Evaluations, Initial and Monthly Household Report, plus supplements, and payments data, plus data from the 1970 Census. Each of these is briefly described below.

Baseline Interview

Baseline Interviews[1] were administered to all households before offers to enroll in the program and were completed between March 1973 and January 1974. Data were collected in the following general categories: housing expenditures and consumption; location and housing search; neighborhood and housing preferences and satisfaction; maintenance and upgrading; household composition; household assets, income, and expenses; and participation in other government programs. The interviews provide measures of the household's position prior to the Experiment.

Periodic Interviews

Periodic Interviews were administered to all enrolled households approximately six months, one year, and two years after enrollment. Subject areas included housing expenditures and consumption; location and housing search; preferences and satisfaction; maintenance and upgrading; and participation in other government programs.

Exit Interview for Nonparticipants

These interviews were administered to a sample of households that rejected the offer to enroll in the program and were completed between February and April 1974. Data were collected in the following general areas: reasons for not enrolling; attitudes toward program requirements; attitudes toward the subsidy; and effects of Experimental requirements on enrollment.

---

[1] This interview, as well as the Exit Interview for Nonparticipants, and the Periodic Interviews, were administered in the field by the National Opinion Research Center.

Exit Interview for Program Terminees

These Exit Interviews were administered to all Experimental households that terminated from the Experiment after having some program experience and that still remained in the Experimental jurisdictions. The interviews were conducted between August 1974 and March 1976. Data were collected in the following areas: attitudes toward the program requirements, attitudes toward site personnel, and moving and upgrading experiences, and reasons for termination.

Housing Evaluation Forms

Housing Evaluation Forms were used to collect detailed information on the characteristics of the units occupied by households in the Demand Experiment. The first Housing Evaluation Form was completed at enrollment, subsequent forms were completed at the time of each Periodic Interview.[1] Data from the Housing Evaluation Forms have been used to determine whether Control households ever met the Minimum Standards requirement in the analysis of the normal probability of meeting requirements.

Initial and Monthly Household Report Forms

When interviewers were sent to households to explain the Experimental Housing Allowance Program and to make the enrollment offer, they also helped the household complete the Initial Household Report Forms. All households that accepted the enrollment offer were required to fill in these forms prior to enrollment. Initial Household Report Forms were completed between April 1973 and February 1974. Detailed information was collected on each household's composition, housing expenditures (rent, utilities, furnishings, and so forth), and asset holdings (savings bonds, stocks, and so forth), as of the time of the interview. Income data were collected for each of the previous 12 months for each type of income (e.g., wages, social security, welfare) for each household member 18 years of age or over. Household expenses (e.g., alimony, child care, medical) were also collected for the 12 most current months. Data from the Initial Household Report Forms were used

[1]Housing Evaluations were also conducted for Minimum Standards households whenever the household requested an evaluation to see if it met requirements and for all households whenever the household moved to a new unit.

operationally to determine whether initial household composition and income eligibility requirements had been met. Analytically, these data have been used to describe the household's demographic characteristics and income just prior to participation in the program. After enrollment, households were required to submit a Household Report Form each month.

The Household Events List

The Household Events List was the data source used to track households through the stages of enrollment. Operationally, these data were used to monitor the enrollment effort. The following steps in the enrollment process are recorded in the Household Events List: when the site office received the name and address of the household; when the contact letter was sent out; when the enrollment interview was completed; when a subsidy estimate was given; when the enrollment agreement was signed; when the Initial Household Report Form was completed; when verification was completed; and when the official enrollment letter was sent to the household. Reasons for not successfully completing enrollment were also recorded. Analytically, these data have been used in the derivation of the enrollment outcome variable.

Payments Data

After each monthly payment cycle, the household's current payment status, reasons for the status (if other than Full Payments status), payment period number, payment amount, and the intermediate variables used to calculate the payment were extracted from the payments system. These data were the source of participation response measures for analyses of participation decisions after enrollment.

In addition to the data collected by the Experiment, the major outside data sources used were the Fourth Count Tapes of the 1970 Census of Population and Housing.

I.5 DESIGN OF THE PROGRAM COMPARISONS STUDY

The Demand Experiment also collected data on other housing programs in the Pittsburgh and Phoenix sites for comparison with housing allowances. The three programs that are compared with Housing Allowances are:

Public Housing (Conventional and Turnkey), comprising low-income housing projects owned and operated by a Public Housing Agency

Section 23 Leased Existing Housing, comprising housing units from the existing private housing stock leased by a Public Housing Agency

Section 236 Interest Subsidized Housing with and without Rent Supplements, owned and operated by organizations in the private sector and comprising housing projects that contain some units for very low-income households as well as units for moderate-income households.

These programs were selected primarily because they represent the major alternative rental housing assistance strategies that were being pursued by the federal government at the time data were collected for this analysis. Table I-10, for example, gives the total number of units being provided under each major rental housing assistance program during Fiscal Year 1974. As the table indicates, Section 236, Owned Public Housing, and Leased Public Housing comprise a substantial majority of all units provided at about the time data were collected for this analysis (1975).

Details of Programs Selected

In order to sharpen the comparisons among major program types, the program definitions used in selecting the sample for the analysis were restricted to certain major program categories. In the case of Public Housing, for example, the analytical sample was restricted to units representing the most recent and "typical" Public Housing subprograms--Conventional and Turnkey I programs. These account for the bulk of newly constructed Public Housing units provided during the late 1960s and early 1970s.[1] Units included in the study population from which the sample was drawn comprised about 45 percent of all Public Housing units at the two sites.

---

[1]All of the excluded Public Housing units were those built or acquired well before the 1960s under categories AP (Acquisition--privately owned), S (Conventional self-help new construction), U4 (Housing units developed under Public Law 412--U.S. Housing Act of 1937), U6 (National Defense Housing developed under Public Law 671 and conveyed for low-rent housing use), W (War or Defense Housing developed under the Lanham Act--Public Law 849 and conveyed for low-rent housing use). For data on the prevalence of units in such categories during the time covered by this analysis see the HUD Consolidated Development Directory, Report S-11A, June 30, 1974.

Table I-10

UNIT BREAKDOWN BY LEGISLATIVE TITLE OF FEDERALLY SUBSIDIZED RENTAL HOUSING, THROUGH FY 1974

PROGRAM	NUMBER OF UNITS[a]	PERCENT
Section 236	569,910	26%
Rent Supplement	203,230	9
Single Subsidy[b]--107,350 Double Subsidy[b]-- 95,880		
Public Housing/Owned	1,149,000	52
Public Housing/Leased (Section 23)	173,700	8
Section 221(d)(3)BMIR	95,200	4
Section 202	19,700	1
TOTAL	2,210,740	100%

SOURCE: Schechter (1973), Table 4, p. 40.

a. The number of housing units supported through Fiscal Year 1974.

b. The single subsidy units are those subsidized only by the Rent Supplement program. Double subsidy units are those subsidized both by the Rent Supplement program and by one of several other federal subsidy programs, primarily the Section 236, Section 202, and Section 221(d)(3)BMIR programs.

Section 23 units were limited to those under which otherwise unsubsidized housing units from the existing privately-owned housing stock were leased by PHAs. The major exclusions from the sample were units provided under the "construction for leasing" subprogram and those for which Section 23 subsidies were given for units already subsidized by other programs such as Section 221(d)(3) and Section 236. It was felt that "construction for leasing" units were likely to be sufficiently similar to newly built Conventional or Turnkey units that little would be added to the analysis by their inclusion.[1] Section 23 units in various interest-subsidized, privately owned projects (which were either newly constructed or substantially rehabilitated) were mostly in one of the two sites (Allegheny County) and even these were relatively few in number.

The Section 23 units that were sampled included several different kinds of existing housing units. About 25 percent of units in the Pittsburgh sample were "leased rehabilitated" units (as distinct from "leased existing" units). Because there were no special subsidies provided for effecting the rehabilitation of leased rehabilitated units, no attempt was made in the analysis to distinguish the rehabilitated units from the other units leased from the existing stock.

Another subprogram distinction that remains among sampled units is between units leased under the "original" Section 23 program and the "revised" program, whose provisions were stipulated in HUD regulations issued in late 1973. Under these regulations, there were changes in the legal relationships among the PHA, the tenant, and the landlord, in the typical arrangements for property management responsibility, and in the degree to which potential participants were permitted to locate their own housing. In many ways the revised Section 23 program resembles its successor program, Section 8. The revised program existed only in Maricopa County at the time of this analysis, where about 60 percent of sampled units were in the revised Section 23 program.

---

[1] As a practical matter, the new construction component could not have been treated as a separate program type in this study because there were only two projects, at one of the sites, of this type. Furthermore, one of these two projects, 100 mobile homes for the elderly, was not at all typical of the program nationally.

Section 236 units were limited to those in projects which contained at least some Rent Supplement units. Units included in the study population comprised 66 percent of all Section 236 units in Pittsburgh and 75 percent of all Section 236 units in Phoenix. A major reason for the limitation to projects with Rent Supplement units was to increase the comparability between the Section 236 program as defined for analytical purposes and the other programs being compared. In particular, Section 236 is intended, on average, to serve a somewhat higher income population than are the other Comparison Programs. By emphasizing Section 236 projects that included some "deep subsidy" Rent Supplement units, and thus a greater share of low-income households, a greater number of observations were obtained which spanned the range of incomes covered by the other programs. Several Section 236 subprograms are included in the resulting sample--Nonprofit and Limited Dividend (for profit) sponsored projects, and new contruction and rehabilitation. In Pittsburgh, all four subprogram types (differentiated by sponsor type and construction type) are observed. In Phoenix, where there are no rehabilitated units, only variation by sponsor type is observed.

Sample Sizes and Data Collection

Data for the Comparison Programs were collected at a time corresponding to the end of the second complete year of operation of the Demand Experiment (the time of the Third Periodic Interview). Much of the data were collected using survey instruments based on those used to obtain data on household characteristics and attitudes and housing and neighborhood attributes of Demand Experiment participants. Major data sources were:

> Interviews with a sample of participants in the three major Comparison Programs using the Program Comparisons Interview, largely made up of items taken from the Demand Experiment Baseline and Periodic Interviews
>
> Evaluations of a sample of housing units in the Comparison Programs, using the Demand Experiment Housing Evaluation Form (HEF)
>
> HUD records and statistical reports, particularly those relating to cost and occupancy of Comparison Programs, and
>
> Existing studies of housing and other subsidy programs.

Data were collected based on a random sample of units in all Comparison Programs, except Public Housing in Phoenix. For that program, a stratified ran-

dom sample with two strata of roughly equal size, elderly and nonelderly were drawn in order to obtain more observations on elderly households than would have occurred under an unstratified sample.

The sample sizes for each of the Comparison Programs are shown in Table I-11. Two sample sizes are given, one for the comparisons study in general and one for the analysis of program costs. The sample for the cost analysis is smaller because housing evaluations (which were necessary to create cost variables) were not completed for the entire comparisons study sample.

Fewer units were sampled in Phoenix than in Pittsburgh in order to keep the total sample size for both sites within a stipulated limit, while permitting the best chance of making statistical contrasts among important sample subpopulations. For example, it was decided that the ability to distinguish between outcomes for minority and nonminority households in Section 236 could most effectively be achieved in Pittsburgh through increased sample size rather than in Phoenix (where program participants were largely nonminority).

Demographic characteristics of sampled households are shown in Table I-12. Differences among progams are largely accounted for by differences in program eligibility and location, as discussed in Mayo et al. (1979), Part 1, Chapter 2.

Table I-11

SAMPLE SIZES FOR COMPARISON PROGRAMS
FOR THE COMPARISONS STUDY IN GENERAL AND
FOR THE ANALYSIS OF PROGRAM COSTS[a]

	COMPARISONS STUDY		COST ANALYSIS[b]	
	PITTSBURGH	PHOENIX	PITTSBURGH	PHOENIX
PUBLIC HOUSING	286	234[c]	241	225
Conventional	227	197	194	189
Turnkey	59	37	47	36
SECTION 23	106	159	94	145
Original	106	67	94	60
Revised	-	92	-	85
SECTION 236	330	98	281	87
New Construction	151	98	123	87
Rehabilitation	179	-	158	-
TOTAL	722	491	616	457

SOURCE: Mayo et al. (1979), Part 1, Table II-4.

a. In particular analyses, sample sizes may differ because of the exclusion of observations for which key data were missing.

b. The cost analysis sample is smaller than the comparisons study sample because data for the former are limited by the number of households for whom Housing Evaluation Forms were completed--less than the entire sample.

c. For many analyses presented in the text, the sample size presented is a weighted average of samples for elderly and nonelderly strata with weights equal to 0.223 for the elderly strata and 1.0 for the nonelderly strata.

Table I-12

DEMOGRAPHIC CHARACTERISTICS OF HOUSEHOLDS IN COMPARISON PROGRAMS SAMPLE

	PITTSBURGH				PHOENIX			
	PUBLIC HOUSING	SECTION 23	SECTION 236	COMBINED[a]	PUBLIC HOUSING	SECTION 23	SECTION 236	COMBINED[a]
POVERTY								
Percent below poverty	56%	52%	27%	47%	81%	75%	38%	56%
Percent above poverty	44	48	73	53	19	25	62	44
RACE								
Minority	61	93	63	62	80	38	19	42
Nonminority	39	7	37	38	20	62	81	58
AGE								
Elderly (greater than 62 years)	48	6	34	43	21	45	37	32
Nonelderly	52	94	66	57	79	55	63	68
HOUSEHOLD SIZE								
1	42	3	38	40	15	50	39	31
2	20	8	24	21	16	19	24	21
3-4	22	17	30	24	31	19	27	28
5+	16	72	8	14	38	12	10	20
Mean	2.5	6.2	2.3	2.5	3.9	2.2	2.3	2.9
WELFARE								
Percent of nonelderly households receiving any welfare income	82	85	42	67	58	57	17	36
SAMPLE SIZES	(286)	(106)	(330)	(722)	(142[b])	(159)	(98)	(399)

SAMPLE: Comparison Program households--a sample of households participating in the Public Housing, Section 23, and Section 236 programs in Allegheny and Maricopa Counties.

SOURCE: Mayo et al. (1979), Part 1, Tables 2-2 and 2-10.

a. Weighted average of samples based on the proportional representation of each program in each site (rather than in the sample). Weights are 0.687, 0.013, and 0.300 in Pittsburgh and 0.349, 0.071, and 0.580 in Phoenix for Public Housing, Section 23 and Section 236, respectively.

b. Weighted average of sample sizes in the elderly and nonelderly strata in Phoenix Public Housing; see Appendix II for a description of the calculation of statistics based on this sample.

REFERENCES

Abt Associates Inc., Site Operating Procedures Handbook for the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., April 1973.

_____, Summary Evaluation Design, Cambridge, Mass., Abt Associates Inc., June 1973.

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

_____, First Annual Report of the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., March 1974.

_____, Working Paper on Early Findings, Cambridge, Mass., Abt Associates Inc., January 1975.

_____, Second Annual Report of the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., February 1975.

Kennedy, Stephen D. and Jean MacMillan, Participation Under Alternative Housing Allowance Programs: Evidence From the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., October 1979 (revised June 1980).

Mayo, Stephen K., Shirley Mansfield, David Warner and Richard Zwetchkenbaum, Housing Allowances and Other Rental Housing Assistance Programs--A Comparison Based on the Housing Allowance Demand Experiment, Part 1: Participation, Housing Consumption, Location and Satisfaction, Cambridge, Mass., Abt Associates Inc., November 1979 (revised June 1980).

Schechter, Henry, An Analysis of the Section 235 and 236 Programs, Washington, D.C., U.S. Senate Committee on Banking, Housing and Urban Affairs, Subcommittee on Housing and Urban Affairs, May 24, 1973.

APPENDIX II

TABLE BACK-UP FOR FIGURES

This appendix presents, for convenience, the tables portrayed in several of the figures and in the text.

Table II-1

INCIDENCE OF CROWDING AND SEVERE CROWDING
BY INCOME FOR MEDIUM-SIZE HOUSEHOLDS
(Figures 2-1 and 2-2)

INCOME TO POVERTY RATIO	PERCENT OF HOUSEHOLDS WITH				SAMPLE SIZE
	TWO OR MORE ROOMS LESS THAN NEEDED	MORE THAN ONE PERSON PER ROOM	MORE THAN TWO PERSONS PER BEDROOM	ONE OR MORE ROOMS LESS THAN NEEDED	
Less than or equal to 0.50	12.2%	11.5%	32.8%	53.4%	(131)
0.51 to 0.75	11.3	5.9	25.6	40.4	(203)
0.76 to 1.00	10.4	4.7	32.3	35.4	(192)
1.01 to 1.25	4.2	6.0	20.5	23.5	(166)
1.26 to 1.50	2.0	5.4	26.6	22.2	(203)
1.51 to 1.75	4.3	5.0	17.4	16.8	(161)
1.76 to 2.00	2.5	1.6	14.8	11.5	(122)
Greater than 2.00	1.5	0.7	10.3	3.7	(136)
All medium-size households	6.2	5.2	23.1	26.6	(1314)

SAMPLE: Enrolled households with three or four persons, excluding households enrolled over-income.

ATI#9233

Table II-2

INCIDENCE OF CROWDING AND SEVERE CROWDING
BY INCOME FOR LARGE HOUSEHOLDS
(Figures 2-1 and 2-2)

	PERCENT OF HOUSEHOLDS WITH				
INCOME TO POVERTY RATIO	TWO OR MORE ROOMS LESS THAN NEEDED	MORE THAN ONE PERSON PER ROOM	MORE THAN TWO PERSONS PER BEDROOM	ONE OR MORE ROOMS LESS THAN NEEDED	SAMPLE SIZE
Less than or equal to 0.50	63.1%	73.8%	74.8%	91.3%	(103)
0.51 to 0.75	48.6	63.1	68.0	84.7	(222)
0.76 to 1.00	45.1	64.1	68.6	81.0	(153)
1.01 to 1.25	35.1	60.4	67.6	75.7	(111)
1.26 to 1.50	25.4	52.1	56.3	66.2	(71)
1.51 to 1.75	18.5	59.3	55.6	81.5	(27)
1.76 to 2.00	28.6	57.1	57.1	71.4	(14)
Greater than 2.00	10.0	50.0	40.0	40.0	(10)
All large households	43.5	62.9	66.8	80.6	(711)

SAMPLE: Enrolled households with five or more persons, excluding households enrolled over-income.

ATI#9233

Table II-3

TYPES OF HOUSING DEPRIVATION BY INCOME CLASS
(Figure 2-3)

INCOME TO POVERTY RATIO	PERCENT OF HOUSEHOLDS WITH[a]					SAMPLE SIZE
	POOR HOUSING AND SEVERE RENT BURDENS	POOR HOUSING AND HIGH RENT BURDENS	POOR HOUSING AND MODERATE RENT BURDENS	SEVERE RENT BURDENS ONLY	HIGH RENT BURDENS ONLY	
Less than or equal to 0.50	46.2%	60.4%	71.4%	90.3%	91.2%	(318)
0.51 to 0.75	22.6	52.4	68.8	88.6	97.5	(691)
0.76 to 1.00	11.8	42.5	62.6	82.9	96.0	(551)
1.01 to 1.25	5.8	27.0	51.8	74.5	93.1	(463)
1.26 to 1.50	2.3	17.3	45.6	60.9	85.0	(427)
1.51 to 1.75	0.6	13.6	35.1	47.9	83.9	(330)
1.76 to 2.00	0.8	11.0	32.5	39.2	77.2	(237)
Greater than 2.00	0.3	4.9	20.2	23.4	64.7	(346)

SAMPLE: Enrolled households, excluding those enrolled over-income.

a. Terms are defined as follows:

Poor housing = clearly physically inadequate or more than 2 persons per bedroom
Severe rent burden = rent greater than 40 percent of income
High rent burden = rent greater than 25 percent of income but not greater than 40 percent of income
Moderate rent burden = rent less than 25 percent of income.

ATI#878/5-7

Table II-4

HOUSING DEPRIVATION AND INCOME CLASS
(Figure 2-4)

INCOME TO POVERTY RATIO	PERCENT OF HOUSEHOLDS WITH[a] POOR HOUSING AND INSUPPORTABLE RENT BURDENS	POOR HOUSING ONLY	INSUPPORTABLE RENT BURDENS ONLY	SAMPLE SIZE
Less than or equal to 0.50	75.4%	75.4%	100.0%	(318)
0.51 to 0.75	68.5	68.5	100.0	(691)
0.76 to 1.00	57.4	62.8	99.6	(551)
1.01 to 1.25	14.7	51.5	83.2	(463)
1.26 to 1.50	1.0	46.4	54.4	(427)
1.51 to 1.75	0	36.1	38.4	(330)
1.76 to 2.00	0	33.2	33.2	(237)
Greater than 2.00	0	21.4	21.4	(346)

SAMPLE: Enrolled households, excluding those enrolled over-income.

a. Terms are defined as follows:

Poor housing = clearly physically inadequate or more than 2 persons per bedroom

Insupportable rent burden = income net of rent is less than 75 percent of poverty level income.

ATI#878/9

Table II-5

MEAN ESTIMATED RENTAL VALUE OF UNITS
(INCLUDING THE VALUE OF LANDLORD-SUPPLIED
STOVE AND REFRIGERATOR, WHERE PRESENT)[a]
(Figure 3-2)

PROGRAM	PITTSBURGH MEAN VALUE	PITTSBURGH RATIO TO MINIMUM STANDARDS VALUE	PHOENIX MEAN VALUE	PHOENIX RATIO TO MINIMUM STANDARDS VALUE
Unconstrained	130	0.92	156	0.95
Percent of Rent	134	0.94	149	0.91
Minimum Rent Low	131	0.92	159	0.97
Minimum Rent High	140	0.99	173	1.05
Minimum Standards	142	1.00	164	1.00
Section 23	145	1.02	151	0.92
Section 236	143	1.01	181	1.10
Public Housing	134	0.94	158	0.96
Controls	132	0.93	144	0.88

SAMPLE: Units occupied by sampled participants in each program.

a. Hedonic values in this table have not been inflated to 1975 and are therefore based on 1973 rent levels. Inflation to 1975 would not, of course, affect the relative program values shown in Figure 3-2.

Table II-6

MEAN ESTIMATED RENTAL VALUE OF UNITS
(INCLUDING THE VALUE OF LANDLORD-SUPPLIED
STOVE AND REFRIGERATOR, WHERE PRESENT):
NET OF DIFFERENCES IN UNIT SIZE[a]
(Figure 3-2)

PROGRAM	PITTSBURGH		PHOENIX	
	MEAN VALUE	RATIO TO MINIMUM STANDARDS VALUE	MEAN VALUE	RATIO TO MINIMUM STANDARDS VALUE
Unconstrained	137	0.96	157	0.96
Percent of Rent	139	0.98	152	0.93
Minimum Rent Low	135	0.95	161	0.98
Minimum Rent High	144	1.01	170	1.04
Minimum Standards	142	1.00	164	1.00
Section 23	131	0.92	159	0.97
Section 236	153	1.08	183	1.12
Public Housing	146	1.03	149	0.91
Controls	136	0.96	147	0.90

SAMPLE: Units occupied by sampled participants in each program.

a. Hedonic values in this table have not been inflated to 1975 and are therefore based on 1973 rent levels. Inflation to 1975 would not, of course, affect the relative program values shown in Figure 3-2.

Table II-7

PERCENT OF UNITS PASSING ALTERNATIVE PHYSICAL STANDARDS
(Figure 3-3)

	PERCENT OF UNITS PASSING					
	MSL	INADEQUATE	MSP	ADEQUATE	MSH	SAMPLE SIZE
			PITTSBURGH			
Other[a]	91.9%	64.8%	31.2%	26.8%	9.9%	(841)
Minimum Rent High/Section 23	92.6	75.8	34.3	26.2	7.4	(149)
Minimum Standards	95.5	89.9	74.2	50.6	10.1	(89)
Public Housing and Section 236	97.7	96.0	62.5	61.9	48.3	(522)
			PHOENIX			
Other[a]	77.0	63.0	39.4	40.0	22.3	(660)
Minimum Rent High/Section 23	94.4	90.9	49.0	50.0	29.8	(198)
Minimum Standards	96.6	94.4	86.5	71.9	43.8	(89)
Public Housing and Section 236	98.2	98.5	70.2	65.1	48.6	(223)

SAMPLE: Units occupied by sampled participants in each program.
NOTES: MSL = MS Low
MSP = MS Program
MSH = MS High.
a. Other includes Controls, Unconstrained, Percent of Rent and Minimum Rent Low.

AFA#6742/27-34
AFA#3913

Table II-8

ACCEPTANCE RATES BY PAYMENT AMOUNT
(Figure 4-2)

PAYMENT ESTIMATE	PITTSBURGH HOUSING GAP HOUSEHOLDS (N)	PITTSBURGH PERCENT OF RENT AND UNCONSTRAINED HOUSEHOLDS (N)	PITTSBURGH ALL EXPERI-MENTAL HOUSEHOLDS (N)	PHOENIX HOUSING GAP HOUSEHOLDS (N)	PHOENIX PERCENT OF RENT AND UNCONSTRAINED HOUSEHOLDS (N)	PHOENIX ALL EXPERI-MENTAL HOUSEHOLDS (N)
Estimates of payment amount given to households during enrollment interview						
$10	60% (274)	64% (44)	60% (318)	66% (186)	80% (20)	67% (206)
$11-30	59 (197)	74 (368)	69 (565)	76 (115)	78 (215)	77 (330)
$31-50	85 (252)	88 (296)	86 (548)	87 (133)	89 (261)	88 (394)
$51-70	85 (163)	88 (153)	86 (316)	89 (153)	93 (150)	91 (303)
$71-90	88 (104)	91 (54)	92 (158)	87 (118)	95 (76)	90 (194)
$91 or more	88 (86)	100 (17)	87 (103)	89 (300)	99 (43)	90 (343)

SAMPLE: All Housing Gap households that completed the enrollment interview and received a subsidy estimate.

SOURCE: Kennedy and MacMillan (1979), Table 2-5.

NOTE: Sample size in parentheses.

APPENDIX III

ANNOTATED BIBLIOGRAPHY OF REPORTS ON THE DEMAND EXPERIMENT

This report is based on the series of final reports listed in Section III.1. With two special exceptions (Budding (1978), and Merrill (1977)), which primarily relied on enrollment data, all of these final reports dealt with the responses of enrolled households during the first two years after enrollment. The final reports were in turn based on preliminary analyses of responses at the end of the first year after enrollment. These reports, together with earlier reports on the design of the Experiment and annual reports completed for each of the first four years, are listed in Section III.2.

III.1 ABSTRACTS OF THE FINAL ANALYTIC REPORTS FROM THE DEMAND EXPERIMENT

Atkinson, Reilly, William Hamilton and Dowell Myers, Economic and Racial/Ethnic Concentration in the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., January 1979 (revised June 1980).

This report examines the effect of Experimental housing allowance programs on the residential location of households enrolled in the Housing Allowance Demand Experiment. Specific neighborhood characteristics considered are concentration of low-income households and of minority households in the households' Census tracts. Changes are also described using other measures of neighborhood quality such as crime rates and a neighborhood hedonic index.

The analysis of program effects is limited and, in some cases, sharply curtailed by small sample sizes. The overall finding is that the housing allowance did not induce households to choose neighborhoods with significantly different economic and racial/ethnic compositions from those they would have chosen in the absence of a program. The lack of any substantial effect from the allowance programs on racial concentration is consistent with the general lack of any strong association between racial segregation and household income. Likewise, cross-sectional analysis suggests that the changes in housing expenditures engendered by the allowance would not normally be expected to result in any substantial change in the low-income concentration of tracts selected by recipients.

Bakeman, Helen E., Carol Ann Dalto and Charles S. White, Jr., Minimum Standards Requirements in the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., February 1979 (revised June 1980).

This report describes the minimum housing standard used in the Housing Allowance Demand Experiment. Each components of the physical and occupancy requirements is described in detail. The report then indicates how often the various elements of the standards caused households to fail the requirements. Special emphasis is placed on those items that accounted for a large proportion of the failure.

More than two-thirds of the units at enrollment failed the physical standard. One component--the light and ventilation requirement--was responsible for a substantial proportion of the failures. This component may have been overly stringent. The failure rate in Phoenix, for example, would have been somewhat lower if local code requirements had been used (as is sometimes done in the Section 8 Existing Housing program). Other alternative light and ventilation requirements would have reduced the failure rate by about a fifth.

Budding, David W., Housing Deprivation Among Enrollees in the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., November 1978 (revised June 1980).

This report describes the incidence and nature of housing deprivation among

low-income and poverty renters at the time of enrollment in the Housing Allowance Demand Experiment. The focus of the report is on physical housing deprivation. Information on the physical condition of dwelling units is based on a physical inspection of each dwelling unit by trained evaluators. In addition, other information collected in the Demand Experiment is used to construct standard measures of crowding and rent burden.

The report shows that extensive information on the physical condition of dwelling units sharply increases estimates of the extent of clearly inadequate housing. More than twice as many households were found to be living in clearly inadequate housing than would have been estimated by traditional measures. Physically inadequate housing and/or crowded conditions continues to be a common and serious part of the housing deprivation of low-income households. Such poor living conditions appear to be concentrated in the poorest households, those with incomes below the poverty line. The report also suggests that traditional measures of crowding and rent burden are inadequate.

Friedman, Joseph and Daniel H. Weinberg, The Demand for Rental Housing: Evidence From a Percent of Rent Housing Allowance, Cambridge, Mass., Abt Associates Inc., September 1978 (revised June 1980).

This report analyzes the housing consumption of households participating in the Housing Allowance Demand Experiment that received Percent of Rent housing allowances. Analyses of both housing expenditures and housing services (a measure of real housing) are carried out using a variety of approaches. The dynamics of household response over time and the possibility of biased estimates due to sample selection or the limited duration of the Experiment are also examined.

The report finds price and income elasticities for rental housing expenditures of -0.22 and 0.36, respectively. However, from one-fifth to one-half of the expenditure response to the general proportional price reduction tested in the Experiment was estimated to represent increased spending without concomitant increases in real housing services, suggesting that the change in the distribution of prices had important effects on household shopping behavior. Estimated dynamic models were unable to identify clear evidence of lagged adjustment patterns as opposed to serial correlation. Likewise, direct examination of response over time showed no important evidence that responses were limited by the limited duration of the Experiment, though the tests are again not conclusive.

Friedman, Joseph and Daniel H. Weinberg, Housing Consumption Under a Constrained Income Transfer: Evidence From a Housing Gap Housing Allowance, Cambridge, Mass., Abt Associates Inc., April 1979 (revised June 1980).

This report analyzes the effect of the Experimental Housing Gap housing allowances on the housing consumption of recipients. Several measures of housing consumption are examined: housing expenditures, housing services (a measure of real housing), the standardness of the dwelling unit, and other measures of physical adequacy. The effects of the allowances are measured as deviations

from normal behavior estimated using Control households and compared with the effects of a similar Unconstrained income transfer payment. Particular attention is paid to the possibility of bias due to self-selection.

The estimated effects of Housing Gap allowances were generally very tightly focused on the specific housing requirements imposed by the various Housing Gap programs. Housing Gap programs did induce more households to meet housing requirements than did similar Unconstrained programs. Apart from the housing changes explicitly required to meet housing requirements, Housing Gap programs had no greater impact on the housing of recipients than similar Unconstrained programs. While this pattern of results held in both sites, there were substantial and largely unexplained differences in the level of housing change generated by both Housing Gap and Unconstrained programs between the two sites.

Hoaglin, David C. and Catherine A. Joseph, Income Reporting and Verification in the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., April 1978 (revised June 1980).

This report analyzes the extent to which participants in the Housing Allowance Demand Experiment accurately reported their income. Reporting errors were defined by comparing income amounts reported by participants with those reported by the participant's reported sources of income, such as employers, public agencies, and pension plans.

Discrepancies between income amounts reported by households and those reported by employers or public agencies are analyzed, and the impact of these discrepancies on payments is discussed. The relationship between reporting error and Experimental and demographic variables is examined to determine whether households receiving income-conditioned payments tended to underreport income more than other households and whether some demographic groups were less accurate in their reporting than others. The administrative feasibility of third-party income verification is discussed. Finally, the report indicates a number of areas for possible future research.

Kennedy, Stephen D. and Jean MacMillan, Participation Under Alternative Housing Allowance Programs: Evidence From the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., October 1979 (revised June 1980).

This report analyzes program participation in the various forms of housing allowance programs tested in the Housing Allowance Demand Experiment. Two stages in participation are analyzed--accepting the initial enrollment offer and, for the forms of allowance which required households to live in units that met certain requirements, subsequently meeting requirements and participating once enrolled.

The analysis finds that, as expected, programs of income-conditioned transfer payments or rebates on rental expenditures have high participation rates. The imposition of housing requirements reduces participation rates considerably. There appears to be a reasonably stable relationship between participation and a household's normal probability of meeting requirements in the absence of the allowance offer. This relationship depends on the amount of

the allowance payment offered, but not on the type of requirement imposed or household demographic characteristics.

The report also considers differences in participation for households that remained eligible for relatively long periods and discusses the implications of the results for program evaluation and design. Some attention is paid to the implications of the findings for other housing programs. In addition, technical concerns addressed in the report include evaluation of bias due to sample selection and attrition, effects of population turnover on participation, and development and testing of an underlying theoretical model of the participation decision.

MacMillan, Jean, Mobility in the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., June 1978 (revised June 1980).

This report analyzes the residential mobility of participants in the Housing Allowance Demand Experiment. Four stages of the mobility process are considered--becoming dissatisfied, planning to move, searching for new housing, and then actually moving.

The effects of the demographic characteristics, housing situations, and attitudes of households entering the program are analyzed at each stage of the mobility process. The effect of the various Experimental allowance plans on the probability of moving is estimated. Finally, problems encountered by households that searched are examined to see if program actions could have made moving easier for participants.

Mayo, Stephen K., Shirley Mansfield, David Warner, and Richard Zwetchkenbaum, Housing Allowances and Other Rental Housing Assistance Programs--A Comparison Based on the Housing Allowance Demand Experiment, Part 1: Participation, Housing Consumption, Location, and Satisfaction, Cambridge, Mass., Abt Associates Inc., November 1979 (revised June 1980).

This report analyzes participation, housing consumption, location, and tenant satisfaction in a Housing Allowance program, Public Housing, Section 23 Leased Existing Housing, and Section 236 with and without Rent Supplements. The report is based on data collected in conjunction with the Housing Allowance Demand Experiment, in Allegheny County (Pittsburgh), Pennsylvania and Maricopa County (Phoenix), Arizona in 1975. A companion volume examines comparative costs of each program.

The analysis examines overall participation rates and differences in the demographic composition of households in the programs; the estimated market rental value of housing and components of differences in market value (size, dwelling unit quality, and neighborhood quality), program impacts on the housing and disposable income of tenants, economic benefits to tenants, normative housing outcomes regarding the ability of units to meet standards of housing quality, occupancy (crowding), and rent burden; the spatial dispersion of units provided in each program, locations of units with respect to concentrations of the poor and minorities, locational impacts of programs, and subjective evaluations of neighborhood quality; tenant satisfaction with

dwelling units and neighborhoods and sources of variability in expressed satisfaction, and interest in a Housing Allowance program among participants in other programs.

Mayo, Stephen K., Shirley Mansfield, David Warner and Richard Zwetchkenbaum, Housing Allowances and Other Rental Housing Assistance Programs--A Comparison Based on the Housing Allowance Demand Experiment, Part 2: Costs and Efficiency, Cambridge, Mass., Abt Associates Inc., August 1979 (revised June 1980).

This report analyzes the comparative costs of Housing Allowances, owned Public Housing, Section 23 Leased Existing Housing, and Section 236 with and without Rent Supplements. The analysis examines costs in 1975, the allocation of costs among tenants and federal and local governments, and the relationship of costs to the estimated market value of housing provided by each program. Life-cycle costs are also evaluated based on alternative assumptions concerning inflation in housing costs and depreciation of housing.

The report indicates that housing allowances provide housing at a fraction of the cost of construction-oriented programs, are capable of serving from two to three times as many households per dollar of subsidy, and provide more housing value in relation to cost than do either owned Public Housing or Section 236. These comparative outcomes are the result not only of program features of housing allowances and other programs, but also of pervasive economic trends that have affected the relative costs of new construction vis-a-vis leased existing housing. Because no early reversal of such trends is anticipated, the results indicated here appear likely to hold for some time to come.

Merrill, Sally R., Hedonic Indices as a Measure of Housing Quality, Cambridge, Mass., Abt Associates Inc., December 1977 (revised June 1980).

The major purpose of this paper is to develop an important summary measure of housing based on hedonic indices. The analysis of changes in housing is a central issue in the Demand Experiment. There is, however, no generally agreed-upon measure of housing and housing quality. This paper assesses alternative measures of housing and proposes a general measure of housing based on estimated hedonic indices for use in later analysis.

Hedonic indices relate rent to measures of housing characteristics and thus provide one way of aggregating the many characteristics into an overall index of quality. There are several reasons why this approach is especially useful to the analysis of the Demand Experiment.

> First, an hedonic index can incorporate a wide range of attributes into one measure of housing, including not only the quality and size of the dwelling unit, but also many characteristics of the neighborhood, such as the quality of its housing stock and the quality of public services provided.
>
> Second, the hedonic index provides a stable and reasonable measure of housing over the two-year Experimental period. The change in the housing index is adjusted for a variety of factors

which may affect rent, including inflation, discounts for long tenure, or changes in landlord/tenant relations.

Third, the hedonic approach permits investigation of a number of topics which bear on the analysis and understanding of the Demand Experiment. These include price discrimination against residents of minority neighborhoods, other types of housing market segmentation, and factors which result in some households getting a "better deal" for their money.

The derived hedonic indices presented in this report are based on evaluations of individual units by site office staff, participant ratings of their neighborhood, and other census and local government data. They account for from 66 to 80 percent of the variation in rent and confirm the importance of dwelling unit and neighborhood amenities, as well as other nonquality characteristics, such as length of tenure, in determining market rent.

Merrill, Sally R. and Catherine A. Joseph, Housing Improvements and Upgrading in the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., March 1979 (revised June 1980).

This report analyzes the housing improvements of households enrolled in the Housing Allowance Demand Experiment. The analysis focuses first on changes in units to meet the housing requirements tested in the Experiment and second on general maintenance, repair, and remodeling activity. The first analysis is based mostly on housing evaluations conducted by program staff; the second relies on household interviews.

Households enrolled in the Housing Gap allowance plans received allowance payments if they met certain housing requirements. Two types of housing requirements were tested. Minimum Standards households were required to live in housing that met specific physical and occupancy requirements. Households in the Minimum Rent plans could choose whatever housing characteristics they wished but were required to spend at least a specified minimum amount for rent.

Households that did not meet requirements at enrollment could move to a unit that did meet requirements or arrange to meet them in the enrollment unit. This report focuses primarily on the latter group. Minimum Standards households could upgrade by repairing the Minimum Standards components failed. Minimum Rent households could meet in place by negotiating or accepting a rent increase sufficient to meet the requirement. The overall findings are that the allowance induced Minimum Standards households to upgrade more frequently than Control households and to repair units that were originally in somewhat worse condition than upgraded Control units. Most upgrading appears to result either from normal maintenance or additional household efforts, and is not accompanied by any above-normal increase in rent. In contrast, the effect of the Experiment on Minimum Rent households that did not meet requirements in the enrollment unit was, at most, very limited. While there is some evidence that some Minimum Rent households were induced to meet Minimum Rent requirements in place, there is no evidence of above-normal rent increases for this group. In general, meeting Minimum Rent requirements in place appears to reflect normal changes in unit rents not immediately tied to any change in unit quality.

Napior, David and Antony Phipps, Subjective Assessment of Neighborhoods in the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., June 1980.

This report examines the relationship between participation in allowance programs and participants' subjective perceptions of the quality of their neighborhoods. Five different measures of perceived neighborhood quality are examined: overall level of expressed neighborhood satisfaction, public services, private services, neighborhood problems, and strength of social bonds. The report presents estimates of the direction, magnitude, and significance of the effects of the various housing allowance plans on recipients' evaluations of their neighborhoods. The major finding is that program participants that moved in the two-year interval after enrollment resided in neighborhoods where they had less frequent and less friendly interaction with their neighbors and had fewer relatives and other persons of similar background than would be expected to be the case in the absence of the program. This was especially the case for those that did not meet program housing standards at enrollment and subsequently moved.

Vidal, Avis, The Search Behavior of Black Households in Pittsburgh in the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., July 1978 (revised June 1980).

This report analyzes the experience of black households that searched for housing during the Housing Allowance Demand Experiment in Allegheny County (Pittsburgh). The focus of the report is the way in which the process of searching for housing helped to maintain the existing pattern of racially segregated housing in Allegheny County. Particular attention is given to the extent to which black households restricted their search for housing to black areas. The extent to which black households reported encountering racial discrimination when they searched in nonminority areas is also discussed. Differences in the effectiveness of housing market information for black and white searchers are analyzed. The report concludes with a discussion of some of the policy implications of differences in the ease with which black and white households locate housing.

III.2 COMPLETE LIST OF DEMAND EXPERIMENT PUBLICATIONS

FINAL ANALYTIC REPORTS

Atkinson, Reilly, William Hamilton and Dowell Myers, Economic and Racial/Ethnic Concentration in the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., January 1979 (revised June 1980).

Bakeman, Helen E., Carol Ann Dalto and Charles S. White, Jr., Minimum Standards Requirements in the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., February 1979 (revised June 1980).

Budding, David W., Housing Deprivation Among Enrollees in the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., November 1978 (revised June 1980).

Friedman, Joseph and Daniel H. Weinberg, The Demand for Rental Housing: Evidence From a Percent of Rent Housing Allowance, Cambridge, Mass., Abt Associates Inc., September 1978 (revised June 1980).

Friedman, Joseph and Daniel H. Weinberg, Housing Consumption Under a Constrained Income Transfer: Evidence From a Housing Gap Housing Allowance, Cambridge, Mass., Abt Associates Inc., April 1979 (revised June 1980).

Hoaglin, David C. and Catherine A. Joseph, Income Reporting and Verification in the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., April 1978 (revised June 1980).

Kennedy, Stephen D., The Final Report of the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., May 1980 (revised June 1980).

Kennedy, Stephen D. and Jean MacMillan, Participation Under Alternative Housing Allowance Programs: Evidence From the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., October 1979 (revised June 1980).

MacMillan, Jean, Mobility in the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., June 1978 (revised June 1980).

Mayo, Stephen K., Shirley Mansfield, David Warner, and Richard Zwetchkenbaum, Housing Allowances and Other Rental Housing Assistance Programs--A Comparison Based on the Housing Allowance Demand Experiment, Part 1: Participation, Housing Consumption, Location, and Satisfaction; and, Part 2: Costs and Efficiency, Cambridge, Mass., Abt Associates Inc., November and August 1979 (revised June 1980).

Merrill, Sally R., Hedonic Indices as a Measure of Housing Quality, Cambridge, Mass., Abt Associates Inc., December 1977 (revised June 1980).

Merrill, Sally R. and Catherine A. Joseph, Housing Improvements and Upgrading in the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., March 1979 (revised June 1980).

Napior, David and Antony Phipps, Subjective Assessment of Neighborhoods in the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates, June 1980.

Vidal, Avis, The Search Behavior of Black Households in Pittsburgh in the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., July 1978 (revised June 1980).

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., April 1977 (revised August 1977).

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

Kennedy, Stephen D., T. Krishna Kumar, and Glen Weisbrod, Participation Under a Housing Gap Form of Housing Allowance, Cambridge, Mass., Abt Associates Inc., May 1977 (revised June 1980).

Mayo, Stephen K., Housing Expenditures and Quality, Part 1: Housing Expenditures Under a Percent of Rent Housing Allowance, Cambridge, Mass., Abt Associates Inc., January 1977.

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

Wallace, James, Preliminary Findings From the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., March 1978.

Weinberg, Daniel H., Reilly Atkinson, Avis Vidal, James Wallace, and Glen Weisbrod, Locational Choice, Part 1: Search and Mobility in the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., April 1977 (revised August 1977).

ANNUAL REPORTS

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

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

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

Bakeman, Helen E., Stephen D. Kennedy and James Wallace, Fourth Annual Report of the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., December 1977.

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).

REFERENCES

Budding, David W., Housing Deprivation Among Enrollees in the Housing Allowance Demand Experiment, Cambridge, Mass., Abt Associates Inc., November 1978 (revised June 1980).

Merrill, Sally R., Hedonic Indices as a Measure of Housing Quality, Cambridge, Mass., Abt Associates Inc., December 1977 (revised June 1980).