

June 1990

# ASSISTED HOUSING

## Rent Burdens in Public Housing and Section 8 Housing Programs





United States  
General Accounting Office  
Washington, D.C. 20548

Resources, Community, and  
Economic Development Division

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The Honorable Donald W. Riegle  
Chairman, Committee on Banking,  
Housing and Urban Affairs  
United States Senate

The Honorable Henry B. Gonzalez  
Chairman, Committee on Banking,  
Finance and Urban Affairs  
House of Representatives

The Honorable Alan Cranston  
Chairman, Subcommittee on Housing  
and Urban Affairs  
Committee on Banking, Housing  
and Urban Affairs  
United States Senate

As requested by your offices, we are issuing this interim report on the proportion of income that assisted households paid for rent and utilities (called "rent burden") at six public housing agencies. Under federal housing law, assisted households are usually required to pay 30 percent of their adjusted income for rent. By regulation, the Department of Housing and Urban Development (HUD) has interpreted "rent" to include shelter cost plus a reasonable amount for utility costs. We recently testified on this issue before the Subcommittee on Housing and Community Development of the House Committee on Banking, Finance and Urban Affairs.<sup>1</sup>

This report is part of our ongoing review of (1) how utility allowances are provided to public housing and section 8 certificate households and (2) the resulting rent burdens incurred by these households. We expect to issue our final report on these topics this fall.

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## Results in Brief

The average rent burden for the approximate 4,500 public housing households with utility allowances covered by our review was 30.5 percent of adjusted income. Additionally, the average rent burden for about 5,000 section 8 certificate households with utility allowances was 36

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<sup>1</sup>"Utility Allowances Provided to Public Housing and Section 8 Households and Resulting Rent Burdens," Testimony Before the Subcommittee on Housing and Community Development, House Committee on Banking, Finance and Urban Affairs (GAO/T-RCED-90-41, March 7, 1990).

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percent of adjusted income. However, overall averages tend to mask differences in rent burdens that occurred. For example, the rent burden for 20 sampled households with the lowest rent burdens averaged 12 percent of adjusted income for public housing and 18 percent for section 8. Conversely, rent burdens for 20 sampled households with the highest rent burdens averaged 74 percent and 82 percent of adjusted income for public housing and section 8, respectively.

The current method for administering utility allowances makes it likely that many households will have rent burdens other than 30 percent. Some of this is because allowances are somewhat generalized estimates of energy consumption for classes of buildings and dwelling unit size. Allowances are not tailored to individual unit or household energy consumption characteristics. Other influences, such as unseasonable weather and different households' propensities to conserve, also may cause the amount of utilities consumed to differ from the allowance provided.

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## Background

Lower-income households receive rental assistance through public and section 8 certificate housing programs administered by HUD. Local government agencies, called public housing agencies (PHAs), operate some units, called public housing, and contract with private owners to provide other units, called section 8 housing.

Assisted households for both federal programs are required to pay 30 percent of adjusted income for rent.<sup>2</sup> By regulation, HUD has interpreted "rent" to mean shelter costs plus a reasonable amount for utility expenses. Utility allowances are provided to households who are responsible for paying their own utility bills. The allowance is subtracted from the 30-percent-of-adjusted-income amount and the household pays the utility company directly, in most instances.<sup>3</sup>

A reasonable utility allowance should permit those receiving allowances to maintain the same approximate rent burden, in terms of shelter and utility costs, as those households who have utility costs included in their

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<sup>2</sup>More strictly, households must pay the highest of three rent standards. The 30-percent standard was the most prevalent at the six PHAs. "Adjustments," or reductions to gross income for calculating rent, are made for elderly households, each dependent, certain medical and child care expenses, and if a household member is disabled or handicapped.

<sup>3</sup>Households that have their utility costs included in their rent do not receive utility allowances. Also, allowances for utilities whose consumption are measured through PHA-owned check meters are handled somewhat differently. (See app. I.)

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rent. Further, if the utility allowances provided are reasonable, legal requirements regarding the rent burden are satisfied even if utility costs, when combined with shelter costs, exceed 30 percent of adjusted income.

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## Rent Burdens and Allowances Observed

Overall, we obtained usable information to represent estimated populations of 4,471 public housing households and 5,015 section 8 households receiving allowances at six PHAs. Because our results represent a small proportion of the PHAs and households across the country, they should not be interpreted as representative of what would be found from a statistically valid nationwide study.<sup>4</sup>

The average rent burden for households with a utility allowance was 30.5 percent and 36 percent of adjusted income for public housing and section 8 certificate households, respectively. About one-third of the public housing households but only 7 percent of the section 8 households had rent burdens of 30 percent. The remainder of the households had rent burdens above or below the 30 percent amount, some markedly. As stated earlier, we observed instances in which rent burdens were below 15 percent of adjusted income and other instances in which rent burdens were above 80 percent.

A much higher proportion of section 8 households had higher rent burdens than public housing households. For section 8, 32 percent of the households had rent burdens exceeding 40 percent of adjusted income, while only 15 percent of the public housing households experienced rent burdens greater than 33 percent of adjusted income. On the other hand, both groups had about the same proportion of households whose rent burdens were less than 30 percent—nearly one fourth of the households. The allowances provided ranged from about \$10 per month for some households to over \$200 per month for others.

Households may have months in which allowances exceed expenses and vice versa. Therefore, even a household with an average annual rent burden of 30 percent of adjusted income could have months in which allowance amounts were less or greater than actual utility expenses. Monthly variations are important because the low incomes of these households could make it more difficult for them to pay utility bills in months when expenses exceed allowances.

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<sup>4</sup>About 4,000 PHAs administer public housing and section 8 housing.

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Several reasons may account for these differences in rent burdens from the 30-percent standard. These reasons include (1) inadequate or overly generous allowances, (2) households' energy-conscious or less energy-conscious consumption, (3) unseasonably cool or warm weather for the year that we studied, and (4) households' using major appliances that were not considered necessary by PHAs when the allowances were established (such as food freezers and air conditioners).

In addition, allowances are estimates of the energy use of individual units. HUD requires that PHAs provide different allowance amounts on the basis of unit size (number of bedrooms) and structure type (e.g., high-rise and garden apartments). However, energy use for units of a similar size within a structure may differ because of location in the building, energy efficiency of the appliances used, and the number of household members using the appliances. (App. I provides additional detail on our results.)

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## Fulfillment of Section 102(b) Requirements

Section 102(b) of the Housing and Community Development Act of 1987 requires that we determine how PHAs are calculating utility allowances for public housing and section 8 households. It also requires that we determine how many households are paying more than 30 percent of their adjusted income for rent and utilities and that we provide recommendations that will lead to (1) equitable treatment of households that are metered differently; (2) conformance with the rent burden standard; and (3) incentives to conserve energy, reduce utility costs, and penalize energy wasters.

We expect to issue a report on these issues this fall. The report will also include the results of a mail survey to a national sample of PHAs on how they derive, implement, and monitor the utility allowances that they provide.

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## Scope and Methodology

To gather rent burden information, we visited PHAs in Chandler and Phoenix, Arizona; East Detroit, Michigan; Dakota County, Minnesota; Cuyahoga County, Ohio; and West Memphis, Arkansas. We judgmentally selected these locations on the basis of size, geographic dispersion, general reputation, differences in metering configurations, and other factors. We worked with PHA staff to develop populations of the households who received allowances. We then devised sample plans so that we could estimate the rent burdens incurred for each PHA's public housing

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program and section 8 program and for differences in metering configurations. We obtained usable information on 1,907 units and calculated rent burdens for an estimated population of 4,471 public housing and 5,015 section 8 households that had allowances and met certain other criteria. All samples are subject to sampling error. Sampling errors in this report were calculated at the 95-percent confidence level.

We collected income, rent, and allowance information for 12 months from PHA files and utility expense information from the companies serving these households. The period covered is generally March 1988 through February 1989. We had to resolve many data problems, including missing and incorrect data. We performed extensive verification of information in tenants' files by checking source documents included in those files. Appendix II discusses how we gathered and analyzed the data.

We requested that HUD and the six PHAs included in our review provide comments on a draft of this report. HUD did not provide us with comments. Three of the PHAs responded. The East Detroit PHA commented that our report was comprehensive and thorough, and it realistically reflected the rent burden of many households due to weather-related energy consumption. The Phoenix and West Memphis PHAs responded that they had no comments. (See app. V to VII.) Our work was conducted in accordance with generally accepted government auditing standards.

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Copies of this report are being sent to the Secretary of Housing and Urban Development; the Director, Office of Management and Budget; other congressional committees and subcommittees interested in housing matters; and other interested parties. It will be provided to others upon request. Should you require additional information on its contents, please call me at (202) 275-5525. Major contributors to this report are listed in appendix VIII.



John M. Ols, Jr.  
Director, Housing and  
Community Development Issues

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# Contents

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Letter		1
<hr/>		
Appendix I		10
Summary of Rent	Background	10
Burdens and	Households Included in Rent Burden and Allowance	12
Allowances Provided	Calculations	
at Six Public Housing	Rent Burdens Observed at Six PHAs	13
Agencies	Monthly Difference in Allowances and Expenses	17
<hr/>		
Appendix II		21
Methodologies for	Population Development and Sampling Plan	21
Sampling Households	Standardized Collection Instrument Used to Collect 1	24
and Collecting Data	Year's Data	
	Data Sources	26
	Data Verification Procedures	27
	Our Results Show the "What Should Have Been" Rent	28
	Burdens	
<hr/>		
Appendix III		29
Example of a Utility		
Allowance Schedule		
<hr/>		
Appendix IV		31
Sampling Error		
Estimates for		
Calculations in This		
Report		
<hr/>		
Appendix V		32
Comments From the		
West Memphis		
Housing Authority		

<hr/>	
Appendix VI Comments From the City of Phoenix Neighborhood Improvement and Housing Department	33
<hr/>	
Appendix VII Comments From East Detroit Housing Commission	34
<hr/>	
Appendix VIII Major Contributors to This Report	35
	Resources, Community, and Economic Development Division 35
	New York Regional Office 35
	Detroit Regional Office 35
<hr/>	
Tables	
	Table II.1: Populations of Units With Allowances and Sample Sizes Drawn 22
	Table II.2: Locations for Which No Occurrences Were Observed for Certain Rent Burden Categories (Public Housing) 23
	Table II.3: Locations for Which No Occurrences Were Observed for Certain Rent Burden Categories (Section 8) 24
	Table IV.1: Sampling Error Estimates Associated With Rent Burden Calculations for Public Housing Households 31
	Table IV.2: Sampling Error Estimates Associated With Rent Burden Calculations for Section 8 Households 31
<hr/>	
Figures	
	Figure I.1: Rent Burden Distribution of Public Housing Households at Six PHAs 14
	Figure I.2: Rent Burden Distribution of Section 8 Households at Six PHAs 15



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**Contents**

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Figure I.3: Rent Burden Distribution for Section 8 Households at the Chandler PHA	19
Figure I.4: Rent Burden Distribution for Public Housing Households at the East Detroit PHA	20

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**Abbreviations**

HUD	Department of Housing and Urban Development
PHA	public housing agency

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# Summary of Rent Burdens and Allowances Provided at Six Public Housing Agencies

Public housing agencies provide utility allowances to assisted households when utility costs are not included in the rent. The allowances are to cover reasonable utility consumption costs for energy-conservative households of modest means. These allowances are partially tailored to the characteristics of household appliances and building structures.

We found that utility expenses exceeded allowances for 45 percent of the public housing households and 70 percent of the section 8 certificate households at the six PHAs we visited. However, rent burdens for public housing households averaged 30.5 percent and, generally, were more tightly clustered around the 30-percent standard than the section 8 households. The section 8 households' average rent burden was 36 percent of adjusted income, and 32 percent of the households had rent burdens exceeding 40 percent of adjusted income.

The many possible reasons for these differences between the observed rent burden and the 30-percent standard are not easily separated. Some may be due to how allowances were determined; others may be due to nonallowance reasons, such as wasteful household consumption.

## Background

The U.S. Housing Act of 1937, as amended, provides for the two forms of rental assistance programs discussed in this report. The first is public housing, which is owned and operated by local government agencies, called public housing agencies (PHA). The second is section 8 certificate housing (referring to section 8 of the act), in which PHAs enter into contracts with private landlords to rent units to lower-income households. Admission to both programs is limited to households whose incomes do not exceed 50 percent, and sometimes 80 percent, of the area median income.

The act requires that households residing in public housing and those receiving section 8 certificates pay 30 percent of their adjusted income for rent.<sup>1</sup> The Department of Housing and Urban Development (HUD), the federal agency responsible for overseeing these programs, has interpreted "rent" to mean shelter cost and a reasonable amount for utilities that a household of modest means may use (e.g., electricity, gas, water

<sup>1</sup>Actually, the household must pay the highest of three standards: (1) 30 percent of adjusted income, (2) 10 percent of gross income, or (3) the portion of any welfare payment earmarked for housing payments. "Adjustments," or reductions to gross income for calculating rent, are made for elderly households, each dependent, certain medical and child care expenses, and if a household member is disabled or handicapped. As discussed in app. II, the 30-percent standard occurred most often in our review.

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**Appendix I**  
**Summary of Rent Burdens and Allowances**  
**Provided at Six Public Housing Agencies**

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and sewer, and trash pick-up). This interpretation, if implemented correctly, provides for more equitable treatment between those households whose utilities are included in the rent and those households who pay utility costs directly to utility companies.<sup>2</sup>

The basic concept of utility allowances is relatively straightforward. If 30 percent of a household's income is \$250 per month, for example, and expected utility costs are \$100 per month, then the tenant pays the PHA or the section 8 landlord \$150 per month for shelter cost and retains the other \$100 to pay expected utility costs. However, implementation is much more difficult. The PHA is required to calculate the right allowance—one that is not too high or too low. But, PHAs may administer tens, hundreds, thousands, and even tens of thousands of units, many of which are different in terms of size and energy-usage characteristics (e.g., exposure to weather, insulation, exterior construction, kind and energy efficiency of appliances installed). HUD guidance does not require PHAs to tailor allowances to all energy use conditions of each individual unit. Rather, allowances more generally reflect utility uses (e.g., cooking, heating, appliance use, and sometimes, cooling), number of bedrooms (as a proxy for unit size), and structure type (e.g., garden apartment or high-rise). An example of an allowance schedule is reproduced in appendix III.

Allowances can be from less than \$10 per month to over \$200 per month, depending on the number of utilities for which an allowance is provided (e.g., gas, electricity, water and sewer, and even wood and coal) and the expected cost for their use.<sup>3</sup> If the allowances are below the expected cost of utilities, then household utility expense will be higher than the statutory amount. As a result, households will have to pay out-of-pocket to cover the shortfall. The reverse is true if the allowances are higher than the expected cost of utilities.

It is difficult to attribute causal factors when assessing the adequacy of the allowance. For example, some tenants are likely to be energy-conscious and others to be less energy-conscious. To account for this behavior, the PHA may have to monitor individual consumption behavior. Also, buildings, units, and appliances vary to such a degree that allowances are general estimates of individual unit conditions. It

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<sup>2</sup>A household that has utilities included as part of the rent would not receive a utility allowance but would pay the entire rent amount to the PHA or landlord.

<sup>3</sup>Additionally, in localities where certain appliances, such as a range or refrigerator, are not supplied with the rental unit, the tenant receives an allowance for these tenant-supplied appliances.

may not be cost-beneficial, or even feasible, to try to tailor allowances to individual unit characteristics.

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## Households Included in Rent Burden and Allowance Calculations

We collected 12 months of income, utility allowance, and utility expense information at 6 PHAs for 1,907 households in public and section 8 housing.<sup>4</sup> We drew statistical samples of both public housing units and section 8 units receiving allowances so that we could compare households' rent burdens with the 30-percent standard. The samples we took allowed us to estimate the rent burdens of 4,471 public housing and 5,015 section 8 households who received allowances over this period and met other criteria discussed below. The six PHAs were located in Phoenix and Chandler, Arizona; East Detroit, Michigan; Dakota County, Minnesota; Cuyahoga County, Ohio; and West Memphis, Arkansas. The period covered by our work was generally March 1988 to February 1989.

The households included in this report are those for which the PHA had responsibility for deriving allowances. In some section 8 programs, other entities have this responsibility. Also, in the section 8 voucher program, households may choose units that will lead them to rent burdens of greater than or less than 30 percent of adjusted income. Section 8 voucher programs are also not included in this report.

Some households do not receive allowances because all utility costs are paid for by the landlord. These households, then, are not included in our review. Also, not all households who received allowances are included in our results. For example, some households had too much missing utility expense data to compute rent burdens with confidence. As a result, the households included in our results are those public housing and section 8 certificate households who

- occupied a single unit during the period and received utility allowances during the period;
- had no more than 3 months of data missing for a data element, such as missing utility bills;
- had their rents computed under the 30-percent rent burden standard for the entire year; and
- occupied the unit on the last day of the study period to ensure a common study period for each sample.

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<sup>4</sup>The allowances provided to these households were for one or more of the following: electricity, natural gas, water and/or sewer, trash pick-up, and tenant-supplied appliances.

For ease of discussion, we call these “households receiving allowances” throughout this report.<sup>5</sup> However, as noted, other households, such as those who lived in any one unit for less than 9 months, also received allowances.

Several of the PHAs made numerous errors in determining allowances and calculating adjusted income and shelter costs. We corrected these errors. Therefore, our results show the rent burdens that should have been observed by the household (errors corrected) rather than the ones that the assisted households did observe (errors not corrected). This approach eliminates PHA clerical errors as a reason for why utility expenses differed from allowances. In our final report, we expect to report on the impact of these errors. Our methods for collecting and analyzing data are further explained in appendix II.

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## **Rent Burdens Observed at Six PHAs**

Figures I.1 and I.2 show the rent burdens that we calculated for public housing and section 8 households receiving utility allowances at the six PHAs that we reviewed.<sup>6</sup> Overall, annual rent burdens averaged 30.5 percent of adjusted income ( $\pm 0.3$  percent) for public housing households. The distributions in figure I.1 show that about 22 percent of these households paid less than 30 percent of their adjusted income for shelter and utilities. On the other hand, about 45 percent of the public housing households paid more than 30 percent; however, only about 15 percent of these households had rent burdens exceeding 33 percent of adjusted income. The average rent burden was 12 percent of adjusted income for 20 sampled households with the lowest rent burdens and 74 percent for 20 sampled cases with the highest rent burdens.

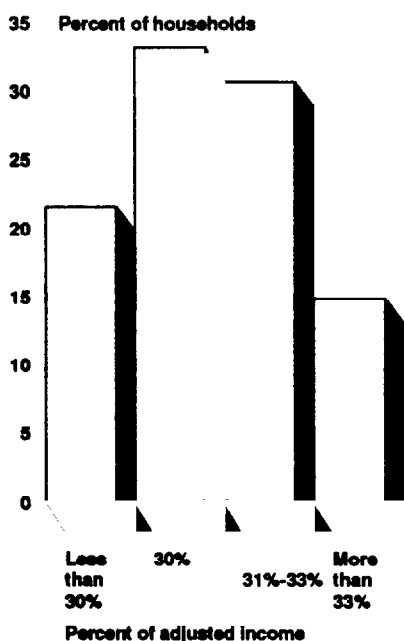
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<sup>5</sup>Overall, the 6 PHAs administered about 17,800 public housing and 13,400 section 8 units, including those that do not receive allowances, as well as section 8 voucher units.

<sup>6</sup>Since we only reviewed 6 PHAs out of the approximately 4,000 PHAs that administer public housing and section 8 housing and may provide utility allowances, our results should not be taken to represent the rent burdens of the entire assisted housing population.

Appendix I  
Summary of Rent Burdens and Allowances  
Provided at Six Public Housing Agencies

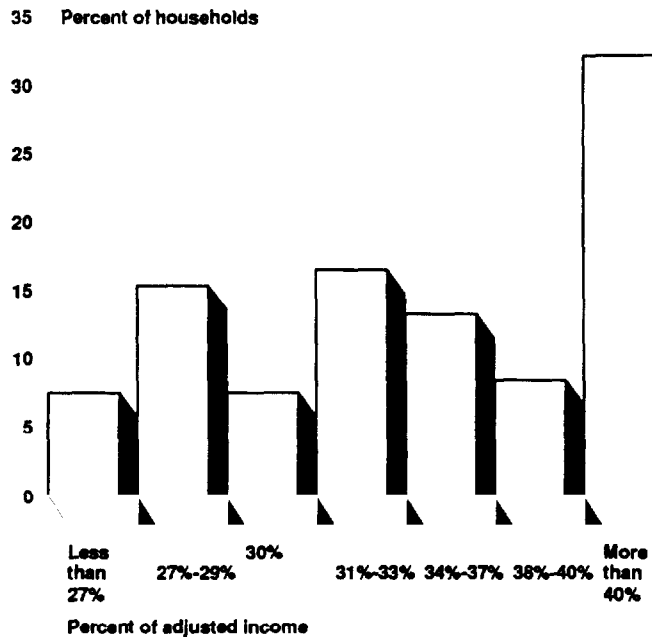
Figure I.1: Rent Burden Distribution of  
Public Housing Households at Six PHAs



Note: Distribution based on an estimated 4,471 households receiving allowances. App. II explains why these groupings occur.

For section 8 households overall, the annual rent burdens averaged 36.0 percent of adjusted income ( $\pm 0.8$  percent). As shown in figure I.2, about 23 percent of these households paid less than 30 percent of their adjusted income for shelter and utilities and about 70 percent paid more than 30 percent. Notably, 32 percent of the section 8 households had rent burdens exceeding 40 percent of adjusted income. The average rent burden was 18 percent of adjusted income for 20 sampled households with the lowest rent burdens and 82 percent for 20 sampled cases with the highest observed rent burdens.

Figure I.2: Rent Burden Distribution of Section 8 Households at Six PHAs



Note: Distribution based on an estimated 5,015 households receiving allowances.

### Rent Burden Differs Between Public Housing and Section 8 Units

As shown in figures I.1 and I.2, about one-third of the public housing households had rent burdens that equaled 30 percent of adjusted income, while about 7 percent of the section 8 households' rent burden equaled this amount. Further, a much higher proportion of section 8 households had higher rent burdens than public housing households. In this respect, over 30 percent of the section 8 households had rent burdens exceeding 40 percent of adjusted income, while only 15 percent of the public housing households experienced rent burdens exceeding 33 percent of adjusted income. On the other hand, both groups had about the same proportion of those whose rent burdens were less than 30 percent—nearly one-fourth of the households.

Our work is not complete at this time, and we have not determined why average rent burdens in the public housing units were lower than those in section 8 and why a much greater percentage of public housing households had rent burdens at 30 percent of adjusted income. However, one possible explanation for the differences may be in the underlying housing stock of the two programs. Public housing units are often clustered in a number of projects while section 8 units are typically more diverse, since they consist of private rental units scattered throughout



an area. It is possible that the greater uniformity of the public housing units makes it easier to determine an allowance that will provide for reasonable consumption. However, it is also possible that other reasons caused the rent burden to differ from the 30-percent standard.

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### Reasons Observed Rent Burdens Differ From the 30-Percent Standard

Rent burdens may differ from the statutory amount for several reasons, and some caution is required before concluding that utility allowances were inadequate for many and overgenerous for others. Significant differences between the 30-percent standard and the rent burdens we observed may have occurred for one or more of the following reasons:

- Allowances provided may have been too generous overall (lowering the overall rent burden) or too low overall (raising the overall rent burden).
- Allowances that provide a single dollar value for bedroom size and structure type (e.g., two-bedroom high-rise) do not reflect energy consumption differences based on variations in quality of construction, size of the unit, energy use characteristics of appliances, number of persons in the unit, or the microclimate (e.g., sheltered southern exposure versus exposed northern exposure).
- Colder (or warmer) than normal winters require greater (or lesser) expenditures for heat, if heating costs are included in allowances. The reverse is true for summers.<sup>7</sup>
- Some households may be more energy-conscious than assumed when the allowance was established, and some households may be less energy-conscious.
- Households may use major appliances whose use was not considered necessary when the allowance was derived, such as food freezers or air conditioners.
- Some households may have very low incomes and any dollar expense exceeding the allowance results in larger rent burdens (when expressed as a percentage of income) than for those with higher incomes.
- How units are metered and how consumption is measured against allowances can affect the overall rent burden. As explained below, expenses for check-metered utilities are never less than the allowance; however, expenses may be less than the allowance for individual-metered utilities.

### Individual-Metered and Check-Metered Utilities

PHAs treat allowances and utility expenses somewhat differently depending on whether individual meters or check meters are used. For

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<sup>7</sup>For the March 1988 through February 1989 period of our review, temperatures were warmer than average both in winter and in summer at each of the six locations.

an individually metered unit, the household pays the utility company directly for utility consumption. The household receives an allowance of a certain number of dollars per month. If the allowance is less than the utility bill, the household must pay the difference from its cash-on-hand. On the other hand, if the utility expense for the period is less than the allowance, the household keeps the difference.

With check meters, however, the utility company measures consumption for utility use in the building as an undivided whole and, therefore, does not measure consumption of individual units. The PHA measures consumption of individual units by using "check meters." However, in these cases, households are provided allowances in terms of energy units (e.g., kilowatt hours of electricity consumed).

For check-metered utilities, the PHA does not reduce the household payment for the expected cost of the utilities since the PHA pays the utility bill. Rather, when the household consumes more than the allowance, the PHA charges the household for the excess consumption. However, if it consumes less than the allowance, it is typically treated as if it consumed exactly the allowance amount. In this situation, the household faces an up-side risk, but no compensating down-side benefit. Consequently, for check-metered utilities, rent burden is never less than 30 percent of adjusted income, but could be more. However, the difference between the excess of the utility consumption over the allowance, if any, depends on whether the allowance covers a large or small amount of expected utility usage (e.g., gas cooking versus gas cooking and heating) and on how well the allowance was set by the PHA to approximate the expected usage of a household of modest means.

#### Effect of Sampling Error on Rent Burden Calculations

Sampling error may also affect the results shown. As with all sample surveys, this survey is subject to sampling error. Sampling errors define the upper and lower bounds of the estimates made from the survey. Sampling errors for estimates in this report were calculated at the 95-percent confidence level. This means that 19 out of 20 times, the sample survey procedure used would produce an interval capturing the true value.

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### Monthly Difference in Allowances and Expenses

The annual rent burden incurred by assisted households is one measure of allowance-expense relationships. However, since these are lower-income households, month-to-month differences in net outlays are also important. For the households at the six PHAs that we reviewed, we estimated that the average gross income was \$5,453 ( $\pm$  \$198) and \$6,533

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**Appendix I  
Summary of Rent Burdens and Allowances  
Provided at Six Public Housing Agencies**

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(±\$286) for public housing and section 8 households, respectively. Average adjusted income was \$4,543 (±\$186) and \$5,492 (±\$273), respectively.

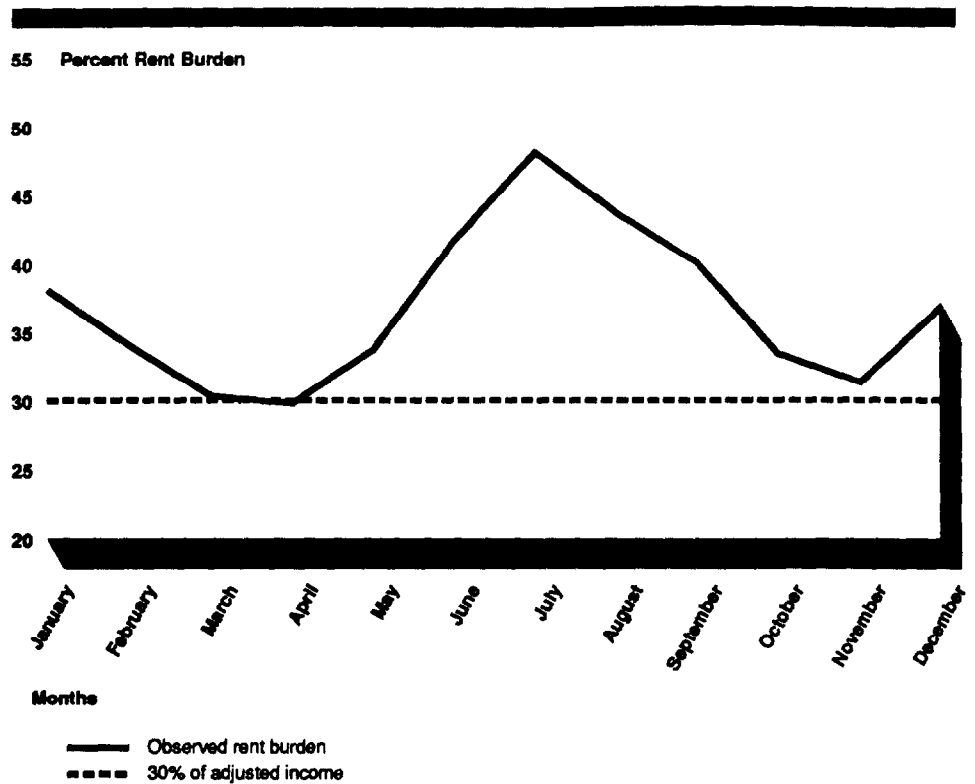
For example, a PHA may provide an allowance that includes heating costs. This allowance may be the same amount each month. In the summer months, then, we would expect to see consumption to be less than the allowance provided and the opposite in the winter months. For lower-income households who cannot or do not set aside the excess allowance in the summer months for use in the winter months, cash flow problems may result. Alternatively, for some check-metered utilities, some PHAs increase the allowance during periods of expected heavy utility use and decrease it during months of expected light utility use.

The amount of the allowance provided to an assisted household is a function of the (1) size and type of unit occupied, (2) types and number of utilities included, (3) use of the utilities (an allowance that covered heating would be higher than one that did not), and (4) amounts computed by the PHA as being reasonable for an energy-conservative household of modest means. In our sample, allowances ranged from lows of about \$10 per month for electricity that covered household appliances and lighting in one-bedroom units to highs of over \$200 per month for electricity, gas (including heating), and water and sewer in five-bedroom detached houses.

Figures I.3 and I.4 show the distribution of differences in rent burdens for two samples. We use these as illustrations only to show how households' monthly outlays may vary from the allowances provided. For the Chandler section 8 households shown in figure I.3, overall, the allowances covered utility costs for heating, cooling, cooking, heating water, lights and appliances, water and sewer, trash pick-up, and/or tenant-supplied appliances. The larger rent burdens during the winter and summer months were due to the higher costs of heating and cooling during these months.

Appendix I  
 Summary of Rent Burdens and Allowances  
 Provided at Six Public Housing Agencies

Figure I.3: Rent Burden Distribution for Section 8 Households at the Chandler PHA

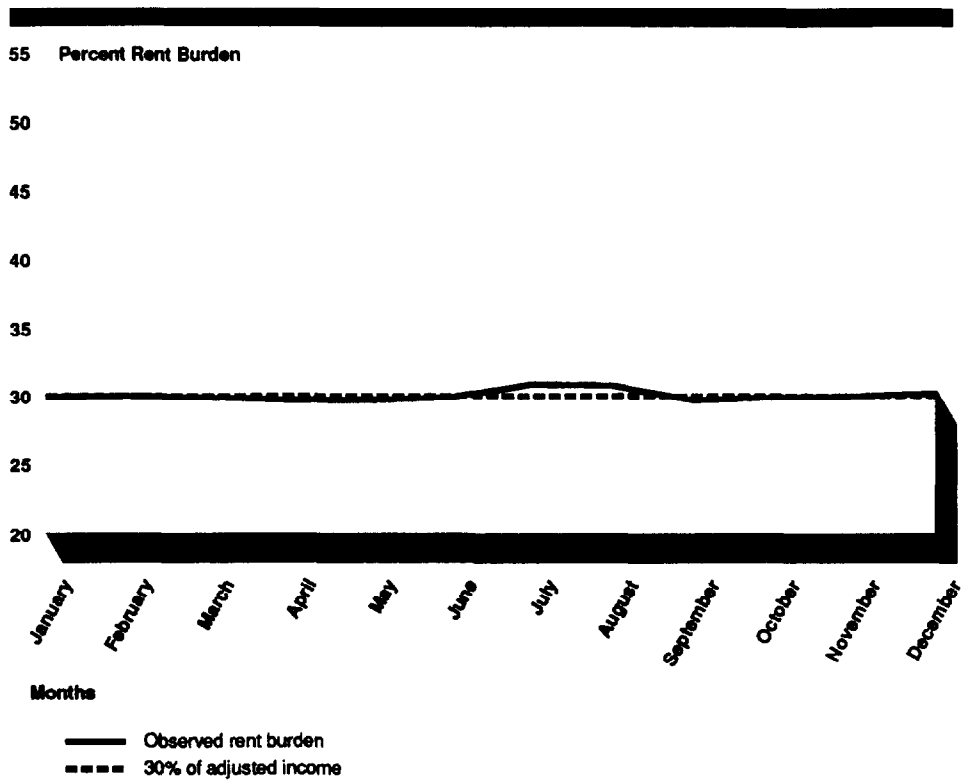


Note: The average annual rent burden was 36.8 percent. We reviewed all cases at this location, therefore, no confidence levels were calculated (see app. II).

In figure I.4, all units were one-bedroom, single-occupancy units for the elderly. These households received an allowance for electric appliance use of about \$10 per month. Since the allowances were designed to cover the small costs of minimal utility usage, it would be expected that rent burdens would cluster around the 30-percent level for each month.

Appendix I  
 Summary of Rent Burdens and Allowances  
 Provided at Six Public Housing Agencies

Figure I.4: Rent Burden Distribution for Public Housing Households at the East Detroit PHA



Note: The average annual rent burden was 30 percent. We reviewed all cases at this location; therefore, no confidence levels were calculated (see app. II).

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# Methodologies for Sampling Households and Collecting Data

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Before collecting information, we had to determine which households received allowances. Data were sometimes missing, and we had to make many judgments about the quality of data elements to determine whether to retain sampled households and, if so, how to record problem data elements.

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## Population Development and Sampling Plan

At the six PHAs, we worked with staff to develop comprehensive lists (populations) of the public housing and section 8 units for which the PHAs had established allowances. In several cases, these populations did not already exist. We then determined how utilities in the units were likely to be metered, either individually, check, or "mixed" (one unit with individual and check meters for different utilities).

We devised sampling plans so that we could give population estimates for rent burdens incurred for PHA units with allowances. The sampling plans were devised to provide separate estimates for each PHA's public housing program and section 8 program. In programs with a small number of units, we selected all units. Where check-metered utilities were present, we also controlled for this factor so that we could make population estimates for rent burdens involving units with (1) individually metered utilities, (2) check-metered utilities, and (3) mixed-metered configurations.<sup>1</sup> In each category we sampled units randomly. Table II.1 shows the population sizes, sample sizes, and the number of households for which we obtained sufficient information to make rent burden calculations.

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<sup>1</sup>We did not gather data on mixed-metered units at Cuyahoga County because the time and cost to do so would have been excessive.

**Appendix II  
Methodologies for Sampling Households and  
Collecting Data**

**Table II.1: Populations of Units With Allowances and Sample Sizes Drawn**

<b>Agency, program, and sample strata</b>	<b>Original population size<sup>a</sup></b>	<b>Number of units sampled</b>	<b>Number of usable cases</b>
Chandler			
Public housing <sup>b</sup>	198	198	150
Section 8	264	264	144
Cuyahoga County			
Public housing			
Individual meter	1,881	293	197
Check meter	913 <sup>c</sup>	206	133
Section 8	6,236	384	176
Dakota County			
Public housing	277	270	212
Section 8	1,315	350	204
East Detroit			
Public housing	100	100	95
Section 8	25	25	16
Phoenix			
Public housing <sup>d</sup>	2,270	214	175
Section 8	2,394	315	150
West Memphis			
Public housing			
Individual meter	31	31	21
Check meter	117	117	81
Mixed meter	250	127	99
Section 8	249	150	54
<b>Total</b>	<b>16,520</b>	<b>3,044</b>	<b>1,907</b>

<sup>a</sup>Populations of units with utility allowances. These units may be less than the total number of units administered because not all units that a PHA administers receive allowances in each case

<sup>b</sup>All units were mixed-metered.

<sup>c</sup>There were more than 913 check-metered units; however, many of the records were in such poor condition that they were unusable. The 913 units represent the total number of usable records

<sup>d</sup>All units were check-metered.

Overall, we sampled 3,044 units and obtained 1,907 cases (63 percent) with usable information for households who had rent computed under the 30-percent rent burden standard. When we sampled units, we found a large number of ineligible cases, such as units that a PHA identified as a section 8 certificate unit that was a voucher unit and units with more than 3 months of data missing. We dropped these units from our sample. We randomly drew replacement samples to compensate for the ineligible cases and some of these had to be dropped for the same reasons.

**Appendix II  
Methodologies for Sampling Households and  
Collecting Data**

Because of the substantial time and effort involved in reviewing case files and obtaining utility company data, further replacement sampling was not feasible. For some sample categories, such as the East Detroit section 8 sample, the number of usable cases represented the final population characteristic.

As with all sample surveys, this survey is subject to sampling error. Sampling errors define the upper and lower bounds of the estimates made from the survey. Sampling errors for the estimates in this report were calculated at the 95-percent confidence level. This means that 19 out of 20 times, the sample survey procedure used would produce an interval capturing the true value.

**Possible Understatement  
of Error Estimates in Some  
Cases**

Figures I.1 and I.2 in appendix I present the rent burden distributions for households in public housing and section 8 housing, respectively. Estimates and sampling errors are displayed for these distributions (see app. IV). While the estimates are accurate, some of the sampling errors may be understated because we observed few occurrences of households in specific categories. Tables II.2 and II.3 show the locations for which we did not observe any occurrences in specific categories. When the excluded location(s) contains a substantial number of households, then the sampling error may be somewhat understated. The "X" in the tables below identifies locations that were excluded from specific analyses.

**Table II.2: Locations for Which No Occurrences Were Observed for Certain Rent Burden Categories (Public Housing)**

Location (sample)	Annual rent burden (in percents)			
	29 or less	30	31-33	More than 33
Chandler				
Cuyahoga (check metered)	X			
Cuyahoga (individually metered)				
Dakota County				
East Detroit				
Phoenix	X			
W. Memphis (check metered)				
W. Memphis (individually metered)	X	X	X	
W. Memphis (mixed metered)	X			

We grouped the distribution in table II.2 (and fig. I.1) into four categories. If we had expanded the number of categories in this distribution, then we might have understated the sampling errors of these additional categories. The understatement might have occurred because we did not



observe any occurrences in one or more sampled locations for the additional categories that we would have created. However, we did not collapse the “29 percent or less” category into the “30 percent” rent burden category, even though we may have understated the error estimate for the “29 percent or less” category. If we had consolidated the two categories, we would have been unable to distinguish those whose rent burden equaled 30 percent of adjusted income from those whose rent burden was smaller.

**Table II.3: Locations for Which No Occurrences Were Observed for Certain Rent Burden Categories** (Section 8)

Location	Annual rent burden (in percents)						
	26 or less	27-29	30	31-33	34-37	38-40	More than 40
Chandler							
Cuyahoga							
Dakota County							
East Detroit	X						X
Phoenix							
W. Memphis	X		X				

**Disposition of Cases in Which the 30-Percent Rent Burden Standard Did Not Apply**

Our estimates are for those households under the 30-percent-of-adjusted-income rent burden standard. Federal housing law requires that households pay the highest of three amounts for rent: (1) 30 percent of adjusted income, (2) 10 percent of gross income, or (3) the portion of a welfare payment designated for housing payments by the welfare agency. Households may have rent charged under one standard for the entire year or may be under one standard for part of the year and another standard for the remainder of the year, as income and household circumstances change. In our samples, we did not find any welfare rents being charged. We found 19 instances where households were under the 10-percent standard for some or all of the year. We dropped these cases from our sample. We did this to improve clarity of results.

**Standardized Collection Instrument Used to Collect 1 Year’s Data**

To ensure consistency of our data collection effort, we developed a standardized data collection instrument in which we entered all information on income, rent, allowance and utility expense by utility, unit size, number of occupants, and metering configuration.

---

## 12 Months' Data Collected

We collected the information described in this report on a monthly basis for 12 consecutive months. We gathered 12 months of data so that rent burden calculations would not be influenced by the use of data from only warmer or cooler months. The period covered for each of the six PHAs varied slightly because the period for which information was readily available from utility companies varied by company. However, the period covered at any one PHA was the same. Generally, the period our work covered is March 1988 to February 1989.

During the 12-month period, sampled households' incomes often changed. Also, we found that adjustments to income (such as from changed household size) also changed, sometimes more than once during the year. PHAs then recalculated adjusted income to take into account these changed circumstances. We incorporated these changes into our results.

While the period covered by our work varied slightly, we present monthly analyses without identifying the year. For example, an analysis of rent burdens in February may contain mostly February 1989 data but also some February 1988 data.<sup>2</sup>

---

## Limit of One Household to a Unit During the Study Period

Families move in and out of assisted housing. We decided that only one family could occupy the sampled unit during the period studied so that different household consumption patterns in a single unit would not pollute our data. We also decided that the household had to occupy the unit on the last day of the study period so that we would have a common period for each of our samples. If these conditions were not satisfied, the sampled unit was dropped and another was randomly selected.

---

## How Missing Data Were Handled

In some instances, income or utility expense data were missing. If more than 3 months' data were missing for any data element, we dropped that unit from our sample and statistically sampled another. For those units with 1 to 3 months of data missing for any data element, we estimated the missing data by taking the average of the surrounding values. For example, if a gas bill was not available for June, we used the average of the May and July bills. Of the 1,907 usable cases, 423 cases had 1 or

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<sup>2</sup>This variation only applies to those analyses where we aggregated all public housing results and where we did the same for section 8 housing. It does not apply to individual results at each PHA, since we gathered information on a consistent 12-month period.

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more data elements missing over the 12-month period. Each case had multiple data elements for each month.

Another data problem occurred when a utility company had shut off service to a sampled household during our study period. We retained the unit in our study no matter how long the shut-off lasted. We did this because the household continued to receive the allowance during that period. In our sample, no more than one utility was shut off for any household. Of the 1,907 households in our sample, 24 had a utility service shut off for 1 or more months of our study period.

---

### Quarterly Allowances and Tenant-Supplied Appliances

For the most part, PHAs supplied allowances on a monthly basis, and utilities were billed on a monthly basis. However, in some cases allowances were provided and bills were rendered every 3 months. In these cases, we entered the allowance and consumption amount quarterly rather than allocating a portion of the allowance and expense to each month. This approach may provide some “spikes” in month-to-month rent burdens but does not affect annual rent burden computations.

In some instances, major appliances, such as refrigerators or ranges, may not be supplied with the rental unit, and the tenant is expected to supply them. (See app. III for an example.) In these cases, the PHA provides an allowance for these tenant-supplied appliances. Here, we had no basis to determine the use of the allowances (e.g., whether the tenant used a previously owned appliance or bought or rented one). Rather, we recorded the allowance as provided to the household but did not record an “expense.” This procedure has the effect of decreasing observed rent burdens somewhat.

---

### Data Sources

In most cases, we gathered income, rent, allowance, and other characteristic data directly from PHA paper files maintained for each household. If summary information was supplied by PHAs, we verified the accuracy of this information by comparing it with PHA file material. For the most part, we collected utility consumption data directly from utility companies serving the individually metered households since current and complete data typically were not collected by the PHAs. If the PHA had some or all of the utility billing records in its possession, we discussed the records’ contents with utility companies to ensure that it accurately represented the information that we wanted to gather.

Other than gathering billing records from and confirming rate structures with utility companies, we did not collect any information independent of PHA files. For example, we did not independently verify tenant income and family characteristics (such as checking with employers and visiting households) to determine that these were reported to the PHA correctly. These tasks would have been too time-consuming and costly for us to perform. Also, we did not determine whether assisted households received energy assistance from sources, such as local government programs. Energy assistance payments to help meet utility costs would decrease overall rent burdens, but these were not considered by the six PHAs in determining the allowance amount for the household or the amount of shelter rent to be paid by it.

---

## Data Verification Procedures

We found that several of the PHAs made numerous errors in calculating household income and utility allowance amounts. These errors affected the shelter rent that was paid by assisted households. For example, we found income and dollar amount of adjustments incorrectly transcribed to the PHA work sheets that were used to compute the shelter rent, arithmetic errors, and use of outdated allowance schedules.

We also found instances in which several PHAs gave allowances for utility services that were included in the rent. We also found instances where PHA records contained inconsistent information on utilities paid for by the tenants. For example, one PHA's records showed that a household at a single address had gas heat for several months, electric heat later in the year, and gas heat, again, still later in the year. We tried to reconcile the problems encountered with the PHAs or through utility companies where these instances occurred. Where neither the PHA nor the utility companies could provide definitive resolution, we decided how to record information according to the preponderance of evidence.

Except for two samples, we verified all information in tenants' files by checking source documents contained in the files against PHA work sheets to calculate tenant rent and allocate utility allowances. This verification included rechecking tens of thousands of calculations. For the Dakota County public housing sample and the West Memphis section 8 sample, extensive data checks found few or no errors, and further verification was discontinued.

---

## **Our Results Show the “What Should Have Been” Rent Burdens**

The problems cited in the preceding section resulted in some tenants paying too little or too much in shelter rent. For example, if the household’s utility allowance was less than it should have been because of arithmetic or other errors, the resulting rent burden would be greater than it should have been. To show the rent burdens that “should have been” observed, we corrected all PHA errors before entering the information into our data base. This approach gives a better picture of the degree to which allowances matched utility expenses. To ensure that our corrections were appropriate, we discussed questionable cases with PHA staff. The “what should have been” data base is the one reported in this report.

We also constructed a second data base, the “what was” data base, which includes the errors from the PHAS’ file. If a tenant’s utility allowances were incorrectly summed, or a utility that should have been included was not, we recorded the information consistent with the PHA’s error in this second data base. This approach provides a picture of what the assisted household observed. An analysis of the effect of PHA errors using the “what was” data base will be included in our final report on utility allowances.

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# Example of a Utility Allowance Schedule

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The following schedule illustrates how a PHA determines the allowance it should provide to a household. The schedule is for the Dakota County PHA section 8 program and includes allowance amounts for multiple unit dwellings (M), town houses and duplexes (T&D), and single-family and mobile homes (SF). The PHA determines the kind of unit to be occupied, such as a town house, and the size of the unit (number of bedrooms). For those uses for which an allowance will be given, the PHA determines the use (e.g., heating and/or cooking) and then tallies the amounts for the corresponding utility services (e.g., natural gas). This total amount is provided as the utility allowance.

**Appendix III  
Example of a Utility Allowance Schedule**

HUD-52667  
April 1975

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT					DATE	
SECTION 8 EXISTING HOUSING ALLOWANCES FOR TENANT-FURNISHED UTILITIES AND OTHER SERVICES*					April 1, 1989	
LOCALITY			UNIT TYPE			
Dakota County HRA			All unit types - NSP			
UTILITY OR SERVICE	MONTHLY DOLLAR ALLOWANCES					
	0 BR	1 BR	2 BR	3 BR	4 BR	5 BR
	M-T&D-SF	M-T&D-SF	M-T&D-SF	M-T&D-SF	M-T&D-SF	M-T&D-SF
<b>HEATING**</b>						
a. Natural Gas	8-11	12-15-17	17-23-29	17-24-37	22-31-39	25-35-42
b. Bottle Gas	10-15	16-20-23	23-29-38	23-32-49	29-41-51	33-47-56
c. Oil	11-15	15-21-27	19-27-35	23-33-43	29-42-55	34-48-62
d. Electric	14-20	20-28-37	25-36-47	31-44-58	39-56-73	45-65-84
<b>COOKING</b>						
a. Natural Gas	2	3	4	5	6	6
b. Electric	3	4	5	7	9	10
c. Bottle Gas	2	4	5	7	8	9
<b>OTHER ELECTRIC LIGHTING, REFRIGERATION, ETC.</b>	10	11	16	22	28	31
<b>WATER HEATING</b>						
a. Natural Gas	5	7	10	12	15	17
b. Electric	10	15	19	23	29	33
c. Bottle Gas	6	10	13	16	20	22
d. Oil	7	9	11	14	18	20
<b>WATER</b>	3	5	6	7	10	11
<b>SEWER</b>	5	7	9	11	14	16
<b>TRASH COLLECTION</b>	12	12	12	12	12	12
<b>RANGE</b>	2	2	2	2	2	2
<b>REFRIGERATOR</b>	3	3	3	3	3	3
<b>TOTAL</b>						

Name of Family: \_\_\_\_\_

\*Also used for Section 8 Moderate  
Rehabilitation Program

Address of Unit: \_\_\_\_\_

\*\*Heating Codes:  
Column 1: Multiple Unit Dwelling (M)

Column 2: Townhouses and Duplexes (T&D)

Number of bedrooms: \_\_\_\_\_

Column 3: Single Family Houses and  
Mobile Homes (SF)

# Sampling Error Estimates for Calculations in This Report

Tables IV.1 and IV.2 present the sampling error estimates associated with figures I.1 and I.2. Because of the way in which the samples were drawn, the chances are 95 out of 100 that the population value is between the upper and lower bounds shown. Sampling error estimates for other calculations are not shown in this appendix but are contained in the text or in the diagrams.

**Table IV.1: Sampling Error Estimates Associated With Rent Burden Calculations for Public Housing Households**

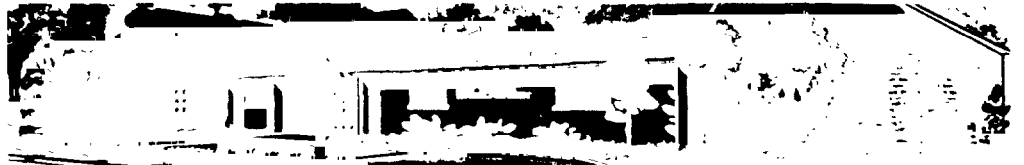
Rent burden (Percent of adjusted income)	Estimated proportion of households	Sampling error (percent)
29 or less	21.5	± 2.1
30	33.1	± 3.3
31-33	30.6	± 3.3
More than 33	14.8	± 2.2

**Table IV.2: Sampling Error Estimates Associated With Rent Burden Calculations for Section 8 Households**

Rent burden (Percent of adjusted income)	Estimated proportion of households	Sampling error (percent)
26 or less	7.4	± 2.4
27-29	15.3	± 3.2
30	7.4	± 1.9
31-33	16.4	± 3.0
34-37	13.2	± 2.9
38-40	8.3	± 2.6
More than 40	32.0	± 4.4



# Comments From the West Memphis Housing Authority



## West Memphis Housing Authority

2820 Harrison, West Memphis, Ark. 72301. Phone 735-3520

Executive Director, Wilma Lucas  
Asst. Executive Director, Carolyn Henny  
Section 8 Housing 735-1766  
Program Administrator, Timothy White

Commissioners:  
James Cape, Chairman  
Frank H.W. Voss, Chairman  
John H. Boss, Commissioner  
Eugene Sade, Commissioner  
Beris Nichols, Commissioner

April 24, 1990

B-232897

Mr. James C. Ratzenberger  
U.S. General Accounting Office  
Room 5250, HUD Building  
451 7th Street SW  
Washington, D. C. 20410

RE: Comments of Proposed Report,  
Assisted Housing: Rent Burdens in  
Public Housing and Section 8 Housing Programs.

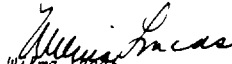
Dear Mr. Ratzenberger:

We do not have any comments concerning this proposed draft report at this time.

However, we wish to reserve the right to express our comments on the final report.

Sincerely,

WEST MEMPHIS HOUSING AUTHORITY

  
Wilma Lucas  
Executive Director

WL:cam

# Comments From the City of Phoenix Neighborhood Improvement and Housing Department



City of Phoenix  
Neighborhood Improvement & Housing Department

April 26, 1990

Mr. John M. Ols, Jr.  
Director, Housing and Community Development Issues  
U.S. General Accounting Office  
Resources, Community, and Economic Development Division  
Washington, D.C. 20548

Dear Mr. Ols:

Staff has reviewed your proposed report, Assisted Housing: Rent Burdens in Public Housing and Section 8 Housing Programs, and found no discernable errors in its content.

On behalf of the City of Phoenix, I wish to express the City's appreciation for the opportunity of being included in the study.

Please advise me should you need additional information for your final report.

Sincerely,

Marvin Bowles  
Director

SK042601/acct/jf1



300 East Madison Street, Suite D, Phoenix, Arizona 85004 (602) 262-4924

# Comments From East Detroit Housing Commission

## EAST DETROIT HOUSING COMMISSION

CHESTER H. BERRY MANOR

15701 Nine Mile Rd.  
East Detroit, MI 48021  
Phone  
(313) 445-5099

ERIN MANOR  
15711 Nine Mile Rd.  
East Detroit, MI 48021  
Phone  
(313) 445-5099

April 27, 1990

United States General Accounting Office  
Attn: Mr. John M. Ols, Jr.  
Director, Housing & Community Development Issues  
Washington, D.C. 20548

Dear Mr. Ols:

Please be advised that the proposed report, Assisted Housing: Rent Burdens in Public Housing and Section 8 Housing Programs has been reviewed.

The report was comprehensive and thorough, realistically reflecting the rent burden of many residents in Assisted Housing due to weather related energy consumption. Unfortunately we find that our low and very low income families cannot budget for the high consumption months.

We were pleased to be able to contribute information necessary in compiling the report.

Sincerely,



Christine Scheuerman  
Executive Director  
East Detroit Housing Commission

rk

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# Major Contributors to This Report

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Economic  
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