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HOUSING ALLOWANCE ADMINISTRATIVE AGENCY EXPERIMENT SUMMER POLICY STUDIES

report

Specification of a General
Rent Survey Procedure for
Estimating the Cost of
Minimum Standard Housing

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Submitted to:

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

Contract H-1782

Wade Clifton

DEPARTMENT OF HOUSING
AND URBAN DEVELOPMENT

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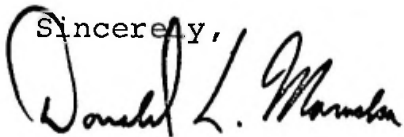
Dr. Charles Field
Research Manager
Office of Policy Development
and Research
Department of Housing and
Urban Development
7th and D Streets, S.W., Room 4206
Washington, D. C. 20413

Dear Charles:

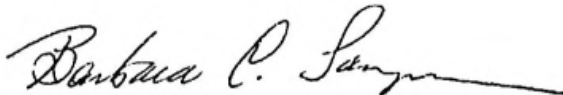
With this letter we are formally submitting the final report on the design and specification of a general survey procedure for estimating housing costs as required under task 4.10.2.1 of Contract H-1782.

In response to your request and specifications for this task, we arranged for Dr. Wade Clifton to prepare this report. The report is presented as he prepared it.

Sincerely,



Donald L. Maruska
Technical Director



Barbara C. Sampson
Contract Manager

BACKGROUND

In his message of September 19, 1973, then-President Nixon said, "We need to develop and put into effect the appropriate mechanisms for measuring the cost of safe and sanitary housing in various parts of the country. Sound, reliable cost information of this kind would be of vital importance to a fully operational program." For many months now HUD and Abt Associates scientists have discussed at length how this need for cost data might best be met.

These discussions have raised a number of primary conceptual issues and evaluation criteria (see "Alternative Methods of Computing the Cost of Standard Housing," January 16, 1974, Supplement B to the Experimental Design and Analysis Plan of the Demand Experiment). There are also a number of policy decisions which have been identified by Abt for HUD's attention (see "Option Paper on Housing Cost Estimate" of May, 1974). Some of the issues raised in these discussions and papers have shown themselves to be quite thorny. Developing a definition of safe and sanitary housing which is functional in application and equitable in impact is virtually impossible. The number of difficult questions that thoughtful minds have been able to raise on this issue is staggering.

If it is so difficult to conceptualize "safe and sanitary" or "minimum standard" housing, perhaps we should take a more pragmatic approach and simply go out and measure how much families spend on their housing and what they get for their money. Then we could apply several different sets of minimum standards and see how much each set costs.

Many difficult questions have to be answered even before a study such as this can be conducted to establish empirically the cost of standard housing. Some of these decisions have

been made, and the purpose of this paper is to present the specifications, including the decisions, of a study which might be conducted for the purpose of establishing the cost of minimum standard housing, sometimes referred to as C*.

SPECIFICATION OF A GENERAL SURVEY
PROCEDURE FOR ESTIMATING THE
COSTS OF MINIMUM STANDARD HOUSING

The Concept

The "Cost of Minimum Standard Housing" is defined here as the monthly housing expenses necessary to enable a family to command in the rental housing market a level of housing services which meets minimum standards program requirements in a number of specified dimensions.

Measurement of the Variables

Obviously, this is not an operational definition, but it is not the purpose of this paper to develop it further. Clearly the item by item definition of costs and minimum standards will determine the nature and length of the questionnaire, and the mechanism chosen to enforce minimum standards will affect field costs and impact optimal sample design. Nevertheless, these are all judgmental and/or empirical questions which should be answered by HUD personnel or by Abt on the basis of the Demand Experiment data. The resolution of all of these specific issues, for example, whether provision of parking space (refrigerator, oven) with the rental unit is a minimum standards requirement, will result in a specific questionnaire. While the design of that questionnaire is important, the only thing which needs to concern us here is how long the questionnaire must be. We are assuming that the questionnaire will be administered by trained interviewers at the respondent's dwelling.

Thus, without addressing in detail the complex issues of what we need to learn in the interview in order to be able to measure costs and determine "standardness", we will simply assume that we need a one hour personal interview with each qualified respondent.

The Universe

Before a sample design can be suggested, we need a clear definition of what the universe is we are trying to represent with the sample.

Within each housing market (to be defined later) we want to get a representative sample of the universe of rental dwelling units which meet minimum standards. The question arises as to whether those that greatly surpass minimum standards should be included in our universe. The answer depends on what statistical techniques will be used to estimate costs. One suggestion has been that an hedonic index of housing costs be estimated and that the cost of minimum standard housing then be estimated by calculating the hedonic index with all luxury features stripped off. Such a technique is roundabout at best and may yield only a very indirect answer to the question of how much a family in a particular area must spend in order to obtain minimum standard housing.

It would seem, then, that some method of excluding luxury units from consideration would be desirable. Two alternatives suggest themselves: 1) exclude high-rent units; 2) exclude high income families. Both these alternatives have problems, however, in that establishing either one requires an interview. Further, this kind of financial information cannot be obtained with great accuracy in the first few minutes of an interview. Such sensitive information is best placed near the end of an interview when some level of rapport between interviewer and respondent has been established and when it has become clear to the respondent (from all the other questions he has been asked) that he is part of a genuine scientific study and that such data may be necessary for the success of that study. Thus "doorstep screening" on rent or income probably is not a very promising technique.

If "doorstep screening" will not work well and yet the inclusion of luxury units does not add much to our ability to estimate the cost of minimum standard housing, then there seems to be no really good way to proceed. Probably the best compromise is to have a very gross screen early in the questionnaire on both rent and income. A question early in the interview which read something like, "Would you say your total family income is more than \$20,000 per year?" would probably not cause too many interviewing problems and would allow the easy exclusion of families which clearly are able to command more than minimum standard housing in the market.

There will of necessity be an early screener question on tenure status, since only renters are to be interviewed, so it would be fairly easy to add another gross screener question at that point which reads something like, "Do you pay more than \$350 per month in rent for this house (apartment)?".

In conclusion, by using a few careful screener questions, we can limit the universe we are sampling to that set of renting families with incomes of less than \$20,000 per year who pay less than \$350 per month in rent. If in the analysis stage a further restriction of the universe is desired, it is a simple matter to exclude certain groups and still have a good sample of the redefined, smaller universe of interest.

Establishing Standardness

The determination of whether a housing unit meets minimum standards can be a very complex and expensive process. Further, experience indicates that relying on subjective evaluations of even well-trained interviewers will not yield even reliable or consistent, much less accurate "standardness ratings." Moreover, the concept of minimum standard housing for purposes of this study may well be expanded to include

the absence of overcrowding, so that a housing unit which would meet minimum standards for a family of three might be substandard for a family of five.

Thus, once again, it seems that screening the respondents in order to complete the interviewing process only with those families that occupy housing which meets minimum standards would be extremely difficult or inaccurate. Again, some very general screeners may be possible early in the questionnaire. For example, housing units which do not have hot water or those which have other carefully specified gross physical deficiencies can be excluded at that point in the interview at which the deficiency is discovered. Clearly it would save time and money, therefore, to place a few of these kinds of questions early in the questionnaire to detect gross inadequacies in housing units. At the point that any gross inadequacy is discovered the interview can be terminated. One can even conceive of a set of inadequacies which might be probed early in the questionnaire, and a process whereby the interviewer counts the number of these to determine whether to continue the interview. Overcrowding could be included in such a list.

Note, however, that only housing units which are clearly substandard should be screened out at this point. Marginal decisions should not be attempted in an interviewing situation, and for this reason interviews will undoubtedly be completed in some substandard units, just as they will be completed in some luxury units.

The general approach revealed in this section is to slice away uninteresting parts of the universe in the interviewing process so that we obtain completed interviews with only a subset of renting families who are not very well off and who

do not pay too much rent, or live in housing units that are grossly inadequate.

This produces a sample of a universe which is somewhat larger and more broadly defined than we want, but which is still much smaller than the universe of all housing units. It is a step toward isolating the subset we are interested in -- namely those families living in minimum standard housing -- but it is only a step. Some fraction of the housing units in the completed sample of interviews will still turn out to be substandard and some will be quite luxurious. These will need to be eliminated in the analysis stage, but I know of no way to eliminate them earlier. Moreover, data from these barely substandard and barely luxurious units may turn out to be quite useful in the analysis stage. They can provide additional data for input into an hedonic index effort, and additional data on what kind of effort may be necessary to upgrade marginally substandard units.

The Housing Market

We are concerned here only with the rental market. Still, it is difficult to define and virtually impossible to measure a "housing market." For purposes of this study we have operationalized this concept by treating each of the 269 Standard Metropolitan Statistical Areas (SMSAs) as a housing market and in addition, the non-SMSA area within each state will be treated as a housing market. By this definition, there are 319 housing markets to be sampled.

The Sample Size

The purpose of the study will be to establish a standard-package C* for each of the 319 housing markets. Actually there will be several C*s within each market since C* will vary by size of housing unit needed, and perhaps by other

family unit characteristics, for example, aged couples and/or handicapped may have stiffer safety requirements. Since there is no apparent reason why variations among types and sizes of housing units should vary among housing markets, the entire sample can be weighted and pooled to estimate C* variations by type. For example, the cost of a minimum standard two-bedroom unit can be estimated for each of the housing market areas, while the increment to be added for a third bedroom, or for elevator or first-floor accessibility can be estimated from the pooled sample.

Housing Unit Availability

There has been some concern expressed among housing experts that the kinds of housing units needed may not be available in a given housing market. While this is certainly a legitimate concern for the short-run, over the long-run all housing units in existence in an area become "available" -- that is, they come onto the market. Thus, it seems foolish and unnecessarily expensive to try to limit our concern to vacant housing units or units which have recently turned over. After all, one of the primary hoped-for advantages of a housing allowance program with minimum standards requirements is that it should result in considerable upgrading of the existing stock of occupied house units. In fact, limiting our interest only to renter-occupied units is motivated mostly by the fact that rental costs are much easier to obtain than homeowner's costs. This limitation should not be interpreted to mean that only rental units will be included in a national housing allowance program, if one is adopted.

Sample Size

It is virtually impossible to make an accurate estimate of what kinds of accuracy could be obtained with a given number

of initial selections. The reasons for this are manifold, and a brief discussion of each may help us to make an intelligent guess.

We have no good idea what kind of variance in rents paid we should expect to encounter within each housing market. Obviously by excluding grossly substandard and luxurious units we will reduce the variance. Similarly, by limiting ourselves to geographically limited areas such as SMSAs, we will reduce variance which might be associated with climatic variations. On the other hand, neighborhood characteristics have an important impact on rental costs, and the impact can be tremendous within any given SMSA.

In some of the larger housing markets, such as non-SMSA Texas and non-SMSA California, climatic variation can be immense. This is less true in smaller states. Our goal should be not the same number of cases, but rather similar levels of sampling errors in each of these cases. Thus sample size should be calculated on a best-guess basis for each of the 319 housing markets separately.

On the average, if we want to be able to be 95% certain that we are within \$10 of the true average cost of minimum standard housing in each market, and if we can assume that the standard deviation would be something like \$35 (which seems a good guess in light of Abt's experience), we would need a sample which would yield about 50 units which would meet our minimum standard -- non-luxury criteria in each area.

The question then becomes one of determining how large the sample selected needs to be in each market to insure obtaining 50 interviews which satisfy our criteria for minimum standard housing. This is addressed further in the following discussion.

This discussion, it should be noted, is predicated upon the assumption of a simple random sample within each market. If we decide to use clustered sampling techniques, it is very likely that the design effect with respect to housing characteristics variables will be large since housing units tend to be more homogeneous geographically than the families which occupy them. Nor is there much we can do to counteract this effect through stratification since we are really interested in completing the interviews only in a relatively homogeneous strata of housing units.

The proportion of the sample selected which will satisfy the criteria for 1) completion of interview and 2) use in the final calculations is unknown. In general, roughly half the units selected will turn out to be owner-occupied, some fraction of the rental units will be grossly substandard, and some clearly too expensive to be considered standard in any sense. For each of the SMSAs it will probably be worthwhile to estimate each of these proportions and calculate the number of sample selections accordingly. Suppose, for example, they are .5, .1, .3 respectively for some particular housing market. In that case, selecting a simple random sample of about 170 cases (assuming a 90% response rate) should yield about 50 valid interviews.

Even if we envision sending a team of experts around to make a final determination of standardness, it is unlikely that we would save much of their travel time by having a clustered sample since less than 30% of the units selected will require visits by this team, the rest being eliminated in the interviewing process.

At this point we really do not have a very good feel for the proportion of completed interviews which might be disqualified

by an inspection team or by setting alternate minimum standards on the basis of the data obtained in the questionnaire. Consequently, prudence would seem to dictate that we increase our sample size to allow for some slippage or loss in these stages. In fact, we might well think about doubling the sample size. If this rather generous estimate of slippage were to result in samples of, say, 75 in each housing market, we would not be exactly throwing money away since we would increase considerably the precision of our estimates of C* in each housing market. With a sample of 75, we could be 95% sure that we were within \$8 of the true mean cost of minimum standard housing in each market.

Conclusions

This paper attempts to lay out a method for designing a survey to establish C* in each of the housing market areas in the U. S. In doing so, it raises many questions. Before the sample survey design can be more specific, these questions need to be answered. We look to HUD for some general feedback on the methodology outlined here and the goals perceived as the motivation for such a sample survey. We look to the Demand Experiment and to other data sources for answers to some of the empirical questions. Nonetheless, we have been able here to at least set some boundaries on the scope of work involved in such a study. If it were necessary at this point to proceed with such a survey, it could be done. The point here is that, in our current state of ignorance, we would have to make the worst possible assumptions about what proportion of the sample selections would produce valid interviews with families living in safe and sanitary but not luxurious housing units. This means simply that the survey would take longer and cost more.

In any event, even with good factual knowledge and careful preparation, we are talking here about completing hour-long interviews with at least 16,000 families all over the U.S., and then sending inspection teams around to evaluate their housing units. Ignoring all the other aborted interviews and all the interviews completed in what turn out, upon inspection to be either substandard or luxurious housing units, we are talking about a huge and expensive survey effort.

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