

METHODS OF MEASURING HOUSING QUALITY

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I. Background

The term "housing quality" is, in a sense, a misnomer. The Census Bureau has never attempted to describe the complete spectrum of housing quality. Rather, our efforts have been directed to identifying that housing which, in the opinion of experts, constituted a serious hazard to health or safety. In the housing censuses of 1940, 1950, and 1960 indications of such conditions were provided in terms of the state of repair of the structure and the availability of plumbing facilities, that is, hot piped water in structure, flush toilet for exclusive use, and bathtub or shower for exclusive use. The state of repair of the structure was categorized in 1940 as "needing major repairs" or "not needing major repairs." In 1950, units were described as being "dilapidated" or "not dilapidated." In 1960, enumerators were instructed to determine whether a unit was "dilapidated" or "not dilapidated," and if "not dilapidated" then whether it was "deteriorating" or "sound." A dilapidated unit was described as one in which structural defects were either critical or so widespread that the structures should be extensively repaired, rebuilt, or torn down. Most users of our statistics have combined data on the availability of plumbing and condition as in accordance with a classification "substandard-not substandard" that was developed by the Federal housing agencies. By this classification, housing was substandard if it was "dilapidated," or, lacked or shared one or more of three plumbing facilities. The term "substandard" has not been used as a census classification of housing.

Since the 1960 census, much effort has gone into evaluating the census concepts and methods of rating the structural condition of housing, i.e., whether it was sound, deteriorating, or dilapidated. A summary and interpretation of the research carried out at the Bureau through mid-1967, was presented in Working Paper No. 25. This paper found that the 1960 statistics on condition were unreliable and inaccurate.

Concerning the rating of condition by enumerators this paper concluded that:

"There does not appear to be any feasible method of improving the quality of enumerator ratings in a decennial census. This is a consequence of the ambiguities, nonoperational elements, and complexities of the rating process itself, as well as the biasing factors in the environment in which ratings have to be made."

Tests to determine the feasibility of direct self-enumeration of structural faults produced unsatisfactory results. It was recommended in that report, therefore, that:

"The Bureau of the Census should direct its efforts to constructing measures of

housing and neighborhood quality based on combinations of objectively defined characteristics."

It was also recommended that new measures be evaluated for "accuracy and validity . . . by comparison with measures based on the American Public Health Association (APHA) method . . . or some other maximum intensity method based on it."

II. Research Guidelines

A. Housing Advisory Committee guidelines.--Our research and discussions with the Census Bureau's Housing Advisory Committee and with the Task Force on Housing Quality, have established certain guidelines. These are:

1. A measure of housing quality must be national in application;
2. it must reflect with reasonable accuracy differences in housing quality between different areas.

B. Restrictions imposed by decennial census.--These guidelines must be related to the restrictions imposed by the use of the decennial census as the data collection vehicle.

First, the census depends upon the willingness and the ability of the population to answer the questions. Thus, the questionnaire must not impose an unreasonable burden on the respondent in terms of time; it should not deal with topics that appear to have no relevance or significance to the respondent; and it should not appear to be of an investigative or regulatory nature. Furthermore, the inquiries should request information that most respondents are able to provide.

Second, a decennial census of 70,000,000 housing units is of such a massive nature that tailor-made questionnaires for individual SMSA's or different geographic areas to reflect varying building codes, climate, population densities, or local needs, cannot be considered because of the overwhelming logistical, collection, and tabulation problems.

Third, the census is a household inquiry that obtains data on the housing unit and limited information on the structure. It is not a vehicle designed for directly collecting neighborhood information such as, land use, street utilization and design, air pollution, noise levels, the availability or quality of community facilities, or crime and health rates. Therefore, the characteristics used to identify poor quality housing pertain to the housing unit only and to the extent that these other factors are not considered we have only a partial measurement of the overall adequacy of housing. To put it another way, we are attempting to identify bad housing in terms of bad housing units and not in terms of neighborhoods or blighted areas.

C. Specifications for geographic comparability.--Keeping these limitations in mind we have been striving to find a method of identifying "bad" housing that will permit place to place and area to area comparisons that are not affected by--

1. Geographic differentials in methods of construction, climate, or location;
2. size of the community or the density of the population;
3. ethnic or socioeconomic characteristics as well as the attitudes and expectations of the occupants, respondents, or interviewers; and
4. elements of the immediate environment or neighborhood.

III. Proposed Housing Quality Measure for 1970.

A. Components of measure.--The Census Bureau is considering a proposal to identify "bad" housing as consisting of two components:

1. Units lacking or sharing plumbing facilities, and
2. units with plumbing facilities but with high APHA penalty points.

The first group will be defined as it was in previous censuses. The identification of units in the second group will be based upon rent or value, and one or both of the following, heating equipment and kitchen facilities, in lieu of APHA inspections. (The evaluation of this identification process is discussed in part IV.)

B. Identification of high penalty point housing.--The identification of "bad" units with all plumbing facilities constitutes the major problem. Although we are not trying to duplicate counts of units based on the standards that were applied in 1960, we can place this problem in perspective if we examine the 1960 data. There were 10.6 million "substandard" units of which 91.5 percent, or 9.7 million units lacked plumbing facilities and 8.5 percent or 0.9 million units were dilapidated with all plumbing facilities. These 0.9 million accounted for about 1.5 percent of the total housing stock. In cities of over one million the proportion of the total "substandard" units which were "dilapidated with all plumbing facilities" was 21.7 percent as compared with 8.5 percent for the Nation as a whole. However, even in cities of that size such units accounted for less than 2 out of every 100.

The characteristics that we are proposing for use in 1970 to identify housing with plumbing as "bad" are:

1. Complete kitchen facilities.--Complete kitchen facilities are to include a stove or range, a mechanical refrigerator (not an icebox), and a kitchen sink, for the exclusive use of the occupants. These facilities need not be in one room.
2. Heating equipment.--Heating requirements and types of heating equipment in the United States vary between the North and the South and, therefore, we have tentatively established a dividing

line based on a 3,000 heating degree day line.^{1/} North of this line the following types of heating equipment are considered unsatisfactory: circulating, radiant, or room heaters, without flue or vent; fireplaces or stoves; portable room heaters of any kind; and none, (unit is not heated). South of this line, only fireplaces or stoves; portable room heaters of any kind; and none, (unit is not heated) are considered unsatisfactory. Heating equipment is not to be used as a criterion in the State of Hawaii.

3. Rent and value.--Basic to this proposal is the hypothesis that within a housing market, price generally indicates quality, i.e., the lower the price the poorer the housing. More specifically, in a market area where the price for some housing with plumbing is below the price for housing without plumbing, it is assumed that such units with plumbing have a sufficiently low position in the market place to indicate poor quality. However, in studying rent and value distributions it was found that in 1960, in many large cities, Negroes paid more for unsatisfactory housing than whites. Therefore, it is proposed that separate universes for Negro and white households be established in using the rent and value data.

Three methods were considered for applying rent and value as criteria for "bad" housing:

a. Rejected proposals.--

(1) We could use a flat dollar amount, for instance rents less than \$60.00 or values less than \$7,500. This idea was rejected because the quality of housing associated with a given amount varies greatly between geographic areas.

(2) We could use a flat percentile of all rented units across the country, e.g., the lowest 20th percentile in each city. This idea was rejected because it intimates that each SMSA has an equal proportion of "bad" rental housing, and thus, geographic comparisons would be invalid. The same reasoning pertains to the use of a flat percentile of value.

b. Proposed procedure.--The proposed procedure calls for tabulating rent and value distributions for units with and without complete plumbing facilities. Previously determined percentile cutoffs would be applied to the distributions of units without complete plumbing facilities. The dollar amount corresponding to these cutoffs would be applied to the distributions of units with complete plumbing facilities. This would be done for renter and owner units separately, by Negro and Non-Negro occupancy. Only four percentiles would be used across the entire United States. This procedure would be followed in approximately 400 "market areas." These would consist of each SMSA

^{1/}One heating degree day is counted for every degree by which the mean daily outdoor temperature is less than 65°. The number of degree days for a locality represents the total for a year.

separately, plus the Non-SMSA portion of each State divided into three parts, namely:

- (1) All cities of 25,000 to 50,000 population;
- (2) all cities of 2,500 to 25,000 population; and
- (3) all rural.

To illustrate, let us assume that the 67th percentile would be used nationwide for Negro-occupied renter units without all plumbing facilities. In SMSA "X" we would find that the dollar amount corresponding to the 67th percentile for these units is \$54.00. We would then identify the Negro-occupied renter units with all plumbing facilities that rented for less than \$54.00 and had either inadequate heat or lacked complete kitchen facilities as "bad" housing in SMSA "X." Similar steps would be taken to identify "bad" housing for Non-Negro-occupied renter units and for owner-occupied units.

IV. Current Research

To test this procedure and the hypotheses upon which it is based, we have underway at this time two studies.

A. American Public Health Association (APHA) rating of housing condition.--A sample of three hundred housing units with complete plumbing equipment was selected in each of three cities: Austin, Texas; Cleveland, Ohio; and San Francisco, California. The APHA rating of the structure and dwelling unit was obtained for about 800 of these units. Among the items included in this survey are access (from street, rear yard, or alley), rooms lacking an installed source of heat, an index of toilet condition, a report on infestation by rodents or other vermin, degree of deterioration in specified parts of the structure, and habitable rooms lacking closets. Deficiencies in the structure and the dwelling unit are expressed in penalty points; the greater the number of penalty points, the more severe the conditions revealed in the survey.

This study has three purposes. First, to determine whether units with high numbers of penalty points are also identified by rent or value in combination with type of heating equipment and/or availability of kitchen facilities. Second, to determine whether fixed percentiles of the rent and value distributions identify the same levels of penalty points in these three cities. Third, to gain some insight into the proportions of units in the United States that fall within various ranges of penalty points.

B. Housing Supplement to the Current Population Survey.--A housing supplement has been added to the Current Population Survey, for August 1968. Information is being collected from about 38,000 households on housing items that are used either directly as components of our proposed housing quality measure, or are required to assure accurate derivation of such a component. For about 19,000 of these units we will also obtain a rating of structural condition using 1960 concepts and methods.

The principal purpose of this survey is to obtain up-to-date data on the distribution of (1) heating equipment by categories proposed for the 1970 census; (2) rents; (3) values; and (4) presence of kitchen facilities as proposed in the 1970 census; for various classifications of geographic areas and specifically above and below the 3,000 heating degree day line.

The results of this survey will permit us to evaluate the impact of differences in classification of heating equipment above and below this line.

V. Conclusion

If the results of the APHA survey indicate that there is a satisfactory overlap between those units identified by the proposed objective criteria and those units identified by high penalty points, and if the August 1968 CPS Supplement shows there are sufficient housing units with the critical objective characteristics needed to identify "bad" housing units both above and below the 3,000 heating degree day line and in places of different sizes, we will conduct a large scale APHA survey in the spring of 1969 to define precisely the percentile cutoffs of rent and value to be used in the 1970 census.

If our current research indicates a low degree of mutual identification between the two systems, i.e., rent or value in combination with inadequate heating equipment, and APHA penalty points; or that the census items do not identify any reasonable number of "bad" units with plumbing in certain parts of the Nation, we will be forced to abandon this method for identifying housing units which have plumbing and also have high penalty points. We will then study the relationships between the individual census items, and levels of penalty points, to determine which objective characteristics will be shown in the city block reports and other publications. These data would not present a measure of housing quality as was done in the past but would provide the users with a broad spectrum of facts which, when combined with local knowledge, will assist in identifying areas of poor housing.