

Suggested Procedures for Conducting a Sample Survey to Determine Whether the Majority of Persons In A Target Area Have Low- and Moderate-Incomes

Introduction

This document was prepared by Community Planning and Development's Office of Program Analysis and Evaluation to assist staff in HUD's Field Offices, in States, and in localities to develop methods to determine whether a geographic area will meet CDBG program requirements related to low- and moderate-income benefit. In this paper, we assume that State or local CDBG staff without substantial research background will use survey research techniques to make this determination, and we identify the basic techniques for conducting a sample survey that will yield acceptable levels of accuracy.

The purpose of a sample survey is to ask questions of a portion of the population in order to make estimates about the entire population. If we ask proper questions of a randomly-drawn sample of adequate size, we can be reasonably sure of the degree of accuracy of our overall estimates. In the survey that is discussed here, we are seeking to determine one thing --- whether at least 51% of the persons living in a target area have low- and moderate-incomes.

The remainder of this paper is divided into six major sections, each of which discussed a different major step in administering the survey. In order to obtain accurate results, it is necessary to complete each step properly. You must ask the right questions of the right people and interpret their answers correctly.

While this paper is to assist people without a background in survey research in conducting a successful survey of income, we would recommend trying to locate a source of experienced guidance before proceeding. For example, if there is a local college, a professor might be persuaded to conduct the survey as part of a course. At a minimum, perhaps such an individual or someone with social science background in a county or areawide planning office will be willing to comment and make recommendations on key parts of your procedures.

STEP 1. Selecting the Type of Survey

Any type of survey that fulfills the criteria discussed below can be used to determine whether an area qualifies as low – and moderate-income. The most commonly used surveys for this application are: a) telephone surveys; b) door-to-door surveys; and c) mail surveys.

Telephone Surveys are relatively east to conduct. An interviewer just needs to call up, identify the head of the household or someone competent and knowledgeable enough to answer for the head of the household, and proceed with the interview. However, the steps that must be taken before you reach the point of telephoning may prove difficult. In a telephone survey, you must acquire

the telephone numbers of all the households in your target area and devise a method for contacting households without telephones or those with unlisted numbers. It may be preferable to sample door-to-door in small target areas, such as a neighborhood or small town, where it may be difficult to find a list of telephone numbers that identifies everyone in the area while excluding everyone outside of the area.

Door-to-Door Surveys involve a little more work – the interviewers must actually go outside, knock on doors, and do the “leg work” necessary to obtain interviews. However, in small areas this type of survey may be the easiest because you can define the target area by its geographic boundaries and develop procedures for sampling within those boundaries so that no list of the households in the area is needed beforehand.

Mail Surveys may be the easiest of all. You need a list of all the addresses in the target area, a questionnaire, and postage. However, mail surveys usually yield a very low rate of response, which means a low degree of accuracy. Also, provisions must be made to provide non-English speaking residents with a questionnaire in their own language. Thus, for estimating low- and moderate-income benefit, we do not recommend this type of procedure, unless you include in your mailing a stamped self-addressed return envelope and count on doing at least one follow-up letter or telephone call to encourage everyone to respond.

Of course, it is possible, and sometimes quite useful, to combine these types of surveys. For example, if a door-to-door survey you find that someone is not home, you can leave a note for them to telephone the interviewer. Or you can use the telephone to schedule a time when an interviewer will call at the door to conduct an interview. Similarly, you can mail a letter to residents of the target area to let them know in advance when an interviewer will call or visit.

STEP 2. Developing a Questionnaire

It is important that all of the individuals interviewed are asked exactly the same questions and that their responses are recorded correctly. To ensure this, you need a written questionnaire, and you need to have your interviewers write down on each questionnaire the exact responses of each respondent. Each question should be clear, written in simple language, and convey only one meaning. It is usually best to test a draft questionnaire on a few people to ensure that they understand the questions as you think you are writing them.

The central question in this survey is whether the household being interviewed has an income that is below the low- and moderate-income level for households of the same size. We recommend in door-to-door interviewing that the interviewers carry with them a set of cards, one card each for the households household sizes to be considered. On each card should be written the figure for the low- and moderate-income levels for a household of that size. For example:

Table A
Illustration of Income Cards

<u>Card Number</u>	<u>Persons in Household</u>	<u>Income Levels</u>
1	1	\$19,800
2	2	\$22,650
3	3	\$25,450
4	4	\$28,300
5	5	\$30,050
6	6	\$31,850
7	7	\$33,600
8	8	\$45,400

In proceeding, the interviewer first should make contact with someone who is qualified to speak for the household. After making the contact with the head of the household, the spouse of the head of household, or someone in the household who is mature and knowledgeable about the household income, the interviewer should introduce him/herself, identify the purpose of the study, and solicit the participation of the respondent.

An adequate questionnaire must be able to provide answers to at least the following two questions:

1. How many people live in your household? (Record answer)
2. (If the interview is being conducted in persons, the interviewer then finds the card for the household size of the respondent, and hands it to the respondent, and ask) Would you tell me whether, during the past twelve months, the total income of all members of your household was above or below the figure noted on the card? (Record Above or Below) Note that the interviewer should be prepared to provide a consistent answer to the questions, "What should I include as income?"

If the interview is being conducted by telephone, a card obviously cannot be used, and the interviewer should make reference to the income level that is the threshold for a household of the size of the respondent's. For example, if there are three persons in the respondent's household you might ask, "during the past twelve months, was the total income of your household less than or more than \$25,450?" While the necessary questions are brief and simple, there are some additional factors to take into account when designing this questionnaire. First, the questions used in the survey cannot be "loaded" or biased. In this particular case, the interviewer may not imply that the neighborhood will benefit or receive Federal funding if respondents say that they have low incomes. The questions must be designed to determine truthfully and accurately whether respondents have low- and moderate-incomes. It is permissible to note that the reason for the survey is to gather information essential to support an application for funding under the State CDBG program or to undertake a CDBG funded activity in the area.

Second, you should bear in mind that questions about income are rather personal. Many people are suspicious or reluctant to answer questions about their incomes --- especially if they do not see the reason for the question. A good way to handle this problem is usually to put questions about income at the end of a somewhat longer questionnaire on other community development matters. In this instance, a local agency can use this questionnaire to gather some information on what the neighborhood sees as important needs or to gather feedback on some policy or project. As the end of such a questionnaire, it usually is possible to ask questions on income more discreetly. If this option is chosen, however, the interviewer should be cautioned that an excessively lengthy questionnaire may cause respondents to lose interest before it is over. The ideal length here would probably be less than 10 minutes, although certainly you could develop an even longer questionnaire if it were necessary.

Of course, it is possible to ask only the critical questions on income. You should know best how people in your community will respond to such questions. With a proper introduction that identifies the need for the information, you can generate an adequate level of response with just a two question questionnaire on income levels.

STEP 3. Selecting the Sample

In selecting a sample of households to interview so that you can estimate the proportion of all individuals who have low- and moderate-incomes, there is a series of steps that must be taken. First, you must define the group whose characteristics you are trying to estimate. Then you must determine how many households in that group must be sampled in order to estimate the overall characteristics accurately. Next you must make some allowances for households who, for whatever reason, you will not be able to interview. And finally you must actually select the households where you will try to obtain interviews. This section discusses each of these steps.

Defining the Universe. In sampling, the large group whose characteristics you seek to estimate from a sample is known as the universe. If you are trying to determine the proportion of households in a neighborhood with low- and moderate-incomes, that neighborhood is the universe. Instead of a neighborhood, the universe may be a town, it may be as large as a county, or it may be defined some other way. For purposes of the CDBG program, your universe will be the area that is to be served by a CDBG funded project. But before you can draw a sample, you must clearly define what area you want the sample to represent. Let us assume here that the universe is a neighborhood that contains about 400 homes. You will sample from the 400 households residing here so that you may make estimates about the incomes of all the residents of these households.

When you have defined your universe, you next need a method of identifying the individual members of that area so that you can sample them. Ideally, for a given neighborhood, you will have a list of every person living in the neighborhood and perhaps their telephone numbers. Then you would devise a procedure to select randomly the person you wanted to interview. In reality, you will not have such a list available and you probably will not even have a list of all the households in the neighborhood, so you will have to improvise a little. One way would be to go to the neighborhood and randomly select which homes to go for an interview --- the advantage of this method is that the houses are there, so you can go right to them instead of making a list. After collecting information on the various households, you then can make some estimates about the number of people in the neighborhood and their incomes.

For larger areas where travel costs are higher, it may not be practical to go door-to-door and a list of some sort may be absolutely necessary. City indexes, if available and up-to-date, usually provide the best source of household information suitable for sampling. Telephone books may be adequate, but keep in mind that you will miss people without telephones or with unlisted numbers. Also, telephone directories usually will have far more people listed than those who are in your defined universe, so you will need to work to eliminate those outside of your target area. Tax rolls are a source identifying addresses in an area, but keep in mind that they identify property owners, whereas you are interested in residents. Also, tax rolls generally identify building addresses, whereas in the case of apartment buildings you are interested in the individual apartments. You can use tax rolls to identify addresses to go to in order to get an interview, but you cannot use them as the basis of a mailing or telephone survey unless you have access to a telephone directory that identifies telephone numbers by property address.

How Big A Sample? After you have defined your universe and identified a method for identifying individual households in the universe, you must next determine how many residents to select. Assuming that you develop procedures whereby every household in your target area has an equal chance of being included in your sample, you can use Table B below to determine how many households you need to interview to develop a survey of acceptable accuracy.

The first column of Table B presents size of neighborhoods you may be interested in. The second column shows about how many households you need to interview from a neighborhood of the size indicated in the first column. This paper uses the hypothetical 400 household neighborhood to illustrate the use of this table. Looking down the column that says "Number of households in the Universe" you will find 400 is covered by the "399-650" line. Reading across this line, you see that the sample size required to generate an acceptable level of accuracy is 250. (See the attached Appendix B for a discussion of how these sample sizes were determined).

Table B
Required Sample Sizes for Universes
Of Various Sizes

Number of Households In the Universe	Sample Size
1-55	50
56-63	55
64-70	60
71-77	65
78-87	70
88-99	80
100-115	90
116-138	100
139-153	110
154-180	125
181-238	150
239-308	175
309-398	200
399-650	250
651-1,200	300
1,2001-2,700	350
2,701 or more	400

Unreachables and Other Non-Response. It is important to realize that the sample sizes suggested in Table B indicate the number of interviews that you need to complete, and not necessarily the size of the sample you need to draw. There is almost always a difference. No matter what you do, some households just will not be home during the time you are interviewing, some probably will refuse to be interviewed, some will terminate the interview before you finish, and some will complete the interview, but fail to provide an answer to the key question on income level. In order to be considered an adequate response, the interview must be conducted, and you must complete and accurate information on the respondent's income level. Table C suggest some of the usual rates of response to be expected by a variety of surveys.

Table C
Expected Response Rates for
Different Types of Surveys

<u>Survey Types</u>	<u>Expected Rate of Response</u>
Mail	25-50%
Mail, with letter follow-up	50-60%
Mail, with telephone follow-up	50-80%
Telephone	75-90%
Door-to-Door	75-90%

According to Table C, if you were doing a door-to-door sample to obtain 250 interviews in the 400 household neighborhood, you should anticipate that you will need to actually try to interview between 278 and 333 households (250 divided by .75 or .9). Thus, if you were drawing a list from whom to seek interviews, one way to deal with non-responses is to oversample --- list above the 300 households and assume you will interview 250. In door-to-door surveys, it usually is possible to replace unreachables, by trying to obtain an interview next door to the household actually sampled.

Drawing Samples. In sampling you are looking at a portion of everyone in a group and making inferences about the whole group from the portion you are looking at. For those inferences to be accurate, everyone who is in the group should have an equal chance of being included in the sample. For example, if you are sampling from a list, using a random numbers table will provide you with a highly random sample. In using a random numbers table, you take a list of your universe and draw from it according to the table. If, for example, the first three random numbers are 087, 384, and 102, then you would go through your universe list and take the 87th, 384th, and 102nd households to try to interview. Continue until you have achieved the desired sample size.

As indicated above, when sampling from a list, you should oversample. Then, if you encounter unreachables, you should replace them with households in the oversample list in the order they were selected. For example, if you drew a list of 300 households in an effort to obtain 250 interviews, the first household you write off as “unreachable” should be replaced by the 251st household sampled.

Achieving a purely random sample can be costly, so sometimes it is acceptable to take some shortcuts. If you do not have a list of all the households in a target area or group you are trying to measure, but you know the geographic boundaries of the target area, you might randomly select a point at which to start and proceed systematically from there. In the hypothetical 400 household neighborhood, for example, in trying for 250 interviews, you would need to interview every 1.6th household. In whole numbers, this works out to about 2 of every 3 households. Therefore, you could start at one end of the neighborhood and proceed systematically through the entire neighborhood trying two doors and

skipping one. Any households that were selected by this procedure at which an interview as not possible could be replaced by the next household you would have skipped. If the sample size called for you to sample one of every six households, you could draw a random number from one to six and start at the household and every sixth household after it, and replace unreachables with every third household in the six household group.

You will achieve more accurate estimates if you are not too quick to write off a household as unreachable. You are most certain of randomness if you obtain interviews from the households you selected first. Thus, if you are doing a door-to-door survey, you probably should make two or more passes through the area (possibly at different times) to try to catch a family at home. Frequently they will be busy, but will say that they can do the interview later --- you should make an appointment and return. Only after at least two tries or an outright refusal should a sampled household be replaced. With a telephone survey, at least three or four calls should be made before replacing a household.

STEP 4. Conducting the Survey

To carry out the survey, you have to reproduce sufficient questionnaires, recruit and train interviewers, schedule the interviewing, and develop procedures for editing, tabulating, and analyzing the results.

Publicity. To promote citizen participation in your effort it may prove worthwhile to arrange some advance notice. A notice in a local newspaper or announcements at churches or civic organizations can let people living in your target area know that you will be conducting a survey to determine area income levels. If you let people know in advance how, when and why you will contact them, usually they are more willing to cooperate.

As with all aspects of the survey and questionnaire, any publicity must be worded so that it does not bias the results. For example, it is fine to say that the community is applying for a State CDBG grant and that, as part of the application, the community has to provide HUD and the State with current estimates of the incomes of the residents of the target neighborhood. It is not appropriate to say that, in order for the community to receive the desired funding, a survey must be conducted to show that most of the residents of the target area are low- and moderate-income.

Interviewers. Anyone who is willing to follow the established procedures can serve as an interviewer. It usually is not necessary to go to great expense to hire professional interviewers. Volunteers from local community groups will serve well. Also, schools or colleges in doing courses on civics, public policy, or survey research frequently may be persuaded to assist in the effort as a means of providing students with practical experience and credit.

Generally, it is best if interviewers are chosen to make the respondents feel most at home. For this reason, survey research companies often employ mature women as their interviewers. When interviewers are of the same race and social class as the respondents, the survey usually generates a better response rate and more accurate results. What is most important, though, is that the interviewer will command the attention of the respondent, ask the questions as they are written, follow respondent selection procedures, and write down the responses as given.

Contact and Follow-Up. Interviewers should attempt to contact respondents at a time when they are most likely to get a high rate of response from most types of people. Telephone interviews usually are conducted early in the evening, when most people are home. Door-to-door interviews also may be conducted early in the evening (especially before dark) or on weekends. You should try again at a different time to reach anyone in the initial sample who is missed by this initial effort.

In general, you should know best the residents of your community and when they can be reached. What you should avoid is selecting a time or method that will yield biased results. For example, interviewing only during the day from Monday to Friday probably will miss families where both the husband and wife work. Since these families may have higher incomes than families with only one employed member, your timing may lead to the biased results of finding an excessively high proportion of low- and moderate-income households.

As part of your questionnaire, or at least as part of the training of interviewers, you should develop an introduction to the actual interview. This should be a standard introduction in which the interviewers introduce themselves, identify the purpose of the survey, and request the participation of the respondent. Usually it is also a good idea to note the expected duration of the interview --- in this case to let respondents know that the burden to them will be minimal.

You also should emphasize to respondents that their answers will be kept confidential --- people are more likely to give you honest answers if they will remain anonymous. You should do your very best to maintain this confidentiality. Usually, the respondent's name, address and telephone number appear only on a cover sheet. After you complete the survey, you can throw away the cover sheet or at least separate it from the actual interview. If you number both the cover sheets and the questionnaires, you can then match them up if absolutely necessary. What is important is that people will not just be able to pick up a questionnaire and see what the Jones family is.

Interviewers also should follow the set procedures for replacing "unreachables" as discussed in Step 3. If they must write off an interview, they should not say "Well, I was refused an interview here, so I'll go over there where I think I can get an interview." This replacement procedure is not random and will hurt the accuracy of your survey results.

The Interview. Interviewers should read the questions exactly as they are written. If the respondent does not understand the question or gives an unresponsive answer, it usually is best to have the interviewer just repeat the question. Questions should be read in the order in which they are written. The respondents' answers should be recorded neatly and accurately immediately as they are provided. At the end of the interview, the interviewer should always do a quick edit of the questionnaire to be sure that they have completed every answer correctly. This simple check helps to avoid the frustrating mistake of having gone to the time and expense of conducting the interview, but without getting the information you sought.

For the survey here being discussed on low- and moderate-income benefit, note that there may be an important exception to reading the questions in the exact order each time. If you elect to include other questions, and if you place the questions on income at the end, it is possible that a willing respondent will end the interview before you get to the critical question. If it appears to the interviewer that the respondent is about to terminate the interview, it is recommended that he or she immediately try to get an answer to the critical income question.

Editing. Interviewers should turn their completed surveys in to the person who will tabulate and analyze them. That person should review each survey to ensure that it is complete and that each question is answered once and only once in a way that is clear and unambiguous. Questions or errors that are found should be referred to the interviewer for clarification. It also may be desirable to call back the respondent, if necessary, to clarify incomplete or ambiguous responses. Note that editing is an ongoing process. Even after you have started to tabulate or analyze the data, you may come across errors, which you need to correct.

STEP 5. Determining the Results

After you have your data collected and edited, you just need to add up the numbers to see what you have learned. Actually, it is useful to think of this in two parts: (1) tabulating up the responses from the questionnaires and calculating an estimated proportion of low- and moderate-income persons; and (2) determine how accurate that estimate is. The first of these parts can be taken care of by completing the Low- And Moderate-Income Worksheet, which appears below.

Tabulations. For ease of processing, it may be desirable to enter the responses onto a computer, if one is available. Personal computer packages such as dBase, Lotus 1-2-3, and SPSS-PC all are easy to use in tabulating this type of data. Computers also make it relatively easy to check for accuracy and consistency in the data. However, you can perform the calculations by hand or with a calculator. And you can process the data by putting it on a codesheet, by entering it on a manual spreadsheet, or just by flipping through the completed surveys. Regardless of how you process and tabulate the data, when you are finished you must be able to complete Part A of the Low- And Moderate-Income Worksheet.

Low- And Moderate-Income Worksheet

Part A. Information Contained In Your Survey

1. Enter the estimated total number of households in the target area. 1. _____
2. Enter the total number of households interviewed. 2. _____
3. Enter the total number of low- and moderate-income households interviewed. 3. _____
4. Enter the total number of persons living in the low- and moderate-income household interviewed. 4. _____
5. Enter the total number of households interviewed in which the income was above the low- and moderate-income level. 5. _____
6. Enter the total number of persons living in the households in which the income was above the low- and moderate-income level. 6. _____

Part B. Calculations Based On Data Contained In Your Survey

7. Divide Line 4 by Line 3. (This is the average size of the low-mod households interviewed) 7. _____
8. Divide Line 6 by Line 5. (This is the average size of non low-mod households you interviewed) 8. _____
9. Divide Line 3 by Line 2. (This is the proportion of households interviewed that have low - and moderate-incomes) 9. _____
10. Divide Line 5 by Line 2. (This is the proportion of households interviewed that do not have low- and moderate-incomes) 10. _____
11. Multiply Line 1 by Line 9. (This is the estimate of the total number of low-mod households in the target area) 11. _____
12. Multiply Line 1 by Line 10. (This is the estimate of the total number of non low-mod households in your target area) 12. _____

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| 13. | Multiply Line 7 by Line 11. (This is the estimate of the total number of low-mod persons in your target area) | 13. _____ |
| 14. | Multiply Line 8 by Line 12. (This is the estimate of the total number of non low-mod persons in your target area) | 14. _____ |
| 15. | Add Line 13 and Line 14. (This is the estimate of the total number of persons in your target area) | 15. _____ |
| 16. | Divide Line 13 by Line 15, and multiply the resulting decimal by 100. (This is the estimated percentage of persons in your target area who have low- and moderate-incomes) | 16. _____ |

Part C. Instructions and Explanations

1. The number that goes on Line 1 is something you needed to know before drawing your sample. In the course of your survey, you may have refined your original estimate. On Line 1, you should enter your current best estimate of the total number of households in the area.
2. For the number of households interviewed, you actually want the total number of interviews with complete and, as far as you can tell, accurate information on the income and size of household questions.
3. When you are completing Part A be sure that the answers are logical. For example, the number on Line 4 cannot be smaller than the number on Line 3 (because every household must have at least one person). Similarly, the number on Line 6 cannot be less than the number on Line 5. Also note that the number on Line 3 plus the number on Line 5 should equal the number on Line 2 --- every household is either low- and moderate-income or it is not.
4. Some examples for Part B. For purposes of illustration, assume that you estimated that the target area contained 650 households (Line 1). Assume that you interviewed 250 households (Line 2), of whom 130 had low- and moderate-income (Line 3). These low- and moderate-income households contained 450 persons (Line 4). The 120 households with incomes above the low- and moderate-income level (Line 5) contained 400 persons (Line 6). You would complete Part B as follows:

Line 7. If the households you interviewed contained 450 low-mod persons in 130 households, the number on Line 7 would be about 3.46 (450/130).

- Line 8. If the households you interviewed contained 400 non low-mod persons in 120 households, the number on Line 8 would be about 3.33 (400/120).
- Line 9. If you interviewed a total of 250 households, 130 of which had low- and moderate-incomes, the number on Line 9 would be about .52 (130/250).
- Line 10. If 120 of the 250 households you interviewed did not have low- and moderate-incomes, the number on Line 10 would be about .48 (120/250).
- Line 11. If your target area contained an estimated 650 households, and you interviewed 250, of which 130 had low- and moderate-incomes, the number on Line 11 would be about 338 (650 X .52).
- Line 12. Continuing with the example, Line 12 would be about 312 (650 X .48).
- Line 13. 3.46 persons per low-mod household times 338 low-mod households – Line 13 would be about 1,169.
- Line 14. 3.33 persons per non low-mod households times 312 non low-mod households --- Line 14 would be about 1,039.
- Line 15. Total low-mod persons (1,169) plus total non low-mod persons (1,039) --- Line 15 would be about 2,208 estimated total persons.
- Line 16. 1,169 low-mod persons divided by 2,208 total persons yields about .5294. Multiplied by 100, this gives an estimate that about 52.94 percent of the residents have low- and moderate-incomes.

Analysis. The estimate you reach for the proportion of residents who have low- and moderate-incomes will be just that --- an estimate. If you have done nothing right, including random selection of the required number of households, the estimate should be reasonably accurate. If, using the procedures specified here you come up with an estimate of 55 percent or more of the residents of the target area having low- and moderate-incomes, you can be pretty sure that at least 51 percent of the residents actually have low- and moderate-incomes. You can skip over this section, and go down to STEP 6. On the other hand, if your estimate is less than 51 percent of the people in the area having low- and moderate-incomes, the presumption is that the area is not eligible as a target area. This section, and in fact, the remainder of this paper, probably will not be of much use to you either.

This section is intended for use by those whose survey results indicate that somewhere between 51 and 54 percent of the residents of the target area have low- and moderate-incomes. If your estimates were in the 51-54 percent range, it is probable that a majority of all neighborhood residents have low- and moderate-incomes, but there is less certainty than if you came up with a higher proportion. The closer your estimate is to 51 percent, the less certain you become that the area is low- and moderate-income.

There are a couple of additional analyses you can make to help determine the extent to which your estimate of the proportion of low- and moderate-income residents is correct. First, compare the average size of low- and moderate-

income households in your sample with the average size of above low- and moderate-income households. The closer these figures are to each other, the more confident you can be in your estimates. Thus, if you estimate that 53 percent of the residents are low- and moderate-incomes and you found in your sample that both low- and moderate-income families and above low- and moderate-income families had an average of 3.4 people, you can be pretty sure that it is a low- and moderate-income area.

A second simple calculation is to arrange your data into a table such as outlined below in Table D. This table enables you to compare the distribution of family sizes of families with low- and moderate-incomes with those that are above low- and moderate-income.

In completing Table D, you would count the number of low- and moderate-income families in your survey that had just one person in the household. You would enter this figure under “number” across from “one”. You would proceed to enter the number of low- and moderate-income families with two persons, with three persons, and so forth through the “nine or more” category. Adding up all the entries in this column, you enter the sum across from “total”, which will be the total number of low- and moderate-income families from which you obtained interviews. Then, considering families that are above low- and moderate-income, you follow the same procedures to complete the “number” column for them. For each income group, divide the number of one person families by the total number of families in that income group and multiply it by 100, yields the percent of that group that are in one-person households. You should fill in the “percent” columns, using this procedure. Each of the percent columns should total 100 or so allowing for rounding errors.

Table D
Table For Comparing The Distribution Of
Family Size by Family Income

Number of Persons In the Family	Families with LMI Incomes		Families Above	
	#	%	#	%
One				
Two				
Three				
Four				
Five				
Six				
Seven				
Eight				
Nine or More				
Totals	100%		100%	

When you have filled Table D with your data, compare the percentages of the low- and moderate-income respondents with the percentages of the above low- and moderate-income respondents for each family size. The closer the distribution, the greater the degree of confidence you can have in your estimate of the proportion of person with low- and moderate-incomes. For example, 40 percent have two persons, and 50 percent have three persons, and among your above low- and moderate-income group 13 percent have one person, 41 percent have two persons, and 47 percent have three persons, you would have a great deal of confidence in your estimates.

Consider a best-case scenario where you estimate that 51 percent of the residents have low- and moderate-incomes. You examine the distribution of household sizes according to Table D and find that in your sample 100 percent of your low- and moderate-income group had just one person and 100 percent of your above low- and moderate-income group had nine or more persons. (Yes, this would be a strange neighborhood.) This distribution would make it probable that your sample was badly distributed in favor of large above lower income families and that without the sample error the actual distribution in the target area is that more that 51 percent of the residents have low- and moderate-incomes.

Third, after completing data collection, non-respondents should be briefly analyzed to determine that they were reasonably random. For example, you may want to tabulate the rate of response by street or block in the target area to see whether there are notable gaps in coverage of your survey. You may want to examine the racial or ethnic background of your respondents and compare them with what you supposed the distribution to be. If you do not detect any major gaps in the coverage of your sample or any probable patterns in the characteristics of your non-respondents, you can be more certain of the accuracy of your estimates.

STEP 6. Documenting Your Efforts

The results of your survey will indicate to you with a high degree of accuracy whether your target area is predominantly low- and moderate-income. People who may be auditing or evaluating the program may want to review the procedures and data you used to determine that your target area qualifies under the CDBG program regulations. You should therefore maintain careful documentation of the survey. The contents of that documentation are discussed here.

1. Keep the completed surveys. This will show that you actually did the survey and that you asked the proper questions. It is best if each survey has a cover sheet that contains the information that identifies the respondent, such as name, address, and telephone number. Then, when the survey is completed, the cover sheets can be separated from the questionnaires. You can save the questionnaires

as documentation of your work, but you maintain the privacy of your respondents.

If you save the cover sheets and save them separately, this provides you with a record of who was contacted. If anyone wanted subsequently to verify that you had not made up that data, they could contact some of the respondents noted on the cover sheet and ask them whether, in fact, they had been contacted on such-and-such a date by such-and-such a person to discuss matters related to community development. The privacy of their original response still is protected by this procedure.

2. Keep a list of the universe of households you sampled from and a list of the actual households sampled. This might be one list with the sampled households being checked once if they were sampled, and checked twice if they were interviewed. Replacement households should be noted too. There should be some written documentation about the method you used to select households from the list for interviewing. Note that this is a little different from keeping just the cover sheets, since it documents not just who was interviewed, but also who was not interviewed and how interviewees were selected.

If you did a door-to-door sample without starting from a universe list, you should have written down the procedures you used to select the sample, including instructions to interviewers for replacing sampled households who were not interviewed.

3. To the extent possible, you should retain your data. If you put the data onto a computer, keep a floppy disk with the data and programs you used to tabulate the results. If you do your tabulations from spreadsheets, retain the spreadsheets. If you just leaf through the questionnaires and count up responses and enter them into a table as you go, keep the tables with the raw data counts.

Overview of Steps In A Sample Survey

Step 1: Selecting the Type of Survey

- a. Decide whether it is best to conduct a telephone, door-to-door, or other types of survey. Be sure to consider your available manpower, the size of the sample you need, and the means you have available for identifying households to interview.

Step 2: Developing a Questionnaire

- a. Write your questionnaire. Remember to keep the language as simple as possible. Avoid bias --- do not encourage particular answers. Include other questions, if you like, but make sure the survey does not take too long.
- b. Develop a standard introduction for your interviewers to use in approaching the respondents.

Step 3: Selecting the Sample

- a. Define your universe. What is the area or population for which you are trying to estimate the portion of persons who have low- and moderate-incomes.
- b. Identify a procedure for identifying individual households in the target area. Obtain a complete list of residents, addresses, telephone numbers, or identify a procedure for selecting from all of the homes in the area.
- c. Determine the number of interviews you need to achieve an acceptable level of accuracy.
- d. Select your sample (or sample selection procedure). Make sure you can add households to replace refusals. Make sure that the entire universe is covered --- that is, that you have not excluded certain areas or groups of people.

Step 4: Conducting the Survey

- a. Select and train your interviewers. Make sure they are very comfortable with the questionnaire. Make sure they know the importance of randomness and how to select and replace individual households.
- b. Make contact with the sample. Write or phone and let them know you are coming. Or just knock on doors, if this is the procedure you select.
- c. Try again (and again) where contact has not resulted in an interview.
- d. Replace households you have written off as "unreacheable".

Step 5: Determining the Results

- a. Complete the Low- And Moderate-Income Worksheet. What is your estimated percent low- and moderate-income residents? If your results are between 51 and 60 percent, do your data give you any reason to think that this is an over-estimation?

Step 6: Documenting Your Efforts

- a. Save the completed questionnaires --- preferably in a form that does not identify the respondents.
- b. Save a list of the respondents --- preferably in a form that does not identify their responses.
- c. Save a list of your sampling procedures --- this includes your universe list, your original sample, your replacements, your sampling method, and your replacement method.
- d. Save your data.

Appendix A

A Random Numbers Table

This appendix contains a four-page table of random numbers. It is just that --- each number there is random. You can use it going up, down, sideways, diagonally, and you can use any column or combination of the columns in drawing your random numbers. The following are some examples of how the enclosed table can be used.

Example 1: Drawing a Sample of 5 or 10.

Assume that you have a universe listing of 10 households and you want to draw a random sample of 5 households. Look at the next page. Look at the number "28" in the upper left hand corner. Let's start with the "01" and work down the column: the numbers we find are "1" "10", "5", "4" and "5". Since the number 5 has been used, continue down the column until you find a number below 11 that has not been previously used. So from the list of 10 households, the sample of five would include the first, tenth, fifty, fourth, and third household.

Example 2: Drawing a Sample of 5 of 100.

Start this time with the "48" in the lower left hand corner of the table. Let's work across the bottom row from here, and take the numbers "48", "33", "50", "83", and "53". From the list of 100 households, our sample would include the 48th, 33rd, 50th, 83rd and 53rd households on the list.

Example 3: Drawing a Sample of 5 of 30.

Start this time back in the upper left hand corner and start with the "28" and work across. The numbers in order are "28", "89", "65", "87" and "08". Notice that all of these numbers except for the 28 and 08 are greater than 30. Just skip them until you find a number in your range. Here you would sample the 28th and 08th household on your list and continue until you found three more (which would be the 13th, the 4th and the 23rd).

Appendix B

Discussion of Sample Sizes

Samples of the sizes suggested in Table B of this paper are intended to provide an estimate of the proportion of households that say they have low- and moderate-incomes that will be within ± 5 percent of the proportion that all households in the area would indicate if all were interviewed. Thus, if you interviewed 200 randomly selected households from a 350 household neighborhood and 70 percent indicated that they have low- and moderate-incomes you could reasonably infer that if you interviewed all 350 households that between 65 to 75 percent of the households would say that they had low- and moderate-incomes.

In the survey being discussed in this paper the confidence interval probably will be a little less than ± 5 percent. The method here is to estimate the proportion of people who are income eligible, not the proportion of households. Following the procedures outlined here will result in sampling a fraction of people that is approximately equal to the fraction of households that would be sampled by following Table B (number of people sampled/total number of people = number of households sampled/total number of households). Other things being equal, if you increase the size of the universe and maintain the same sampling fraction, your confidence interval decreases.

Of course, in this application, other things may not be equal. By sampling households as a cluster for gathering data on individuals, we are departing from a purely random selection of individuals. Thus, the actual confidence can be calculated only after the data actually are collected and the variance on household size and income are analyzed. The actual confidence interval should be a little less than ± 5 percent. But we also included an "analysis" section in the paper to help in determining the extent to which it may be less than ± 5 percent.

Random Number Table

28 89 65 87 08	13 50 63 04 23	25 47 57 91 13	52 62 24 19 94	91 67 48 57 10
30 29 43 65 42	78 66 28 55 80	47 46 41 90 08	55 98 78 10 70	49 92 05 12 07
95 74 62 60 53	51 57 32 22 27	12 72 72 27 77	44 67 32 23 13	67 95 07 76 30
01 85 54 98 86	66 86 65 64 60	56 59 75 36 75	46 44 33 63 71	54 50 06 44 75
10 91 46 96 86	19 83 52 47 53	65 00 51 93 51	30 80 05 19 29	56 23 27 19 03
05 33 18 08 51	51 78 57 26 17	34 87 96 23 95	89 99 93 39 79	11 28 94 15 52
04 43 13 37 00	79 68 96 26 60	70 39 83 66 56	62 03 55 86 57	77 55 33 62 02
05 85 40 25 24	73 52 93 70 50	48 21 47 74 63	17 27 27 51 26	35 96 29 00 45
84 90 90 65 77	63 99 25 69 02	09 04 03 35 78	19 79 95 07 21	02 84 48 51 97
28 55 53 09 48	86 28 30 02 35	71 30 32 06 47	93 74 21 86 33	49 90 21 69 74
89 83 40 69 80	97 96 47 59 97	56 33 24 87 36	17 18 16 90 46	75 27 28 52 13
73 20 96 05 68	93 41 69 96 07	97 50 81 79 59	42 37 13 81 83	82 42 85 04 31
10 89 07 76 21	40 24 74 36 42	40 33 04 46 24	35 63 02 31 61	34 59 43 36 96
91 50 27 78 37	06 06 16 25 98	17 78 80 36 85	26 41 77 63 37	71 63 94 94 33
03 45 44 66 88	97 81 26 03 89	39 46 67 21 17	98 10 39 33 15	61 63 00 25 92
89 41 58 91 63	65 99 59 97 84	90 14 79 61 55	56 16 88 87 60	32 15 99 67 43
13 43 00 97 26	16 91 21 32 41	60 22 66 72 17	31 85 33 69 07	68 49 20 43 29
71 71 00 51 72	62 03 89 26 32	35 27 99 18 25	78 12 03 09 70	50 93 19 35 56
19 28 15 00 41	92 27 73 40 38	37 11 05 75 16	98 81 99 37 29	92 20 32 39 67
56 38 30 92 30	45 51 94 69 04	00 84 14 36 37	95 66 39 01 09	21 68 40 95 79
39 27 52 89 11	00 81 06 28 48	12 08 05 75 26	56 16 88 87 60	13 81 20 67 58
73 13 28 58 01	05 06 42 24 07	60 60 29 99 93	31 85 33 69 07	25 76 01 54 03
81 60 84 51 57	12 68 46 55 89	60 09 71 87 89	78 12 03 09 70	83 79 68 20 66
05 62 98 07 85	07 79 26 69 61	67 85 72 37 41	98 81 99 37 29	61 58 87 08 05
62 97 16 29 18	52 16 16 23 56	62 85 80 97 63	32 25 34 03 36	48 84 60 37 65
31 13 63 21 08	16 01 92 58 21	48 79 74 73 72	08 64 80 91 38	07 28 66 61 59
97 38 35 34 19	89 84 05 34 47	88 09 31 54 88	97 96 86 01 69	46 13 95 65 96
32 11 78 33 82	51 99 98 44 39	12 75 10 60 36	80 66 39 94 97	42 36 31 16 59
81 99 13 37 05	08 12 60 39 23	61 73 84 89 18	26 02 04 37 95	96 18 69 06 30
45 74 00 03 05	69 99 47 26 52	48 06 30 00 18	03 30 28 55 59	66 10 71 44 05
11 84 13 69 01	88 91 28 79 50	71 42 14 96 55	98 59 96 01 36	88 77 90 45 59
14 66 12 87 22	59 45 27 08 51	85 64 23 85 41	64 72 08 59 44	67 98 56 65 56
40 25 67 87 82	84 27 17 30 37	48 69 49 02 58	98 02 50 58 11	95 39 06 35 63
44 48 97 49 43	65 45 53 41 07	14 83 46 74 11	76 66 63 60 08	90 54 33 65 84
41 94 54 06 57	48 28 01 83 84	09 11 21 91 73	97 28 44 74 06	22 30 95 69 72
07 12 15 58 84	93 18 31 83 45	54 52 62 29 91	53 58 54 66 05	47 19 63 92 75
64 27 90 43 52	18 26 32 96 83	50 58 45 27 57	14 96 39 64 85	73 87 96 76 23
80 71 86 41 03	45 62 63 40 88	35 69 34 10 94	32 22 52 04 74	69 63 21 83 41
27 06 08 09 92	26 22 59 28 27	38 58 22 14 79	24 32 12 38 42	33 56 90 92 57
54 68 97 20 54	33 26 74 03 30	74 22 19 13 48	30 28 01 92 49	58 61 52 27 03
02 92 65 68 99	05 53 15 26 70	04 69 22 64 07	04 73 25 74 82	78 35 22 21 88
83 52 57 78 62	98 61 70 48 22	68 50 64 55 75	42 70 32 09 60	58 70 61 43 97
82 82 76 31 33	85 13 41 38 10	16 47 61 43 77	83 27 19 70 41	34 78 77 60 25
38 61 34 09 49	04 41 66 09 76	20 50 73 40 95	24 77 95 73 20	47 42 80 61 03
01 01 11 88 38	03 10 16 82 84	39 58 20 12 39	82 77 02 18 88	33 11 49 15 16
21 66 14 38 28	54 08 18 07 04	92 17 63 36 75	33 14 11 11 78	97 30 53 62 38
32 29 30 69 59	68 50 33 31 47	15 64 88 75 27	04 51 41 61 96	86 62 93 66 71
04 59 21 65 59	39 90 89 86 77	46 86 86 88 86	50 09 13 24 91	54 80 67 78 66
38 64 50 07 36	56 50 45 94 25	48 28 48 30 51	60 73 73 03 87	68 47 37 10 84
48 33 50 83 53	59 77 64 59 90	58 92 62 50 18	93 09 45 89 06	13 26 98 86 29

