



Differences in Estimates of Food Stamp Program Participation Between Surveys and Administrative Records

June 2004

A Joint Project of:

U.S. Census Bureau: Cynthia Taeuber, Dean M. Resnick, and Susan P. Love

Jacob France Institute, University of Baltimore: Jane Staveley

U.S. Department of Agriculture, Economic Research Service: Parke Wilde

MD Dept. of Human Resources, Family Investment Administration: Richard Larson

Acknowledgements

This project was made possible through the partnering of four state and federal organizations. The Family Investment Administration of Maryland's Department of Human Resources provided the original impetus for the project, as well as the critical administrative data records and funding support for their staff's involvement. The U.S. Census Bureau's Planning, Research and Evaluation Division (PRED) integrated the survey and administrative information that allowed the extent and possible causes of the apparent underestimate of Food Stamp participation in the survey results to be investigated. The Census Bureau's Housing and Household Economic Statistics divisions and the Jacob France Institute of the University of Baltimore, along with PRED, provided the technical and subject-matter expertise in record linkage and survey methods, and shared the responsibility for producing the report. The Economic Research Service of the U.S. Department of Agriculture provided the funding for the project, as well as important guidance and advice on the analysis.¹

¹ Dr. Parke Wilde began this project while employed by the Economic Research Service of the U.S. Department of Agriculture. Dr. Wilde is now at the Friedman School of Nutrition Science and Policy, Tufts University.

Table of Contents

Executive Summary	iii
Background	1
How Planners use Statistics About Food Stamp Participants.....	2
The Research Plan.....	3
Purpose.....	3
Description of the American Community Survey and the 2001 Supplementary Survey	4
Description of the Maryland 2000/01 Food Stamp Study File.....	7
Methods.....	8
Results.....	12
Net Discrepancy: Unmatched Households, the Effect of Movers, and Adjustments for Match Quality.....	12
82 Percent of the Net Discrepancy Was Accounted For.....	12
Underreporting of Food Stamp Reciprocity	13
Additional Sources of Discrepancy	19
Data Collection and Weighting Factors.....	20
Possible Reasons for the Remaining Discrepancy.....	21
Conclusions and Recommendations	22
Options for Improving the Statistics.....	23
Suggestions for Further Research.....	23
Appendix A:.....	26
Review of Studies That Compare Results for Administrative Records and Surveys Regarding Participation in Public Assistance Programs.....	26
Appendix B:	29
Questions on Food Stamp Participation.....	29
Appendix C:	32
Data Elements in the Study From the Maryland Client Automated Resource and Eligibility System (CARES) File.....	33
Appendix D:.....	50
Confidentiality	50
Appendix E:	51
Definitional Differences in Living Arrangements - Situations Coded as Group Quarters or as Households for This Study.....	51
Appendix F:.....	54
Matching Procedures	54
Appendix G:.....	58
Bibliography	58

List of Tables

Table 1. Accounting of Differences between Food Stamp Reciprocity as Determined by Maryland Administrative Records and by the Census Bureau's 2001 Supplementary Survey (SS01) Fully Weighted Estimates for Maryland	10
Table 2. Number of Months Households Received Food Stamps by Whether the Survey Correctly or Incorrectly Reported or Imputed Reciprocity	15
Table 3. Number of Months Since Households Last Received Food Stamps by Whether the Survey Correctly or Incorrectly Reported or Imputed Reciprocity	18
Table 4. Distribution of Number and Relationship of People in Matched SS01 Households.....	20

List of Figures

Figure 1. Sources of Differences Between SS01 and MD 2000/01 Food Stamp File	iv
Figure 2. Definition of the Maryland 2000/01 Food Stamp File Universe.....	11
Figure 3. Number of Months Households Received Food Stamps by Their Survey Response	14
Figure 4. Number of Months Since Households Last Received Food Stamps by their Survey Response.....	17
Figure 5. Relationship Between Food Stamp Assistance Units and SS01 Households...	20

Executive Summary

The Food Stamp program is a large public benefits program with 8.2 million households participating nationwide in Fiscal Year 2002. The program is designed to increase the food purchasing power of eligible, low-income households. To help in the administration of the program, and to measure the performance of states in meeting program objectives, the U.S. Department of Agriculture (USDA) uses national survey statistics. States, on the other hand, use statistics they generate from their program records. This report examines differences in the results of the two data sets and provides reasons for much of the difference.

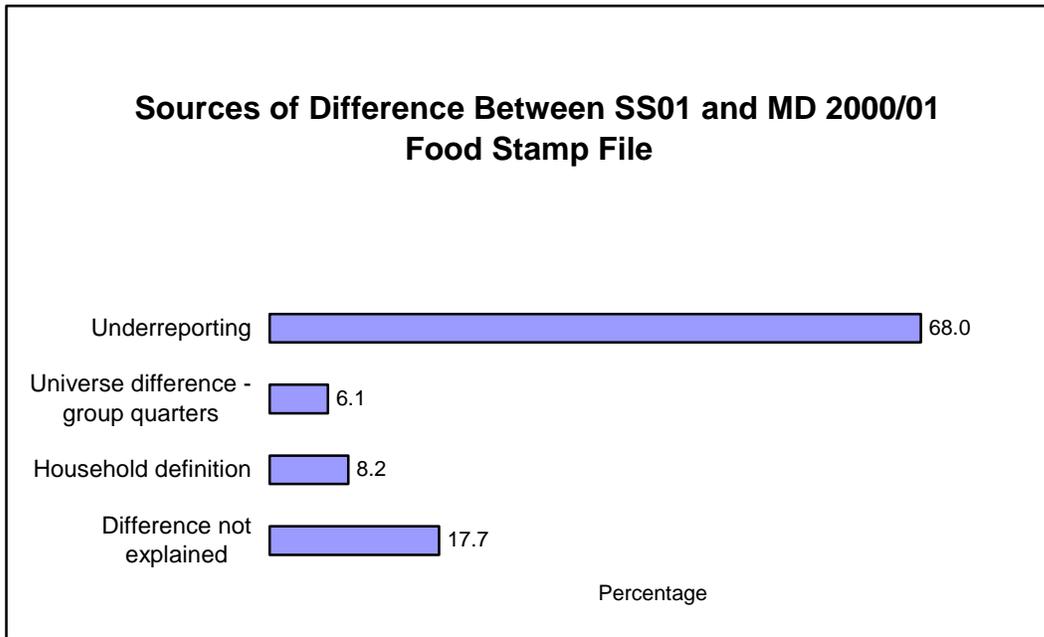
The national 2001 Supplementary Survey (SS01), conducted by the Census Bureau using the same methods developed for the American Community Survey (ACS), had a question that asked survey households whether they had received Food Stamp benefits at any time in the 12 months before responding to the survey. Using the responses to this question, the Census Bureau estimated the number of households that were participating in this program at some time during the 12 months preceding the survey interview. When the SS01 Food Stamp estimates of participating Maryland households were compared with a similarly defined count of households that participated in the State of Maryland's Food Stamp program according to the state's administrative records, the survey estimates were found to be a good deal lower.

This investigation was undertaken to determine and estimate the effect of the various factors causing this understatement. This will, in turn, help clarify the limitations of surveys for estimating program participation. The SS01 responses were matched with records of individuals who participated in the Maryland Food Stamp program. The results from matching at the individual level were used to generate results at the household level, as the SS01 produced estimates of households participating in the Food Stamp program.

The sources of the difference that could be identified are summarized in Figure 1 and detailed in Table 1. About 82 percent of the net discrepancy between the two data sets was accounted for.

The largest factor responsible for the observed discrepancy in reciprocity is the misreporting that no one in the survey household received Food Stamps during the survey question's reference period when, in fact, Maryland issued benefits to someone in the household. The failure to report reciprocity accounted for 68 percent of the total survey underestimate of Maryland recipients. Not surprisingly, the lowest level of underreporting occurred for households that received Food Stamps during the entire survey reference period (Figure 3). Underreporting occurred most often for households that had received Food Stamps in only one month during the reference period (Figure 4).

Figure 1. Sources of Differences Between SS01 and MD 2000/01 Food Stamp File



Source: U.S. Census Bureau, Tabulations of the 2001 Supplementary Survey and the Maryland 2000/01 Food Stamp File.

Other factors in the difference between the two data sets are shown in Table 1. They include not being able to account for all households that move in and out of the state, definitional differences between the data sets as to what constitutes a “household,” and differences between the universes covered by the survey and the administrative records. Universe differences for this study refers to the fact that people living in some types of group quarters are eligible to receive Food Stamp benefits and are included in the state counts but were not included in the SS01 estimates because group quarters residents were not surveyed. The group quarters population is scheduled to be included in the American Community Survey with the release of the survey data for 2005. Currently, U.S. Department of Agriculture’s Food and Nutrition Service uses the results from the Current Population Survey (CPS) for program performance comparisons. The CPS estimates represent the total civilian noninstitutional population, which includes relevant portions of the group quarters population, but its sample is much smaller than that planned for the American Community Survey (ACS). The SS01 sample used to conduct the Maryland Food Stamp matching research study, although not as large as the future ACS, is also considerably larger than the CPS and provided a much larger data set with which to work. It is likely that a good part of the remaining discrepancy of an estimated 13,282 units can be attributed to a combination of factors related to survey coverage and a highly mobile target population. The precise contributions of these possible factors were not estimated. This report also discusses options for improving the quality of the statistics and suggestions for further research.

Background

The Food Stamp program is the nation's largest nutrition intervention with 8.2 million households participating nationwide in Fiscal Year 2002. The program is designed to increase the food purchasing power of eligible, low-income households. The two most important data sources for research related to the program and for planning come from administrative data from program records and from major national surveys conducted by the Census Bureau and other statistical agencies.² Previous research found that statistics on program participation differ greatly between these two types of sources.³

Appendix A has reviews of previous studies that investigated the differences in the results for Food Stamp participation between survey statistics and administrative records from the Food Stamp programs in states. One study is of the State of Maryland's program. Another looks at differences in California for other public assistance programs: Aid to Families with Dependent Children/Temporary Assistance for Needy Families (AFDC/TANF); Supplemental Security Income (SSI); and, Medicaid. All show large differences between counts based on administrative records and estimates based on the surveys in the respective studies.

Previous research showed important differences in levels of participation in the Food Stamp program. It is valuable to understand why there are differences between statistics based on administrative records and the survey statistics because the survey statistics are used to make policy choices and give out performance awards. To investigate the reasons for the differences in the results for the Maryland Food Stamp program, the Economic Research Service of the U.S. Department of Agriculture, the Census Bureau, the Maryland Department of Human Resources (DHR), and the Jacob France Institute of the University of Baltimore collaborated on a research project. The results of this collaboration follow.

² The Current Population Survey's Food Security Supplement, the Consumer Expenditure Survey, and the American Community Survey all ask about participation in the Food Stamp program in the 12 months before responding to the survey. The Annual Social and Economic Supplement of the Current Population Survey, the Survey of Poverty Dynamics, and the National Health Interview Survey ask about program participation in a specific year. The Survey of Income and Program Participation (SIPP) asks about the four months before responding to the survey. The National Long-Term Care Survey and the Consumer Expenditure Survey ask about the month before responding to the survey. The Survey of Inmates of Local Jails asks about "within the last year while you were free."

³ Cynthia Taeuber, Jane Staveley, and Richard Larson, "Issues in Comparisons of Food Stamp Recipients: Caseloads From Maryland State Administrative Records and the Census 2000 Supplementary Survey," presented at the National Association for Welfare Research and Statistics, July 2003, available on website (<http://www.ubalt.edu/jfi/jfc/publications.htm>). Karen Cunyngnam, "Trends in Food Stamp Program Participation Rates: 1999 to 2001," Mathematica Policy Research, Inc., Final Report to U.S. Department of Agriculture (July 2003). Another study looks at differences in participation in other public assistance programs in California: Jon Stiles, Anita Mathur, Henry Brady, "Using Administrative and Survey Data to Assess Public Assistance Participation of California Household," unpublished University of California, Berkeley, Data Archive and Technical Assistance (November 4, 2003).

How Planners use Statistics About Food Stamp Participants

The U.S. Department of Agriculture (USDA) depends on major national surveys for information about Food Stamp Program participation dynamics and program impacts. For this reason, underreporting of program participation in these surveys could present a serious problem. In the area of program participation dynamics, these surveys have been used to study factors that influence the take-up decision of eligible potential program participants. The surveys also have been used to study the impact of the Food Stamp Program on consumer expenditures, food intake, and food security. In the area of program evaluation, third parties use these surveys to evaluate the performance of agencies administering the Food Stamp Program.

It may appear surprising that analysis and policy decisions rely on self-reported program participation, because it would seem that more precise information is available from official sources. USDA certainly knows how many people participate in the Food Stamp Program (see program participation counts) from an administrative reporting system that requires states to periodically report how many people and households were served.⁴ The USDA knows much about the characteristics of program participants (see the report series on characteristics of Food Stamp participants).⁵ Information about participant characteristics comes from a large sample of about 50,000 households each year that draws on information collected from administrative files and other sources for quality control. The problem with using administrative records rather than surveys is that these information sources cannot be linked to important determinants of participation dynamics or to key program outcomes. Understanding program impacts, or factors that influence the decision to participate in a program (“take-up” decisions), requires the characteristics of participants and nonparticipants that are available in survey data.

The Maryland Department of Human Resources uses survey data from the Census Bureau to assist in the administration of Maryland’s Family Investment Administration (FIA) programs in several ways. Maryland competes each year for a High Performance Bonus in both the Temporary Assistance to Needy Families with Children (TANF) and the Food Stamp Programs. The U.S. Department of Health and Human Services calculates a Food Stamp program participation rate based on surveys from the Census Bureau for the TANF High Performance Bonus. The U.S. Department of Agriculture (USDA) uses survey data from the Census Bureau and from state administrative records to calculate a Food Stamp participant access rate. The USDA uses the access rate to assess high performing states competing for the Department’s High Performance Bonus. Discrepancies between administrative data and survey data, particularly if they vary by state, can lead to an unlevel playing field among states when competing for bonuses.

Maryland’s FIA uses survey and administrative data from state and federal sources to develop strategies and policies designed to increase independence from government

⁴ USDA, Food and Nutrition Service, “Food Stamps: Average Monthly Participation (Households)”: <http://www.fns.usda.gov/pd/fspmmain.htm>

⁵ U.S. Department of Agriculture, Food and Nutrition Service, Office of Analysis, Nutrition and Evaluation, *Characteristics of Food Stamp Households: Fiscal Year 2001*, FSP-03-CHAR, by Randy Rosso. Project Officer, Jenny Genser. Alexandria, VA: 2003.

benefit programs among all of its residents. Understanding the reasons for the disparities between state administrative data and survey data will improve FIA's ability to develop appropriate policies and strategies. Additionally, local and national studies, such as the Annie E. Casey's Foundation "Kids Count" report series use survey data to influence the public and legislative perception of FIA's performance.⁶ A well-researched understanding of the discrepancies between the state administrative data and the survey data from the Census Bureau will allow a more accurate perception of FIA's performance.

The Maryland Food Stamp records list and describe monthly every household that actually receives a benefit, so it is treated as the standard for comparison with the survey estimates. Of course, administrative records have their own sources of error, such as misreporting of Social Security numbers (SSNs).

The Research Plan

Purpose

Because other studies concerned with the Food Stamp program participation used published statistics only, they could not determine the reasons for the differences between survey estimates and administrative record counts. To discover these reasons, this study makes use of a match of administrative records to survey response records. This match allows the sources of the discrepancy to be pinpointed and the exact contribution of these sources to the size of the discrepancy to be measured. This study answers these questions:

- By how much does the Census Bureau's 2001 Supplementary Survey (SS01) report fewer participant households than administrative records show for Maryland's Food Stamp program?
- What factors explain differences between the two types of data sets? For example:
 - What is the level of misreporting by survey households on whether the household received benefits, and what factors appear to play a part?
 - Are survey sampling procedures, nonresponse patterns, and weighting factors associated with underrepresentation of households that are most likely to participate in these programs? What is the effect of data collection methods on the results?
 - Are there significant conceptual and definitional differences between the data sets, such as the relationship between a "household" in the SS01 and an "assistance unit" eligible for Food Stamps and appearing in the Maryland 2000/01 Food Stamp file? By definition, there can be only one "household" residing in a survey's sample housing unit, while there can be more than one "assistance unit" within a survey household.
 - What is the impact of coverage differences between surveys and Food Stamp programs, such as the population living in group quarters?

⁶ Annie E. Casey Foundation, see website (<http://www.aecf.org/kidscount/databook/>).

- What is the effect of Food Stamp recipients moving into and out of the state within a calendar year on the survey's results?

Description of the American Community Survey and the 2001 Supplementary Survey

This study compares responses to the 2001 Supplementary Survey (SS01) for households interviewed in Maryland during the calendar year 2001 with administrative records for the Maryland Food Stamp Program. The SS01 used the same data collection methods as the Census Bureau's new American Community Survey. Both are described below:

American Community Survey

The American Community Survey is a nationwide survey designed to provide communities with current data showing how they are changing. It is a critical element in the Census Bureau's reengineered 2010 census.

The traditional decennial censuses have had two parts:

- 1) The count of the total U.S. population and housing and the collection of the basic demographic characteristics; and
- 2) A survey taken of a sample of about one in six U.S. housing units about which detailed demographic, housing, social, and economic information are collected.⁷

Federal agencies use information from the census long form to administer federal programs and to distribute billions of federal dollars. Since the decennial census is conducted only once every ten years, the census long-form sample information is out of date for many areas of the country by mid-decade. The American Community Survey is designed to be a continuous survey and will produce state and community statistics that are updated every year instead of only once in ten years. The information it provides is intended to replace the data collected using the census long form samples beginning with the 2010 census.

Full implementation of the American Community Survey includes yearly independent samples of three million addresses spread over 12 months of the year. Beginning with the 2005 survey, all residential addresses in every county will have a chance of being surveyed. At this time, plans are also in place to introduce samples of the group quarters population into the survey.

In the ACS, sampled housing units are surveyed first by mail. Census Bureau staff attempt to contact by telephone those from which mail responses are not received. Personal visits are conducted for one in three of the remaining nonresponding sample units. When fully implemented, the American Community Survey will provide detailed estimates of social, economic, and housing characteristics for demographic groups that

⁷ The data for this survey are collected on what is called the census long form. For housing units in the census sample, the long form replaces the standard census short form as the data collection instrument; it collects both the basic demographic data and the more detailed information not contained on the short form.

are updated every year for all states, as well as for all cities, counties, metropolitan areas, and population groups of 65,000 people or more. For less populated areas, it will take three to five years to accumulate sufficient sample to produce data for areas as small as census tracts. For example, areas of 20,000 to 64,999 will have data averaged over three years. For rural areas and city neighborhoods or population groups of less than 20,000 people, it will take five years to accumulate a sample that is similar to that of the decennial census. These averages will be updated every year. After five years of data accumulation, the ACS will be able to measure changes over time for small areas and population groups.

The American Community Survey is conducted under the authority of Title 13, United States Code, Sections 141 and 193, and the Census Bureau may use this information only for statistical purposes. Title 13 requires that the Census Bureau keep all information about respondents strictly confidential. Any Census Bureau employee who violates these provisions is subject to a fine of up to \$250,000 or a prison sentence of up to five years, or both (Appendix D).

For more information about the American Community Survey design and products, see: <http://www.census.gov/acs/www>. For information about the accuracy of the statistics, evaluation studies, quality measures, and the field collection methods, see: <http://www.census.gov/acs/www/AdvMeth/index.htm>

2001 Supplementary Survey (C2SS)

The Census 2000 Supplementary Survey (C2SS), the first of several large national surveys to use the methods developed for the American Community Survey, was designed to demonstrate the feasibility of collecting long form-type information at the same time but separately from the decennial census. The Supplementary Surveys conducted in 2001 and 2002, and the national American Community Survey samples from which the long-form content was collected in 2003 and 2004, provide a bridge of information to a fully-implemented American Community Survey in 2005. The Census Bureau plans in 2010 to replace the decennial long form data collection with data from the American Community Survey, pending Congressional funding.

Statistics from the Supplementary Surveys are available on the Census Bureau's website for areas with populations of 250,000 or more. Once the American Community Survey is fully implemented, updated statistics will eventually be available for smaller geographic areas such as census tracts and rural areas.

The Supplementary Surveys used the American Community Survey questionnaire and methods to collect the detailed social, economic, and housing data from yearly samples of over 800,000 addresses nationwide. The SS01 collected data for about 10,500 households in Maryland. In contrast, the national CPS sample size for the Annual Social and Economic Supplement in 2001 was nearly 99,000 addresses with less than 1,300 interviews conducted with Maryland households.

The very large sample sizes of the Supplementary Surveys, and the fact that they asked each household in the survey about Food Stamp reciprocity, made them the preferred choice for a matching study that compared survey responses with actual administrative

records of reciprocity. This study matched the SS01 household records for Maryland to the assistance units on the Maryland Client Automated Resource and Eligibility System (CARES) file that received Food Stamps within the time frame covered by the SS01 question. The CARES file is described below.

The group quarters population was *not* included in the SS01. This is an obvious source of difference between counts and estimates made from the two data sets because people living in certain types of group quarters can receive Food Stamps, particularly people who typically sleep in shelters for the homeless. This complicates determination of the difference in the universes between the two data sets as people could have lived in housing units at the time of the SS01 survey in a group quarters environment when they received Food Stamps (e.g., they could have been in a shelter for the homeless). Over 6,900 assistance units living in group quarters and receiving Food Stamps during the study reference period were not considered in this comparison since they were not part of the SS01 universe (Table 1). Under the full implementation of the American Community Survey starting in 2005, the group quarters population is scheduled to be represented in the survey and will no longer be a source of difference in the universes of American Community Survey and Food Stamp benefit administrative records.

Food Stamp question in the 2001 Supplementary Survey

The question on Food Stamps in the SS01 asked whether anyone in the household received Food Stamps in the 12 months prior to responding to the survey (see Appendix B). When a positive response to the reciprocity question was given, the survey did not ask who within the household was eligible for Food Stamps. Therefore, it is known only that the survey respondent reported that one or more of the household members at the time of the survey received Food Stamps in the 12 months prior to the interview. From the survey question alone it is not known if the household received the Food Stamps in calendar year 2000 or 2001, the length of time they received the benefit, or whether they received the benefits from Maryland or from other state factors investigated in this study.

The design of the ACS and the reference period of its Food Stamp question does not produce a simple result that can be directly translated into an estimate of benefit recipients for a particular state. Because the survey question asks whether Food Stamps were received “at any time during the past 12 months,” interpreting the comparison of the survey’s reciprocity estimate to a state’s administrative records is complicated.

Many people move into and out of states over a 12-month period. Additionally, because in each month of the year a new sample of households is interviewed, responses to the survey’s Food Stamp question actually cover a 2-year period. As a result, the SS01 reciprocity estimate for Maryland is not an estimate of the number of households claiming receipt of Food Stamps from Maryland in 2001. The survey’s estimate is actually of households in Maryland during 2001 who reported that someone in the household had received Food Stamps at some time during the 12 months prior to the survey interview. This is quite different from the universe represented on a state’s Food Stamp file, and is why it was necessary to create a similar universe of Maryland Food Stamp records for this research study.

Adding to this complication is the ambiguity of the time reference “at any time during the past 12 months” used by the survey question. There is no way to know how

respondents interpreted the question's time reference. If filling out the SS01 form on February 20, 2001, for example, a respondent could reasonably assume that the Census Bureau wanted the answer to cover: (a) February 20, 2000 to February 19, 2001; (b) February 1, 2000 to January 31, 2001, or even (c) the calendar year, January 1, 2000 to December 31, 2000.

Food Stamp question in the Current Population Survey

In contrast with the SS01, the Annual Social and Economic Supplement of the Current Population Survey (CPS), also a household survey, includes questions about Food Stamp reciprocity *in a specified year* for anyone in the household, the number of children covered by the program, the number of months in the year that Food Stamps were received, and the value of the Food Stamps in that year. The questions are shown in Appendix B. The CPS sample size, however, is too small to produce reliable state-level estimates for every state, unless several years are averaged.

Description of the Maryland 2000/01 Food Stamp Study File

The administrative data used in this study are from Maryland's Client Automated Resource and Eligibility System (CARES).⁸ This system has been fully operational in all Maryland jurisdictions since April 1998. It is used to collect data for determining eligibility for Maryland's public assistance programs, including Food Stamps and Temporary Cash Assistance (Maryland's TANF program), and to generate the correct benefits for each case.

The data are collected by the local departments of social services during the intake process, where applicants are asked to respond to a series of questions related to eligibility determination, including the family's resources, monthly income, and number of dependent children. Some demographic information is also collected, but information that is not required for determining eligibility may be incomplete. Each individual is assigned an individual record number (IRN) upon entering the system.

All Maryland Food Stamp recipients are included in the CARES file, and they may live in group quarters such as shelters for the homeless as well as in households. Recipients must reside in Maryland. The receipt of benefits from another state by those who move are not recorded in Maryland's CARES file because they are no longer eligible. The CARES file contains information only on participants in Maryland's social service programs; it does not contain information on the general population, other low-income groups, or at-risk populations.

The eligible group for Food Stamp purposes is the "Food Stamp household,"⁹ which is one person or a group of people "who live together and customarily purchase food and

⁸ Individual records in the Maryland CARES file are confidential and access to these records is highly restricted. See Appendix D. Aggregate data, including counts of the number of participants in Maryland's public assistance programs and program expenditures, are published in monthly statistical reports.

⁹ The Maryland DHR refers to an eligible group as a "Food Stamp household." Once participation in the program is approved, the household is then referred to as an "assistance unit," the designation we use throughout this paper.

prepare meals together for home consumption.”¹⁰ But spouses, as well as parents and their children under 22 years of age, are always included in the same household. When a Food Stamp household is approved for benefits, it is assigned an assistance unit number and the amount of the monthly benefit is calculated based on the size of the assistance unit, as well as household income and allowable deductions. The amount of the benefit is recorded in CARES for each month that a benefit is received by the assistance unit.

This study is confined to assistance units from the CARES file that received Food Stamps. The records used for this study are referred to here as the “Maryland 2000/01 Food Stamp” file. The SS01 respondent records were not matched against the records for assistance units in the CARES file that did not receive Food Stamps. The variables that were available from the Maryland 2000/01 Food Stamp file for this study are listed in Appendix C.

Methods

This project used the matching system developed by the Census Bureau’s Planning, Research and Evaluation Division (PRED). This system uses probabilistic matching to assign a Protected Identity Key (PIK), which acts as a proxy for Social Security Number, to survey or administrative records. The PIK number is then used to link records between data sets. PIKs were assigned to the people interviewed in the SS01 and to people who were members of Food Stamp assistance units on the Maryland CARES file. The linking of people in both data sets allowed the study of the type of misreporting and underreporting factors that arose in the SS01, factors that will most likely affect a fully implemented American Community Survey and other surveys that ask a similar question on participation in the Food Stamp program.

Steps in the evaluation

To evaluate the SS01 estimate of Food Stamp reciprocity in Maryland, a comparable number from the Maryland 2000/01 Food Stamp file was computed by tallying the number of assistance units receiving Food Stamps during the month of the SS01 interview or any of the preceding 12 months, a time frame corresponding to the reference period for the survey’s interviews and its Food Stamp question. From this file, the average number of Maryland assistance units receiving benefits at some time during the question’s reference period was calculated to be 157,857 (see Table 1). This number provides the starting point for the study’s analysis and a basis for the overall comparison between the state’s administrative records and the survey’s responses. The published SS01 estimate was an average 87,429 households, with a 90-percent confidence interval of 78,217 to 96,641.¹¹ The summary of this study’s attempt to account for the difference of 70,428 in these two numbers appears in Table 1. The adjustments are discussed in the Results section of this report. Based on the fully weighted results of matching the SS01 Maryland households to the special Food Stamp file, it was found that if all matched survey households had correctly reported their reciprocity, the survey estimate of

¹⁰ Annotated Code of Maryland, Article 88A, sections 88 and 89, Title 07 Department of Human Resources, Subtitle 03, Family Investment Administration, Chapter 17 (Food Stamp Program), .03A(3); and DHR/FIA Case Worker Food Stamp Manual (rev. January 2002), Section 100.2B.

¹¹ U.S. Census Bureau, 2001 Supplementary Survey, Table P094.

reciency would have been 124,934. This matched set of households was used to study the influence of the duration of the receipt of the benefit and the length of time since the last benefit was received on underreporting.

Table 1. Accounting of Differences between Food Stamp Reciprocity as Determined by Maryland Administrative Records and by the Census Bureau's 2001 Supplementary Survey (SS01) Fully Weighted Estimates for Maryland

CALCULATION OF APPARENT UNDERREPORTING		Percent
MD 2000/01 Food Stamp File: average number of MD assistance units receiving Food Stamps in a 13-month period as defined	157,857	100.0
SS01: published estimate of MD households who received Food Stamps in the 12-month period prior to being interviewed	87,429 ¹²	55.4
Apparent survey underreporting: difference between MD 2000/01 Food Stamp file average number of assistance units and SS01 MD estimate of households receiving Food Stamps	70,428	44.6
ADJUSTMENTS TO APPARENT UNDERREPORTING:		
Possible survey overreporting: estimated number of MD households that reported receipt of Food Stamps in SS01 but could not be matched to any assistance units in the MD 2000/01 Food Stamp file [added to apparent underreporting]	11,331	(X)
Moved out of state: assistance units that received MD Food Stamps in the 2000/01 period but were interviewed in the SS01 in a state other than MD [subtracted from apparent underreporting]	2,703	(X)
Adjustments for match quality: estimate of SS01 households that should have been matched but were not [subtracted from apparent underreporting]	4,147	(X)
Net discrepancy between data sets (denominator for the source of difference rates)	74,909	100.0
SOURCES OF DIFFERENCE:		
Underreporting: SS01 households reporting no receipt of Food Stamps but matched to MD 2000/01 Food Stamp file	50,939	68.0
Universe differences - group quarters population: Assistance units in MD 2000/01 Food Stamp file removed from consideration because they are not part of the SS01 universe	4,554	6.1
Household/Assistance Unit definitional differences: Estimated total MD 2000/01 Food Stamp additional assistance units that match to the same SS01 household	6,134 ¹³	8.2
Apparent difference we could measure	61,627	82.3
Remaining difference not explained	13,282	17.7

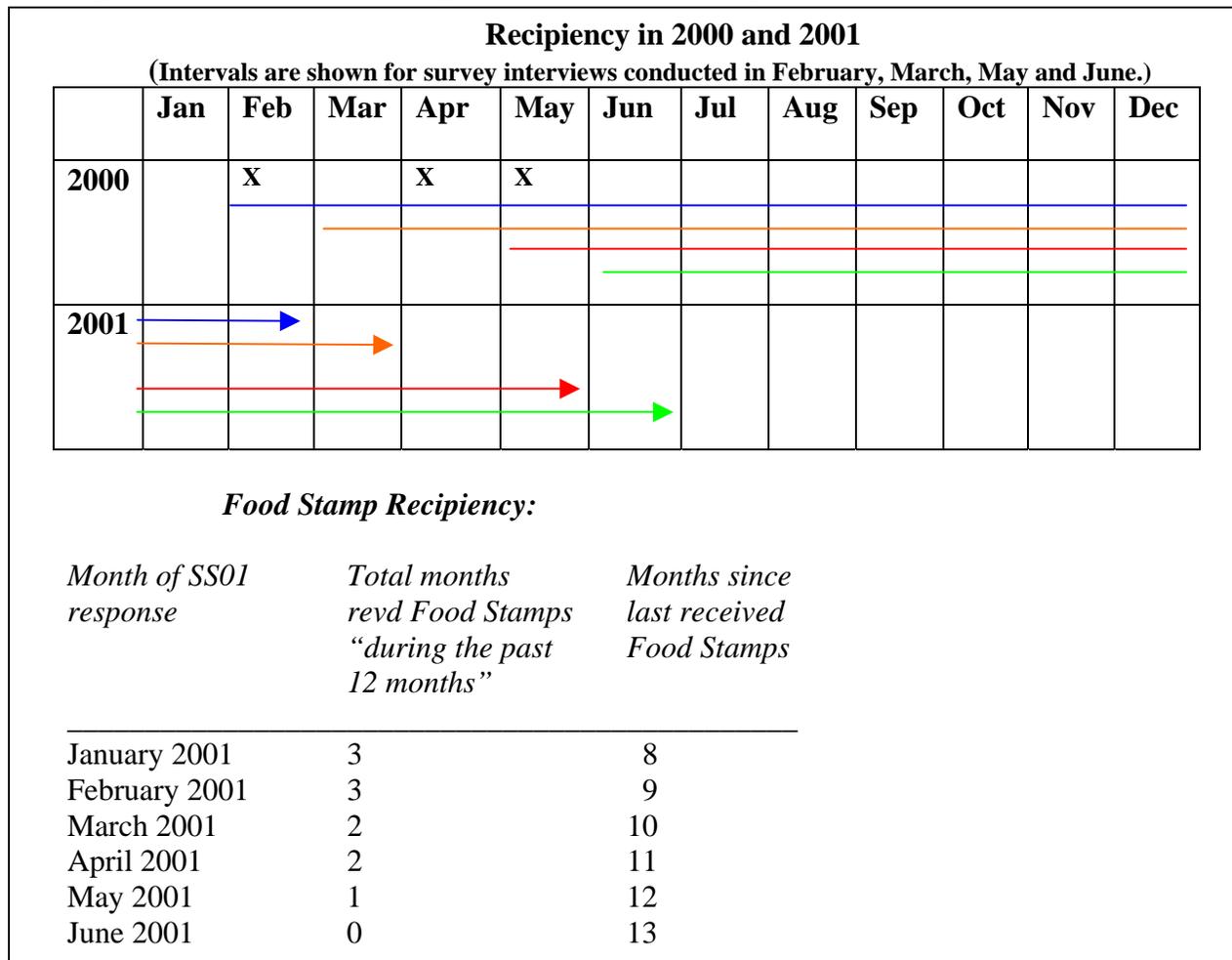
Source: U.S. Census Bureau, tabulations of the 2001 Supplementary Survey and the special Maryland 2000/01 Food Stamp File defined for this study.

¹² U.S. Census Bureau, SS01, Table P094. The 90-percent confidence interval for this estimate is 78,217 to 96,641, or $\pm 9,212$ households.

¹³ The 90-percent confidence interval for this estimate is 3,287 to 8,980, or $\pm 2,847$ assistance units.

Figure 2 illustrates how the universe for the special Maryland 2000/01 Food Stamp file was determined. To calculate the comparison average of 157,857 Maryland assistance units receiving Food Stamps, for each of the 12 possible 13-month intervals ending in 2001, the number of assistance units for which at least one member had received Food Stamps for at least one month during the interval was averaged. Arrows extending through contiguous months show 13-month intervals. Figure 2 also illustrates how the number of months of Food Stamp receipt and the length of time since the benefit was last received were determined for SS01 households matched to the Food Stamp file, two factors investigated in this study. An “X” indicates the receipt of a benefit in the figure. . The first example listed below the illustration shows that a matched SS01 household interviewed in January 2001 received Food Stamps for three months (Feb, April, and May) and that the benefit had not been received for eight months at the time the survey interview was conducted. Examples are also shown for a matched SS01 household interviewed in the months of February, March, April, May, and June. Given the example of benefit receipt shown in Figure 2, SS01 households that were interviewed in July through December 2001 would not have been included in the study because Food Stamps were received outside of the time frame defined by the survey’s question.

Figure 2. Definition of the Maryland 2000/01 Food Stamp File Universe



Results

Net Discrepancy: Unmatched Households, the Effect of Movers, and Adjustments for Match Quality

According to the Maryland 2000/01 Food Stamp file, there was an average over all 13-month intervals ending in 2001 of 157,857 assistance units receiving Food Stamps for at least 1 month during a given interval (Table 1). The published SS01 estimate was an annual average of 87,429 households reporting the receipt of Food Stamps, only about half the number derived from the comparable administrative records file. On the surface, this indicates an apparent underreporting by the survey of 70,428 households receiving Food Stamps in Maryland.

This apparent difference widens when an adjustment is made for the 11,331 households interviewed in Maryland that responded in the survey that they had received Food Stamps during the 13-month period but for whom no record was found in the Maryland Food Stamp file. This apparent overreporting of recipient households by the survey must be added to the discrepancy since it is not reflected in the Maryland file.

Two additional factors narrow the difference. First, there were 2,703 assistance units that were found to have received Food Stamps in Maryland during the study's time frame according to the Maryland 2000/01 Food Stamp file but were matched to households interviewed for SS01 in a state other than Maryland. This out-of-state survey interviewing could be determined because all SS01 households had been processed through the PRED Validation System (PVS), not just those interviewed at Maryland sample addresses (see Appendix F). Since these matched units did not contribute to the Maryland SS01 estimate, they were removed from the discrepancy count.

Second, adjustments for match quality and completeness reduced the difference by 4,147 assistance units. We matched individual people on the survey response file and the Food Stamp file were matched. For the purposes of this study, a match of one person between the two files established a link between the person's survey household and the person's benefit assistance unit. Because only one individual match is required to establish an assistance unit-household match, the individual or person level match rate translates only indirectly into an appropriate measure of matching completeness for this study. We used several methods to assess the quality of the matching and estimate that we were able to find about 93 percent of file-to-file person matches and about 95 percent of assistance unit-to-household matches. A complete description of the matching procedures and the way matching quality for this study was determined are described in Appendix F.

As a result of these three adjustments to the overall difference between the Maryland 2000/01 Food Stamp accounting and the SS01 estimate for Maryland, the net discrepancy between the two data sets is estimated to be 74,909 assistance units.

82 Percent of the Net Discrepancy Was Accounted For

Based on the analysis, 82.3 percent of the net discrepancy could be attributed to three factors: respondents reporting in the survey that they did not receive Food Stamps when,

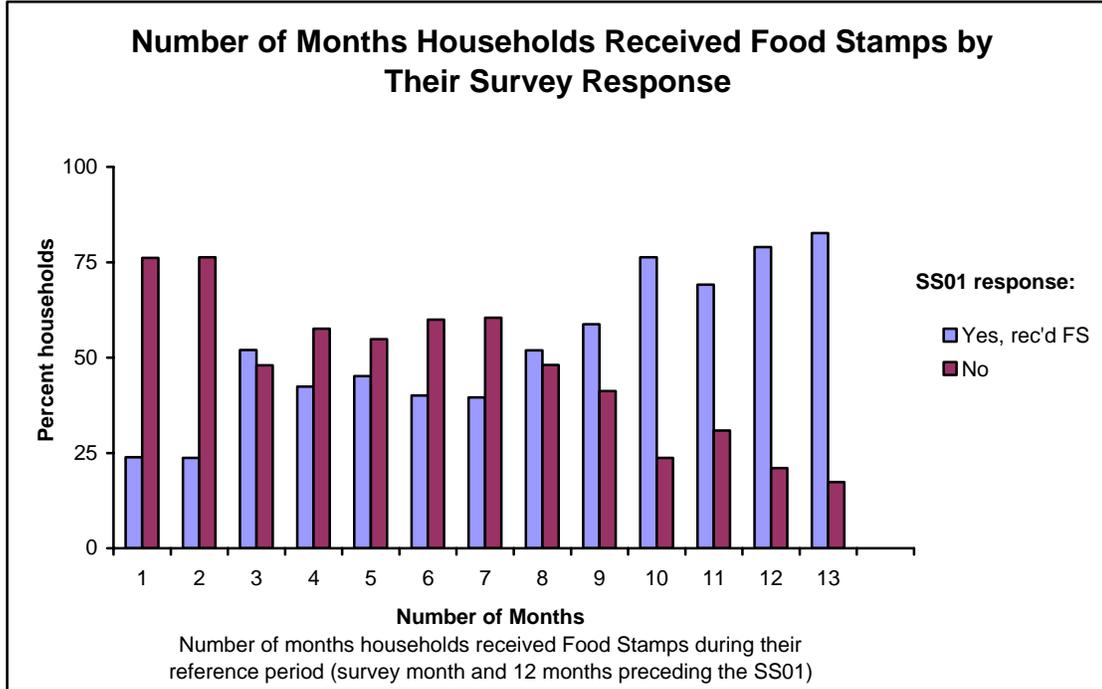
in fact, they did (68.0 percent); universe differences between the survey and the Food Stamp program because of group quarters (6.1 percent), and definitional differences between survey households and Food Stamp assistance units (8.2 percent). No evidence was found that the survey's weighting procedures or the data collection methods were responsible for the discrepancy. It is likely that a good part of the remaining discrepancy of an estimated 13,282 units can be attributed to a combination of factors related to survey coverage and a highly mobile target population. The precise contributions of these possible factors were not estimated. Those factors, whose contributions to the net discrepancy were estimated, are shown in Table 1 and are described in more detail in the sections that follow.

Underreporting of Food Stamp Recipiency

The largest source of discrepancy was households that had received Food Stamps reporting that they had not. It was estimated that this underreporting accounted for 68.0 percent of the net discrepancy. The households that did not report the benefit receipt can be identified directly from the match of administrative and survey records. Of all the households that had at least one member who received Food Stamps in the 12 months prior to the survey month, 37.9 percent reported that they had not received them.

Further research was conducted to better understand factors related to underreporting. Tables 2 and 3 decompose the response rates. Table 2 and Figure 3 look at the total number of months a matched survey household received Food Stamps in the reference period according to the Maryland 2000/01 Food Stamp file. Each of the 13 months of an SS01 household's reference period were reviewed to obtain the total number of months that the household received Food Stamps, from the month they were surveyed through the preceding 12 months. Figure 3 illustrates the percent agreement (Yes, received Food Stamps) and disagreement (No, did not receive Food Stamps) of the responses of the matched survey households with the Maryland benefit records, by the number of months that the benefits were provided. The detailed results appear in Table 2.

Figure 3. Number of Months Households Received Food Stamps by Their Survey Response



Source: U.S. Census Bureau, tabulations of the 2001 Supplementary Survey and the Maryland 2000/01 Food Stamp File.

As shown in Table 2, an estimated 9,539 households in the SS01 (row 1, column labeled “1”) received Food Stamps for one month only. This month could have been either the survey month or one of the 12 previous months during the question’s reference period. Similarly, in the column labeled “12,” an estimated 7,260 survey households received Food Stamps for 12 months of the survey/reference months, and in the last column labeled “13,” an estimated 50,226 households in the SS01 received Food Stamps in the interview month and for all 12 of the months prior to the interview. Table 2 also separates the actual respondent-provided survey responses from those that were imputed by the survey’s edit process because an answer to the Food Stamp question was not provided by the respondent.

Table 2. Number of Months Households Received Food Stamps, by Whether the Survey Correctly or Incorrectly Reported or Imputed Reciprocity

(Excludes population living in group quarters and includes households in SS01 but living in a state other than Maryland)

	Number of Months Matched SS01 Households Received Food Stamps During Reference Period (interview month and 12 months preceding the survey interview)													
	Total	1	2	3	4	5	6	7	8	9	10	11	12	13
Total Matched Households	124,934	9,539	4,840	9,353	8,905	7,321	5,441	6,030	4,102	2,728	4,171	5,018	7,260	50,226
Total Matched Households Estimated Correctly	77,538	2,282	1,145	4,861	3,775	3,308	2,181	2,388	2,130	1,604	3,182	3,466	5,735	41,481
Matched Households Responding Correctly	76,150	2,282	1,145	4,861	3,601	3,308	1,869	2,238	1,907	1,604	3,182	3,303	5,735	41,115
Matched Households Imputed Correctly¹⁴	1,388	0	0	0	174	0	312	150	223	0	0	163	0	366
Total Matched Households Estimated Incorrectly	47,396	7,257	3,695	4,492	5,130	4,013	3,260	3,642	1,972	1,124	989	1,552	1,525	8,745
Matched Households Responding Incorrectly	46,897	7,228	3,695	4,492	5,130	4,013	3,207	3,565	1,972	1,124	812	1,552	1,525	8,582
Matched Households Imputed Incorrectly	499	29	0	0	0	0	53	77	0	0	177	0	0	163
Percent Total Underreported Households	37.9	76.1	76.3	48.0	57.6	54.8	59.9	60.4	48.1	41.2	23.7	30.9	21.0	17.4
Percent Underreported Responding Households	38.1	76.0	76.3	48.0	58.8	54.8	63.2	61.4	50.8	41.2	20.3	32.0	21.0	17.3

Source: U.S. Census Bureau, tabulations of the 2001 Supplementary Survey and the Maryland 2000/01 Food Stamp File.

Figure 3 and Table 2 show that there is a marked tendency for the underreporting rate to increase as the number of months that the household had received Food Stamps in the reference period decreases. For households that had received Food Stamps in each of the

¹⁴ Imputation takes place when a survey question that should have been answered is not. A response from a nearby household with similar characteristics is used to correct for the missing information. More information on the ACS data imputation process is available under the “quality measures” menu at www.census.gov/acs/.

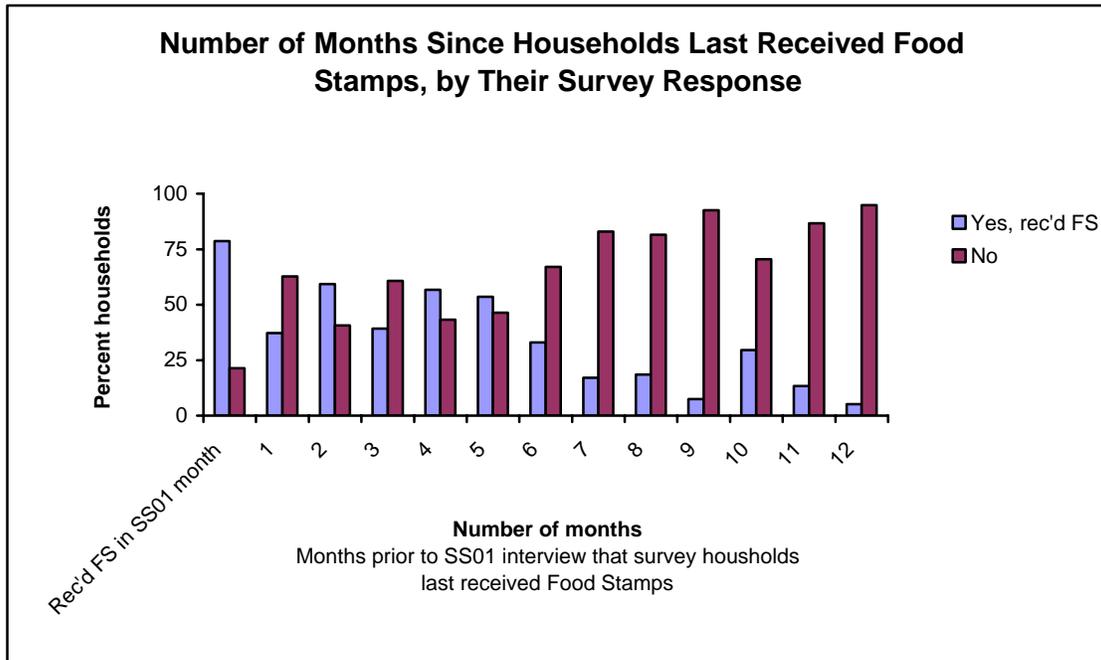
months of their reference period, the underreporting rate was only 17.4 percent, while for households that had received Food Stamps for only one month during the reference period, the underreporting rate was 76.1 percent.

Nonresponse to the Food Stamp question, measured by the amount of imputation, was extremely low for the matched households. The SS01 question was answered by 98.5 percent of these households, with an imputation rate of only 1.5 percent. Missing data and the survey process that corrects for it did not contribute to the discrepancy between the extent of Food Stamp reciprocity between the Maryland Food Stamp file and SS01. As a matter of fact, the imputation process brought the two closer together, with nearly three-fourths of the imputed responses agreeing with the Maryland file, lowering slightly the level of underreporting in the survey.

Table 2 does not resolve the question of timing. Does respondent recollection seem to be affected by which months among the current and preceding 12 the household last received Food Stamps? Figure 4 and Table 3 address the question of the quality of respondent recall. Based on the same matched households used in Figure 3 and Table 2, they show the SS01 response according to the number of months prior to the survey month that the household last received Food Stamps.

Not surprisingly, respondents were most likely to correctly report Food Stamp receipt if the household had received the benefit in the same month in which they responded to the survey. About four in five such households (78.6 percent) reported correctly that they were receiving Food Stamps at the time of their response to the SS01. As Figure 4 shows, when the month(s) of Food Stamp reciprocity is more than one month prior to the interview, there is a high level of incorrect reporting. In all but three of the other time periods, the majority of answers disagreed with the state Food Stamp records. Of households that last received Food Stamps just one month before they responded to the survey, more than three in five (62.7 percent) incorrectly said they had not received Food Stamps at any time in the prior 12 months. For those households that had not received Food Stamps for a year prior to the survey, 95 percent reported incorrectly.

Figure 4. Number of Months Since Households Last Received Food Stamps by their Survey Response



Source: U.S. Census Bureau, tabulations of the 2001 Supplementary Survey and the Maryland 2000/01 Food Stamp File.

As with Table 2, Table 3 shows the overall household results and the actual respondent-provided responses separately from the responses from the survey's imputation process for missing answers

Table 3. Number of Months Since Households Last Received Food Stamps by Whether the Survey Correctly or Incorrectly Reported or Imputed Reciprocity

(Excludes population living in group quarters and includes households in SS01 but living outside of Maryland)

	Number of Months Since SS01 Matched Households Last Received Food Stamps (interview month and 12 months preceding the survey interview)													
	Total	Intvw month	1	2	3	4	5	6	7	8	9	10	11	12
Total Matched Households	124,934	80,813	4,557	2,847	4,658	2,240	4,222	6,653	2,665	3,252	2,960	3,900	4,093	2,074
Total Matched Households Estimated Correctly	77,538	63,510	1,701	1,688	1,830	1,269	2,262	2,195	456	603	222	1,152	543	107
Matched Households Responding Correctly	76,150	62,677	1,701	1,525	1,830	1,269	2,262	2,195	238	603	48	1,152	543	107
Matched Households Imputed Correctly¹⁵	1,388	833	0	163	0	0	0	0	218	0	174	0	0	0
Total Matched Households Underreported	47,396	17,303	2,856	1,159	2,828	971	1,960	4,458	2,209	2,649	2,738	2,748	3,550	1,967
Matched Households Responding Incorrectly	46,897	16,886	2,856	1,159	2,828	971	1,931	4,458	2,156	2,649	2,738	2,748	3,550	1,967
Matched Households Imputed Incorrectly	499	417	0	0	0	0	29	0	53	0	0	0	0	0
Percent Total Underreported Households	37.9	21.4	62.7	40.7	60.7	43.3	46.4	67.0	82.9	81.5	92.5	70.5	86.7	94.8
Percent Underreported Responding Households	38.1	21.2	62.7	43.2	60.7	43.3	46.1	67.0	90.1	81.5	98.3	68.3	86.7	94.8

Source: U.S. Census Bureau, tabulations of the 2001 Supplementary Survey and the Maryland 2000/01 Food Stamp File.

The sharp drop-off of households reporting receiving Food Stamps during the month of their interview but failing to report receiving them the month before the interview suggests that many of the respondents were reporting their current reciprocity status, not their prior 12-month experience. The fact that the response error continues at a high level as dormancy and frequency increase suggests that much of respondent underreporting is a reflection of faulty recall. It is also quite possible that the household member who

¹⁵ Imputation takes place when a survey question that should have been answered is not. A response from a nearby household with similar characteristics is used to correct for the missing information. More information on the ACS data imputation process is available under the “quality measures” menu at www.census.gov/acs.

responded to the survey was not a member of the Food Stamp assistance unit and might not have been as knowledgeable about the benefit and others in the household who were assistance unit members.

A simple logistic regression shows that both dormancy and frequency are significant in predicting the likelihood that a household will respond correctly.¹⁶

Additional Sources of Discrepancy

After accounting for the discrepancy caused by underreporting, a net discrepancy of 32.0 percent remained. Nearly half of this amount could be attributed to differences in the universes covered by the two data sources and in the definition of households and assistance units. The effect of these factors is described below.

The effect of universe differences: Group quarters population

An obvious source of discrepancy is that assistance units living in some types of group quarters may be eligible for Food Stamp benefits. The SS01 explicitly included only housing units and their households in its sample. When Maryland Food Stamp assistance units in group quarters were excluded from the analysis (6,932 assistance units) but offset by the number of households that were matched to assistance units in group quarters (2,378 households), the reduction in the net discrepancy was 4,554 households or 6.1 percent (Table 1).

The effect of household definitions

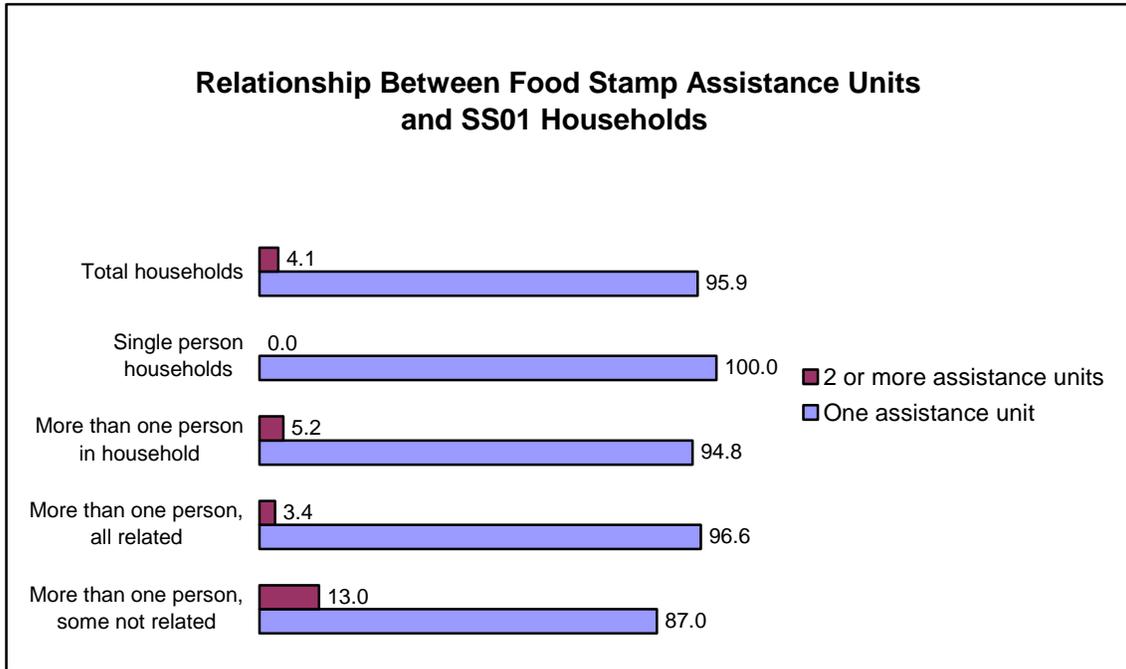
The definition of “household” was another source of discrepancy:

- The SS01 defines a household as all the people who occupy the same housing unit and meet the survey’s residency requirements.
- The Food Stamp assistance unit is defined as an individual living alone, a group of individuals who live together and customarily purchase food and prepare meals together for home consumption, or an individual living with others but who customarily purchases food and prepares meals for home consumption separate and apart from others. An assistance unit, therefore, may not include all members of an SS01 household.

It was unlikely that two SS01 households would have members that belonged to a single assistance unit, and indeed, no such cases were found. On the other hand, there are a number of cases where a single SS01 household includes members from more than one assistance unit. The relationship between linked assistance units and households found by the matching is illustrated in Figure 5, while Table 4 provides information about the number and the relationship of the people in these linked survey households. There were 130,761 assistance units that matched 124,934 weighted survey households, an inflation factor of 4.66 percent, which, when applied to the remaining discrepancy in the weighted estimates, reduced it by another 6,134 units or 8.2 percent (Table 1).

¹⁶ The number of months that Food Stamps were received and the number of months since they were last received prior to the survey response are closely related factors. For example, if a household last received Food Stamps five months before responding to the survey, the maximum number of months they could have received Food Stamps over the year is eight months. To disaggregate these two factors, frequency was redefined as a percentage of the maximum possible months to receive Food Stamps.

Figure 5. Relationship Between Food Stamp Assistance Units and SS01 Households



Source: U.S. Census Bureau, tabulations of the 2001 Supplementary Survey and the Maryland 2000/01 Food Stamp File.

Table 4. Distribution of Number and Relationship of People in Matched SS01 Households

Number of people in SS01 households by relationship	Percent of total households
Total	100.0
Single person	20.6
More than one person	79.4
All people in household related	64.2
Some people in household not related	15.1

Source: U.S. Census Bureau, tabulations of the 2001 Supplementary Survey and the Maryland 2000/01 Food Stamp File. Denominator are based on 509 unweighted cases.

Data Collection and Weighting Factors

Neither the method of data collection nor the weighting and estimation process seems to contribute to the discrepancy between the SS01 and the Maryland Food Stamp study file. As noted earlier, the SS01 data were collected using the methods developed for the American Community Survey.

Each of the three modes of collection tends to reach different types of households, and those that are interviewed in the personal visit phase are considered the hardest to contact and interview. Only 35 percent of the weighted SS01 households that were matched to Food Stamp assistance units in this study were self-responding household that completed and mailed back their SS01 questionnaire, while 54 percent required a personal visit by an interviewer to obtain the survey information. For households that were not linked to the Maryland 2000/01 Food Stamp file, 62 percent were interviewed by mail and 27

percent by personal visit. Despite the evidence that Food Stamp recipient households were more difficult to contact and interview, the failure to report the receipt of the benefit among the households matched to the Maryland records was only 4 percentage points higher for the harder-to-interview recipients (personal visit) than the easy-to-interview recipients (mail).

The process used to weight the SS01 data can be divided into three basic steps:

- The initial weighting that accounts for the probabilities of selection for each housing unit,
- The nonresponse adjustments to the weights to correct for the failure to contact and interview every eligible unit, and
- The adjustments that control the overall survey estimates of housing and population to independent estimates derived every year by the Census Bureau.

The SS01 estimates of Maryland Food Stamp reciprocity were derived and compared after each of these three weighting steps to see if the estimation methods were having a dampening effect on the survey results. The full weighting process actually increased the initial survey estimate of Maryland Food Stamp households by 12 percent, with half of the increase due to the nonresponse adjustment and half to the final controls. In contrast, the initial weighting process increased the survey estimate of the total number of Maryland households by less than 7 percent.

Possible Reasons for the Remaining Discrepancy

After accounting for all of the above factors, the apparent difference in the two data sets for components that could be identified was an estimated 61,694 units. There remains an unexplained difference of 13,215 units, 17.6 percent of the net discrepancy. To see if there was evidence that some of the remaining difference might be related to the survey's housing unit coverage, a match was performed between the assistance unit addresses on the Maryland 2000/01 Food Stamp file and the SS01 Maryland sample addresses, without making use of the person match results on which the previous analysis had been based. When addresses matched, the differences between the residents reported to be living at addresses that were common to both files during the month the address was surveyed by SS01 were looked at.

Evidence of coverage differences was found between the two data sets, and these instances may possibly explain the entire remaining discrepancy. Most of the matched addresses had been linked in the earlier person-level matching, having at least one resident in common on each data set. However, situations were found where, according to the Maryland Food Stamp file, two assistance units provided the same address, but people in only one of the units were included in the survey. This may be due to variations in the way the address appears in each data source, with individual housing units identified at the basic address on one of the files but not on the other. The "missing" people in the second assistance unit may actually live in a different housing unit with the same basic address, a unit that was not selected to be surveyed. Or, it may also be possible that the people living in the surveyed housing unit did not consider everyone there to be members of the household or did not wish to identify them as such

to the survey interviewer. It will take further analysis of the sampling frame to quantify possible housing unit coverage problems.

Other situations seem likely to involve people moving into or out of the matched addresses during the month the unit was interviewed in SS01. Using the survey weights on the addresses, around 5,000 assistance unit addresses were found by SS01 to be vacant when surveyed. Also, the SS01 interviews conducted that represent an estimated 16,000 survey addresses reported none of the people shown on the Maryland 2000/01 Food Stamp file as living at the address.

While these estimates are large enough to account for the entire remaining discrepancy, they need to be offset to some degree by circumstances surrounding the timing of benefit approval and the actual date of the survey interview. A portion of the matched addresses with no people in common between the two data sets is probably the result of the assistance unit members moving out of the housing unit and the SS01 household moving into the unit in the same month. The in-movers may have correctly reported in the survey that they were not receiving Food Stamps. It is very possible that people with tenuous attachments to households and that qualify for social service benefits move more often and are more difficult for survey's to successfully interview. The housing units found to be vacant by the survey are also likely evidence of assistance unit moves. Further analysis of the various combinations of address and person matching results might provide more insight into possible undercoverage in the survey's sampling frame and household membership.

Conclusions and Recommendations

The major findings from this comparative study of data sets are:

- Survey estimates of Food Stamp reciprocity are substantively lower than administrative counts.
- The largest factor in the difference in reciprocity is underreporting.
- Underreporting is less likely in households that were receiving Food Stamps in the survey month and in households that had received Food Stamps for most of the year before the survey. Otherwise, underreporting rates increased dramatically, especially as the time since the last receipt increased.
- Other important factors include differences in the universes of the data sets and definitions, unmatched households and matching quality, beneficiaries moving in and out of the state, and addresses that were not listed in the Census Master Address File and therefore were not available for survey sampling. Starting with interviewing in 2005, the American Community Survey is scheduled to include the group quarters population, thus eliminating one of the difference factors.
- Neither the weighting procedure nor the survey's imputation process was an important factor in the discrepancy between the data sets.
- This study demonstrates the power of integrating data sets to resolve longstanding questions about differing results from different sources used for program policy and administration.

Options for Improving the Statistics

Given the results of this study, one might ask why program managers don't use only the administrative records and abandon surveys as a source of program information.

Surveys, unlike administrative records, have statistics that are (a) comparable across areas; (b) provide characteristics of respondents that have a bearing on program policy; and (c) include information about the population not receiving the benefits as a point of comparison and to determine if the program is reaching all that the program intends to reach. It is therefore worthwhile to consider how to improve the quality of the survey statistics.

The evidence from this study strongly suggests that people answer in terms of their situation at the time they are filling out the survey, regardless of the instructions asking about past history. One obvious solution is to ask the question only in terms of their current situation and use that information to understand characteristics of the beneficiary population compared with the population that does not receive benefits.

Additionally, program analysts have both data sets they can use. Each data set has advantages and disadvantages for different purposes. This study provides further insight into appropriate uses of each data set. The study also provides information to adjust statistical models that use the survey data.

Suggestions for Further Research

Of the factors related to underreported estimates of Food Stamp reciprocity, the most significant by far is the failure of survey respondents to correctly report their household's Food Stamp reciprocity status. To improve the estimate, it is necessary to better understand when and why it occurs. Such insights may lead to improved estimates of Food Stamp reciprocity from a fully-implemented American Community Survey, as well as improved estimates of other benefit programs and from other surveys.

This study discovered strong evidence that much of the failure to report Food Stamp receipt is related to the extended recall period of the question. For households that are receiving Food Stamps in the survey month, the incidence of misreporting is significantly lower than otherwise. A preliminary analysis suggests that the results are affected by who in the household is queried, whether they have personally participated in the Food Stamp program, and the respondent's individual and family characteristics and relationships. Thus five possible avenues for future research into this issue are proposed:

1. Additional analysis of the specific status of the person who responded to the SS01 and the characteristics of Maryland Food Stamp recipients.
2. Analysis of Medicaid participation in the Survey of Income and Program Participation (SIPP).
3. Reinterview of SS01 Maryland Food Stamp recipients to learn more details about their situation at that time.
4. Additional analysis to improve the survey question on the dollar value of the benefits the household received.
5. Develop a methodology to adjust survey data using the administrative data.

More detail on the first four proposed research areas follows:

1. Information about who answered the SS01 survey is available. These data can be analyzed to understand how the status of the individual respondent affects the likelihood of correct response. Such a study would help determine how correct response rates vary based on whether the individual respondent was a beneficiary of the Food Stamp program.

Due to the scope and budget of this preliminary analysis, it could not analyze correct response rates as a function of the individual survey respondent's program participation. Information is available from the SS01 that shows which household member was the survey respondent. Also known is individual-level Food Stamp program participation from the Maryland 2000/01 Food Stamp data set.

With a new research initiative, it could be seen how changes in family structure, characteristics, and member Food Stamp participation patterns relate to correct response. More information about these factors may help improve the Food Stamp question.

2. Presumably, if the Food Stamp question were more specific and did not require recall over a year, the responses would be more reliable. There are other factors, however, including willful misrepresentation in a survey and people providing addresses to the Food Stamp program that are different from their actual residences. To address these issues, further analysis of the Census Bureau's Survey of Income and Program Participation (SIPP) is recommended. This would inform because the SIPP includes questions that ask households to identify who in the family participated in the Medicaid program and in which of the most recent months prior to the survey. Because of the way this question is asked, it can be seen how often under the best of circumstances, that is the individual respondent being asked about their individual current program participation, incorrect responses are received. This could be considered a misreporting rate base line.

The SIPP data could be analyzed to determine correct response by matching them to data the Census Bureau receives from the Medicaid Program (the Medicaid Statistical Information System database). This database shows all people who have participated in the Medicaid program each calendar quarter. From that, it can be determined who received benefits and when, and, by matching records to SIPP at the individual level, rates for correct responses could be determined.

An issue in the analysis of SIPP responses to Medicaid program participation is that respondent's may be unaware of the difference between being eligible for Medicaid benefits and actually receiving benefits. That is, families may be enrolled in the Medicaid program but may not receive any actual benefits in a given month. These families may be unaware that they are actually participating in the Medicaid program and so they may respond incorrectly.

To get past this problem, it would be useful to determine correct response rates for individuals receiving an actual benefit as well as for those who are eligible for benefits without receiving an actual benefit. This will allow the determination of how the conception of Medicaid enrollment affects correct response rates.

3. Although the most expensive option, it is suspected that the most telling research would be a selective re-interview of SS01 households that reported incorrectly about

Food Stamp reciprocity to determine why they did. This option, however, would incur additional respondent burden, and possibly resentment, among those who feel their privacy has been invaded. Therefore, it is not recommended and not thought necessary given all that can be learned from program records and other surveys.

4. The SS01 Food Stamp question has a second part that asks for the dollar value of benefits the household received. The information from the SS01 is not useable because the survey amounts differ so greatly from the known benefit amounts. The question asked for an annual amount for the household but it appears that some respondents provided a monthly amount. It is not certain from the survey, however, whether the household actually received a very small annual amount that appears to be about the value of a monthly amount. While the information is available, we did not have sufficient funding for this study to examine the problem and determine how best to improve the survey question and the edit rules.

With further research, it may be found that the quality of information about program participation would improve if the survey asked only about participation in the month of the survey interview. The survey data, along with distributions from the program data, could be the key to developing methods for converting current month responses to estimates of participation for calendar year. What should also be considered is whether respondents should be asked only about their own individual participation in benefit programs rather than about participation of all members of their household.

Appendix A:

Review of Studies That Compare Results for Administrative Records and Surveys Regarding Participation in Public Assistance Programs

American Community Survey

It is expected that estimates derived from surveys and administrative program records to differ. For example, respondents may not provide a correct answer to a survey question, some housing units may not be in the list of addresses used for sample selection or may be missed during the survey, and crucial differences in concepts and data collection methods may affect the comparison of the results among data sets.

A previous study compared the number of households that received Food Stamps according to program records from Maryland's Department of Human Resources with estimates based on respondent reports in the Census 2000 Supplementary Survey (C2SS) and the American Community Survey (ACS).¹⁷ The estimates of the number of beneficiaries reported in the C2SS/ACS surveys and the counts in the administrative records differed by much more than expected. The differences were generally consistent regardless of the jurisdiction and whether it was an urban or rural area.

In the C2SS study, for Maryland, the difference between the actual count of households that received Food Stamps in calendar year 1999 according to the program records (169,200) and the published estimate from the Census 2000 Supplementary Survey (91,300) is substantial, a difference of roughly 80,000 households. Sampling error alone cannot account for the difference as the 90-percent confidence interval for the survey estimate, a measure of sampling variation, is 79,500 –103,200.

In that study, it was impossible from the summary statistics available from public sources to completely identify or disentangle the contribution of various factors to differences between the data sets. The study concluded that sources of the differences in estimates from the C2SS and the counts from program records of households actually receiving Food Stamps in Maryland included misreporting in the survey, undercoverage of housing units, and crucial differences in concepts and data collection methods.

The C2SS study could not definitively confirm these possible reasons for the misreporting. It speculated that respondents might forget receipt of Food Stamps if the

¹⁷ Cynthia Taeuber, Jane Staveley, and Richard Larson, "Issues in Comparisons of Food Stamp Recipients: Caseloads From Maryland State Administrative Records and the Census 2000 Supplementary Survey," presented at the National Association for Welfare Research and Statistics, July 2003, available on website (<http://www.ubalt.edu/jfi/jfc/publications.htm>). Karen Cunyngnam, "Trends in Food Stamp Program Participation Rates: 1999 to 2001," Mathematica Policy Research, Inc., Final Report to U.S. Department of Agriculture (July 2003). Another study looks at differences in participation in other public assistance programs in California: Jon Stiles, Anita Mathur, Henry Brady, "Using Administrative and Survey Data to Assess Public Assistance Participation of California Household," unpublished University of California, Berkeley, Data Archive and Technical Assistance (November 4, 2003).

benefit amounts were small, received for only a few months, or if they were unsure whether they received Food Stamps within the 12 months before being surveyed. It is conceivable, but we cannot show from this study, that embarrassment might have been a factor as the differences in the two data sets were considerably higher in households with no children present than where children were present. It was not possible to determine from the publicly available statistics the age of the householder in the 31,000 households with no children present that did report receipt of Food Stamps. That leaves unanswered whether households without children that did not report receipt of Food Stamps had able-bodied adults who did not want to admit to their circumstances. The administrative records, but not the C2SS, include homeless people and others living in shelters and this accounted for a small part of the difference. Another unanswered question was the relationship between the survey's definition of a household and the definition for the Maryland Food Stamp program. Did the survey households consist of more than one Food Stamp assistance unit? Also, movement of recipients into and out of the state as well as within may be confounding the comparisons.

The earlier study speculated on possible geographic differences. While undercoverage of housing units occurs in all surveys, reliable statistics on coverage error are not available from Census 2000. Baltimore City, Baltimore County, and Prince George's County have, in past censuses, experienced higher than average undercounts. Baltimore City households accounted for about 4 in 10 of Maryland's Food Stamp recipient households. Baltimore County and Prince George's County had 1 in 10 of Maryland's recipient households each.

There are crucial differences in concepts and data collection methods between the data sets that affect comparisons. The survey was of households only and did not include people living in group quarters. A person is counted as a household member if they have lived, or intend to live, in the sampled housing unit for more than two months. The administrative records included about 8,600 people who lived in group quarters and received Food Stamps in 1999. The largest group was the 5,600 people who received Food Stamps for at least one month while living in a shelter for the homeless at some point in 1999. There are stringent limits on how long able-bodied adults can receive Food Stamps. Additionally, most people are homeless for relatively short periods, and some move in and out of "homelessness" throughout the year. From the Maryland program records, we determined that only about 400 of those living in shelters for the homeless received Food Stamps for the entire calendar year 1999; more than half received the Food Stamps for less than four months. There were fewer than 50 Food Stamp recipients who lived in other types of group quarters. About 3,000 people who received Food Stamps at some point in 1999 lived in alcohol and drug and other rehabilitation treatment centers. The stay is generally for less than two months and thus, they might have been eligible for sample selection and inclusion in the household survey during the time they were not staying in the group quarters. From the publicly-available statistics, it was not possible to determine what portion of these 8,600 people were a source of misreporting and differences in the data sets but it is likely that some were.

Current Population Survey, California

In a recent study, Jon Stiles, Anita Mathur and Henry Brady of the University of California Data Archive and Technical Assistance, at the University of California at Berkeley, used administrative and survey data to assess public assistance participation of California households.¹⁸ In their paper, self-report responses in the 1990-2002 Current Population Survey March samples were compared with administrative records of participation in Aid to Families with Dependent Children/Temporary Assistance for Needy Families (AFDC/TANF), Supplemental Security Income (SSI), and Medicaid from California's Medi-Cal Eligibility Data System from 1988-2002. Comparing CPS summary statistics to aggregated administrative data, they found that participation in Medi-Cal, SSI, and AFDC/CalWORKs were all understated in the CPS relative to the administrative databases during the past decade, and that net undercoverage differed by age, sex, race, period and intensity of program use.

Using a matched sample where Californians sampled in the CPS between 1990 and 2000 were matched with the Medi-Cal Eligibility Data System administrative records, the study examines the extent of misreporting over time and the characteristics associated with overreporting and underreporting of program participation. Not all adults in the CPS samples (1990-2000) could be accurately matched to the administrative data. In comparing characteristics for the 70,000 adults that were matchable with the 35,000 that were unmatchable, it was found that characteristics differed between the matched and unmatched samples, with the population most likely to need public assistance also being the most likely to be unmatchable. It was found that misreporting in the surveys was largely due to errors of omission (individuals who do not report receipt to the interviewer but whose receipt is recorded in the administrative records). Errors of commission (individuals who report receipt to the interviewer but there is no record of receipt in the administrative records) were relatively rare. Rates of omission were highest for AFDC/TANF recipients. Characteristics associated with increased rates of omission included proxy responses, AFDC and Medi-Cal recipients who were better off economically, homeowners, married men on AFDC, and AFDC recipients over 50 years old.

¹⁸ Stiles Jon, Anita Mathur, and Henry Brady, "Using Administrative and Survey Data to Assess Public Assistance Participation of California Households," presented at the 25th Annual Research Conference of the Association for Public Policy Analysis and Management (APPAM), November 6-8, 2003, Washington, D.C.

Appendix B: Questions on Food Stamp Participation

SS01 and American Community Survey

16 At any time DURING THE PAST 12 MONTHS, did anyone in this household receive Food Stamps?

Yes → **What was the value of the Food Stamps?**
Past 12 months' value – *Dollars*

\$.00

No

2003 Current Population Survey Annual Social and Economic Supplement

Q 87. Did (you/anyone in this household) get food stamps at any time during 2002?

<1> Yes

<2> No

Q 88. Which of the people now living here were covered by Food Stamps during 2002?

LIST ALL HOUSEHOLD MEMBERS COVERED BY FOOD STAMPS

REGARDLESS OF AGE.

LN NAME	RELATION
---------	----------

(person 1)

.....

(person 16)

PROBE: Anyone else?

ENTER LINE NUMBER <N> No more

ENTER <A> FOR ALL

ENTER <X> FOR NONE

Q90p. What is the easiest way for you to tell us the value of the Food Stamps; monthly or yearly?

<1> Monthly

<2> Yearly

<A> Already included with TANF/AFDC payment

Q90. What is the (monthly/yearly) value of Food Stamps received in 2002?

Enter dollar amount \$ _____ .00

Q 902. How many months were Food Stamps received in 2002?

Q. 90C2*DO NOT READ TO THE RESPONDENT*****

THE ANNUAL RATE APPEARS OUT OF RANGE. THE TOTAL FOOD STAMPS PAYMENTS RECEIVED IN 2002 WAS (AMOUNT). IS THIS A CORRECT ENTRY?

<1> Yes

<2> No

Q 903. According to my calculations (total) dollars was received altogether from Food Stamps in 2002. Does that sound about right?

<1> Yes

<2> No

Q 904. What is your best estimate of the correct amount received from Food Stamps during 2002?

PREVIOUS ENTRIES: Q90: (amount)
 Q.90p: (periodicity)
 Q. 902 (number of pay periods)

Enter dollar amount _____

Appendix C:
Data Elements in the Study From the Maryland Client Automated Resource and Eligibility System

(CARES) File
Final CARES Record Layout for:
Maryland Food Stamp Research Project

Category	Variable	Label	Type	Len	Start	End	Variable Values/Notes
Constants	IRN	Individual Record Number	ZD	9	1	9	IRN is a unique number per individual – This was needed to allow for those individuals that had no SSN at time of request for assistance. SSN requested at application time
	SSN	Social Security Number	ZD	9	10	18	999999999
	DOB	Date of Birth	ZD	8	19	26	YYYYMMDD
	Gender	Gender	CH	1	27	27	See Code Tables – Gender Codes
	Race	Race	CH	1	28	28	See Code Tables – Race Codes
	Language	Language	CH	1	29	29	See Code Tables – Language Codes
	Name	Name					
		First Name	CH	15	30	44	
		Middle Name or Initial	CH	12	45	56	
	Last Name	CH	20	57	76		
Person Variables	Res_addr	Residence Address					
	Res_Str_Num	Residence Street Number	CH	6	77	82	
	Res_Str_Nam	Residence Street Name	CH	20	83	102	

Category	Variable	Label	Type	Len	Start	End	Variable Values/Notes
	Res_Str_Typ	Residence Street Type Code	CH	4	103	106	See Code Tables – Street Type Codes
	Res_Str_Drtn	Residence Street Direction Code	CH	2	107	108	See Code Tables – Street Direction Codes
	Res_Apt_Num	Residence Apartment Number	CH	5	109	113	
	Res_Addr_Ex_1	Residence Street Address Extra 1	CH	22	114	135	
	Res_Addr_Ex_2	Residence Street Address Extra 2	CH	22	136	157	
	Res_City	Residence City	CH	22	158	179	
	Res_State	Residence State	CH	2	180	181	
	Res_Zip	Residence ZIP Code	ZD	9	182	190	Zipcode 5 + 4
	Mail_addr	Mailing Address					
	Mail_Str_Num	Mail Street Number	CH	6	191	196	
	Mail_Str_Nam	Mail Street Name	CH	20	197	216	
	Mail_Str_Typ	Mail Street Type Code	CH	4	217	220	See Code Tables – Street Type Codes
	Mail_Str_Drtn	Mail Street Direction Code	CH	2	221	222	See Code Tables – Street Direction Codes

Category	Variable	Label	Type	Len	Start	End	Variable Values/Notes
	Mail_Apt_Num	Mail Apartment Number	CH	5	223	227	
	Mail_Addr_Ex_1	Mail Street Address Extra 1	CH	22	228	249	
	Mail_Addr_Ex_2	Mail Street Address Extra 2	CH	22	250	271	
	Mail_City	Mail City	CH	22	272	293	
	Mail_State	Mail State	CH	2	294	295	
	Mail_Zip	Mail ZIP Code	ZD	9	296	304	Zipcode 5 + 4
	Res_phone	Phone Number – Residence	ZD	10	305	314	First 3 Digits are Area Code Last 7 Digits are Telephone Number
	Msg_phone	Phone Number-Message	ZD	10	315	324	First 3 Digits are Area Code Last 7 Digits are Telephone Number
	MS	Marital Status	CH	1	325	325	See Code Tables – Marital Status Codes
	CIT	Citizenship Code	CH	1	326	326	See Code Tables – Citizenship Codes
	USA_Enter_dt	Date Entered US	ZD	7	327	333	0YYYYMM
	Edu_atta	Educational Attainment	CH	2	334	335	See Code Tables – Highest Grade Completed Codes
	Earn_Inc_Amt	Earned Income Monthly Total	ZD 9.2	9	336	344	9999999V99 – No decimal point in data
	Uearn_Inc_Type_1	Unearned Income Type 1st Occurrence	CH	2	345	346	See Code Tables – Unearned Income Codes

Category	Variable	Label	Type	Len	Start	End	Variable Values/Notes
	Uearn_Inc_Amt_1	Unearned Income Amount 1st Occurrence	ZD 9.2	9	347	355	9999999V99 – No decimal point in data
	Uearn_Inc_Freq_1	Unearned Income Frequency 1st Occurrence	CH	2	356	357	See Code Tables – Income Frequency Codes
	Uearn_Inc_Type_2	Unearned Income Type 2 nd Occurrence	CH	2	358	359	
	Uearn_Inc_Amt_2	Unearned Income Amount 2 nd Occurrence	ZD 9.2	9	360	368	9999999V99 – No decimal point in data
	Uearn_Inc_Freq_2	Unearned Income Frequency 2 nd Occurrence	CH	2	369	370	See Code Tables – Income Frequency Codes
	Uearn_Inc_Type_3	Unearned Income Type 3 rd Occurrence	CH	2	371	372	
	Uearn_Inc_Amt_3	Unearned Income Amount 3 rd Occurrence	ZD 9.2	9	373	381	9999999V99 – No decimal point in data
	Uearn_Inc_Freq_3	Unearned Income Frequency 3 rd Occurrence	CH	2	382	383	See Code Tables – Income Frequency Codes

Category	Variable	Label	Type	Len	Start	End	Variable Values/Notes
	Uearn_Inc_Type_4	Unearned Income Type 4 th Occurrence	CH	2	384	385	
	Uearn_Inc_Amt_4	Unearned Income Amount 4 th Occurrence	ZD 9.2	9	386	394	9999999V99 – No decimal point in data
	Uearn_Inc_Freq_4	Unearned Income Frequency 4 th Occurrence	CH	2	395	396	See Code Tables – Income Frequency Codes
	Uearn_Inc_Type_5	Unearned Income Type 5 th Occurrence	CH	2	397	398	
	Uearn_Inc_Amt_5	Unearned Income Amount 5 th Occurrence	ZD 9.2	9	399	407	9999999V99 – No decimal point in data
	Uearn_Inc_Freq_5	Unearned Income Frequency 5 th Occurrence	CH	2	408	409	See Code Tables – Income Frequency Codes
	Uearn_Inc_Type_6	Unearned Income Type 6 th Occurrence	CH	2	410	411	
	Uearn_Inc_Amt_6	Unearned Income Amount 6 th Occurrence	ZD 9.2	9	412	420	9999999V99 – No decimal point in data
	Uearn_Inc_Freq_6	Unearned Income Frequency 6 th Occurrence	CH	2	421	422	See Code Tables – Income Frequency Codes
	Uearn_Inc_Type_7	Unearned Income Type 7 th Occurrence	CH	2	423	424	

Category	Variable	Label	Type	Len	Start	End	Variable Values/Notes
	Uearn_Inc_Amt_7	Unearned Income Amount 7 th Occurrence	ZD 9.2	9	425	433	9999999V99 – No decimal point in data
	Uearn_Inc_Freq_7	Unearned Income Frequency 7 th Occurrence	CH	2	434	435	See Code Tables – Income Frequency Codes
	Uearn_Inc_Type_8	Unearned Income Type 8 th Occurrence	CH	2	436	437	
	Uearn_Inc_Amt_8	Unearned Income Amount 8 th Occurrence	ZD 9.2	9	438	446	9999999V99 – No decimal point in data
	Uearn_Inc_Freq_8	Unearned Income Frequency 8 th Occurrence	CH	2	447	448	See Code Tables – Income Frequency Codes
	Uearn_Inc_Type_9	Unearned Income Type 9 th Occurrence	CH	2	449	450	
	Uearn_Inc_Amt_9	Unearned Income Amount 9 th Occurrence	ZD 9.2	9	451	459	9999999V99 – No decimal point in data
	Uearn_Inc_Freq_9	Unearned Income Frequency 9 th Occurrence	CH	2	460	461	See Code Tables – Income Frequency Codes
	Uearn_Inc_Type_10	Unearned Income Type 10 th Occurrence	CH	2	462	463	
	Uearn_Inc_Amt_10	Unearned Income Amount 10 th Occurrence	ZD 9.2	9	464	472	9999999V99 – No decimal point in data

Category	Variable	Label	Type	Len	Start	End	Variable Values/Notes
	Uearn_Inc_Freq_10	Unearned Income Frequency 10 th Occurrence	CH	2	473	474	See Code Tables – Income Frequency Codes
	Homeless_Code	Residence Code	CH	2	475	476	See Code Tables – Residence Codes
	Tenure	Owner/Renter	CH	1	477	477	See Code Tables – Owner/Renter Codes
	Shlt_cost	Shelter Costs	ZD 9.2	9	478	486	
	Month	Month	ZD	6	487	492	YYYYMM
Program Variables – Food Stamps	FS_DO	District Office	ZD	3	493	495	See Code Tables – District Offices
	FS_PC	Program Code	CH	2	496	497	“FS”
	FS_Month_Bnft	Monthly Benefit Amount	ZD 9.2	9	498	506	9999999V99 - No decimal point in data
	FS_AUN	Assistance Unit Number	ZD	9	507	515	
	FS_HOH_REL	Food Stamp Relationship to Head of Household	CH	2	516	517	See Code Tables – Relationship to Head of Household Codes
	FS_FIN_RESP	Food Stamp Financial Responsibility Code	CH	2	518	519	See Code Tables – Financial Responsibility Codes
Program Variables – TCA	TCA_DO	District Office	ZD	3	520	522	See Code Tables – District Offices
	TCA_PC	Program Code	CH	2	523	524	“AF”
	TCA_Month_bnft	Monthly Benefit Amount	ZD 9.2	9	525	533	9999999V99 - No decimal point in data

Category	Variable	Label	Type	Len	Start	End	Variable Values/Notes
	TCA_AUN	Assistance Unit Number	ZD	9	534	542	
	TCA_HOH_REL	TCA Relationship to Head of Household	CH	2	543	544	See Code Tables – Relationship to Head of Household Codes
	TCA_FIN_RESP	TCA Financial Responsibility Code	CH	2	545	546	See Code Tables – Financial Responsibility Codes
Program Variables – TEMHA	TEMHA_DO	District Office	ZD	3	547	549	See Code Tables – District Offices
	TEMHA_PC	Program Code	CH	2	550	551	“GA”
	TEMHA_Month_bnft	Monthly Benefit Amount	ZD 9.2	9	552	560	9999999V99 - No decimal point in data
	TEMHA_AUN	Assistance Unit Number	ZD	9	561	569	
	TEMHA_Hoh_Rel	TEMHA Relationship to Head of Household	CH	2	570	571	See Code Tables – Relationship to Head of Household Codes
	TEMHA_Fin_Resp	TEMHA Financial Responsibility Code	CH	2	572	573	See Code Tables – Financial Responsibility Codes
Program Variables – EAFC	EAFC_DO	District Office	ZD	3	574	576	See Code Tables – District Offices
	EAFC_PC	Program Code	CH	2	577	578	“EA”
	EAFC_Month_bnft	Monthly Benefit Amount	ZD 9.2	9	579	587	9999999V99 - No decimal point in data
	EAFC_AUN	Assistance Unit Number	ZD	9	588	596	

Category	Variable	Label	Type	Len	Start	End	Variable Values/Notes
	E AFC_Hoh_REL	E AFC Relationship to Head of Household	CH	2	597	598	See Code Tables – Relationship to Head of Household Codes
	E AFC_Fin_Resp	E AFC Financial Responsibility Code	CH	2	599	600	See Code Tables – Financial Responsibility Codes
Program Variables – RCA	RCA_DO	District Office	ZD	3	601	603	See Code Tables – District Offices
	RCA_PC	Program Code	CH	2	604	605	“RF”
	RCA_Month_bnft	Monthly Benefit Amount	ZD 9.2	9	606	614	9999999V99 - No decimal point in data
	RCA_AUN	Assistance Unit Number	ZD	9	615	623	
	RCA_Hoh_REL	RCA Relationship to Head of Household	CH	2	624	625	See Code Tables – Relationship to Head of Household Codes
	RCA_Fin_Resp	RCA Financial Responsibility Code	CH	2	626	627	See Code Tables – Financial Responsibility Codes

Notes:

1. All output is ASCII.
2. Separate file extracts by year (1999, 2000, 2001, 2002).
3. Each file contains: one (1) record per each unique IRN, by month, for all months with participation in at least one of five programs. (No monthly record provided if no program participation for any program for that IRN.)
4. The record length is fixed. For each monthly record provided, all Constant- and Person-level variables are valued; Program-level variables are valued only for those program(s) in which the IRN participates.
5. Addresses are parsed into component fields: Street Address or P.O. Box number, City, State and ZIP Code.
6. Names are parsed into component fields: First Name, Middle Name or Initial, Last Name.
7. To maximize the efficiency of this data extraction, we have attempted to anticipate several "nice to have" variables that would support further analysis should additional project funding become available; these are: Date Entered USA, Language, Household Income

Code Tables
Gender Codes

F- Female
M – Male
U – Unknown
“ “ – Unknown

Race Codes

A – Asian
B – Black
C – Caucasian
H – Hispanic
P – Pacific Islander

Language Codes

A – Arabic
C - Chinese
E – English
F – French
G – German
H – Hmong
I – Italian
K – Kymer (Cambodian)
L – Laotian
O – Portuguese
P – Polish
R – Russian
S – Spanish
V – Vietnamese
Z – Farsi (Iran)

X - Other

Street Type Codes

Note: This field is free form and can contain any 4 bytes
But the normal use is as follows:

DR – Drive
ST – Street
BLVD – Boulevard
CT – Court
AVE – Avenue

CIR – Circle
HWY – Highway
LN – Lane
RD – Road
TERR – Terrace
WAY – Way
PWKY - Parkway

Street Direction Codes

E - East
N – North
NE – Northeast
NW – Northwest
S – South
SE – Southeast
SW – Southwest
W - West

Marital Status Codes

D - Divorced
M – Married
N – Never married
S- Separated
W - Widowed

Citizenship Codes

C – US Citizen
L – Alien
I – Illegal Alien / Ineligible Immigrant
R – US Born Child of Refugee

Highest Grade Completed Codes

01-11 : GRADE LEVEL COMPLETED IN PRIMARY/SECONDARY SCHOOL
INCLUDING
SECONDARY LEVEL VOCATIONAL SCHOOL OR ADULT HIGH SCHOOL
NOTE: ENTER 01 FOR CHILDREN ATTENDING KINDERGARTEN THROUGH
2ND GRADE

12 : HIGH SCHOOL DIPLOMA, GED, OR NATIONAL EXTERNAL DIPLOMA
PROGRAM (NEDP)

13 : AWARDED ASSOCIATE'S DEGREE

14 : AWARDED BACHELOR'S DEGREE

15 : AWARDED GRADUATE'S DEGREE (MASTER'S OR HIGHER)
 16 : OTHER CREDENTIALS (DEGREE, CERTIFICATE, DIPLOMA, ETC)
 98 : NO FORMAL EDUCATION

Unearned Income Codes

SI – SSI benefit

Income Frequency Codes

WE - WEEKLY
 BW - BI-WEEKLY - EVERY 2 WEEKS
 BM - BI-MONTHLY - EVERY 2 MONTHS
 QU - QUARTERLY - EVERY 3 MONTHS
 SA - SEMI-ANNUALLY - TWICE A YEAR
 AN - ANNUALLY
 AC - ACTUAL(MONTHLY OR SEMI-MONTHLY)
 OT - ONE TIME ONLY

Residence Codes

		PROGRAMS ACCEPTABLE FOR					
AH - AT HOME		AF/RFG	GPA-PW	GA	EA	FS	MA
HL – HOMELESS		AF/RFG	GPA-PW	GA	EA	FS	MA
AC - ACUTE CARE FACILITY		AF/RFG	GPA-PW	GA	EA		MA
IC - INTERMEDIATE CARE FACILITY					EA		MA
SN - SKILLED NURSING FACILITY							MA
CC - CHRONIC CARE FACILITY							
MA							
TL - TEMPORARY LTC ADMISSION	AF						MA
RR - REHABILITATION RESIDENCE	PA					FS	MA
PH - PROJECT HOME	PA				EA	FS	MA
LD - LICENSED DOMIC CARE	PA					FS	MA
UD - UNLICENSED DOMIC CARE			GPA-PW				MA
VR - VOCATIONAL REHABILITATION	AF/RFG	GPA-PW	GA	EA			MA
FC - FOSTER CARE, NON IV-E					EA	FS	MA
FE - FOSTER CARE, IV-E					EA	FS	MA
SA - SUBSIDIZED ADOPTION, NON IV-E					EA	FS	MA
SE - SUBSIDIZED ADOPTION, IV-E					EA	FS	MA
BO - BOARDER	AF/RFG	GPA-PW	GA	EA			MA
RO - ROOMER	AF/RFG	GPA-PW	GA	EA	FS		MA
BS - BOARDING SCHOOL	AF/RFG			EA			MA

AD - ALCOHOL & DRUG TREATMT CTR	AF/RFG	GPA-PW	GA	EA	FS	MA
BT - LICENSED BATTERED SPOUSE SHEL	AF/RFG	GPA-PW	GA	EA	FS	MA
EH - EMERGENCY HOUSING	AF/RFG	GPA-PW	GA	EA	FS	MA
JL - CORRECTION FACILITY						MA
LG - LARGE GROUP HOME - 17 OR MORE						
INCLUDES SMALL GROUP HOME WITH						
INAPPROPRIATE FS INCOME SOURCE	AF/RFG	GPA-PW	GA	EA		MA
SG - SMALL GROUP HOME - 16 OR LESS						
FS USE IF SSI/SSA DISABILITY						
OR BLIND	AF/RFG	GPA-PW	GA	EA	FS	MA
MD - MENTAL DISEASE FACILITY						MA
TB - TUBERCULOSIS FACILITY						MA
AR - AIDS RESIDENCE	PA			EA		MA
AL - ALIEN SPONSOR LIVING ALONE	AF/RFG	GPA-PW	GA		FS	MA
AS - ALIEN SPONSOR AT HOME						
WITH SPOUSE	AF/RFG	GPA-PW	GA	EA	FS	MA
MC - MIGRANT CAMP	AF/RFG	GPA-PW	GA	EA	FS	MA

***** USE VALUES BELOW TO REMOVE A MEMBER ACTIVE ON THE CASE

NO - NOT IN THE HOME

***** LIVING ARRANGEMENTS BELOW ARE ONLY FOR PICKLE CASES

LI - INDIVIDUAL LIVING INDEPENDENTLY					FS	MA
CP - CHILD LIVING WITH PARENT					FS	MA
IH - INDIVIDUAL LIVING IN ANOTHER HOUSEHOLD					FS	MA
LL - LIVING IN LTC						MA
SL - COUPLE IN LTC						MA
LS - COUPLE LIVING INDEPENDENTLY					FS	MA
LA - COUPLE LIVING IN HH ON ANOTHER					FS	MA

*** FOR EACH OF THE LIVING ARRANGEMENTS LISTED ABOVE, THE
PROGRAMS ARE
LISTED FOR WHICH THEY ARE ACCEPTABLE.

Owner/Renter Codes

O – Owner
R – Renter
U – Unknown

District Office

000 - DHR OFFICE
001 - DHMH
002 - CHILD SUPPORT OFFICE
010 - ALLEGANY LDSS
019 - ALLEGANY COUNTY LHD
020 - ANNAPOLIS OFFICE
021 - GLEN BURNIE OFFICE
029 - AA CO. HEALTH DEPT.
030 - TOWSON OFFICE
031 - CATONSVILLE OFFICE
032 - DUNDALK OFFICE
033 - ESSEX OFFICE
034 - REISTERSTOWN OFFICE
036 - LONG TERM CARE UNIT
039 - BALTIMORE CO. LHD
040 - CALVERT LDSS
049 - CALVERT COUNTY LHD
050 - CAROLINE LDSS
059 - CAROLINE COUNTY LHD
060 - CARROLL LDSS
061 - TANEYTOWN OFFICE
069 - CARROLL COUNTY LHD
070 - CECIL COUNTY DSS
079 - CECIL COUNTY LHD
080 - CHARLES LDSS
089 - CHARLES COUNTY LHD
090 - DORCHESTER LDSS
099 - DORCHESTER CO. LHD
100 - FREDERICK LDSS
109 - FREDERICK COUNTY LHD
110 - GARRETT LDSS
119 - GARRETT COUNTY LHD
120 - BEL AIR OFFICE
121 - ABERDEEN OFFICE
122 - WAGE CONNECTION
129 - HARFORD COUNTY LHD
130 - HOWARD LDSS
139 - HOWARD COUNTY LHD
140 - KENT LDSS
149 - KENT COUNTY LHD
150 - ROCKVILLE OFFICE
151 - SILVER SPRING OFFICE
152 - GERMANTOWN OFFICE

153 - ADMINISTRATIVE OFFIC
157 - GERMANTOWN LHD
158 - SILVER SPRING LHD
159 - ROCKVILLE LHD
160 - HYATTSVILLE OFFICE
161 - LANDOVER OFFICE
162 - SOUTH COUNTY MSC
163 - OUT-OF-HOME SERVICES
164 - JUSTICE CENTER
165 - CENTER POINT
169 - PRINCE GEORGE CO.LHD
170 - QUEEN ANNE'S LDSS
179 - QA HEALTH DEPARTMENT
180 - ST. MARYS LDSS
181 - MECHANICSVILLE AREA
182 - LEXINGTON PARK
189 - ST. MARY'S CO. LHD
190 - SOMERSET LDSS
199 - SOMERSET COUNTY LHD
200 - TALBOT LDSS
209 - TALBOT COUNTY LHD
210 - WASHINGTON LDSS
219 - WASHINGTON CO. LHD
220 - WICOMICO LDSS
229 - WICOMICO COUNTY LHD
230 -WORCESTER LDSS
239 - WORCESTER COUNTY LHD
249 - DVLP DISABLED ADULTS
259 - INST.MENTAL DISEASES
269 - TECH ASSISTED WAIVER
279 - ATTENDANT CARE WAIV.
289 - WAIV FOR OLDER ADULT
299 - CHILD.'S AUTISM WAIV
300 - CENTRAL ADMIN
331 - EESU/HESU
332 - HARBOR VIEW OFFICE
333 - CLIFTON OFFICE
334 - FAM. INVEST PROG SER
335 - DUNBAR OFFICE
336 - SPECIAL PROJECTS
337 - HARFORD HEIGHTS
338 - JOHNSTON SQUARE
340 - LIBERTY GARRISON
341 - ORANGEVILLE OFFICE
342 - PARK CIRCLE
343 - MOUNT CLARE

344 - HILTON HEIGHTS
345 - STEUART HILL
346 - UPTON OFFICE
347 - WESTWOOD
348 - INTAKE & ASMT/R&S PL
349 - FAMILY SERVICES
350 - R&S-APPL./DAY CARE
351 - ADULT SERVICES
352 - IN-HOME AIDE SERVICE
353 - FOSTER CARE MA
354 - LONG TERM CARE (LTC)
355 - SSI UNIT
356 - CENTRAL MA
357 - RESOURCES/SUPPORT-QA
358 - BALTMORE CITY DJJ-MA
359 - MANAGED CARE PROJECT
360 - NORTHWOOD DSS
361 - PAA & OUTREACH
370 - BALT RESTTLMNT CNTR
399 - BALTIMORE CITY HCA
401 - CROWNSVILLE
402 - ROSEWOOD CENTER
403 - SPRING GROVE
404 - WALTER P. CARTER
405 - SPRINGFIELD H.C.
406 - EASTERN SHORE HOSP
407 - GREAT OAKS
408 - POTOMAC CENTER
409 - WESTERN MARYLAND
410 - DEERS HEAD CENTER
411 - HOLLY CENTER
412 - FINAN CENTER
570 - SOUTHERN TRI-COUNTY
571 - ANNE ARUNDEL COUNTY
572 - BALTIMORE CITY
573 - BALTIMORE COUNTY
574 - PRINCE GEORGE'S CNTY
575 - MONTGOMERY COUNTY
576 - HOWARD COUNTY
577 - WESTERN MARYLAND
578 - UPPER SHORE
579 - LOWER SHORE
580 - NORTH CENTRAL
582 - MIDWESTERN
583 - CARROLL COUNTY

Relationship to Head of Household

SE – SELF (MEANING HEAD OF HOUSEHOLD)
CH - NATURAL OR ADOPTED CHILD
SC - STEPCHILD
SP - SPOUSAL PARENT
NS - NON-PARENT SPOUSE
OP - OTHER PARENT
GC - GRANDCHILD/GREAT GRANDCHILD
SI - SIBLING
SS - STEP-SIBLING
CP - CHILD WHO IS A PARENT
OR - OTHER RELATED ADULT
OU - OTHER UNRELATED ADULT
OC - OTHER UNRELATED CHILD
FC - FIRST COUSIN
NN - NIECE/NEPHEW
AU - AUNT/UNCLE
HS - HALF SIBLING
CC - CHILD/PARENT TREATED AS A CHILD

Financial Responsibility Codes

PN - APPLICANT - A PERSON APPLYING FOR ASSISTANCE
RE - RECIPIENT - A PERSON RECEIVING ASSISTANCE
NM - NON-MEMBER
IP - INELIG PARENT - CASH INELIG, MA PARENT OR SPOUSE OF PREGNANT WOMAN
PM - PARENT OF MINOR - CHILD WHO IS A PARENT AND NOT MARRIED
IC - INELIGIBLE CHILD - CHILD NOT ELIGIBLE TO BE IN THE ASSISTANCE UNIT
SI - RECEIVING SSI - ACTIVE WITH SSI
SP - SPOUSE OF PREGNANT WOMAN - LEGALLY MARRIED TO PREGNANT WOMAN
EA - EXCLUDED ALIEN - ALIEN EXCLUDED BECAUSE OF CITIZENSHIP
AL - ALIEN SPONSOR - LEGAL SPONSOR OF AN ALIEN WHO IS IN THE AU
DI - DISQUALIFIED - PROGRAM DISQUALIFIED (CASH OR MA)
ID - DISQUALIFIED - DUE TO IPV - FOOD STAMPS ONLY
ND - DISQUALIFIED - DUE TO NON-IPV - FOOD STAMPS ONLY
BD - BLIND DISABLED CHILD
OS - RECEIVING IN ANOTHER ASSISTANCE UNT
SC - CHILD OF PWC / SIBLING OF PWC

Appendix D: Confidentiality

The information below describes the confidentiality edits applied to the American Community Survey (for more information on the accuracy of the ACS statistics, see: <http://www.census.gov/acs/www/Downloads/ACS/Accuracy00.pdf>)

Confidentiality Edit: To maintain the confidentiality required by law (Title 13, United States Code), the Census Bureau applies a confidentiality edit to the American Community Survey (ACS) data to assure that published data do not disclose information about specific individuals, households, or housing units. As a result, a small amount of uncertainty is introduced into the estimates of ACS characteristics. The sample itself provides adequate protection for most areas for which sample data are published since the resulting data are estimates of the actual characteristics. Small areas require more protection, however. The confidentiality edit is implemented by identifying a subset of individual housing units from the sample data files as having a unique combination of specified person and household characteristics within a block group. The confidentiality edit is controlled so that the basic structure of the data is preserved.

Maryland's Department of Human Resources, Family Investment Administration (FIA), also protects the confidentiality of its clients. FIA is a principal agency of the State of Maryland and is mandated by law to administer the Temporary Cash Assistance (TCA) program, Food Stamp Program, and other public assistance programs that provide cash payments. FIA's responsibilities include collecting and maintaining certain data regarding the participants in the TCA program, the Food Stamp Programs, and other public assistance programs that provide cash payments.

The Census Bureau and the FIA signed a Memorandum of Understanding as part of this research to ensure the integrity, security, and confidentiality of information maintained by the FIA and to permit appropriate disclosure and use of such data as permitted by law.

Census Bureau access to the data files is authorized under Title 13, U.S.C., Section 6; Title 13, U.S.C., Section 8(b), and Title 15, U.S.C., Section 1525, provide authority for the Census Bureau to engage in joint statistical projects with public and private entities.

Confidentiality of the FIA data is guaranteed under Title 13, U.S.C., Section 9; 5 U.S.C., Section 552a(3)(b)(4); Title 42 U.S.C., Sections 601-619, 7 C.F.R. Section 272.1(c)(1); 42 C.F.R. Section 431.300; 45 C.F.R. Section 205.50. Only Census Bureau employees and individuals with Census Special Sworn Status (including contract employees), who are working on projects approved by the Census Bureau and the FIA, and have sworn the Census Bureau's oath of confidentiality, will have access to the Title 13-protected data files. The FIA made the specified information available to the Census Bureau pursuant to Maryland's Annotated Code Article 88A, Section 6(a); COMAR 07.01.07.

Appendix E:

Definitional Differences in Living Arrangements - Situations Coded as Group Quarters or as Households for This Study

For surveys, people are defined as living either in households or group quarters. The 2001 Supplementary Survey (SS01) is a *household* survey. Group quarters are not part of the sampling frame. Assistance programs do allow people living in some types of group quarters to receive benefits. Hence, the universes of the two data sets differ and this then is a factor in the different count of beneficiaries among data sets.

For the SS01, the definitions of a household, a housing unit, and the population living in a group quarters are:

Household

A household includes all the people and family groups that occupy a housing unit as their current place of residence, generally defined under the survey's residency rules as everyone living or staying there for more than two months.

Housing Units

A housing unit is a house, an apartment, a mobile home or trailer, a group of rooms or a single room occupied as separate living quarters or, if vacant, intended for occupancy as separate living quarters. Separate living quarters are those in which the occupants live separately from any other people in the building and which have direct access from outside the building or through a common hall.

Recreational vehicles, boats, vans, tents, railroad cars, and the like are included only if they are occupied as someone's current place of residence.

A housing unit is classified as occupied if it is the current place of residence of the person or group of people living in it at the time of interview, or if the occupants are only temporarily absent from the residence for two months or less; that is, away on vacation or business. If all the people staying in the unit at the time of the interview are staying there for two months or less, the unit is considered to be temporarily occupied, and classified as "vacant seasonal."

Occupied rooms or suites of rooms in hotel, motels, and similar places are classified as housing units only when occupied by permanent residents, that is, people who consider the hotel as their usual place of residence or have no usual place of residence elsewhere.

If any of the occupants in rooming or boarding houses, congregate housing, or continuing care facilities live separately from others in the building and have direct access, their quarters are classified as separate housing units.

The living quarters occupied by staff personnel within any group of quarters are separate housing units if they satisfy the housing unit criteria of separateness and direct access; otherwise, they are considered group quarters.

Group Quarters Population

People residing in group quarters were not part of the SS01. The Census Bureau recognizes two general categories of people in group quarters: (1) institutionalized population and (2) non-institutionalized population. The institutionalized population includes people under formally authorized supervised care or custody in institutions at the time of enumeration. Such people are classified as "patients or inmates" of an institution regardless of the availability of nursing or medical care, the length of stay, or the number of people in the institution. Generally, the institutionalized population is restricted to the institutional buildings and grounds (or must have passes or escorts to leave) and thus, these people have limited interaction with the surrounding community. Also, they are generally under the care of trained staff with responsibility for their safekeeping and supervision. The noninstitutionalized population includes all people who live in group quarters other than institutions.

Living Arrangements in the Maryland Administrative Records

The Maryland Client Automated Resource and Eligibility System (CARES) file includes a code for living arrangements. We reviewed the list of living situations that were allowable for people applying for Food Stamp benefits and made a judgment as to whether they should be classified as living in a "household" or in "group quarters" to appropriately compare the two data sets. Not everyone living in a group quarters is eligible for Food Stamps, including, for example, people living in nursing homes and in prisons and jails. Generally, it is obvious whether to define a living situation as a group quarters.

The separation of the CARES files for this study is shown below:

Household

- At home
- Foster care
- Subsidized adoption children
- Roomer
- Alien sponsor living alone
- Alien sponsor at home with spouse
- Individual living independently
- Child living with parent
- Individual living in another household
- Couple living independently
- Couple living in the household of another family

Group quarters

Homeless

Rehabilitation residence

Project home (supervised homes for disabled persons)

Licensed domiciliary care

Alcohol and drug treatment center

Licensed battered spouse shelter

Emergency housing

Small group homes (less than 16 people)

Migrant camp

Appendix F: Matching Procedures

To determine the match rate for this study, a combination of the methods described below were used, resulting in an estimate that about 95 percent of the possible assistance unit-housing unit matches were found.

Before matching the assistance units from the Maryland 2000/01 Food Stamp file to SS01 households, the SS01 file through the PRED Validation System (PVS) was run. PRED has used the PVS with various survey and administrative record databases and found that PVS has a high rate of accurately matching records among data sets. PVS uses probabilistic matching to assign a Protected Identity Key (PIK), a proxy for the Social Security Number (SSN), for each SS01 person. The SS01 does not collect SSNs.

The Maryland 2000/01 Food Stamp file does have SSNs and, after being validated, they are replaced with the corresponding PIK. SSNs were verified, and therefore successfully converted to a PIK, for 97.9 percent of people in the Maryland 2000/01 Food Stamp file who received Food Stamps sometime during 2000 or 2001. PVS found a PIK for 89.0 percent of all SS01 interviewed people nationally, and for 90.3 percent of Maryland SS01 interview people.

Method 1 to estimate the denominator of the match rate

Assuming that the assignment of a PIK in SS01 is independent of assignment of a PIK in the Maryland 2000/01 Food Stamp file, then it is estimated that 88.4 percent¹⁹ of actual matches at the individual level were identified. Because households and assistance units can be linked based on any individual common to both, the failure to find a particular individual match is not necessarily fatal to finding a match of a household and assistance unit. The match completeness at these levels is likely to be substantially higher than the 88.4 percent.

After matching based on common PIK, records were directly matched from the two data sets based on the name and address characteristics below. Three passes of the files were made, each with unique sets of blocking variables:

First three digits of ZIP Code, house number, and first four characters of the street name;
First letter of first name and first three letters of the last name; or
First five letters of the first name.

For each unique set of values for the blocking factors, all possible combinations of records were reviewed. Of these, the computer was used to find cases where the dates of birth shown on each set of potential matches were the same or nearly so. Then probable matches were clerically compared to determine whether the same individual was in both

¹⁹ That is, 90.3 percent of the 97.9 percent of the people in the Maryland 2000/01 Food Stamp file with a known PIK ($0.903 \times 0.979 = 88.4$ percent).

the SS01 household and in the assistance unit from the Maryland 2000/01 Food Stamp file.

Based on the personal review of the analyst, 56 individuals were added to the matched SS01/ Maryland 2000/01 Food Stamp file.

☞ If it is assumed that the 1,048 matches made by PIK is 88.4 percent of the potential matches from the two data sets, when the additional matches found by the direct matching process are added, a match rate of 93.1 percent²⁰ of people who could possibly have been matched is obtained.

☞ It is likely that the match rate is higher if it is agreed that SSNs that could not be verified on the Maryland 2000/01 Food Stamp file are likely to be fraudulent or in error.

☞ For people in the Maryland 2000/01 Food Stamp file that responded to the SS01, those that had a verifiable SSN on that file are more likely to have had an SSN found and attached by us to their SS01 record than those that did not have a verifiable SSN on the file.

How does a match rate of at least 93 percent for individuals translate into a match rate for assistance units and households? Based on successful matches, the distribution of joint assistance unit-household member is found to be about that shown below:

Distribution of Joint Assistance Unit-Household Members

<i>Number of people in common in linked households</i>	<i>Number of linked households</i>
1	292
2	99
3	74
4	54
5	10
6	5
7	2
8+	3
Universe of linked households	539

Source: U.S. Census Bureau, tabulations of the 2001 Supplementary Survey and the Maryland 2000/01 Food Stamp File.

- Where there is only one joint assistance unit-household member, if a person's records between the two data sources are not matched, a matched assistance unit-household cannot be identified.

²⁰That is, $0.884 * ((1,048 + 56) / 1048) = 0.931 = 93.1$ percent of the possible individual level matches.

- If there are two joint assistance unit-household members, and one of the two individuals is identified as the same person in both data sets, an assistance unit-household as a match can be identified correctly.
- If, however, the two individuals between the data sets cannot be matched, a correct match will not be identified for the assistance unit-household. The probability of not matching an individual between data sets is expected to be 6.9 percent.²¹ Assuming statistical independence, the probability of not matching both individuals is 0.48 percent.²²
- Using this same logic, the overall estimate of missed assistance unit-households would be 3.7 percent (21 cases).²³
- Actually, it is unlikely that the assumption of independence is valid. It is more likely that if one household member cannot be identified as a match, the probability increases that other household members cannot be matched. As such, it would be more conservative to say that the percentage of assistance unit-households not identified as a match is 3.7 percent to 6.9 percent.

Method 2 to estimate the denominator of the match rate

Another way to estimate the match rate for the assistance unit-household is to consider the estimated number of Maryland households that said they received Food Stamps but for which a matching record in the Maryland 2000/01 Food Stamp file could not be found. There were 11,331 such households and they can be placed into three categories:

Situation 1:

Households in which the household member that responded to the SS01 incorrectly said that one or more household members received Food Stamps in the 12 months before the survey.

Situation 2:

Households that received Food Stamps from a state other than Maryland and then moved to Maryland where their address was selected to be interviewed during the study period.

Situation 3:

Limitations in the matching process prevented us from finding a matching record in Maryland 2000/01 Food Stamp file for all individuals in the household.

What is the upper level of the estimated missed match rate? For this study, the national SS01 file was used to find unmatched Food Stamp households from the Maryland 2000/01 Food Stamp file in other states.

²¹ That is, 100 percent – 93.1 percent = 6.9 percent.

²² 6.9 percent x 6.9 percent = 0.48 percent

²³ That is, if the probability of not identifying an assistance unit and household as a match is determined, and then if these probabilities are applied to the number of cases, the estimate of the number of missed cases would be 21 cases or $21/(539 + 21) = 3.7$ percent of the total.

- The Maryland Food Stamp households were weighted that were sampled and interviewed in the SS01 in a state other than Maryland. An estimated 2,703 households received Food Stamps in Maryland at some time during the year but then moved from Maryland and were interviewed by the SS01 in another state. This is the reverse of Situation 2 above.
- Even if the extreme possibility is assumed that there were no Situation 1 cases, and further that there were 2,703 cases because of Situation 2, that would leave 8,628 households²⁴ missed through limitations of the matching process (Situation 3).
- Under this set of assumptions, 6.4 percent²⁵ of assistance units-households would have been missed with a common member.
- Such extreme assumptions are unlikely. Thus, the 6.4 percent estimate of missed matches for households is probably too high.

Looking at these two estimates and the suggested match rates of each, it is estimated that about 95 percent of the assistance unit-housing unit matches were found.

²⁴ That is, $11,331 - 2,703 = 8,628$ households missed through limitations of the matching process.

²⁵ That is, $8,628 / (8,628 + 124,934) = 6.4$ percent of assistance units-households with a common member.

Appendix G: Bibliography

Cunningham, Karen. "Trends in Food Stamp Program Participation Rates: 1999 to 2001," Mathematica Policy Research, Inc., Final Report to U.S. Department of Agriculture (July 2003).

Stiles, Jon, Anita Mathur, Henry Brady. "Using Administrative and Survey Data to Assess Public Assistance Participation of California Household," unpublished University of California, Berkeley, Data Archive and Technical Assistance (November 4, 2003).

Taeuber, Cynthia, Jane Staveley, and Richard Larson. "Issues in Comparisons of Food Stamp Recipients: Caseloads From Maryland State Administrative Records and the Census 2000 Supplementary Survey," presented at the National Association for Welfare Research and Statistics, July 2003, available at:
<http://www.ubalt.edu/jfi/jfc/publications.htm>

U.S. Department of Agriculture, Food and Nutrition Service, "Food Stamps: Average Monthly Participation (Households)", available at:
<http://www.fns.usda.gov/pd/fspmmain.htm>.

U.S. Department of Agriculture, Food and Nutrition Service, Office of Analysis, Nutrition and Evaluation, *Characteristics of Food Stamp Households: Fiscal Year 2001*, FSP-03-CHAR, by Randy Rosso. Project Officer, Jenny Genser. Alexandria, VA: 2003.