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**MEMORANDUM**

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Policy Research, Inc.

**TO:** Bob Dalrymple

**FROM:** Nancy Heiser *nh*

**DATE:** 5/18/90

**SUBJECT:** Unbound Copy of the Report on August 1984 FSP Participation Rates  
Contract No.: 53-3198-0-22-005

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I have attached an unbound version of the August 1984 FSP Participation Rate paper.

Enclosure

cc: Alana Landey  
Harold Beebout  
Pat Doyle  
Carole Trippe

## **Current Perspectives on Food Stamp Program Participation**

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### **Titles in this series:**

- Food Stamp Program Participation Rates**  
(November 1988) Pat Doyle and Harold Beebout
- Food Stamp Program Participation Rates Among the Poverty Population, 1980-1987**  
(November 1988) Carole Trippe and Harold Beebout
- Determinants of Participation in the Food Stamp Program:  
A Review of the Literature**  
(November 1989) Susan Allin and Harold Beebout
- Estimating Rates of Participation in the Food Stamp Program:  
A Review of the Literature**  
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United States  
Department of  
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Food and  
Nutrition  
Service

Office of  
Analysis and  
Evaluation

**Current Perspectives on Food Stamp Program Participation**

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# **Food Stamp Program Participation Rates**

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#### **Determinants of Participation in the Food Stamp Program: A Review of the Literature**

(forthcoming)

Susan Allin and Harold Beebout

#### **Estimating Rates of Participation in the Food Stamp Program: A Review of the Literature**

(forthcoming)

Carole Trippe



United States  
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Agriculture

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Nutrition  
Service

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## **Food Stamp Program Participation Rates**

**Pat Doyle and Harold Beebout**

*A product of*  
**Mathematica Policy Research, Inc.**  
**600 Maryland Avenue, S.W.**  
**Suite 550**  
**Washington, DC 20024**

**November 1988**

## ACKNOWLEDGMENTS

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## EXECUTIVE SUMMARY

Policymakers are interested in the extent to which the Food Stamp Program (FSP) is serving its target population and which subgroups are availing themselves of benefits under the program. This report provides estimates of participation in the FSP using more accurate data on eligibles and participants than has previously been available. The FSP participation rate is a ratio, with the numerator being the number of persons or households in the program (or the actual benefits paid to participants), and the denominator being the number of persons or households eligible for the program (or the total benefits payable if all eligible households participated). The estimates reported here indicate that, in the 50 states and the District of Columbia in August 1984--

- o 66 percent of individuals eligible for food stamps participated
- o 60 percent of households eligible for food stamps participated
- o those households participating received 80 percent of the benefits payable had all eligible households participated.

### IMPROVEMENTS OVER PREVIOUS DATA AND METHODOLOGIES

Previous estimates of FSP participation rates have varied widely, for several main reasons. First is the difficulty in estimating the denominator of the rate: Program eligibility cannot be observed and therefore must be approximated using household survey data. The Survey of Income and Program Participation (SIPP), unavailable for previous research, now allows better approximation of the FSP's rules for determining eligibility. SIPP contains, for example, detailed monthly data on income and household composition supplemented with measures of assets and expenses--all variables used in actual calculations of FSP eligibility.

Second, many previous studies have relied on participants' reports of the benefits they received--data known to be underreported in household surveys. This study uses instead FSP administrative data on beneficiaries and benefits paid in August 1984, and therefore the numerator of the participation ratios should be more accurate.

Finally, estimates of FSP participation rates have also varied depending on the target group studied and on the unit of measurement. Together the SIPP and FSP data allow a disaggregation of the estimates in this study by selected demographic and economic characteristics. And, as noted above, this report will show estimates using all three units of measurement employed in the literature: the individual participation rate, the household rate, and the benefit rate.

## **ESTIMATES OF OVERALL PARTICIPATION**

As summarized above, the estimates of overall participation rates reported here do vary by the unit of measurement employed. The rate for individuals was 6 percentage points higher than that for households because larger households were more likely to participate than smaller ones. The finding for the benefit rate—20 percentage points higher than that for households—implies that households with larger benefits were more likely to participate than households with smaller benefits.

## **ESTIMATES OF PARTICIPATION, BY SELECTED DEMOGRAPHIC CHARACTERISTICS**

The estimates also show considerable variation across selected demographic groups.

- o Regardless of the participation measure used (individual, household, or benefit), preschool children and school-aged children participated at a higher rate than the average. For example, the individual rates were 80 percent for preschoolers and 74 percent for school children. The benefit rate for households with school children was 87 percent compared to the overall benefit rate of 80 percent.
- o Among the elderly, however, only one-third of eligible individuals participated, although the rate was higher among those living alone (40 percent) and was higher still among those receiving Supplemental Security Income (SSI) (65 percent).
- o Among the disabled, approximately half of the eligible individuals (45 percent) and households (52 percent) participated, receiving 68 percent of the benefits payable if participation had been 100 percent.
- o Among households headed by a single woman with children, participation was estimated to be approximately 100 percent (102 percent). The estimate exceeded 100 percent because of measurement and sampling errors in the data.

## **ESTIMATES OF PARTICIPATION, BY SELECTED ECONOMIC CHARACTERISTICS**

The estimates for eligible individuals and households with different economic characteristics show strong variation as well.

- o Participation generally varied inversely with income. Individuals and households in poverty participated at considerably higher rates (81 percent and 75 percent, respectively) than individuals and households overall.

- o In general, participation was greater, the greater the benefit, with the estimates ranging from 29 percent for monthly benefits under \$10 to 98 percent for monthly benefits over \$200. These findings are consistent with those showing that participation increased as household size increased, ranging from 47 percent participation for one-person households to 81 percent for households with six or more persons.
- o Households with earnings had a lower-than-average participation rate (37 percent), whereas households receiving SSI, unemployment compensation, or public assistance participated at higher-than-average rates (67, 66, and 129 percent, respectively).



## I. INTRODUCTION

The Food Stamp Program (FSP) provides low-income households with assistance in buying the food they need to maintain a nutritious diet. A food stamp household is generally defined as a person living alone, or a group of persons living together and sharing food purchases and meal preparation, whose monthly income and assets fall below specified limits. The assistance is in the form of coupons that can be redeemed for food purchases. The amount of the coupons issued to participants is based on their household size and income.

Not all households eligible for food stamps actually participate in the program. The literature on the program suggests a variety of reasons for not participating.<sup>1</sup> Some people may be unaware of the program, while others may presume they are not eligible for its benefits. Other people may be aware of the program and their own eligibility for it, but view the benefits as not worth the effort required to obtain and use them. Still others may not participate because of a stigma they associate with the use of food stamps.

Obviously, since some eligible households do not apply for benefits, the FSP is not serving the entire population targeted by the legislation. Indeed, according to prevailing conceptual models of the decision to participate in the program, participation should not be expected to be universal (see Allin and Beebout, 1988).

But even if participation will never be universal, the Congress and other policymakers are legitimately concerned to know what proportion of the eligible population actually does make use of food stamps. They are also interested in knowing which subgroups of the target population are availing themselves of benefits and why certain groups participate more than others.

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<sup>1</sup>See, for example, Coe (1983).

This paper reports new estimates of participation in the Food Stamp Program-- both among the total eligible population and among selected subgroups of interest to policymakers. Previous estimates of FSP participation have varied widely, because of differences in methodologies, differences in data sources, and inadequacies in the data sources.<sup>2</sup> The estimates reported here are more comprehensive and more accurate than previous sets of estimates. For this reason, and because these new estimates are generally higher than most of the participation rates reported in previous research, this report should be of interest to policymakers interested in how many and which program eligibles participate in the FSP. Another paper in this series (Allin and Beebout, 1988) provides evidence on why program eligibles or particular subgroups do or do not participate.

The estimates reported here are more comprehensive than previous sets of results because they include all three measures of participation discussed in the literature on the FSP: the individual rate, the household rate, and the benefit rate. Each of these rates can be summarized as a ratio of all participants to all eligibles (or of all benefits paid to all potential benefits payable if all eligibles participated). Significantly, no single measure can adequately answer all the questions policymakers ask about participation in the FSP. As defined and explained in the next section, the individual rate can be more useful than the household rate in answering how much a particular demographic group participated, whereas the benefit rate can be more useful than either of the other two rates in answering whether the neediest cases are being served.

The estimates in this report are more accurate than previous ones primarily because they are based on a newly available data set, the Survey of Income and Program Participation (SIPP). Because eligibility for the FSP cannot be observed directly, the

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<sup>2</sup>For a review of the literature on FSP participation rates and estimation techniques, see Trippe (1988).

denominator of the participation ratio (the total number of program eligibles or total potential benefits) has to be approximated using household survey data. In comparison to the household surveys, such as the Current Population Survey (CPS), used in previous research, SIPP contains more, and more detailed, information on the household characteristics FSP administrators must consider when making actual eligibility determinations.<sup>3</sup> For example, SIPP contains information on monthly (as opposed to annual) income, on monthly household composition, on most of the expenses used in calculating deductions from income, and on vehicular assets, thereby making possible a significant advance in our ability to approximate eligibility status using survey data.

Data for the numerators of the overall participation ratios calculated here come from the Food Stamp Program Statistical Summary of Operations. These administrative data are more accurate than the self-reported survey data employed in some previous studies of FSP participation.<sup>4</sup> Recent research has indicated that food stamp reciprocity tends to be substantially underreported in household survey data (U.S. Department of Commerce, 1987). Because the numerators of the ratios reported here are based on administrative counts, they are unbiased estimates of the number of actual participants and the amount of benefits paid. The Food Stamp Program Statistical Summary of Operations does not, however, contain data on subgroups of the participating population. Estimates for these groups were calculated using a sample of food stamp case records from the Integrated Quality Control System of the U.S. Department of Agriculture.

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<sup>3</sup>The exception to this comparison is the 1979 Income Survey Development Program Research Test Panel (ISDP), the precursor to SIPP.

<sup>4</sup>Although the administrative data are more accurate than self-reported program participation, they are not without some error. For example, these data reflect the inclusion of some ineligible participants and errors in reporting or recording by the states.

Although our estimates represent an improvement over previous sets of results, they are not without their own sampling and measurement limitations. In particular, approximating the total number of FSP eligibles still poses problems. For example, a food stamp unit or "household" as defined by the FSP is not the same as the Census definition of a dwelling unit or "household," the principal interviewing unit for household surveys. Moreover, the SIPP data are insufficient to group SIPP respondents accurately into food stamp units. The available research indicates these differences are important sources of bias in studies on this topic (Landa, 1987). Finally, some minor discrepancies remain in matching SIPP information on assets and expenses to actual FSP eligibility criteria.

In short, although this analysis represents a considerable improvement over previous efforts, precise estimates of the population eligible for food stamps, or of subgroups participating in the program, are unattainable. Further research can reduce, but not eliminate, the uncertainties in estimation. As one example, data on reported financial asset balances were not available in SIPP for use in this study, but data of that kind are now available on a more recent file from the Bureau of the Census. Their inclusion in future analyses will improve the estimates.

The remainder of this report is organized as follows. Section II describes the methodology and data used in obtaining the estimates, first by defining the three measures in more detail and then by describing how the numerators and denominators of the participation ratios were estimated using the administrative data and SIPP. Section III reports the results for the three overall participation rates and then for the rates disaggregated by selected demographic and economic characteristics.

## II. METHODOLOGY AND DATA

This section describes the methodology and data employed in constructing the numerators and denominators of the three FSP participation measures. Although each measure can be easily summarized as a ratio of all participants (or the benefits paid to them) to all eligibles (or the potential benefits payable if all eligibles participated), estimating the numerator and the denominator of the ratios is not a clear-cut task. Thus, after defining the three measures in more detail, we will explain how we used the administrative data to estimate the numerators; what criteria FSP administrators use in making actual eligibility and benefit determinations; how, using a model of those criteria, we estimated the denominators with SIPP data; and finally, what the main strengths and limitations of the methodology and data are.

### A. THREE ALTERNATIVE MEASURES OF FSP PARTICIPATION

As noted in the Introduction, no single measure of participation can adequately answer all the questions policymakers have about participation in the Food Stamp Program. The three alternative measures discussed in the literature—the individual rate, the household rate, and the benefit rate—differ not only in their magnitude but also in their advantages and limitations in answering a given question. It is therefore important to define each measure clearly, specify its potential usefulness, and explain how it has been used in previous studies.<sup>5</sup>

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<sup>5</sup>Again, see Trippe (1988) for a comprehensive review of previous research.

### **1. The Individual Participation Rate**

This ratio has as its numerator the number of persons participating in the program and as its denominator the number of persons eligible for the program. Policy discussions about FSP participation rates have tended to focus on research results based on the individual rate, whereas discussions about participation behavior usually focus on a model of the household as the decision-making unit. In fact, for some purposes the individual rate may be preferable to the household rate, especially in answering questions about the participation of a particular subgroup of the target population. For example, the proportion of eligible elderly individuals who participate is a more realistic indication of the behavior patterns of the elderly than is the proportion of all eligible households with an elderly member that participate.

### **2. The Household Participation Rate**

This ratio has as its numerator the number of food stamp units, or households, participating in the program and as its denominator the number of households eligible for the program. As just noted, analyses of participation behavior tend to rely on this rate.<sup>6</sup> The household rate can be significantly different from the individual rate because larger households tend to participate in the FSP more than one- and two-person households.

### **3. The Benefit Rate**

This ratio has as its numerator the actual benefits paid to program participants and as its denominator the total potential benefits payable if all program eligibles participated. For many purposes this rate may be the most meaningful measure, although it has not been used extensively in previous research. In particular, the benefit

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<sup>6</sup>For a review of the literature on FSP participation behavior, see Allin and Beebout (1988).

rate may be the best overall measure of how well the FSP is meeting the target population's need for assistance. For example, the benefit rate estimates reported here are generally higher than the individual and household rate estimates, indicating that cases with higher benefit levels, and thus greater need, participate more than cases with lower benefit levels, and thus lesser need.

## **B. USING ADMINISTRATIVE DATA TO ESTIMATE THE NUMBER OF PARTICIPANTS**

One source of disparities in the previous estimates of FSP participation rates, as noted earlier, has been the use in some studies of household survey respondents' reports of their own participation—data known to be substantially underreported. For example, the U.S. Department of Commerce (1987) estimated that only 67.5 percent of the households receiving food stamps reported receipt of those benefits in the CPS, one source of data for the numerator in previous estimates. Those estimates, therefore, were biased downward.

The estimates of the numerator in the rates reported here are based instead on the Food Stamp Program Statistical Summary of Operations (henceforth, Program Operations), which contains data for August 1984 on the number of persons and households issued benefits and the total dollar value of the coupons issued. The Program Operations statistics are presented by state, allowing us to adjust the totals to estimate the caseload residing in the 50 states and the District of Columbia, which makes up the population reflected in SIPP. This data source therefore provides unbiased estimates of the number of households and persons participating in the program and the benefits they received. It is these statistics that form the numerator in the estimates of overall participation rates developed for this study.

The Program Operations data do not contain information on the participation or benefits of subgroups of the population, such as female-headed households with children or households containing elderly or disabled members. To derive participation rates for



parameters of each of these parts vary over time with cost-of-living adjustments and legislated changes in the program. This analysis employs FSP criteria in existence in August 1984, the month corresponding to the administrative and SIPP data used.

#### **1. Income Limits**

The FSP imposes both a net and a gross income screen. Under the net income screen, monthly gross income net of allowable expenses must fall below the monthly federal poverty guidelines.<sup>8</sup> These guidelines vary by household size and geographic location.<sup>9</sup> In August 1984 the monthly federal poverty guideline for a family of four in the continental United States was \$850. Under the gross income screen, food stamp units that do not contain elderly or disabled members must also have gross income below 130 percent of the same poverty guidelines.

In August 1984 gross income as measured by the program included all cash income received by members of the food stamp household, with exceptions such as earnings of students under age 18, loans, nonrecurring lump-sum payments, and reimbursement of certain expenses. Net income was defined as gross income less a specified amount of deductible expenses for housing, taxes, work-related costs, and the like. It was computed by subtracting the following from gross income.

- o **Standard deduction:** All households with income may subtract the standard deduction, which varies by geographic location and is adjusted annually to account for inflation. In August 1984 it was equal to \$89 in the continental United States.

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<sup>8</sup>The income limits are based on the official monthly poverty guidelines, published by the U.S. Department of Health and Human Services (DHHS), which are adjusted each year to account for inflation.

<sup>9</sup>The income guidelines and other FSP parameters are generally the same for the 48 contiguous states and the District of Columbia and vary slightly for Alaska and Hawaii and the territories.

- o **Earned income deduction:** In August 1984 households with earnings could deduct 18 percent of the combined earnings of all household members.
- o **Dependent care deduction:** Households with children under age 18 or that provide care to incapacitated adults may deduct expenses for their care up to a limit. The limit on dependent care expenses varies by geographic location and is adjusted annually. In August 1984 this limit was \$125 for households in the continental United States.
- o **Medical deduction:** In August 1984 households containing an elderly or disabled member could deduct out-of-pocket medical expenses incurred by those individuals in excess of \$35 per month.
- o **Shelter deduction:** Housing costs (such as rent or mortgage payments, heating or cooling costs, taxes, and insurance) are deductible if the combined expenses exceed 50 percent of gross income less the preceding allowable deductions. A maximum is imposed on the shelter deduction equal to the difference between the limit imposed on the child care costs less actual child care expenses incurred. Households with an elderly or disabled member are exempt from the limit on excess shelter costs.

## **2. Asset Limits**

In 1984 a food stamp household could have countable assets (or resources, as they are called in the administration of the program) of \$1,500 or less and remain eligible for benefits. If an elderly person was present and the household contained at least two members, the asset limit was \$3,000. Not included in countable resources are selected pieces of property, such as the principal home, adjacent land, some household goods, and vehicles needed to produce income or to transport disabled individuals; but all other financial and nonfinancial assets are generally included.

In most instances assets are counted at their fair market value as long as they are accessible to at least one member of the food stamp household. The principal exception to this is the treatment of vehicular assets. Vehicles used to produce income or to transport disabled individuals are exempt entirely from the household's countable resources under the program. Vehicles needed for work-related travel and one additional

vehicle owned by members of the food stamp household are valued based on the current Blue Book value, counting only the amount in excess of \$4,500. Any remaining vehicles owned by members of the household are subject to both a market value test and an equity test, counting the maximum of equity and market value less \$4,500 toward the household's assets.

### **3. Nonfinancial Standards**

In general, food stamp benefits are issued to "households," but there are aspects of the program unit definition that distinguish the term from the Census designation, namely, a group of individuals who share living quarters.<sup>10</sup> The food stamp household consists of a person who lives alone or persons who live together and share food purchases and meal preparation. Elderly individuals unable to prepare their own meals together with their spouses are allowed to form a food stamp household separate from those with whom they reside as long as the combined income of the remaining household members falls below 165 percent of the monthly federal poverty guidelines. Restrictions are imposed on the formation of the food stamp household to prevent spouses, siblings, and parents with children under age 18 from forming separate units within a dwelling unit even if they purchase and prepare meals separately. Furthermore, selected individuals within a dwelling unit are excluded altogether from participation in the Food Stamp Program. These include illegal aliens, persons refusing to comply with work registration requirements, strikers, and residents of most institutions.

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<sup>10</sup>Groups of individuals who share living quarters are referred to as dwelling units or Census households. The latter term is significant in this analysis because the dwelling unit is commonly the interview unit used by the Census Bureau in collecting survey data on the U.S. population. Specifically, as noted in the Introduction, the dwelling unit is the interview unit for SIPP, which is used in this analysis.

Income limits, as discussed earlier, take into account the combined income and resources of all persons who belong to the same food stamp household. The composition of the food stamp household affects its eligibility and benefit amounts as follows.

- o The presence of an elderly person, age 60 or older, entitles the unit to higher assets (conditional on the unit's containing at least two persons, by 1984 rules); exempts the unit from the gross income test and the limit on the shelter deduction; and allows a deduction for medical expenses incurred.
- o The presence of a disabled person, that is, a person under age 60 who receives social security benefits, SSI, or veterans' benefits for reasons of disability, exempts the unit from the gross income test and the limit on shelter expenses and entitles the household to a deduction for medical expenses incurred.
- o The size of the unit determines the income limits to which the unit is subject.
- o The geographic location of the unit, that is, the continental United States, Alaska, Hawaii, Guam, and the Virgin Islands, affects the income limits and the levels of allowable deductions.

The FSP also contains several provisions designed to require able-bodied adults to work, seek training preparatory for work, or look for work. Individuals not exempt from these work registration requirements are prohibited from participation in the program if they refuse to comply. Exemptions from the requirements are allowed for those caring for young children or incapacitated adults, those with a physical or mental disability, employed individuals, recipients of unemployment compensation, selected students, and participants in drug treatment programs.

#### **4. Benefit Levels**

Households deemed eligible based on the criteria described above have their benefits computed as the difference between the maximum food stamp benefit for their household size and geographic location and 30 percent of their net monthly income.<sup>11</sup> In

August 1984 the maximum food stamp benefit was \$253 for a family of four in the continental United States. Households of size 1 or 2 (one or two persons) whose benefit computation results in coupon values of less than \$10 are issued a minimum benefit of \$10.

#### **D. USING SIPP TO ESTIMATE THE NUMBER OF ELIGIBLES**

Our estimation of the population eligible for the FSP in August 1984 involved several stages. First, using the SIPP data, we developed an analysis file reflecting the population as of August 1984. We then used this file to simulate program eligibility, a process whereby we quantified the program rules defined in the previous section and then applied them to each dwelling unit in the data base. For each dwelling unit we also estimated its composition, eligibility status, and potential benefits. We then aggregated the households and persons deemed eligible, which yielded the denominators for the participation rate estimates. Section 1 summarizes our development of the analysis file, and section 2 assesses the outcome of the eligibility simulation.

##### **1. Development of the Analysis File**

SIPP is a nationally representative longitudinal survey of adults in the United States that provides detailed monthly information on income, program participation, and wealth. It is a multipanel longitudinal survey to which replacement panels are added each year. At the time of this study, only data from the first (or 1984) panel were available. The 1984 panel contains information on persons in a longitudinal sample followed for a period of over two and one-half years. The longitudinal sample is defined by adults, age 15 or older, residing at approximately 20,000 addresses (dwelling units) forming a cross-sectional sample of dwelling units in the United States, who were

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<sup>11</sup>The maximum food stamp benefit in 1984 was equal to 99 percent of the Thrifty Food Plan, adjusted for the size of the unit.

interviewed initially in the fall of 1983. These adults, along with other individuals with whom they resided, were interviewed every four months. In each round of interviewing (or wave) a core questionnaire collected information on each of the four months preceding the interview date. In most waves the monthly core questions were supplemented with questions on a variety of topical issues that varied from interview to interview. Because the interviewing process was staggered, the reference period covered in any given wave was not the same for all sample members.<sup>12</sup>

Although the survey is longitudinal, it is designed to support cross-sectional estimation for Census households residing in the 50 states and the District of Columbia. For this analysis cross-sectional estimates of food stamp eligible households were derived from Wave 4 of the 1984 panel combined with information collected in Waves 1 and 5. Wave 4 was chosen because it sampled the population in the month of August, making it comparable to the administrative data used for the numerator, and because it contains topical information on assets and shelter expenses. The integration of data from the other two waves was necessary because Wave 4 does not contain selected information needed to estimate food stamp eligibility. Although it does contain measures of monthly income, monthly Census household composition, shelter expenses, and assets, it does not contain measures of medical and child care expenses, and the information needed to determine disability status is incomplete. SIPP contains no data on medical expenses, and so we had to approximate the level of out-of-pocket medical expenses for elderly and disabled individuals in low-income households. Wave 5 has topical information on child care expenses, and so we linked these data to Wave 4 data, using procedures designed to compensate for when an individual's or household's circumstances might have changed between the two waves. We used information from Wave 1 to determine disability

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<sup>12</sup>For further information on the design and scope of SIPP, see U.S. Department of Commerce (1987).

status, again employing a strategy to account for changing circumstances. Doyle and Post (1988) describe in more detail these procedures for developing the analysis file used in the simulation of the FSP.

## **2. An Assessment of the Eligibility Simulation**

In brief, the procedure used for estimating the eligible population was to replicate, as closely as possible given the data limitations outlined below, the eligibility determination process for each individual or household on the SIPP analysis file, and then aggregate the results. In other words, the program eligibility and benefit criteria outlined in section IIC above were applied to each household as if it had actually applied for food stamps. We then aggregated the results to estimate the total number of eligibles. Doyle and Post (1988) describe this simulation procedure in more detail.

Although SIPP contains more information on the variables involved in determining FSP eligibility and benefits than does any other household survey available, some problems still remain. The simulation procedures described above cannot perfectly replicate the eligibility and benefit determination process mandated in the legislation, despite the adjustments and enhancements made to the SIPP data. The specific discrepancies are summarized below and outlined, showing the direction of the resulting bias, in the Figure.

- o **Unit definition:** The simulated food stamp household is not exactly the same as the unit determined by the food stamp case worker because SIPP does not measure the complete set of characteristics used in determining a food stamp unit. For this study the reported program unit composition in Census households with reported benefits was used to simulate the food stamp household. In other dwelling units with cash assistance, the food stamp household was equal to the cash assistance unit plus any spouses or related children under age 18 in the dwelling. In all other dwelling units the simulated food stamp household was the same as the Census household. Issues affecting the construction of food stamp households from SIPP are described in Landa (1987) and Doyle and Dalrymple (1987).

FIGURE

Factors Affecting Simulation of Food Stamp  
Eligibility with SIPP and the  
Direction of the Bias

Source of Error	Effect on Estimates of the Number of Eligibles
Unit Definition	Overestimate
Countable Assets	
Financial	Unknown
Vehicular	Underestimate
Gross Income	
Underreporting	Overestimate
Definition	Underestimate
Program participation underreporting and misreporting	Underestimate of eligibles participating in other programs
Net Income	Unknown
Disability Status	Underestimate
Measurement Error	Unknown

- o **Countable assets:** The financial assets held by each individual in SIPP were approximated based on reported income from assets. Vehicular assets as reported in SIPP were used to estimate countable vehicular assets according to the program rules. SIPP does not explicitly measure, however, whether each vehicle was used to produce income or to transport disabled individuals. That information was imputed.
- o **Gross income:** The measure of gross income employed for this study is close to, but not precisely the same as, gross income reported to the food stamp case worker in the application for benefits. First, survey data on income and program participation, such as the data collected in SIPP, tend to be underreported. For example, the number of recipients of AFDC benefits in SIPP was only 82 percent of an independent estimate derived from administrative data; the number of recipients of unemployment compensation was 79 percent of the benchmark; and the number of recipients of veterans' benefits was 90 percent of the benchmark (U.S. Department of Commerce, 1985). Second, the definition of income for purposes of food stamp eligibility is not precisely the same as income as measured in SIPP. For example, the Food Stamp Program counts net self-employment earnings averaged over a period of up to one year, whereas SIPP measures self-employment draw. Third, as noted above, unit composition as simulated with SIPP data differs from the case worker's determination of the food stamp household, and hence income aggregated for the food stamp household may differ as well.
- o **Net income:** The use of approximated medical expenses for elderly and disabled individuals and measurement error in the collection of shelter and child care expenses in SIPP will cause some distortion of the net income simulated for this project. The SIPP definitions of shelter and dependent care expenses also differ slightly from the food stamp definitions. For example, SIPP omits expenses incurred for the care of an incapacitated adult and small amounts of shelter costs such as water bills.
- o **Disability status:** The determination of disability status relied on reported disability and reported income receipts as specified under the program. Reporting and measurement errors in SIPP may result in some distortion of the number of disabled individuals identified in this manner.
- o **Measurement error:** Several forms of nonsampling errors affect the eligibility simulation, including the underreporting of income and program participation noted above; misclassifying benefit and income types; and underrepresentation of some population groups, such as low-income households headed by a single woman with children.

The net result of these measurement and reporting errors is uncertain. Underreporting of gross income in the survey will bias the estimates of eligible households upward, since more households will appear to have met the income limits than actually did. On the other hand, the omission of some types of expenses may bias the measurement of net income upward, thus decreasing the estimate of the number of eligible households. However, the inability to perfectly replicate program regulations in the calculation of deductions from expenses may result in the reverse effect. Furthermore, SIPP may overreport the value of some types of assets, particularly vehicular assets (U.S. Department of Commerce, 1986). This could result in an underestimate of the number of eligible households because some would appear to fail the asset test when, in fact, they would actually pass the test if correct values were reported.

Finally, the underrepresentation of some groups biases the estimates of eligibles downward. As shown later in section III, the SIPP data seem to pose a particularly acute problem of underrepresenting low-income households headed by a single woman with children. These households form a large portion of the eligible and participating pools. As a result, the undercount makes some of the disaggregated participation estimates exceed 100 percent—obviously an unrealistic estimate for these rates.

### III. RESULTS

According to the Program Operations data, as shown in Table 1, 7.3 million households in the 50 states and the District of Columbia participated in the Food Stamp Program in August 1984. Based on the estimates prepared from SIPP data, 12.2 million households were eligible for the program in that same month. The overall household participation rate was therefore 60 percent.

The overall individual rate was higher: 20 million individuals out of 30.4 million eligible individuals, or 66 percent, participated in the FSP. The average size of a participant's household according to the Program Operations data was 2.7, whereas the average size of an eligible household according to the estimates from SIPP data was 2.5. Thus, participation rates were higher among larger households than among smaller households.

The estimates indicate that approximately \$1.06 billion in coupons would have been issued to food stamp participants had the participation rate in August 1984 been 100 percent. Approximately 80 percent of those benefits were actually issued according to the Program Operations data. This percentage is consistent with the finding (shown later) that households entitled to higher benefits tended to participate at higher rates than those entitled to lower benefits.

The fact that the benefit rate was higher than the individual rate, which in turn was higher than the household rate, implies that, in addition to other factors, both the size of the household and its potential benefit level influence the decision to participate. The effects of household size and other demographic characteristics on the tendency to apply for benefits are outlined in section A. The effects of potential benefits and other economic characteristics are discussed in section B.

**TABLE 1**  
**Individual, Household, and Benefit**  
**Participation Rates,**  
**August 1984**

	Participants	Eligibles	Participation Rate
Individuals (1,000)	19,990	30,359	65.9%
Households (1,000)	7,343	12,242	60.0
Benefits (1,000)	\$842,601	\$1,060,442	79.5
Average Household Size	2.7	2.5	
Average Per Capita Benefit	\$42.15	\$34.93	

**Sources:** Counts for participants are from the Food Stamp Program Statistical Summary of Operations. Estimates for eligibles were derived from special tables prepared using the expanded Wave 4 analysis file of the SIPP 1984 panel.

## **A. PARTICIPATION RATES, BY SELECTED DEMOGRAPHIC CHARACTERISTICS**

Table 2 shows household participation rates disaggregated by the size of the eligible household. As noted in Doyle and Post (1988), the distribution of eligible households is heavily skewed toward smaller households, which is also true of the participating households. Yet the participation rate among the smallest households was much lower (47 percent) than it was overall (60 percent). In fact, participation rates increased as the size of the household increased, reaching a high of 81 percent of households consisting of six or more people. This pattern of increasing participation rates across household size illustrates the effect of household size on the tendency to apply for and receive food stamp benefits.

Table 3 presents individual participation rates disaggregated by selected demographic characteristics of interest. This table shows that the FSP was serving a large majority of children in eligible households in August 1984. Over 80 percent of eligible preschool children, that is, children under age 5, resided in households that participated in the program. Among school-age children this rate was almost 74 percent.

The participation rate for elderly and disabled individuals varied depending on their living arrangements. Elderly individuals living alone were more likely to participate (40 percent did) than elderly individuals living with others (whose rate was 29 percent). Similarly, 60 percent of eligible disabled individuals living alone received benefits under the program, whereas only 37 percent of those living with others participated. Given that participation rates increase as the size of the household increases, this pattern for elderly and disabled individuals is surprising and suggests that household size is not the sole determining factor in the decision to participate.

**TABLE 2**  
**Household Participation Rates,**  
**by Household Size,**  
**August 1984**

Household Size (number of persons)	Number of Participating Households (1,000)	Number of Eligible Households (1,000)	Household Participation Rate
1	2,363	5,000	47.3%
2	1,422	2,451	58.0
3	1,294	1,776	72.9
4	1,052	1,450	72.5
5	628	846	74.2
6+	584	719	81.2

**Sources:** Estimates of participants were derived from Program Operations data and special tabulations of the August 1984 analysis file of the Integrated Quality Control System. Estimates of eligibles were derived from a sample of 2596 observations included in the expanded Wave 4 analysis file of the SIPP 1984 panel.

**TABLE 3**  
**Individual Participation Rates,**  
**by Selected Demographic Characteristics,**  
**August 1984**

	Number of Participating Individuals (1,000)	Number of Eligible Individuals (1,000)	Individual Participation Rate
<b>Living Alone</b>			
Elderly	1,078	2,716	39.7%
Disabled	216	359	60.2
<b>Living with Others</b>			
Elderly	601	2,079	28.9
Disabled	245	667	36.7
Children under Age 18	10,116	13,360	75.7
Preschool	3,259	4,070	80.1
School-age	6,857	9,290	73.8

**Sources:** Estimates of participants were derived from Program Operations data and special tabulations of the August 1984 analysis file of the Integrated Quality Control System. Estimates of eligibles were derived from a sample of 2596 observations included in the expanded Wave 4 analysis file of the SIPP 1984 panel.



**TABLE 4**  
**Household Participation Rates,**  
**by Selected Demographic Characteristics,**  
**August 1984**

Household Contained:	Number of Participating Households (1,000)	Number of Eligible Households (1,000)	Household Participation Rate
Elderly	1,624	4,128	39.3%
Disabled	516	990	52.2
Children under Age 18	4,476	5,827	76.8
Children Ages 5 to 17	3,472	4,642	74.8
Single Female Adult with Children	2,547	2,504	101.7
Single Male Adult with Children	97	118	81.8
Two or More Adults with Children <sup>a</sup>	1,832	3,205	57.2

Sources: Estimates of participants were derived from Program Operations data and special tabulations of the August 1984 analysis file of the Integrated Quality Control System. Estimates of eligibles were derived from a sample of 2596 observations included in the expanded Wave 4 analysis file of the SIPP 1984 panel.

<sup>a</sup>Includes households in which the gender of the household head is unknown and female-headed households containing two or more adults.

The benefit rates were generally higher than the corresponding participation rates for individuals and households. Table 5 presents the benefit rates disaggregated by selected demographic characteristics of households. The benefit rate for households with an elderly member was 49 percent, 14 percentage points higher than the corresponding individual rate (35 percent)<sup>13</sup> and 10 percentage points higher than the corresponding household rate (39 percent). In other words, in August 1984 the FSP was serving only about one-third of the eligible elderly individuals, but almost one-half of the potential benefits payable to households with an elderly member were being paid out. The pattern was similar for disabled individuals: the FSP was serving about one-half of the eligible disabled individuals and households, while roughly two-thirds of the potential benefits for this group were being provided.<sup>14</sup> This pattern implies that within each of these groups the needier households participated at a higher rate than households with higher net income.

Benefits were being paid out to almost nine-tenths of the households with children under age 18 that were eligible for assistance, with households headed by a single adult participating at a higher rate than households containing two or more adults. Like the other two measures of participation, the benefit rate for households headed by a single woman with children exceeded 100 percent.

#### B. PARTICIPATION RATES, BY SELECTED ECONOMIC CHARACTERISTICS

Table 6 shows household participation rates disaggregated by levels of potential benefits. The estimates suggest that the decision to participate is influenced by the level of benefits for which a household is eligible. In August 1984 the lowest

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<sup>13</sup>This rate was estimated from Table 3, summing over those who lived alone and those who lived with others.

<sup>14</sup>The overall participation rate for disabled individuals was 45 percent, calculated from Table 3.

**TABLE 5**  
**Benefit Rates,**  
**by Selected Demographic Characteristics**  
**of the Household,**  
**August 1984**

Household Contained:	Benefits Paid to Participating Households (1,000,000)	Potential Benefits for Eligible Households (1,000,000)	Benefit Rate
Elderly	\$ 77.1	\$157.6	48.9%
Disabled	38.1	56.3	67.7
Children under 18	696.1	787.8	88.4
Children ages 5 to 17	567.6	650.1	87.3
Single Female Adult with Children	362.2	336.7	107.6
Single Male Adult with Children	10.6	11.0	96.9
Two or More Adults with Children <sup>a</sup>	323.3	440.2	73.5

Sources: Estimates of participants were derived from Program Operations data and special tabulations of the August 1984 analysis file of the Integrated Quality Control System. Estimates of eligibles were derived from a sample of 2596 observations included in the expanded Wave 4 analysis file of the SIPP 1984 panel.

<sup>a</sup>Includes households in which the gender of the household head is unknown and female-headed households with two or more adults.

TABLE 6

Household Participation Rates,  
by the Level of Monthly Benefits,  
August 1984

Monthly Benefit Level	Number of Participating Households (1,000)	Number of Eligible Households (1,000)	Household Participation Rate
≤\$10	742	2,586	28.7%
11-25	351	936	37.5
26-50	618	1,408	43.9
51-75	830	1,302	63.8
76-100	1,260	2,092	60.2
101-150	1,513	1,608	94.1
151-200	989	1,253	79.0
201+	1,040	1,057	98.3

Sources: Estimates of participants were derived from Program Operations data and special tabulations of the August 1984 analysis file of the Integrated Quality Control System. Estimates of eligibles were derived from a sample of 2596 observations included in the expanded Wave 4 analysis file of the SIPP 1984 panel.

participation rate was that for households eligible for benefits no larger than the minimum benefit of \$10 (29 percent). The participation rate generally increased as the potential benefit rose, with the highest rate being that for households whose potential benefit exceeded \$200. The table shows, however, two exceptions to the expected monotonic pattern. The rate declined slightly as the potential benefit increased just over \$75; increased significantly as the benefit exceeded \$100; declined again at \$150; and then jumped up to a very high rate, 98 percent, for the highest benefit category. These exceptions to the pattern may be related to the lower participation rate found for units with zero income (shown later). For example if it received no income, a food stamp unit of size 1 in the 50 states and the District of Columbia would be entitled to \$76 in benefits, which corresponds to the low rate at the \$76 to \$100 level.

As shown earlier, in Table 2, participation rates increased as household size increased. The general increase in participation rates by benefit level just described indicates that there is an interaction between income and size, both of which are important factors in determining benefits. Tables 7, 8, and 9 illustrate the participation rates by income as a percentage of the poverty level, with Table 7 reporting individual participation rates; Table 8, household rates; and Table 9, benefit rates.

As shown in Table 7, individuals in households eligible for food stamps and with income at or below the poverty level participated at a rate of 81 percent in August 1984. This rate is slightly different from the FSP participation rate of persons at or below poverty in 1984 (78 percent), as estimated by Trippe et al. (1988). The difference in these estimates stems from the use of a different approach in estimating the number of persons in eligible households and from a slightly different reference period for the estimates.

TABLE 7

Individual Participation Rates,  
by the Ratio of Gross Income of the  
Individual's Food Stamp Unit  
to the Monthly Federal Poverty Level,  
August 1984

Income as a Percentage of Poverty	Number of Participating Individuals (1,000)	Number of Eligible Individuals (1,000)	Individual Participation Rate
Total $\leq$ 100	18,750	23,075	81.3%
0	967	1,404	68.9
1-50	7,673	7,658	100.2
51-100	10,110	14,013	72.1
Total $>$ 100	1,241	7,284	17.0
101-130	1,123	7,032	16.0
$\geq$ 131	118	253	46.8

Sources: Estimates of participants were derived from Program Operations data and special tabulations of the August 1984 analysis file of the Integrated Quality Control System. Estimates of eligibles were derived from a sample of 2596 observations included in the expanded Wave 4 analysis file of the SIPP 1984 panel.

TABLE 8

Household Participation Rates,  
by the Ratio of Gross Income  
of the Food Stamp Unit  
to the Monthly Federal Poverty Level,  
August 1984

Income as a Percentage of Poverty	Number of Participating Households (1,000)	Number of Eligible Households (1,000)	Household Participation Rate
Total $\leq$ 100	6,822	9,122	74.8%
0	479	773	61.9
1-50	2,414	2,580	93.6
51-100	3,928	5,769	68.1
Total $>$ 100	521	3,120	16.7
101-130	455	2,925	15.6
$\geq$ 131	66	194	34.2

Sources: Estimates of participants were derived from Program Operations data and special tabulations of the August 1984 analysis file of the Integrated Quality Control System. Estimates of eligibles were derived from a sample of 2596 observations included in the expanded Wave 4 analysis file of the SIPP 1984 panel.

TABLE 9

Benefit Rates,  
by the Ratio of Gross Income  
of the Food Stamp Unit  
to the Monthly Federal Poverty Level,  
August 1984

Income as a Percentage of Poverty	Benefits Paid to Participating Households (1,000,000)	Potential Benefits for Eligible Households (1,000,000)	Benefit Rate
Total $\leq$ 100	\$827.5	\$970.0	85.3%
0	66.7	96.8	68.9
1-50	426.0	436.3	97.6
51-100	334.9	436.9	76.7
Total > 100	15.1	90.6	16.6
101-130	14.5	87.3	16.7
$\geq$ 131	0.5	3.3	16.0

Sources: Estimates of participants were derived from Program Operations data and special tabulations of the August 1984 analysis file of the Integrated Quality Control System. Estimates of eligibles were derived from a sample of 2596 observations included in the expanded Wave 4 analysis file of the SIPP 1984 panel.

Individuals in eligible households with no cash income had a participation rate of 69 percent (see Table 7). Similarly households with no income participated at a rate of 62 percent (see Table 8), while the benefit rate for this group was 69 percent (Table 9). Because no household can exist on zero income and studies based on other surveys have shown measurement problems to be prevalent in the zero-income group, the eligible units with zero income presumably include households for which some form of measurement problem has occurred, and therefore the zero-income households are overrepresented.<sup>15</sup> The overrepresentation of zero-income households in the eligible pool biases the participation rate estimates downward.

All three participation rates rose considerably in the 1 percent to 50 percent poverty class and declined sharply after the 50 percent level, reaching lows of 16 percent and 17 percent for units with income above poverty. Households and persons in this higher income class are eligible for only small amounts of assistance, and so their low participation as measured by all three rates is not surprising. Furthermore, based on figures not shown here, these higher income units tended to consist of more than two individuals, which means they were not entitled to the minimum benefit.

The estimates of individual participation rates include an anomalous result for the category between 1 percent and 50 percent of the poverty level. The estimate is in excess of 100 percent, which is of course unrealistic. The estimate reflects an

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<sup>15</sup>Selected studies have shown that households classified as zero income often represent measurement or classification problems rather than households with no source of economic support, and that is why they do not seem to behave in the expected manner. In a case-by-case study of families with annual reported income below \$500 in the March 1972 CPS, Burns (1974) found that although most had low incomes, approximately 70 percent represented some type of conceptual or measurement problem. For example, approximately 28 percent of the families or individuals represented special living arrangements, support for which was provided from outside the household or payment in kind. In another study using matched CPS and Internal Revenue Service (IRS) tax data, the families with zero CPS wage or salary income had reported an average income of \$3,911 to the IRS (Herriot and Spiers, 1975).

undercount of eligible individuals in this poverty class and is the result of the sampling and measurement errors discussed above in section II.

The estimates of all three participation rates for units with income above 130 percent of poverty varied in an unexpected pattern, as shown in Tables 7, 8, and 9. The individual participation rate for that income level was 47 percent; the corresponding household rate was 34 percent; and the corresponding benefit rate was 15 percent. Food stamp eligibility criteria restrict this group to households containing an elderly or disabled individual (they are the only ones exempt from the gross income test). These differences in rates imply that participating households in this income class received benefits lower than the potential benefits of nonparticipating eligible households in the same class. This implication is contrary to the notion that participation rates increase as potential benefits increase. On the other hand, the sample size for this group is somewhat small, so that the estimates have low statistical reliability.

An estimation of the participation patterns by receipt of selected sources of income concludes this analysis of participation rates in the FSP. Household participation rates by receipt of earnings, SSI, public assistance, and unemployment compensation are presented in Table 10. According to the USDA (1987), 19 percent of all participating households had earnings, while according to the SIPP estimates, 3.8 million eligible households, or 31 percent of all eligible households (see Table 1), had earnings. Thus, the estimated participation rate for households with earnings was much lower than the overall rate (37 percent versus 60 percent overall). Recipients of unemployment compensation, on the other hand, participated at a higher rate (66 percent) than that of the total eligible population.

Approximately 18 percent of all participating food stamp households in August 1984 received federally administered SSI payments (USDA, 1987). Those households constituted 17 percent of all eligible households. The household participation rate for

TABLE 10

Household Participation Rates,  
by Selected Sources of Income,  
August 1984

Source of Income	Number of Participating Households (1,000)	Number of Eligible Households (1,000)	Household Participation Rate
Earned Income	1,420	3,798	37.4%
SSI	1,352	2,017	67.0
Elderly in the unit	847	1,315	64.5
Public Assistance	3,823	2,961	129.1
AFDC	3,070	2,280	134.6
Other welfare	843	770	109.6
Unemployment Compensation	173	264	65.7

Sources: Estimates of participants were derived from Program Operations data and special tabulations of the August 1984 analysis file of the Integrated Quality Control System. Estimates of eligibles were derived from a sample of 2596 observations included in the expanded Wave 4 analysis file of the SIPP 1984 panel.

these units—67 percent in Table 10—exceeded the overall participation rate (60 percent) by about 12 percent. Both the estimate of eligible households with an SSI recipient and the estimate of participating households with SSI exclude cases of SSI reciprocity in cashout states, where cash is issued through the SSI program in lieu of food stamps.

Households that contained an elderly member and that also received SSI participated at a much higher rate, 65 percent, than did households in general that contained an elderly member (39 percent from Table 4). The rate of SSI participation by elderly individuals eligible for that program has been estimated to be 64 percent (Leavitt and Schulz, 1988), considerably higher than the corresponding rate for elderly individuals eligible for food stamps (34 percent from Table 3). Given the much higher FSP participation rate for elderly participants in SSI than for the elderly in general, it is likely that the low overall rate of food stamp participation among the elderly is due to the low participation rate of those who are not poor enough to qualify for SSI. Such individuals are entitled to small food stamp benefits as well.

The estimates for households receiving public assistance, and especially those receiving AFDC, exceeded 100 percent. This unrealistically high rate is primarily due to the underreporting of AFDC receipt in SIPP noted earlier in this report. The underrepresentation in SIPP of low-income female-headed households with children also contributes to this anomalous finding.

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