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

Current Perspectives on Food Stamp Program Participation

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

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EXECUTIVE SUMMARY

Although it is unreasonable to expect universal participation in any voluntary social welfare program, there is considerable interest in knowing the extent of participation by members of its target population: those eligible for the program. This ratio of participants to eligiiles, or participation rate, has become one of the criteria most commonly used in evaluating the performance of social welfare programs.

This report reviews the literature on the estimated rates of participation in the Food Stamp Program (FSP), the only public assistance program without categorical restrictions that is available to low-income households. The estimated rates reported in the literature vary substantially--from 24 percent to 80 percent-depending on the measure, data source, and methodology employed. To offer insight into how to interpret these disparities, this review critically evaluates how the estimated rates differ, why they differ, and how they have changed:, over time. Now is an appropriate time to undertake such a review because a new data set, the Survey of Income and Program Participation (SIPP), contains more, and more detailed, information necessary to estimate with precision the number of FSP eligibles than any of the data sets previously employed.

The **FSP** participation rate is a ratio with the numerator being the number of persons or households participating 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).

Estimating the participation rate is not a straightforward task, however, and the rates reported in the literature vary considerably depending on the question addressed by the researcher and the data sources and methodology used Estimates of FSP participation rates will obviously vary depending on the particular measure--the individual, household, or benefit rate--employed in the analysis. But even when the same measure is employed, different studies have arrived at different estimates for three main reasons:

- the inability to directly measure eligibles;
- lack of sufficient data to (indirectly) estimate the number of eligibles; and
- differences among the data sources used to measure the number of participants.

Participation rate estimates will also vary depending on the particular population examined (for example, elderly households or households headed by a single woman), and may also vary over time because of changes in program rules or the economy. But the data and methodological problems remain regardless of which population or time period is the subject of the research.

The major barrier to measuring the participation rate has been the lack of sufficient information to estimate with precision the number of persons or households eligible for the program. In particular, researchers have had to rely on household survey data that do not contain all the income, asset, expense, and household composition information that is needed to replicate the FSP eligiiility **determination process. As a** result, researchers have either ignored some of the eligibility rules or used a variety of approaches to estimate the inadequate or missing information.

This report reviews the estimates of individual, household, and benefit rates of participation among the total FSP-eligible population. It focuses on the data and methodological issues causing the rates to vary and offers some guidance for those attempting to interpret the diverse rates. The major conclusions of this review are:

- Recently available monthly SIPP data allow a more precise estimate of eligibility than other data sources. The monthly income, expense, asset, and household composition data available in SIPP provide information on most of the criteria applied in determining eligibility. Nevertheless, the SIPP data are not a perfect source for estimating the number of eligibles because discrepancies remain between the actual FSP eligibility criteria and the SIPP data.

- FSP administrative counts of participants provide a more accurate measure of participants than household survey data. Household survey data have been shown to substantially underreport food stamp recipiency, thus underestimating the participation rate.

- The most accurate estimates of participation rates to date are based on FSP administrative data for the count of participants and on 1984 SIPP data for estimating the number of eligibles. These estimated rates are 66 percent for individuals, 58 percent to 60 percent for households, and 80 percent for benefits (Doyle and Beebout, 1988, Ross, 1988).

- Among studies using the same data source and general methodology for estimating participation rates, estimates for 'individuals are higher than estimates for households, and the benefit rate estimate (only one estimate is available) is higher than either the individual or the household rate estimate. These results suggest that the FSP is reaching larger households to a greater extent than smaller households, and the neediest households to a greater extent than other eligible households.

- The most consistent data available on participation rates over time indicate that the rates increased between 1978 and 1981, dropped off somewhat in 1982, and then remained relatively constant from 1982 to 1988. The most likely reason 'for the surge in participation rates between 1978 and 1981 is the significant increase in the number of participants relative to the number of eligibles after the elimination of

the purchase requirement (EPR) under the Food Stamp Act of 1977. Changes in legislation and economic conditions also affect the number of eligibles and participants, but it is difficult to measure their individual effects.

I. INTRODUCTION

The **purpose** of the Food Stamp Program (FSP) is to enable low-income households to achieve and maintain a nutritious diet. The U.S. **Congress** has defined the target **population--** the group of people the program is designed to assist--through legislated eligibility requirements. Generally, the target population includes any person, or group of persons living together and sharing food purchases and preparation, whose income and assets in a given month fall below specified limits. The size of the target population varies with changes in the program eligibility requirements, economic conditions, and demographic characteristics of the population.

Target households actually receive food stamps, however, only if they apply for the benefits and are certified eligible. Although Congress, policymakers, and others may not expect universal participation in the program, they often want to know what proportion of the target population does apply for and receive food stamps. **Indeed,** in recent years the program participation rate (the ratio of participants to eligibles) has become one of the most commonly used criteria in evaluating the performance of social programs.' In particular, the participation rate is the primary measure of the extent to which the target population is being served.

But estimating the participation rate is not a straightforward task, and rates vary considerably across studies, depending on the question addressed by the researcher and the data sources and methodology used. In particular, the differences among the rates can largely

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'Other criteria used in evaluating the **FSP** have more to do with issues of program **administration, such as operational efficiency, equity of treatment, adequacy of benefits, and' benefits issued in error.**

be attributed to whether household survey or administrative data are used to measure the number of participants for the numerator of the participation ratio. Studies using household survey data generally produce lower participation rates than those using administrative data because of the known underreporting of food stamp recipiency in household surveys. Limitations in the data sources used to estimate the number of eligibles for the denominator, and the extent to which adjustments are made to account for the limitations, are further sources of variation in the rates.[2]

This paper reviews the literature that estimates rates of participation in the Food Stamp Program, offering those interested in the topic a critical evaluation of why the rates differ, how they differ, and how they have changed over time.[3] This is an appropriate time for undertaking a critical review of the relevant literature on participation rates because a new data set-the Survey of Income and Program Participation (SIPP)--contains more, and more detailed, information on the household characteristics FSP administrators must consider when making actual eligiiility determinations than do any of the data sets previously employed.

The remainder of this report is organized as follows. Section II provides an overview of the wide diversity in the participation rates estimated and discusses the major reasons why the rates vary. It also discusses the three measures of participation--the individual, household, and benefit rates--and their usefulness in policy discussions and then examines evidence on trends

[2]Participation rates also vary depending on the population or subgroup being examined, such as elderly households or households headed by a woman. Variations among different subgroups are not discussed in this study, however, because they are covered by two other studies in this series (Doyle and Beebout, 1988, and Allin and Beebout, forthcoming). The data and methodological issues are the same regardless of the population examined.

[3]This paper does not examine the literature on why FSP eligibles do or do not participate in the program. The Allin and Beebout (forthcoming) paper in this series addresses that question in its review of the literature on FSP participation behavior.

in FSP participation. Each of the studies presented in section II is discussed in Appendix A. Section III examines in more detail the underlying methodological reasons for the diversity in the estimated participation rates, and section IV summarizes and concludes the report.

II. AN OVERVIEW OF FOOD STAMP PROGRAM PARTICIPATION RATES AND WHY THEY VARY

This section provides a nontechnical overview of previous research that estimates rates of FSP participation, with particular emphasis on explaining what the different rates are and the main reasons why they vary. More specifically, this overview will, first, define the three different participation measures employed and explain how each can be of use when evaluating the FSP, second, explain why the estimates of the rates vary; and third, summarize the evidence on FSP participation rates and variations in the rates over time.

A THREE MEASURES OF PARTICIPATION AND THEIR USEFULNESS IN POLICY DISCUSSIONS

In attempting to evaluate the extent to which the FSP is serving its target population, researchers have of necessity developed three different measures of program participation. As Doyle and Beebout (1988) have noted, "no single measure of participation can adequately answer all the questions persons interested in the program have about participation in the Food Stamp Program." Each of the three participation rates appearing in the literature--the individual rate, the household rate, and the benefit rate--is more or less powerful than the other two in answering a given policy question.

As noted above, a program participation rate, defined in the simplest terms, is a ratio of the number of program participants to the number of program eligibles--both participating and nonparticipating. The literature contains three variants of this definition.

- The individual participation rate is a ratio with the numerator being the number of persons in participating households and the denominator being the number of persons in eligible households. The individual rate can be more useful than the household rate in examining the number of persons who benefit from the- program and the participation of particular subgroups of the target population. Policymakers and others may wish

to know, for instance, what percentage of school-age children in eligible households benefit from food stamps. Here, the individual rate is the more appropriate measure because the household rate would indicate the percentage of eligible households with school-age children that receive food stamps-a less precise answer to the question.

- The household participation rate is, a ratio with the numerator being the number of participating households and the denominator being the number of eligible households. The household rate is most commonly used in studies about participation behavior--studies focused on a model of the household as the decision-making unit. Estimates of the household rate are generally lower than estimates of the individual rate, indicating that eligiile large households tend to participate in the FSP more than eligible small households.

- The benefit rate is a ratio with the numerator being the amount of benefits issued and the denominator being the amount of benefits that would have been issued had all eligibles participated in the program. If the benefit rate estimates are much higher than the individual or household rate estimates, we can conclude that those eligible for higher benefits (the neediest economically) are participating at higher rates than those eligible for lower benefits (those with lesser need).

Thus, of all three rates, the benefit rate may be the best overall measure of how well the FSP is meeting the target population's need for assistance (although this measure has not been used extensively in the literature). The individual rate is often the most appropriate one to use in investigating the participation of particular subgroups of the target population. Most analyses of FSP participation behavior, however, have employed the household rate, the measure that corresponds with the unit that applies for and receives food stamps.

B. WHY ESTIMATES OF FSP PARTICIPATION VARY

Estimates of FSP participation rates will obviously vary depending on the particular measure--the individual, household, or benefit rate-employed in the analysis. But even when the same measure is employed, different studies have arrived at different estimates, for three main reasons: .

- the inability to directly measure eligibles;
- limitations in the household survey data used to estimate eligibles and differences among the methodologies used to adjust for the limitations; and
- differences among the data sources used to measure the number of participants (administrative data, offering actual counts of participants, provide more accurate measures than survey data).

Participation rate estimates will also vary depending on the particular population examined (for example, elderly households or households headed by a single-woman), and they may also vary over time because of changes in program rules or in the economy.

The confidence that can be placed in any particular estimate should depend on the extent to which the estimates of the number of participants and eligibles represent (or are adjusted to represent) the actual participating and eligible FSP populations. The data and methodological issues that cause problems in estimating participation rates are discussed in detail in section III.

C. ESTIMATES OF FSP PARTICIPATION RATES

As explained in the previous section, estimates of FSP participation rates will vary depending on the measure, data sources, and methodologies employed in the analysis. Table 1 provides an overview of many of the estimates from the literature on individual, household, and benefit rates. The table categorizes the results by the type of data source used in estimating the number of participants: those in panel A are based on household survey data for the number of participants; those in panel B are based on administrative data for the number of participants. (The results in both panels are based on household survey data for estimating the number of eligibles.) This categorization reflects the most important difference among the studies--and the resulting rates--namely, the fact that reliance on household survey

TABLE 1

An Overview of Individual, Household, and Benefit Rates of FSP Participation, Estimated Using Different Data Sources and Approaches

Studies (Date)	Data Source/ Reference Year(s)	Individual Rate	Household Rate	Benefit Rate
A. Estimates Using Household Survey Data For Participants				
West (1984)	CESD[a]; 1973-74		24%	
Coe (1979a)	PSID[b]; 1976		41%	
Coe (1983a)	PSID[b]; 1979	46%		
Brown (1988a)	CES[c]; 1984-85		28%	
U.S. GAO (1988a)	PSID[b]; 1986		44%	
Czajka (1981)	ISDP[d]; 1979		28%-31%	
Bickel and MacDonald (1981)	ISDP[d]; 1979		47%	
Ross (1988)	SIPP[e]; 1984	51%	41%	
B. Estimates Based on Administrative Data for Particioants				
MacDonald (1975)	Decenial Census; 1974	38%		
Beebout (1981)	SIE, CPS[g]; 1979, 1981	61%-69%		
Czajka (1981)	ISDP[d]; 1979	56%		
Doyle & Beebout (1988)	SIPP[e]; 1984	66%	60%	80%
Ross (1988)	SIPP[e]; 1984	66%	58%	

NOTES: See Table 2, section III, and Appendix A for more information on the methodologies used in these studies. See Appendix B for descriptions of the data sources. The studies in each panel are listed in the same order as they are discussed in Appendix A: sequential order by reference year (after first being divided into those using annual data and those using monthly data for estimating the number of eligibles (not shown here)).

[a]Consumer Expenditure Survey, Diary Portion.
[b]Michigan Panel Study of Income Dynamics.
[c]Consumer Expenditure Survey.
[d]1979 Income Survey Development Program Research Test Panel.
[e]Survey of Income and Program Participation.
[f]Survey of Income and Education.
[g]March Current Population Survey.

data for the number of participants results in an underestimate of program participants (and, generally, an underestimate of the participation rate). Within each panel of Table 1, the remaining differences in the rates are mainly attriiutable to other limitations of the data sources and differences among the methodologies used in estimating eligibles. Specific limitations associated with each study are summarized in Table 2 and discussed in detail in section III and Appendix A. It is important to note that the various estimates for each rate are not directly comparable; they are presented together only to highlight their relative differences.

The estimates of participation rates shown in Table 1 indeed vary substantially, with a range in household rates for example, of 24 percent (West, 1984) to 60 percent (Doyle and Beebout, 1988). Despite the many reasons for the variations, several general conclusions can be drawn from the relative differences among the estimates in the table.

In particular, the rates among individuals (ranging from 38 percent to 69 percent) are generally higher than the household rates (24 percent to 60 percent); and the benefit rate (80 percent) is higher than either the individual or the household rate. In addition, as mentioned previously, the estimates based on administrative data for the number of participants (ranging from 58 percent to 60 percent for households) are generally higher than the estimates based on survey data for the number of participants (ranging from 24 percent to 47 percent for households).

Although the table makes these patterns seem obvious, its simplifications mask the reasons for particular variations. For example, the individual rate estimates may be higher than the household rate estimates because the former are concentrated among those studies using administrative data for the number of participants-data not subject to underreporting bias. On the other hand, the estimates based on administrative data may be higher than those

TABLE 2

Estimates of FSP Participation Rates by the Quality of Information Used

Studies (Date)	Data Source! Reference Year(s)	Participation pates: Individual Rate	Participation pates: Household Rate	Participation pates: Benefit Rate	Information Needed to Estimate Participants: Lnthly Count of Participants	Information Needed to Estimate Eligibles: Identifiable Food Stamp Unit	Information Needed to Estimate Eligibles: Monthly Gross Income	Information Needed to Estimate Eligibles: Countable Deductions	Information Needed to Estimate Eligibles: Countable Assets	Information Needed to Estimate Eligibles: Contemporaneous Income and Household Composition Information[a]
A. Estimates Using Household Survey Data For Participants										
West (1984)	CESD; 1973-74		24%					0	0	-
Brown (1988a)	CES; 1984-85		28%				-	0	0	-
Coe (1979a)	PSID; 1976		41%		-	0	-	0	0	0
Coe (1963a)	PSID; 1979		46%			0	-	0	0	0
GAO (1988a)	PSID; 1966		44%		-	0	-	0	0	0
Czajka (1981a)	ISDP; 1979		28-31%		-	0	+	+	t	t
Blckel & MacDonald (1981)	ISDP; 1979		475		0	0	+	+	t	t
ROSS (1988)	SIPP; 1984	51%	41%			0	+	+	t	t
B. Estimates Using Admlnlstratlva Data For Participants										
MacDonald (1975a)	Decenial Census; 1974	36%			+		0	0	0	0
Beebout (1961)	SIE, CPS; 1979, 1981	61.69%			+	-	0	0	0	0
Czajka (1981b)	ISDP; 1979	56%			+	0	+	+	t	t
Doyle and Beebout (1966)	SIPP; 1984	66%	60%	80%	+	0	+	+	0	t
Ross (1988)	SIPP; 1984	664	58%		+	0	+	+	t	t

Key:

• Poor: This information Is not included In the data and is not estimated In the analysis.

0 Good: This information Is not Included in the data but is estimated in the analysis.

+ Excellent: This Information is included In the data and is used in the analysis.

[a]Income and household composition Information should be available for the same reference period in order to accurately determine need (see Chapter III for a further explanation of this issue).

based on household survey data because the former tend to be for a different (later) time period. Hence, there are multiple factors affecting the variations in the rates across studies.

To isolate the factors causing the different estimates, it is useful to examine estimates of more than one measure from a single study, that is, estimates based on the same data sources, methodologies, and reference year. The Doyle and Be&out (1988) study, for example, estimated all three participation rate measures using the same approach and data for the same year, 1984. Here the estimates indicate that the individual rate was higher than the household rate, and the benefit rate was higher than either the individual or the household rate. This pattern is again illustrated in Ross (1988) for individuals and households.

The Ross study also estimated participation rates using two different data sources for the number of participants but the same estimate of the number of eligibles. This allows a comparison of rates that differ only by the approach used to estimate the number of participants. Here the estimates indicate that the participation rate calculated using administrative data for the count of participants (66 percent) is higher than the rate calculated using household survey data for the estimate of participants (51 percent). Thus, the general patterns observed among the estimates across different studies hold true when examining estimates from a single study.

Table 2 summarizes each of the studies with respect to the quality of the information used in estimating the participation rates.[4] (Again, a more detailed discussion of this topic forms the subject of section III and Appendix A of this report.) Although Table 2 oversimplifies the measurement and methodological issues involved in estimating rates of FSP

[4]The evaluation of the studies is only in terms of the data and methodology used in estimating a participation rate and does not reflect on the overall results of the studies. In many cases participation rate estimates were a minor by-product and not the primary focus of the study.

participation, it serves to depict graphically the main drawbacks to bear in mind when citing any of the estimated rates as indicators of FSP performance.

Table 2 demonstrates that in general, studies using administrative data for the number of participants (that is, those in panel B) and that rely on the recently released SIPP data (or the ISDP data) for estimating the number of eligibles (that is, Doyle and Beebout, 1988; Ross, 1988; and Czajka, 1981) use data that provide most of the needed information for estimating participation rates with precision. More specifically, they use monthly administrative counts of participants, rather than household survey data for estimating the number of participants; and they use monthly SIPP (or ISDP) data for estimating the number of eligibles, data that include most of the information needed to simulate the program eligibility criteria.

The participation rates estimated in these three studies range from 56 percent (Czajka, 1981) to 66 percent (Ross, 1988) for individuals. Interestingly, these rates, which reflect the fewest measurement problems, are among the highest of all the rates reported in the literature.

Table 2 also shows that many of the studies attempted to estimate or adjust for the information that is needed to measure participation rates but that is missing from the data source (identified by a "0" in the table). For example, to account for the recognized underreporting of food stamp recipiency, Bickel and MacDonald (1981) adjusted the household survey data (ISDP) they used in estimating the number of participants. Although the adjustment they made is not as precise as using actual administrative data, the estimate was an improvement over an unadjusted one. Similarly, some of the studies using annual data to estimate the number of eligibles (such as MacDonald, 1975, and Beebout, 1981) approximated monthly income (or adjusted their estimates to account for problems resulting

from' the use of annual data) and estimated missing information on the components of the eligibility process.

D. HOW FSP PARTICIPATION BATES HAVE CHANGED OVER TIME

Unfortunately, because the literature contains no complete time series of estimated participation rates among the eligible population, it is not possible to assess how FSP participation rates have changed since the program started. The studies listed in Tables 1 and 2 investigated participation during various years over the period 1973 to 1986, but differences in the data sources and methodologies used preclude any meaningful assessment of what percentage of the differences in their estimates is due to any real change in the rates.[5] The sixes of the eligible and participating populations have varied over time with changes in program rules, economic conditions, and demographics. But those kinds of changes affect the participation rate only if the relative difference between the number of participants and the number of eligibles changes.

We therefore have attempted to construct a series of participation rates over time that are based on a reasonably consistent set of data sources and methodologies. The numbers of participants shown are actual values based on administrative data. The estimated number of eligibles, however, were produced as a by-product of routine updates of the microsimulation model used by FNS (MATH@) to evaluate the cost and distributional effects of proposed program changes. Although the estimates were not produced for use in constructing participation rates, and therefore have many limitations, they are used in Table 3 because they

[5]One study has attempted to apply the SIPP data to a more extended period (Trippe and Beebout, 1988), but its findings are not conclusive for the purpose of this review because it focused exclusively on the eligible poverty population. Furthermore, its estimates are based on aggregate percentage adjustments rather than household-by-household eligibility simulations.

TABLE 3

Estimated Participation Rates in the Food Stamp Program: 1978 to 1988

Estimate	Estimated Eligibles: MATH (1,000,000)	Estimated Eligibles: Adjusted (1,000,000)	FSP Participants[j] (1,000,000)	Participation Rate[k]	Unemployment Rate: Projected	Unemployment Rate: Actual'	Unemployment Rate: Difference
1978 (July)	30.8[a]	32.4[h,i]	13.8	43	6.0	6.1	-0.1
1979 (July)	27.1[b]	28.5[h,i]	16.6	58	4.5	5.7	-1.2
1981 (January)	30.1[c]	31.7[h,i]	20.7	65	6.9	7.4	-0.5
1982 (January)	32.7[d]	34.4[h,i]	20.2	59	9.0	8.5	0.5
1984 (August)	37.3[e]	33.9'	20.0	59	7.5	7.5	0.0
1985 (April)	37.2[f]	33.8'	20.2	60	8.0	7.3	0.7
1988 (April)	35.2[g]	32.0'	19.1	60	6.5	5.4	1.1

[a]MATH model estimate for July 1979 of FSP based on Survey of Income and Education (SIE) data as documented in Beebout and Kendall (1979).

[b]MATH model estimate for July 1979 of PL 95-113 based on CPS data as documented in Beebout (1980).

[c]MATH model estimate for January 1981 of PL 95-113 as amended in 1979 based on March 1978 CPS data as documented in Neyland (1981), Table 13.

[d]MATH model estimate for January 1982 of PL 95-113 with 1981 OBRA amendments based on March 1981 CPS data as documented in Beebout, Fraker. and Lubitz (1982), Table 19.

[e]MATH model estimate for August 1984 of FSP based on March 1985 CPS data as documented in Doyle and Trippe (1988).

[f]MATH model estimate for April 1985 of FSP with 1982 OBRA amendments based on March 1981 CPS as documented in Caswell, Doyle, and Fraker (1984).

[g]MATH model estimate for April 1988 of FSP under 1985 Farm Bill amendments based on March 1985 CPS as documented in Searle, Doyle, and Fraker (1986).

[h]MATH estimate adjusted upward by 15.8 percent to achieve consistency with later MATH estimates using improved method of approximating monthly income stream. Estimate documented in unpublished memorandum from Irene Lubitz and Pat Doyle to Bob Dalrymple dated March 20, 1986.

[i]MATH estimate adjusted downward by 9.1 percent to account for the effect of vehicular assets on FSP eligibility. Because of lack of information in the CPS, the effect of vehicular assets on eligibility was not modeled in the simulations. Research based on the Survey of Income and Program Participation (SIPP) indicates the effect of vehicular assets is to reduce the number eligible by about 9.1 percent (Doyle and Trippe, 1988).

[j]Participation data from Food Stamp Program Statistical Summary of Operations; excludes Guam, Virgin Islands, and Puerto Rico.

[k]Participation rate computed as participants divided by the adjusted number of eligibles.

'Monthly unemployment rate (seasonably adjusted) from various issues of Survey of Current Business.

represent the only source of estimates based on a single data source over a 10-year period (19784988).

Table 3 shows that the number of participants as a percentage of the number of eligible persons increased between 1978 and 1981, then dropped slightly in 1982, and remained relatively constant between 1982 and 1988. Although the level of participation rates shown in the table are underestimated somewhat due to limitations in the data source (discussed below), the relative changes in the rates over the lo-year period reflect some of the major program and economic changes that have occurred.[6]

One program change that has been shown to have a significant effect on the participation rate was the elimination of the purchase requirement (EPR) under the Food Stamp Act of 1977. Until the EPR went into effect, eligible households had to spend a portion of their own money to obtain a given dollar value of food stamps. The elimination of the purchase requirement, implemented in late 1978 and early 1979, made the program more accessible to many eligible, low-income households because they no longer had to acquire and spend cash to obtain the assistance. Table 3 shows that between July 1978 and July 1979, participation increased by 2.8 million persons.[7] The increase in participation was particularly high among eligible households with elderly members and households in rural areas (not shown) (USDA, 1981).

In addition to the EPR, the 1977 Act had a number of restrictive provisions that were phased in by the states during 1979. Together those provisions made ineligible about 3.5

[6]Because the time series was constructed from available estimates of the number of eligibles from the MATH microsimulation model, the particular months and years shown are arbitrary.

[7]This figure is consistent with a USDA (1981) finding that participation increased by 3.1 million persons between November 1978 (pre-EPR) and April 1979.

million persons who would have been eligiile to participate before the Act was passed (USDA, 1981). This drop in the number of eligibles is consistent with the drop in the estimated number of eligibles, shown in Table 3, between July 1978 and July 1979 (3.9 million).[8]

The net result of the substantial increase in participation after the EPR and the decrease in persons eligible after the restrictive provisions took effect was a significant increase in the overall participation rate for eligible individuals: the estimated rate increased 15 percentage points between July 1978 and July 1979, as shown in Table 3. This is the same increase that was estimated in the USDA (1981) report.

After the restrictive provisions had been fully implemented (by July 1979), the number of eligibles began to increase again, and the number of participants continued to increase but at a faster rate than the number of eligibles. Between July 1979 and January 1981, the number of participants increased by another 4.1 million persons and the estimated number of eligibles by approximately 3.2 million persons. The overall participation rate among individuals therefore continued to rise, reaching 65 percent by January 1981, as shown in Table 3.

Part of the increase in participation after implementation of the 1977 Act can also be attributed to the weakening economic situation over these years; as the number of persons unemployed and in poverty increases, participation in the Food Stamp Program tends to increase. Table 3 shows that between July 1979 and January 1981 the unemployment rate increased from 5.7 percent to 7.4 percent.

[8]Not all of the people who were made ineligible were actually participating in the program, however. USDA (1981) estimated that the more restrictive provisions of the Act actually removed 500,000 to 700,000 persons from the program.

The unemployment rate continued to increase between 1981 and 1982 (to 8.5 percent). As expected, the number of persons eligible for food stamps also increased, but the number of participants decreased slightly, from 20.7 million to 20.2 million. The resulting participation rate therefore declined, from 65 percent to 59 percent, over this period. The reason why participation did not increase as the economy continued to decline between 1981 and 1982 is unclear.

In addition to the changes in the economy, there were additional legislative changes over the period that complicate the analysis of changes in participation. In 1981 and 1982 Congress enacted three separate laws that prescribed over 95 separate changes in the program--the Omnibus Budget Reconciliation Act of 1981, the Food Stamp and Commodity Distribution Amendments of 1981, and the Food Stamp Act Amendments of 1982. Many of the provisions modified program eligibility requirements or benefit amounts. For example, a limit on gross income at 130 percent of the poverty level was introduced, and the earned income deduction was reduced from 20 percent to 18 percent. These rule changes were targeted at subgroups of the eligible population that had historically lower participation rates than the eligible population as a whole (for example, those with incomes above 130 percent of the poverty line and those with earnings). Limiting eligibility of any group of households with a lower participation rate than the overall participation rate will tend to increase the overall rate. Most individual rule changes, however, were so minor, or affected such a small group, that it is difficult to hypothesize about the separate effects of each change.

Except for major changes, therefore, it is difficult to hypothesize about the effects of individual economic and legislative changes because they usually occur simultaneously with other changes. Other aspects of the Food Stamp Program that complicate the analysis of participation changes include changes in the demographic and income characteristics of the

eligible population and changes in other government transfer programs that may indirectly affect Food Stamp Program participation.

It is important to note that the estimates of the number of eligibles in Table 3 were not produced to estimate current participation rates, but instead, to estimate the effects of program changes for a future month (usually three years into the future). As a result, the estimates are based on assumptions for the expected growth in the population, wages, and the unemployment rate existing at the time of the simulation. In many cases the projected economic conditions were appreciably different from the actual conditions. Differences between the actual and projected values for these factors can cause the estimated number of eligibles to be higher or lower than what they would have been based on current information.

The projected and actual unemployment rates shown in Table 3 provide an indication of the potential error in the estimated number of eligibles caused by differences in economic conditions. Where the projected unemployment rate is higher than the actual rate, the number of eligibles is likely an overestimate; where the projected unemployment rate is lower than the actual rate, the number of eligibles is likely an underestimate.

Another limitation of using the existing MATH simulation results in a time series is that technical changes in the model were made from time to time to improve its accuracy. These changes introduce potential inconsistencies in the estimates of the number of eligibles.[9]

[9]One model improvement (affecting the method of allocating annual income to monthly amounts) implemented in 1984 had a significant effect on the model estimates. The estimates of the numbers of' eligibles before 1984 were therefore adjusted, as shown in the notes to Table 3, to be more consistent with the method of approximating monthly income streams used since that time. All eligibility estimates were also adjusted to account for the effect of vehicular assets, such as automobiles, on eligibility since only financial assets were included in the model. The eligibility estimates were adjusted downward by 9.1 percent to account for the effect on eligibility estimates of information on vehicular assets. Because of lack of information in the CPS, the effect of vehicular assets on eligibility was not modeled in the simulations. Research based on the Survey of Income and Program Participation (SIPP) indicates the effect of information on vehicular assets is to reduce the number of eligibles estimated by about 9.1 percent (Doyle and Trippe, 1988).

III. ISSUES IN ESTIMATING FSP PARTICIPATION RATES

This chapter examines in more detail the types of problems that have arisen in applying the various data sources and methodologies in estimating FSP participation rates. It discusses problems in estimating, in turn, the number of participants and the number of eligibles.

A. PROBLEMS IN ESTIMATING THE NUMBER OF PARTICIPANTS

Researchers have used two different types of data sources to estimate the number of participants for the numerator of the participation rate.

- Administrative data based on the Food Stamp Program Statistical Summary of Operations provide information on the number of persons and households issued benefits and on the total dollar value of the coupons issued. This data source provides actual counts of the number of participants.

- Household surveys used to estimate the number of participants include the Current Population Survey (CPS), the Panel Study of Income Dynamics (PSID), and SIPP, among others. Household surveys provide estimates of the number of participants based on the survey respondents' self-reports of their participation in the FSP.

As noted earlier, studies using household survey data generally produce lower participation rates than those using administrative data because of the significant underreporting of food stamp recipiency in household surveys.[10]

Ross (1988), for example, estimated a 51 percent participation rate among eligibles when household survey data were the source for the number of participants, and a 66 percent

[10]The U.S. Department of Commerce (1987a), for example, estimated that only 68 percent of the households receiving food stamps actually reported their receipt in the Current Population Survey. The U.S. Department of Commerce (1985) estimated that in SIPP only 90 percent of the households receiving food stamps actually reported their receipt.

participation rate when administrative data were the source for the number of participants. The number of eligibles, however, was identical in both rates. The 15 point difference between the two rates illustrates how sensitive participation rates are to the data source used to measure the number of participants. If the number of eligibles in the two rates is unbiased, then the lower rate (51 percent) is an underestimate'of the participation rate because of its undercount of participants."

Despite the resulting underestimates of participation rates, household survey data provide important information on the characteristics of participating and nonparticipating households that is needed when conducting behavioral analyses of FSP participation. More specifically, researchers generally use the same data base for estimating eligible participants and eligible nonparticipants so that they can compare the characteristics of the two groups. As a result, they usually remove households reporting participation in the survey if, based on the eligibility estimation, they are deemed ineligible. To the extent that these households are deemed ineligible because of reporting errors in the survey, they should be removed from the sample. Yet, if they appear ineligible because of limitations in the estimation of eligibility, but actually are participants, their removal adds to the underestimate of participants when estimating the participation rate.

[11] Ross (1988) maintains that, to the extent that the number of participants and eligibles are consistently underestimated using information in the SIPP household survey data, estimated participation rates based entirely on the SIPP data may result in a more accurate estimate than rates using administrative data for the number of participants and SIPP household survey data for the number of eligibles. She bases her argument on the assumption that because the number of participants is underestimated in SIPP, logical consistencies in the data base may lead to similar underestimates in the number of eligibles. Only SIPP does not directly measure eligibles, however; it measures only the major components of eligibility. There are sources of error in the measurement of these components that bias the estimate of eligibles, but the net result of the combined errors is unknown (Doyle and Beebout, 1988).

Thus, for purposes of conducting behavioral analyses, household survey data are generally useful in comparing the characteristics of participants and nonparticipants. For estimating participation rates per se, however, administrative data are the preferred source for measuring the number of participants because they provide an accurate count of participants.

B. PROBLEMS IN ESTIMATING THE NUMBER OF ELIGIBLES

Because there is no direct measure of the total number of FSP eligiiles-both participants and nonparticipants-researchers must rely on household survey data to estimate the number of eligibles for the denominator of the participation rate. Their approach to estimating the number of eligibles usually involves applying the FSP eligibility criteria to the characteristics of each sample household responding to the survey. Unfortunately, no household survey provides sufficient information to replicate precisely the FSP eligibility determination process; in many surveys much of the needed information is absent.

These limitations notwithstanding, what information is necessary to make an eligibility determination? In very simplified terms, an precise replication of the process would require information on:

- program unit composition (the persons in the household eligible for food stamps in a given month);
- monthly gross income (total monthly income for those persons whose income is included in administering the income eligibility test);
- countable deductions (those deductions--for expenses such as child care, shelter, and medical care--that are subtracted from gross income in determining net income); and
- countable assets (those assets counted in applying the FSP asset test).

Furthermore, this information should not contain substantial measurement error. Some household surveys provide more of this information than others, and the quality of the information provided also varies. As a result, depending on the survey used, some estimates are better approximations of the total number of program eligibles than others. Moreover, the extent to which the researcher adjusts for missing or inaccurate information in the survey used will result in more or less precise estimations.

Table 4 lists the nationally representative household surveys most commonly employed in estimating the FSP-eligible population (or the benefits payable if all program eligibles participated) and indicates their coverage of the information needed to simulate eligibility. As demonstrated in the table, the recently available SIPP (and its predecessor, the ISDP) supplies more of the information needed than any of the previously employed surveys.

What follows is a more detailed discussion of the information that is needed to estimate eligibility and of the potential problems that can arise when that information is not available. Table 5 summarizes the direction of the bias in the estimates that will result from those various problems.

1. An Identifiable Program Unit

Eligibility for food stamps is based on the combined income and assets of the persons in the food stamp household. Under the FSP program rules, the food stamp household generally consists of a person who lives alone or persons who live together and share food purchases and preparation.[12] Most household surveys (such as the CPS and the PSID) define a household as all persons residing in the dwelling unit. This concept of a dwelling unit does

[12]There are important exceptions to this definition, however. For example, current law allows frail elderly persons and their spouses to form separate units from other relatives who may also live in the same dwelling and share food purchases and preparation.

TABLE 4

Household Surveys' Coverage of Information
Needed to Simulate Respondents' Eligibility

Survey[a]	Income Accounting Period	Coverage of Program Unit Composition	Coverage of Gross Income[c]	Coverage of Countable Deductions	Coverage of Countable Assets
Consumer Expenditure Survey, Diary Portion (CESD)[b]	Annual	Poor	Poor	Poor	Poor
Consumer Expenditure Survey (CES)	Quarterly	Poor	Poor	Good	Good
Michigan Panel Study of Income Dynamics (PSID)	Annual	Poor	Good	Good	Poor
Public Use Sample of the Decennial Census	Annual	Poor	Good	Poor	Poor
Survey of Income and Education (SIE)	Annual	Poor	Good	Poor	Poor
Current Population Survey (CPS)	Annual	Poor	Good	Poor	Poor
1979 Income Survey Development Program Research Panel (ISDP)[d]	Monthly	Good	Excellent	Excellent	Good
Survey of Income and Program Participation (SIPP)	Monthly	Good	Excellent	Excellent	Good

[a]For a description of each of these surveys, see Appendix B.

[b]The 1973-1974 CESD, used in the West (1984) study cited in this report, collected annual household income.

'This refers to the quality of the income data, such as the extent of underreporting.

[d]The ISDP was developed as a pretest for the SIPP and was discontinued after the 1979 test panel. The ISDP sample only had approximately 7,500 households in the latest and largest (1979) test panel, while the ongoing SIPP data have approximately 20,000 households in each panel.

TABLE 5

EFFECT ON THE ESTIMATE OF ELIGIBLES FROM POTENTIAL PROBLEMS DUE TO INADEQUATE INFORMATION ON THE COMPONENTS OF ELIGIBILITY

Potential Problems	Effect on The Simulated Number of Eligibles[a]
Lack of identifiable program unit[b]	Underestimate
Use of annual (versus monthly) income data	Underestimate
Lack of deduction information[c]	Underestimate
Lack of asset information[d]	Overestimate
Lack of contemporaneous income and household composition information	Overestimate
Underreporting of income	Overestimate

[a]Underestimates of eligibles tend to bias the participation rate upward, and overestimates of eligibles tend to bias the rate downward. The net result of the different biases, however, is unknown, and unknowable.

[b]Assumes a dwelling unit concept is used.

'Assumes missing deduction information is not estimated.

[d]Assumes missing asset information is not estimated.

not always correspond to the definition of a food stamp household Differences between the food stamp household, as defined by the PSP, and the dwelling unit, as specified in most household surveys, raise important methodological problems in estimating FSP eligibles using household survey data.

More specifically, a single dwelling unit may contain more than one food stamp unit, or the food stamp unit may be smaller than the dwelling unit. Based on August 1984 SIPP data, Landa (1987) found, for example, that 16 percent of the dwelling units reporting receipt of food stamps contained at least one person not covered under the food stamp unit definition. In addition, the uncovered persons in the dwelling were likely to have a higher income than the covered persons (Landa, 1987). Thus, when estimating eligibility, counting the income of all the persons in the dwelling unit, rather than counting the income of only those persons in the (sometimes different) food stamp unit, will tend to underestimate eligibility, thus overestimating the participation rate (see Table 5).

2. Information on Monthly Income

Eligiiility for the FSP is also based on the household's monthly income. Most household survey data, however, provide annual income information for each household in the survey. Using a household's annual income rather than its monthly income to estimate its eligibility can bias the number of eligibles downward. This bias can occur if, for example, a household's income falls below the FSP income limit in a particular month (thus making it eligible for food stamps) but exceeds the income limit in other months, so that, on an annual basis, its income is greater than 12 times the monthly limit. Theoretically, the bias could also work in the opposite direction (that is, the household's income could exceed the income limit in a particular month of interest and be low enough in the other months of the year that, on

an annual basis, the household would appear eligible). Research indicates, however, that more households have income below the poverty level based on monthly income than based on annual income (Williams, 1986). Using annual income for determining eligibility, therefore, will tend to underestimate the number of households eligible for the Food Stamp Program, thus overestimating the participation rate.

3. Complete Information On Deductible Expenses

A third procedure caseworkers conduct when dete t-mining eligibility is to calculate net income by subtracting from the household's gross income certain allowable deductions, which include a standard deduction, an earnings deduction, and deductions for major expenses such as shelter, child care, and, for elderly and disabled persons, medical expenses. No household survey (except for the ISDP) contains information on all the deductible expenses allowed in the FSP, although SIPP has most of the expense data (lacking only medical expenses for elderly and disabled persons) needed to estimate deductions. The accuracy of an estimate of the number of FSP eligibles therefore depends on the amount of information on deductions and, where that information is missing, how well the simulation approximates those deductions. Omitting information on deductible expenses is likely to bias the estimate of net income upward, thus underestimating the number of eligible households (and overestimating the participation rate). On the other hand, inaccurate simulation of missing deductions could overestimate the number of eligibles (thus underestimating the participation rate).

4. Comulete Information on Assets

In addition to its rules on income and deductions, the FSP allows households to hold only a specified amount of assets (those countable under program rules). Research indicates that a substantial number of households that meet the FSP income criteria are ineligible for

food stamps because their asset holdings exceed the program limits (Bickel and MacDonald, 1981). Until the arrival of the ISDP and the SIPP data, however, asset balances were not recorded in most of the household surveys used to estimate eligibility. Researchers therefore either ignored the asset test or imposed the test using an approximation of financial asset balances derived from the available information on income from assets. If the asset the test is ignored in calculating eligibility, the number of eligibles may be overestimated, thus underestimating the participation rate. Previous studies that have estimated asset balances based on the available information on income from assets (such as Beebout, 1981) often underestimated the 'total amount of countable assets (thus overestimating eligibility) because information on vehicular assets was usually not available. Theoretically, however, it is possible to overestimate countable assets, thus underestimating eligibility.

5 . Contemporaneous Information on Income and Household Composition

As noted earlier, eligibility for the FSP is based on the monthly income (and expenses and assets) of all the persons in the program unit during the month in question. Most household surveys employed in simulating eligibility, however, record a household's income for the previous calendar year for those persons who happened to be members of the household at the time of the survey. The 1988 CPS, for instance, provides information on the annual income during calendar year 1987 of those persons living in the dwelling unit in March 1988.

This approach to reporting income can produce a distorted picture of the actual circumstances of the household during the preceding year. In the 1988 CPS example just mentioned, a household might have lost a member between the end of December 1987, in the income reference year, and March 1988, in the survey year. That person's income would not be counted as part of the household's income for 1987, even though the household might

have benefited from his or her income, and the household might incorrectly be considered eligible for the previous year. The reverse situation could occur if someone entered a household between December 1987 and January 1988. In that case, the new person's income would be counted even though the household did not benefit from his or her income the previous year, and the household might mistakenly be considered ineligible for food stamps in 1987.

The net affect of these potential distortions is an empirical matter. Studies do indicate, however, that persons leaving low-income households tend to have higher levels of income than persons entering households (Czajka and Citro, 1982, Scardamalia, 1978). Thus, the net effect of using household survey data that collects income information and household composition information for different time periods is likely to be an overestimate of the number of eligibles (thus underestimating the participation rate).

6. Complete Reporting of Income

Precise estimates of eligibility require that the income information in the household survey be accurate and complete. It is well known, however, that respondents to household surveys tend to underreport their income, either by not reporting income they received or by reporting less income than they actually received One study found, for example, that in the 1984 CPS reported income from AFDC and unemployment compensation was only about 76 percent of an independent estimate derived from administrative data; income from private pensions was only 63 percent of an independent estimate; and reported income from wages or salary was 99 percent of the independent benchmark (U.S. Department of Commerce, 1988). Similarly, in the third quarter 1984 SIPP, reported income from AFDC and unemployment compensation was about 80 percent, and from veterans' compensation or pensions, 76 percent,

of an independent benchmark; reported income from wages or salary was 95 percent (U.S. Department of Commerce, 1985). In the same wave of SIPP, the average monthly number of AFDC recipients reporting receipt of their benefits was 82 percent; for recipients of unemployment compensation, 79 percent; and for recipients of veterans' compensation and pensions, 90 percent of the respective independent benchmark (U.S. Department of Commerce, 1985).

This underreporting of income should result in overestimates of the number of eligibles (and, hence, underestimates of the participation rate) because more households will appear to have met the income limits than actually did The amount of underreporting varies by income source; but, in general, respondents tend to report income from wages or salary more completely than income from public assistance programs, unemployment and veterans' compensation, and pensions. Although the magnitude of the effect on eligibility estimate is not known, the extent of underreporting for selected income types is greater in the CPS than in the SIPP.

C. SUMMARY

This section discussed the most significant problems that are associated with measuring participation rates with the available data sources. Administrative data provide accurate counts of the number of persons and households issued food stamps and of the total value of the benefits issued, on a monthly basis. Household surveys, on the other hand, offer estimates of the number of participants based on survey respondents' reports of participation. As explained above, the administrative data are preferable in establishing the numerator of the participation rate because survey respondents tend to underreport their participation, leading to underestimation of the FSP participation rate.

Unlike the number of participants, the number of eligibles-the denominator of the rate-cannot be observed directly. All studies must estimate the number of eligibles using the information on eligibility criteria, such as income and expenses, available in household survey data. Those data, however, do not allow an exact replication of the eligibility determination process because of limitations in the amount of detailed information available. But some surveys have more of the information needed to simulate eligibility than others. Hence, the accuracy of the estimate will depend on the amount of information available; and when certain information is not available, the accuracy will depend on how well the missing information is approximated.

The SIPP household survey data contain more of the needed information for simulating eligibility than any previous data source. As a result, estimates of the number of eligibles based on the SIPP data have fewer measurement problems than estimates based on other household survey data The SIPP data were first collected in 1984, however, and so were not available when most of the studies of participation rates were conducted. Although the recent estimates of eligibles using the SIPP data are more accurate than the previous estimates, they are still subject to some measurement and reporting errors because of the remaining limitations in the data. Some of the errors bias estimates of the number of eligibles upward, and others bias them downward (see Doyle and Beebout, 1988). The net result of these sources of bias is, however, unknown. Thus, studies using administrative data for the numerator and SIPP data for simulating the denominator yield participation rates with the fewest measurement problems to date, but all of the problems have not been eliminated.

IV. SUMMARYAND CONCLUSIONS

This review of the literature on FSP participation rates has documented the wide diversity in the estimates researchers have calculated. It has also identified the main cause of that diversity: the wide variation in the data sources employed and in the methodologies developed to adjust for limitations in those sources. Finally, in evaluating the studies conducted to date, this review has concluded that the more appropriate SIPP data, only recently released, should preclude much of that variation in the results of future analyses.

Nonetheless, estimates of FSP participation will continue to vary depending on the measure of participation; the population or subgroup under examination; changes in the population, the economy, or the FSP itself; and continuing, albeit predictably more minor, differences in the methods employed to adjust for the remaining limitations of SIPP as a data source for these investigations.

Until future analyses appear, however, it is reasonable to ask what we do know about FSP participation-despite the wide variation in the rates reported. The following conclusions highlight the main points policymakers and others may wish to bear in mind when trying to make sense of this complex literature.

A. WHY FSP PARTICIPATION RATES VARY

No perfect measure of FSP participation exists because it is impossible to construct an accurate estimate of the number of eligibles for the denominator of the participation ratio. Although the available administrative data on food stamp participants and on the amount of benefits issued to them for estimating each month serve as an accurate count for the numerator of the ratio, no similar source exists for the number of eligibles--that is, eligible

participants and nonparticipants-for the denominator. Thus, estimates of the denominator must be based on the household survey data available.

Unfortunately, until recently researchers have had to rely on annual household surveys, such as the CPS, that do not contain all the income, asset, expense, and household composition information necessary to replicate FSP eligibility requirements for the survey respondents. As a result, analysts have ignored some of the eligiility rules in estimating the number of eligibles; made ad hoc adjustments to the estimates; or inferred the missing information through microsimulation analyses. It is the range of these approaches to estimating the number of eligibles that has caused much of the variation in the estimates. That variation has, in turn, confounded efforts to interpret the results.

One of the simpler questions to ask when investigating FSP participation is which measure is most appropriate: the individual, household, or benefit rate. As this review has explained, the individual rate is useful in examining particular subgroups of the total eligible population; the household rate, in examining issues of participation behavior; and the benefit rate in determining the overall participation of the neediest eligibles targeted by the food stamp legislation.

B. WHAT WE KNOW ABOUT FSP PARTICIPATION RATES

Despite the diversity in the FSP participation rate estimates appearing in the literature, several important facts about the rates are salient.

- Recently available monthly SIPP data allow a more precise estimate of eligibility than other data sources. The monthly income, expense, asset, and household composition data available in SIPP provide information on most of the criteria applied in determining eligibility. Nevertheless, the SIPP data are not a perfect source for estimating the number of eligibles because discrepancies remain between the actual FSP eligibility criteria and the SIPP data.

- FSP administrative counts of participants provide a more accurate measure of participants than household survey data. Household survey data have been shown to substantially underreport food stamp recipiency, thus underestimating the participation rate.

- The most accurate estimates of participation rates to date are based on FSP administrative data for the count of participants and on 1984 SIPP data for estimating the number of eligibles. These estimated rates are 66 percent for individuals, 58 percent to 60 percent for households, and 80 percent for benefits (Doyle and Beebout, 1988; Ross, 1988).

- Among studies using the same data source and general methodology for estimating participation rates, estimates for individuals are higher than estimates for households, and the benefit rate estimate (only one estimate is available) is higher than either the individual or the household rate estimate. These results suggest that the FSP is reaching large households to a greater extent than small households, and. the neediest households to a greater extent than other eligible households.

- The most consistent data available on participation rates over time indicate that the rates increased between 1978 and 1981, dropped off somewhat in 1982, and then remained relatively constant from 1982 to 1988. The most likely reason for the surge in participation rates between 1978 and 1981 is the significant increase in the number of participants relative to the number of eligibles after the elimination of the purchase requirement (EPR) under the Food Stamp Act of 1977. Changes in legislation and economic conditions also affect the number of eligibles and participants, but it is difficult to measure their individual effects.

The most precise estimates of eligibles can be made using the monthly SIPP data. But as mentioned earlier in this report, these data do not begin until 1984. The future, therefore, promises a robust time series of participation rates beginning with 1984 that rely on SIPP data for estimating the number of eligibles and FSP administrative data for the count of participants.

APPENDIX A

EVIDENCE PROM THE LITERATURE ON PARTICIPATION RATES

This appendix examines in some detail each of the studies of FSP participation rates cited in Table 2. It also expands on the overview of measurement issues in section III by evaluating the particular issues posed in each of those studies. Much of the difference among the estimates in the literature can be attributed to whether the number of participants was calculated using household survey or administrative data. The following discussion therefore treats each of those sets of estimates in turn, further categorizing each set by the use of annual or monthly data in estimating the number of eligibles.

This discussion does not attempt to be exhaustive. It reviews the major studies that used nationally representative data to estimate participation rates among the FSP-eligible population. The purpose of limiting the review is to maintain a common basis on which to compare the estimates and the substantive methodological differences among them.[13]

[13]The relevant studies not included were: (1) studies not using nationally representative data bases: Bick (1981), Kim (1983), Lane, Kushman, and Ranney (1983), and Phillips (1982); (2) studies of particular demographic subgroups such as the elderly: Akin, Guilkey, and Popkin (1985), and Blanchard et al. (1982); (3) studies of public assistance recipients: Warlick (1982) (SSI participation rates), and U.S. GAO (1988b) (FSP participation rates among AFDC recipients); (4) studies of participation among the poverty population rather than the total eligible population: Trippe and Beebout (1988), Coe (1977, 1979b); and (5) studies with insufficient information on the methodology used in estimating the rates: Blaylock and Smallwood (1984), Huang, Fletcher, and Raukikar (1981), and Smallwood and Blaylock (1985). All these studies used household survey data for the number of participants and hence probably underestimated the number of participants because of the underreporting of food stamp recipiency in household surveys. In addition, their major focus was on behavioral aspects of FSP participation rather than participation rates per se.

STUDIES USING HOUSEHOLD SURVEY DATA TO ESTIMATE THE NUMBER OF PARTICIPANTS

As explained in the body of this report, most of the studies that used household survey data to estimate the number of participants for the numerator did so because their main purpose was to examine participation behavior among eligibles, not simply to obtain a participation rate (the exception to this is Ross, 1988).[14] The detailed information on participants and nonparticipants found in household surveys is needed to assess the behavioral aspects of participating in the FSP such as the determinants of participation or the effects of FSP participation on food consumption. The participation rate estimates therefore were basically by-products of the studies.

The participation rates discussed below range from 24 percent (West, 1984) to 46 percent (Coe, 1983b) for those studies using annual survey data, and from 28 percent (Czajka, 1981) to 51 percent (Ross, 1988) for those studies using monthly survey data.

Studies Using Annual Survey Data

The five studies discussed below used annual household survey data (rather than monthly survey data) to estimate the number of both participants and eligibles. Annual household survey data generally offer less of the information needed to estimate eligibility than monthly survey data.

West (1984). Using the 1973-1974 diary portion of the Consumer Expenditure Survey (CESD) conducted by the U.S. Bureau of Labor Statistics, Donald West investigated the food expenditures of participating and nonparticipating households. He estimated that 24 percent of the FSP eligible households in the CESD participated in the program.

[14] Ross (1988) used household survey data for one set of estimates, and administrative data for a second set of estimates.

West estimated eligiility by applying the FSP income and asset tests for eligibility to each household in the file to the extent that relevant data were available. To apply the income tests, he divided each household's annual income by 12, reduced it by 23 percent to roughly approximate the allowable deductions, and applied the FSP monthly income limits. He approximated countable assets for each household from its annual income from interest, dividends, and net rentals. Households with incomplete information on household size and total monthly income were removed from the sample.

As with most studies using household survey data to estimate the number of participants, West's finding of a 24 percent household participation rate is biased downward because of the underreporting of food stamp recipiency in household surveys.

His finding also reflects measurement problems in the estimate of the number of eligibles for the denominator. In particular, the CESD data provide annual (rather than monthly) income data, and the income amounts are underreported. Furthermore, the data do not contain information on the expenses that can be deducted from gross income, and the information on assets is incomplete. West applied a statistical rule of thumb to estimate deductions and estimated asset balances that introduced uncertainty into the estimate of the participation rate.

In short, although West obtained useful findings on FSP effects on food expenditures (not reported here), his overall participation rate estimate is not reliable. In addition, his estimate was for 1973-1974, a time when the definition of eligibles was very different from what it is today. At that time, the FSP did not cover the entire country, and participants had to purchase a portion of their food stamps in order to receive the bonus coupons. The program was extended to the entire country by 1975 and the purchase requirement was eliminated by the Food Stamp Act of 1977. Except for Coe (1979a) and McDonald (1975),

all the other participation rate estimates examined in this report are for years beginning with 1979.

Coe (1979a, 1983b). Richard Coe, using the PSID in two studies of the determinants of participation among eligibles in the Food Stamp Program, estimated a household participation rate of 41 percent for 1976 and 46 percent for 1979.[15] He used the same methodology in both studies.

Coe estimated the number of eligibles by applying the FSP limits on monthly net income times 12 to each household's annual gross income minus estimated deductions. He estimated asset balances for the asset test based on income received from rent, interest, and dividends. To account for other measurement problems, he eliminated households from the sample (affecting both nonparticipating eligibles and eligibles who reported participation) that (1) resided outside of the contiguous United States, (2) received SSI and resided in an SSI cashout state, (3) had a change in family composition (specifically, the head or spouse) between the interview period and the income reference period, or (4) were apparent two-family FSP households.

Coe's estimate of the number of eligibles addresses many of the potential estimation problems reviewed in this report by eliminating households with ambiguous eligibility status (such as those with ambiguous information on household composition or unit definition) and by estimating the missing data needed for determining eligibility. But, like the previous two studies, Coe's estimate of eligibility is based on an annual income accounting period rather than the monthly period used in the FSP. Finally, Coe's approximation of missing asset balances does not include information on vehicular assets.

[15] In another study, using the same data base and methodology but fewer observations, Coe (1983a) estimated a slightly lower rate for 1979 (45 percent).

Brown (1988a). Gregory Brown used the 1984-1985 Consumer Expenditure Survey (CES) to examine the effect of the FSP on households' expenditures on food and nonfood items. Based on CES quarterly data, he estimated that 28 percent of the eligible consumer units[16] participated in the FSP in 1984-1985.[17] Brown's estimate is a ratio of the number of eligible consumer units reporting participation to the total number of eligibles estimated based on quarterly income and asset data.

Brown estimated the number of eligibles by applying eligibility requirements to the relevant data available. He excluded from the sample consumer units with incomplete income information, students, and recipients of SSI residing in SSI cashout states. Brown applied the gross income test by comparing the FSP monthly income limit for a quarter (the value for each consumer unit size times three) and the quarterly average of reported income during the year. Allowable deductions were similarly determined by comparing reported quarterly expenditures with FSP deduction limits. For the asset test, Brown used the account balances as of the last date of the last month covered by the interview period.

Like West's estimate, Brown's is biased downward because of the underreporting of food stamp recipiency in the CES. Also biasing his estimate are the inappropriate quarterly average income accounting period and the underreporting of income. Unlike the CESD data used by West, however, the CES data used by Brown contained most of the expense information needed to estimate allowable deductions. Moreover, the greater amount of information on assets in the CES data improved the estimates of assets.

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[16] A wnsumer unit meets one of three definitions: (1) all members of the household are related by blood, marriage, adoption, or other legal arrangements; (2) two or more persons live together and pool their income to make joint expenditure decisions; or (3) a person who lives alone or shares a household but is financially independent.

[17] Brown discusses his results in more detail in Brown (1988b).

U.S. GAO (1988a). The General Accounting Office (GAO) employed the same approach as Coe did in its study of the reasons for nonparticipation in the FSP but used for the data source updated PSID data for calendar year 1986. GAO estimated a household participation rate of 44 percent for 1986. The two percentage point difference between Coe's 1979 estimate (46 percent) and this estimate is not statistically significant.

The GAO study has the same measurement problems as the Coe studies (underestimates of the number of participants, an annual income accounting period, and incomplete asset information for estimating the number of eligibles.) Nonethe-less, a comparison of the rates from the three studies suggests that the household participation rate increased between 1976 and 1979 but was the same in 1979 and 1986.

Studies Using Monthly Survey Data

The three studies discussed below used monthly, rather than annual, household survey data to estimate the number of participants and eligibles. The estimates for eligibles based on monthly data are generally more accurate than those in the previous studies because they are based on more complete information. Like the previous studies, however, these used household survey data rather than administrative data to estimate the number of participants.

Czaika (1981). John Czajka used the 1979 ISDP in a study of the determinants of participation among FSP eligibles. Based on the monthly ISDP data, Czajka estimated a monthly household participation rate in 1979 of 28 percent to 31 percent (across three different reference months).

Use of the monthly ISDP data to estimate eligibles eliminates many of the measurement problems associated with annual accounting periods, as well as the potential inconsistencies in household composition, that were the case the previous studies. In addition, the ISDP's

information on asset balances, its greater amount of information on expenses for allowable deductions, and its use of the food stamp unit definition also alleviate, but do not eliminate, the measurement problems found in the previous studies.

Underreporting of food stamp recipiency remains a problem, however, because the number of participants is not based on actual counts. The number of households reporting food stamp recipiency in the ISDP data was only 80 percent to 85 percent of an independent benchmark based on administrative data (Czajka et al., 1982).

Czajka calculated a second participation rate (56 percent) using FSP administrative data to estimate the number of participants and after making several additional adjustments in the estimate of the number of eligible households. The results of these calculations are presented in the section below on studies using FSP administrative data.

Bickel and MacDonald (1981). Gary Bickel and Maurice MacDonald also employed the 1979 ISDP in a study that provides an FSP participation rate. The purpose of their study was to obtain information on the types and dollar value of assets owned by FSP participants and eligible nonparticipants. The authors estimated a household participation rate of 47 percent. This estimate represents the number of households reporting food stamp receipt in any of the three previous months divided by the estimated number of eligible food stamp households calculated using an average of their reported income over the three-month period.

In general, Bickel and MacDonald used the same methodology to estimate the number of eligible households as that Czajka (1981) used. Calculating income as an average of three months of income, rather than as a single month's income, should have only a minor impact on the estimated number of eligibles.

The major difference between the unadjusted Czajka's **(1981) unadjusted estimate of the household rate (28 percent to 31 percent) and the Bickel and MacDonald estimate (47**

percent) is that in constructing the latter the authors made an adjustment for the underreporting of food stamp recipiency.[18] This factor is probably at the root of most of the difference between the two rates.

Ross (1988). Christine Ross used 1984 SIPP data and FSP administrative data to examine the extent of eligibility for and participation in the FSP in August 1984. Ross estimated two different participation rates for individuals based on different data sources and approaches for estimating the number of participants, but identical ones for estimating the number of eligibles. The lower estimate for individuals, 51 percent, is based on the reported number of participants in the SIPP data, and the higher estimate, 66 percent, is based on administrative data for the numerator. Ross based the estimated denominator of both rates on the SIPP data. Discussion of the second estimate appears in the section below on studies using FSP administrative data.

For the first estimate, Ross estimated the number of eligibles by applying the FSP eligibility criteria in force, in August 1984 to each household in the SIPP file. As noted earlier in this report, SIPP contains detailed information on monthly income and household composition, deductible expenses, and assets--the eligibility criteria that posed such significant measurement problems in working from the annual household surveys previously used in estimating the number of eligibles. Nonetheless, the SIPP data do not overcome all the difficulties encountered in the previous studies. In particular, the SIPP data are incomplete on the characteristics used in determining a food stamp unit: they underreport income; and they lack information on medical expenses for elderly and disabled individuals. The net effect

[18] More specifically, the authors adjusted the total weighted sample of recipient households to actual food stamp participation levels, while drawing down the total weighted sample of eligible nonrecipient households commensurately.

of these limitations on the estimation of eligibility is unknown but undoubtedly less than in surveys other than SIPP.

Ross judged that the greatest disadvantage of the SIPP data is the missing information needed to determine the Composition of the food stamp unit. She found that the estimated participation rate was very sensitive to the assumption used in defining the food stamp unit--who is included in the unit affects whether a household is eligible. Ross defined the food stamp unit in her analysis as all the individuals in the Census household except unrelated individuals, whom she assigned to separate food stamp units.

Ross estimated the number of participants based on the number of households reporting food stamp recipiency in the SIPP minus those households that were deemed ineligible through the simulation of eligibility. As discussed earlier, food stamp recipiency is underreported in the SIPP, as in other household surveys. Furthermore, subtracting the seemingly ineligiile households from the number of those reporting participation reduces the estimate of the numerator even more. Specifically, Ross subtracted 21 percent of the individuals residing in households that reported food stamp recipiency in the SIPP because their households were simulated to be ineligible (4 million out of 19.5 million individuals were deemed ineligible). The remaining individuals represent only 78 percent of the number participating according to administrative data for the same month.

Ross argued, however, that the underestimate in the number of participants may reflect a general underrepresentation of low-income households in the SIPP--leading to an underestimate in the number of eligibles as well. She concluded that if the eligible population is underestimated, participation rates based on SIPP data for both the number of participants and the number of eligibles may be more accurate than those based on a combination of administrative and survey data. There is little evidence, however, to support the conjecture

that the number of eligibles estimated using SIPP data is an underestimate. Again, SIPP does not directly measure eligibles. It measures the major components of eligibility (such as gross income, expenses, and assets), and there are measurement and reporting errors in these components of -eligibility that will bias the estimate of eligibles (see Doyle and Beebout, 1988). But as noted in section III above, the net effect of these errors on the direction of the bias is unknown.

The direction of the bias in estimates of the number of participants is known, however; it is downward because of the underreporting of food stamp recipiency in SIPP and the subtraction of all the seeming ineligibles. Thus, the resulting participation rate based entirely on survey data is likely to be an underestimate.

Summary. All the studies described above underestimated the number of participants because they used household survey data for the number of participants. Nonetheless, as noted at the outset of this section, the behavioral focus of most of the studies (all but the Ross study) necessitated reliance on household surveys. In their efforts to relate participation status to other characteristics of the population, the authors had to use the same data source in estimating the number of participants and eligibles. Thus, although these studies represent a significant contribution to the literature on the determinants of FSP participation and the effects of the FSP on food expenditures, they are less reliable for their estimates of FSP participation rates per se.

STUDIES USING FSP ADMINISTRATIVE DATA TO ESTIMATE THE NUMBER OF PARTICIPANTS

Most studies whose main goal is purely to estimate the participation rate use the more accurate FSP administrative counts of participants for the numerator. Nonetheless, most of the studies that have used administrative data also employed annual household survey data to

estimate the number of FSP eligibles for the denominator. Since the annual survey data do not include all the household information needed to estimate the number of eligibles, most of the studies made ad hoc adjustments based on assumptions about the missing information, or they applied estimates of the missing information to each household in the survey (using microsimulation techniques). The individual participation rates discussed below range from 38 percent (MacDonald, 1975) to 69 percent (Beebout, 1981) in the studies using annual survey data to estimate the number of eligibles, and from 56 percent (Czajka, 1981) to 66 percent (Doyle and Beebout, 1988; Ross, 1988) for studies using the more accurate monthly survey data to estimate the number of eligibles.

Studies Using Annual Survey Data to Estimate the Number of Eligibles

The two studies discussed below use administrative data for the number of participants and annual household survey data (adjusted to estimate monthly income information) to estimate the number of eligibles.

MacDonald (1975). Maurice MacDonald was among the first to use monthly administrative counts of participants and, for estimating the number of eligibles, tabulations of annual survey data adjusted to account for most of the eligibility requirements not captured by those data.[19] MacDonald's resulting estimate of an individual participation rate was 38 percent for 1974.

More specifically, the numerator of MacDonald's estimate was based on the peak monthly number of food stamp participants between January and September 1974; the denominator was based on 1969 data from the public use sample of the 1970 decennial

[19]The results in this study are also discussed in Bickel and MacDonald (1975), and MacDonald (1977).

Census projected to 1974. MacDonald obtained a baseline estimate of the number of eligibles by applying the FSP's monthly maximum net income for each household size to the distribution of households by their annual gross income divided by 12 (based on the methodology used in Bickel and MacDonald, 1975).

MacDonald's adjustments to that baseline estimate were designed to account for differences in the way eligibles were defined in the FSP and in the available decennial Census data. In particular, he adjusted the estimated number of persons eligiile in 1974 downward to account for countable assets; upward to account for persons whose net income after allowable deductions made them eligible; downward to account for the ineligibility of persons receiving SSI who were residing in SSI cashout states; and upward to account for income fluctuations within the year that resulted in more persons being eligible in a given month than in one-twelfth of a year based on annual income.

Although these adjustments obviously worked in both directions, the net result was to raise the number of eligibles over the baseline, yielding in a participation rate of 38 percent. Again, MacDonald's adjustments represent one of the earliest attempts to account for limitations in the available data; but unfortunately, the information available in 1974 on which to base the adjustments was limited, thus leaving considerable uncertainty about the estimate. And as was true of the West study, the eligible population was significantly different in 1974 from the population eligible since 1979, because of changes in the eligibility rules, among other reasons.

Beebout (1981). To estimate individual participation rates for July 1979 and January 1981, Harold Beebout used administrative counts of participants and a microsimulation model (MATH) to estimate the number of eligibles. To construct the 1979 rate, he divided the administrative counts of participants by the projected number of eligibles in July 1979, based

on 1976 Survey of Income and Education data "aged" to represent July 1979. For the 1981 rate, he divided the administrative counts of participants by the projected number of eligibles in January 1981, based on March 1978 CPS data aged to represent January 1981. Beebout's individual rate estimates are 61 percent for July 1979 and 69 percent for January 1981.

Although the MATH model employs annual data, it estimates a monthly income stream from the annual income data. It also simulates income from public assistance sources (such as AFDC and SSI) to correct for the predicted underreporting of income from these sources. In addition, the MATH model is designed to simulate most aspects of the eligibility determination process. Where information needed to determine eligibility is missing from the survey data (such as data on assets and allowable deductions), the model estimates or imputes the information for each household based on the available information. Financial asset holdings are estimated from income reported from rent, interest, and dividends.[20]

Studies using the MATH model do have remaining measurement problems, however. One source of error in the model lies in its approximation of asset holdings. The estimated asset balances are low because the mode1 excludes information on nonfinancial assets (specifically, vehicular assets), leading to an overestimate of the total number of eligibles. Other potential problems arise from having to estimate other eligibility components that are missing from the annual survey file (such as child care deductions) and from having to make assumptions to create the monthly income estimate. In addition, the estimated number of eligibles is based on data that were projected for a future year (three years beyond the available data source) rather than for the current year. This involves aging the existing year of data to the future year of interest based on certain assumptions for factors such as growth

[20]See Doyle, et al. (1988) for a technical description of the MATH model.

in the population, wages, and the unemployment rate. As a result, the estimates of the number of eligibles are not as precise as they would be using current, unaged data.

Studies Using Monthly Survey Data to Estimate the Number of Eligibles

The final three studies discussed here used actual counts of participants from administrative data and monthly survey data to estimate the number of eligibles. The results from these studies are considered the most accurate participation rate estimates available to date.

Czaika (1981). As mentioned earlier, Czajka calculated a second participation rate by using administrative data for the number of participants (thus accounting for the underreporting problem and the problem of seeming ineligibles), and by adjusting for the ineligibility of SSI recipients living in SSI cashout states. Unfortunately, Czajka's second rate is for individuals rather than households and so his two rates are not strictly comparable. It is still worth noting, however, that Czajka's estimated rate for individuals, 56 percent, is 25 to 28 points higher than his estimated rate for households for the same reference period.[21]

Doyle and Beebout (1988). To estimate each of the three measures of FSP participation in August 1984, Pat Doyle and Harold Beebout used administrative counts for that month for the number of participants and August 1984 SIPP data to estimate the number of eligibles. They estimated an individual participation rate of 66 percent, a household rate of 60 percent, and a benefit rate (the ratio of benefits paid to all benefits payable had all eligible households participated) of 80 percent.

As in the previous microsimulation studies, Doyle and Beebout estimated the number of eligibles by applying the FSP eligibility criteria (in this case, those existing in August 1984) to

[21] Calculating an individual rate and a household rate using the same methodology accounts for about 8 percentage points of that difference.

each household in the SIPP file. Again, the SIPP data contain most of the information needed to determine food stamp eligibility; but as discussed earlier regarding the Ross (1988) study, SIPP does not eliminate all the uncertainties and measurement problems associated with the previous data sources.[22]

Doyle and Beebout approximated the food stamp unit by using the reported unit for those households reporting food stamp recipiency, and the public assistance unit plus the family head, spouse, and children under age 18 for those households not reporting food stamp receipt but reporting participation in cash-assistance programs. For all other households they used the Census dwelling unit, Doyle and Beebout approximated the households' financial assets based on reported income from assets.[23] Information on vehicular assets, however, was available in SIPP. The authors also approximated medical expenses for elderly and disabled persons, information that is missing in the SIPP data.

Ross (1988). Like Doyle and Beebout, Christine Ross also used administrative counts of participants for the numerator and the 1984 SIPP data for estimating the number of eligibles to estimate a second participation rate for August 1984 (and one higher than her estimate based on SIPP data for the numerator reported above. Ross estimated an individual rate of 66 percent and a household rate of 58 percent.[24] Her individual rate is exactly the same as that estimated by Doyle and Beebout (1988), and her household rate is only two

[22]See Doyle and Be&out (1988) for a more complete description of the measurement problems associated with using the SIPP data to estimate the number of eligibles.

[23]Correct asset balances were not available in the file used for this study; they are available in a SIPP file released since then by the Bureau of the Census.

[24]Ross estimated a lower rate (51 percent individual and 41 percent household rate) using the SIPP survey data for estimating both the number of participants and eligibles (discussed in section A).

percentage points lower. This comparability is not surprising since the two studies employed similar methodologies in estimating the rates.

As might be expected, the major differences between Ross's and Doyle and Beebout's methodologies lie in the techniques used to estimate information missing from the SIPP. For example, in contrast to the Doyle and Beebout approach, Ross estimated the food stamp unit to be all the individuals in the Census household except unrelated individuals, who were assigned to separate households. Ross also used the replacement file from the Bureau of the Census that includes most of the assets considered countable under the FSP, and therefore she did not have to approximate financial assets. But like Doyle and Beebout, Ross approximated medical expenses for elderly and disabled persons, although she used a different technique. It is not clear in which direction each of these differences pushed the final participation rate estimate, but the aggregate differences resulted in a slightly lower household participation rate in the Ross study than in the Doyle and Beebout study. The difference of 2 percentage points in the household participation rates, though small, is probably the result of the difference in the assumptions used in estimating the food stamp unit.

Summary. All the studies discussed in this section used administrative data for the number of participants and therefore employed the actual count of individuals or households or the total value of the benefits issued each month. The resulting participation rate estimates, therefore, do not suffer from underreporting of food stamp recipiency and generally are considered more accurate than the estimates based on household survey data for the number of participants. The rates do, however, have other measurement problems arising from the lack of complete or appropriate data for estimating the number of eligibles. As in the earlier studies, the extent to which missing information is precisely estimated improves the accuracy of the rates. Those studies using the monthly SIPP data--Doyle and Beebout (1988)

and Ross (1988)--provide the most reliable estimates available for the number of eligiiles because they are based on most of the information needed to replicate the eligibility determination process. When used with counts of participants based on administrative data, these studies provide the most precise participation rate estimates calculated to date.

APPENDIX B

DATA SOURCES COMMONLY USED IN ESTIMATING NATIONALLY REPRESENTATIVE FSP PARTICIPATION RATES

FSP DATA SOURCES USED IN ESTIMATING THE NUMBER OF PARTICIPANTS

- Food Stamp Program Statistical Summary of Onerations. Program operations data provide information from the states on the total number of households and persons issued food stamps each month and on the total value of the benefits issued. These data are considered the best source for estimating the number of program participants and the amount of benefits issued to participants.

- Integrated Quality Control System (IQCS). The IQCS is a nationally representative sample of approximately 70,000 FSP participating households. The sample was developed to estimate the amount of food stamp benefits issued in error on a state-by-state basis. In addition to these quality control functions, data from a subsample of one or two months comprising about 12,000 FSP households are a source of detailed monthly data on the characteristics of participants, including their income, employment status, assets, and demographics. The IQCS provides participation information in much more detail than the FSP Statistical Summary of Operations data, including information on subgroups such as households containing elderly members, female household heads, and earners.

HOUSEHOLD SURVEYS USED IN ESTIMATING THE NUMBER OF PARTICIPANTS AND ELIGIBLES

- Consumer Expenditure Survey (CES). The Bureau of Labor Statistics conducts the CES to provide expenditure weights for the Consumer Price Index (CPI) and to establish bases from which to select samples 'of items to be priced for the CPI. The CES consists of two separate surveys, each with its own questionnaire and sample. The first is a quarterly panel survey in which each household (consumer unit) is interviewed personally once every three months over a fifteen-month period. Information is collected on socioeconomic characteristics of the households, income, work experience, changes in assets and liabilities, and global estimates of expenditures for most goods and services. The second survey is the diary portion, described below.

- Consumer Expenditure Survey, Diary Portion (CESD). For this portion of the CES, respondents record detailed expenditures for all individual items purchased during two successive one-week periods. Interviewers who drop off and pick up the diaries also collect information on FSP participation, household income, and other socioeconomic characteristics. Respondents indicate whether or not they purchased food stamps in the preceding month

- Michigan Panel Study of Income Dynamics (PSID). The PSID is a small but longitudinal annual survey with an original sample of approximately 5,000 households. The primary purpose of the PSID is to provide income information on low-income families. The PSID collects employment, income, program participation, asset, and demographic information on families and individuals.

- 1979 Income Survey Development Program Research Test Panel (ISDP). The ISDP was developed as a pretest for the Survey of Income and Program Participation (SIPP) and was the first monthly longitudinal survey on a nationally representative basis. The purpose of the ISDP was to try out alternative data collection and processing methods in preparation for the SIPP. The last test panel (1979 ISDP) was considered sufficiently large (approximately 7,500 households) to be used for providing national estimates of many characteristics of households and individuals on a monthly basis. For both households and persons, the ISDP provides information on monthly income, household composition, program participation, employment, work-related issues, shelter and other expenses, assets, and demographics.

- Survey of Income and Program Participation (SIPP). SIPP is a nationally representative longitudinal survey with a much larger sample of households (approximately 20,000) and a longer period of time covered (two and one-half years) than the ISDP. SIPP was designed to provide detailed monthly information on income, poverty status, assets, household composition, and program participation, as well as changes in these characteristics over time. In the 1984 SIPP panel, adults residing in the 20,000 households (dwelling units) were interviewed every four months over approximately three years. For each interview month, the reference period is (at most) the previous four months.[25]

- Public Use Sample of the Decennial Census. The public use sample of the decennial Census collects data on annual income, labor force, and demographic characteristics of a sample of the U.S. population once every ten years. These data are similar to CPS data (described below), but they are much less detailed with respect to income and labor force

[25]For a complete description-of the design and scope of SIPP, see U.S. Department of Commerce (1987b).

participation. For example, the only unearned income information available is for public assistance and social security. The data provide information on weeks worked in the previous year but no information on weeks of unemployment insurance or weeks in the labor force when not working. Furthermore, the income data are much more aggregated than the CPS data and hence cannot be split into monthly amounts.

- 'Survey of Income and Education (SIE). The Spring 1976 SIE was undertaken by the Census Bureau to fulfill legislative requirements from Congress to provide state-level estimates of children in poverty or in need of bilingual education. The major emphasis of the SIE was to collect accurate annual income information for each state and the District of Columbia. There were about 160,000 households in the SIE sample. Although the money income concept and the questionnaire wording and design of the SE and the CPS were the same, there were some procedural differences that caused the income estimates between the two surveys to differ.

- March Current Population Survey (CPS). The March CPS is an annual survey of a nationally representative sample of about 60,000 households (abut 180,000 persons). The March CPS collects employment, earnings, program participation, and demographic information on households, families, and persons. The main purpose of the survey is to estimate the size and characteristics of the labor force. Income measures from the March CPS are for the previous calendar year (for example, the March 1988 CPS asked questions about income received in 1987).

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