

**THE SURVEY OF INCOME AND  
PROGRAM PARTICIPATION**

**DIFFERENCES BETWEEN SIPP AND  
FOOD AND NUTRITION SERVICE  
PROGRAM DATA ON CHILD  
NUTRITION AND WIC PROGRAM  
PARTICIPATION**

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## PREFACE

This working paper was prepared by Leighton Ku and Robert Dalrymple, Office of Analysis and Evaluation, Food and Nutrition Service, U.S. Department of Agriculture. The paper notes differences between SIPP and FNS program data on child nutrition programs and WIC. It is designed to help users of SIPP data to understand and interpret selected program data in the SIPP. It also suggests how the survey editing and imputation may bias analyses of these programs. The following topics are discussed:

- Areas of Coverage;
- Persons in Households;
- Comparison of Definitions and Interpretation;
- Income Levels and Imputations;
- Changes in the 1986 Panel; and
- Additional Data Sources.

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## TABLE OF CONTENTS

PREFACE	
INTRODUCTION.....	1
AREAS OF COVERAGE.....	2
PERSONS IN HOUSEHOLDS.....	3
COMPARISON OF DEFINITIONS AND INTERPRETATION.....	5
Child Nutrition.....	5
WIC.....	6
INCOME LEVELS AND IMPUTATIONS.....	9
COMPARISONS OF SIPP AND PROGRAM DATA.....	9
CHANGES IN THE 1986 PANEL.....	10
ADDITIONAL DATA SOURCES.....	11
EXHIBIT 1	
EXHIBIT 2	
FOOTNOTES	

## INTRODUCTION

The Bureau of the Census' Survey of Income and Program Participation (SIPP) has great potential for researching participation in public assistance programs and is only now beginning to be tapped. Insofar as it is still a new data base, there are areas where caution is needed in interpretation. This paper discusses differences in the interpretation of participation in the National School Lunch Program (NSLP), the School Breakfast Program (SBP) and the Special Supplemental Food Program for Women, Infants and Children (WIC). These programs and others, such as the Food Stamp Program, are administered by the Food and Nutrition Service (FNS) of the U.S. Department of Agriculture (USDA). A counterpart piece on the Food Stamp Program was published in Proceedings: Second Annual Research Conference of the Bureau of the Census, June 1986 (R. Dalrymple and S. Carlson, "Food Stamp Participation: A Comparison of SIPP with Administrative Records", pages 587-597).

Briefly, the NSLP provides nutritious lunches and breakfasts to elementary and secondary school children in virtually all U.S. public schools and many private schools. The SBP is similar in nature, but much smaller in availability and participation. Free lunches and breakfasts are provided to children whose family incomes are certified as being below 130 percent of poverty, usually determined at the beginning of the school year. Reduced price meals are available to children whose family incomes are between 130 and 185 percent of

poverty; lunches may cost no more than 40 cents and breakfasts no more than 30 cents. Paid lunches and breakfasts are available to all other children and their prices are set at the discretion of the local school district.

The WIC Program provides nutritious supplemental foods (normally in the form of vouchers or checks for specific foods), nutrition education and access to health services for low-income pregnant, breastfeeding or postpartum women, infants and children under 5 years old with nutritional risks determined by a health professional. Specifically, pregnant women are eligible until 6 weeks after the end of pregnancy; breastfeeding women eligible until one year after delivery and postpartum women eligible until 6 months after delivery. Participants are normally recertified every 6 months. The maximum income level is 185 percent of poverty, but States may set lower standards in accord with income guidelines for health care services.

In general, the following pertain to the 1984 and 1985 panels of SIPP. Procedural changes in the 1986 panel should reduce the problems and are discussed later.

#### **AREAS OF COVERAGE**

SIPP is confined to the 50 states and the District of Columbia, while the FNS programs are also present in territorial areas, including Puerto Rico (see Exhibit 1 for exact areas). SIPP covers the

noninstitutionalized resident population of the U.S. and excludes military personnel living in barracks, crew of merchant vessels and institutionalized persons, such as those in nursing homes, prisons or residential child care institutions. Also excluded are foreigners who are not working or in school and their families. Additionally, in the Census Series P-70 reports, farm households are excluded. FNS program data include all people participating in the programs, regardless of residence or status.

This difference in geographic coverage may cause problems if FNS data are directly compared to SIPP because territories, especially Puerto Rico, have relatively large FNS programs. Exhibit 1 compares FNS data on overall participation in the programs vs. non-territorial participation in April 1984. The proper comparison to SIPP data is the non-territorial United States.

The differences due to institutionalization are trivial. For example, in NSLP about 0.5 percent of meals are served to children in residential child care institutions; WIC services are not generally provided to people in institutions. For the Series P-70 reports, differences due to the farm population will be small, but more significant. FNS data are not broken out by farm/non-farm status.

#### **PERSONS IN HOUSEHOLDS**

The quarterly published SIPP reports show the number of households

receiving some source of a benefit (Tables 7 and 9 in the Series P-70 reports) and number of "persons in households" receiving some source of a benefit (Table 8). "Persons in households" refers to all people in the household, regardless of whether or not each person receives the benefit. Thus, non-participating children, parents, relatives or unrelated persons in the household will be counted with participating people in this statistic. For NSLP, SBP and WIC, participation is based on individuals, not households, a different concept. Care should be taken to not confuse "persons in households" with the number of participants, a much smaller number. For example, all adults in households with children participating in the Child Nutrition Programs (NSLP and SBP) are included in the count of "persons in households" receiving NSLP and SBP. Overall, when using the published reports we advise against using the Table 8 data on these programs. The Table 7 or 9 data on households should be more reliable, but we have no counterpart in program data. Better counts of individual recipients can be done using the actual data tapes.

A related problem is that the definition of a SIPP household may not conform to program definitions. For example, in Food Stamp Program (FSP) analyses, about 18 percent of FSP households (as identified in SIPP) included members not in the reported FSP household. In NSLP, SBP or WIC, the household definition is less explicit and even more likely to be family-related than Food Stamps. Where possible, we advise using families as the units of analysis, not households, for NSLP, SBP and WIC.

## COMPARISON OF DEFINITIONS AND INTERPRETATION

### Child Nutrition

For the Food and Nutrition Service (FNS), participation in the NSLP or SBP is defined as average daily meals served (in each program, categorized as free, reduced price, paid and total) times an absenteeism factor. The average daily meals served are based on counts reported by school districts for meal reimbursement. The absenteeism factor varies, but averages around 1.07 to 1.10 and represents 7 to 10 percent of children absent on any given day, who would have otherwise consumed a lunch. These data are reported monthly and can be aggregated to any appropriate period (quarter, year, etc.).

For SIPP, participation is based on questions for households with children 5 to 18 years old who live in the household for the 4-month reference period. These are reproduced in Exhibit 2. A key problem with use of the SIPP School Lunch or Breakfast data is that the SIPP measurement (people "usually" eating a school lunch or breakfast) does not correspond with the FNS measure (average daily participation). The number of people "usually" participating is likely to be higher than the average daily participation, not measured by SIPP.

A child who is eligible for free lunch (family income under 130 percent of poverty), but who is not eating it on a given day (e.g., has a field trip, ate an ala carte lunch at school, brought a bag lunch, ate off-

campus, etc.) would not be a participant for a given day in FNS data, but would be a participant under SIPP. This bias should lead to an overestimate of persons participating as shown in SIPP versus program data. Other research suggests that children eligible for free lunches partake of them about 80 to 90 percent of the time and that children in the reduced-price range eat them 60 to 80 percent of the time. However, we do not know if these participation rates correspond to the children "usually participating," as identified by the SIPP questions.

A second problem is a common survey problem of lack of knowledge on the part of the respondent. Many families are not fully aware of what type of school lunches their children are receiving, nor whether the meals are free or reduced-price. For example, a parent whose child gets a lunch at 50 cents (in the paid category) may view this as a reduced-price because it is below market rates for a lunch. Thus, there may be some errors due to inappropriate program identification. The direction of bias is not clear.

#### WIC

For FNS, participation in WIC is defined as the number of people who were issued WIC benefits (vouchers, checks or food) in a given month. In SIPP, WIC participation is determined through the roster of sources of income to the household, asked of respondents 18 years or older. The question skip pattern limits the WIC question to only one parent, if both are in the household. WIC is subsequently enumerated for each

month in the wave. Essentially, the only question is whether WIC benefits are a source of income for the household for a given month, e.g., whether anyone in the household gets WIC benefits. If so, then Census usually imputes WIC reciprocity to the respondent (if the respondent is a male, the Census Bureau edit check assigns it to his spouse) and to all children under 5 years old. In turn, they impute the average monthly benefit per participant, based on national data, to each of the persons they designated as WIC recipients. Reciprocity and the assigned values are located on the person record.

One problem is that not all eligible household members get WIC. Although a pregnant woman or one year old may get WIC, a four year old child may not. Imputation of all children under 5 years old as being WIC recipients should result in overestimation. The Census imputation process for which women are considered eligible is not correct since SIPP does not determine if a woman is pregnant, breastfeeding or postpartum. Finally, since the question is only asked of people over 18, it may miss teenage pregnant women or mothers altogether. Overall, it would be expected that SIPP would overestimate the number of WIC participants in most cases (women and children), but may underestimate in some subpopulations (e.g., teenage mothers).

Insofar as the number of recipients may be in error, so the amount of WIC benefits for a household may be overstated since this is imputed on a cost per person basis. In addition, there is some degree of variation of the value of WIC benefits by State and by person type, which is not

accounted in the Census Bureau imputation, which uses a standard cost per person for any given month. For example, benefits in New York or California tend to be higher than in Pennsylvania, largely due to policy and food price variations. Further, infants' WIC benefits tend to be worth more than children's because of the cost of infant formula. In an aggregate use, the overall average WIC benefit per participant should be valid, but in comparison of subgroups there may be some distortions. Since WIC benefits are small (roughly \$30 to \$32 per person per month), the biases for analysis of overall income or the value of in-kind benefits should be negligible.

Recognition of the program should be relatively good among recipients, since WIC is universally known by this name. However, there are WIC-like programs which may cause some confusion. The Commodity Supplemental Food Program provides commodity food packages to low-income women, infants and children in 13 States. It is small (total participation less than 5 percent of WIC) and generally known as separate from WIC. There are State-funded auxiliary programs very similar to WIC in New York, Massachusetts, Pennsylvania, Illinois, Wisconsin and Texas, but these are also quite small and are essentially the same as WIC, except for Federal versus State funding. Confusion about these WIC-like programs may lead to small overestimates in SIPP.

A final concern is that the sample size of WIC households in SIPP is relatively small. Only 300 households out of 20,000 interviewed households reported receiving WIC when the SIPP sample size was its largest in Wave 1 of the 1984 panel.

## **INCOME LEVELS AND IMPUTATIONS**

Income imputations are often performed in SIPP and other large-scale multi-purpose surveys. Overall, any analysis of program participants by income level should carefully examine income imputations, especially for low-income households. This problem is too complex to be approached in the necessary depth in this memo. The Census includes flags in their data tapes which note imputations. It is worth remembering that in SIPP all WIC benefits are assigned, so the imputation flag refers to WIC reciprocity. This is in contrast to the general practice of imputing benefit amounts (not reciprocity) for other benefit programs.

## **COMPARISONS OF SIPP AND PROGRAM DATA**

Exhibit 1 provides a direct comparison of SIPP estimates and FNS counts of non-territorial participation for April 1984.

NSLP. SIPP data tend to overestimate total, reduced price and paid meal participation, but to underestimate free meal participation. The overestimates are probably due to the issue of "usual" versus average daily participation, discussed above. The underestimate of free participation (about 15 percent) is similar to the level of SIPP underestimation for other income-tested programs, e.g., the Food Stamp Program, and may be due to general survey underresponse.

SBP. SIPP does not generate estimates of total SBP participation, only free or reduced price participation. This is because SIPP does not ask if children get school breakfasts in general, but specifically asks about free or reduced-price breakfasts. The estimate of free participation is very close. SIPP overestimates reduced price participation by more than double. This may be due to the usual versus average daily participation issue, the very small sample size for this group, which leads to large standard errors, or perhaps some paid breakfast households mistakenly identifying themselves as recipients of reduced price meals, because of their low cost.

WIC. The overall SIPP estimates of WIC participation were quite close to FNS data, but the subgroup estimates had large errors. The errors were in opposing directions and balanced out in net. The overall accuracy may be a peculiar artifact. Contrary to expectations, the number of children were underestimated by SIPP by about 30 percent. The number of adults was overestimated by about 40 percent. These discrepancies may be due to the small sample sizes and large standard errors. More thorough explanations are not now available.

#### **CHANGES IN THE 1986 PANEL**

The 1986 panel for SIPP has changed the WIC questions to identify which household members actually receive WIC. This should improve the quality

of WIC data in SIPP and eliminate the potential problem of spurious imputations.

#### **ADDITIONAL DATA SOURCES**

Additional data specifically about NSLP, SBP or WIC participants can be obtained from special surveys of characteristics, available from this office. These include: Study of WIC Participant and Program Characteristics (1986, describing participants in late 1984) and National Evaluation of School Nutrition Programs (1983, describing participants in late 1980). An updated report on NSLP participant characteristics is in development. These reports have their own limitations, which are described in the reports.

EXHIBIT 1

COMPARISON OF SIPP AND USDA PROGRAM DATA FOR PARTICIPATION IN  
THE NATIONAL SCHOOL LUNCH PROGRAM (NSLP), THE SCHOOL BREAKFAST  
PROGRAM (SBP) AND THE SPECIAL SUPPLEMENTAL FOOD PROGRAM FOR  
WOMEN, INFANTS AND CHILDREN (WIC) - APRIL 1984

PROGRAM/CATEGORY	SIPP (1) (non-terr.)	USDA (non-terr.)	USDA (total) (2)	Ratio of SIPP/USDA(3)
<b>SCHOOL LUNCH PROGRAM</b>				
Total	27,787,819	22,180,717	23,276,309	1.253
Free (4)	8,672,340	9,972,091	10,397,540	.870
Reduced Price	1,889,493	1,493,442	1,559,719	1.265
Paid	17,225,986	10,742,138	11,346,004	1.604
<b>SCHOOL BREAKFAST PROGRAM</b>				
Total	NA (5)	3,326,218	3,513,959	NA (5)
Free (4)	2,855,249	2,823,623	2,987,072	1.011
Reduced Price	313,465	139,113	151,511	2.253
Paid	NA (5)	363,482	375,376	NA (5)
<b>WIC</b>				
Total	2,851,979	2,968,840	3,065,968	.961
Children <18 Yr (6)	1,778,930	2,337,268	2,415,024	.761
Women (7)	1,073,049	632,072	650,944	1.698

EXHIBIT 2

Questions about National School Lunch Program and School Breakfast Program Participation: from Survey of Income and Program Participation 1984 Panel Wave 3 Questionnaire, Form SIPP-4300, page 45.

<b>Section 4 – PROGRAM QUESTIONS</b>	
<b>CHECK ITEM P1</b>	<p>Is this the reference person's questionnaire?</p> <p>4800 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No – SKIP to Check Item C1, page 47</p>
<p><b>1 a.</b> The government has an energy assistance program which helps pay heating and cooling costs. This assistance can be received directly by the household or it can be paid directly to the electric or gas company, fuel dealer, or landlord. Has this household received assistance of this type during the past 4 months?</p> <p>4816 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No – SKIP to Check Item P2</p>	
<p><b>b.</b> Was this assistance received in the form of checks, coupons or vouchers sent to this household or were the payments sent directly to a utility company, fuel dealer, or landlord? <i>Mark (X) all that apply.</i></p> <p>4818 1 <input type="checkbox"/> Checks sent to household 4820 2 <input type="checkbox"/> Coupons or vouchers sent to household 4822 3 <input type="checkbox"/> Payments sent directly to utility company, fuel dealer, or landlord</p>	
<p><b>c.</b> What was the total amount of the energy assistance received by this household during the past 4 months?</p> <p>4824 \$ <input type="text"/> . <input type="text"/> 00 x1 <input type="checkbox"/> DK</p>	
<b>CHECK ITEM P2</b>	<p>Are there any children 5 to 18 who live in the household?</p> <p>4826 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No – SKIP to Check Item C1, page 47</p>
<p><b>2 a.</b> Do any of the children in this household usually eat a complete hot lunch offered at school?</p> <p>4828 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No – SKIP to Check Item C1, page 47</p>	
<p><b>b.</b> How many children?</p> <p>4830 <input type="text"/> <input type="text"/> Children</p>	
<p><b>c.</b> Do any of the children receive free or reduced-price lunches this school year because they qualified for the Federal School Lunch Program?</p> <p>4832 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No – SKIP to 2f</p>	
<p><b>d.</b> How many children?</p> <p>4834 <input type="text"/> <input type="text"/> Children</p>	
<p><b>e.</b> Are the lunches free or are they reduced-price? <i>Mark (X) all that apply.</i></p> <p>4836 1 <input type="checkbox"/> Free 4838 2 <input type="checkbox"/> Reduced-price</p>	
<p><b>f.</b> Do any of the children receive free or reduced-price school breakfasts this school year?</p> <p>4840 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No – SKIP to Check Item C1, page 47</p>	
<p><b>g.</b> How many children?</p> <p>4842 <input type="text"/> <input type="text"/> Children</p>	
<p><b>h.</b> Are the breakfasts free or are they reduced-price? <i>Mark (X) all that apply.</i></p> <p>4844 1 <input type="checkbox"/> Free 4846 2 <input type="checkbox"/> Reduced-price</p>	
<p>Notes</p>	

## FOOTNOTES

- (1) SIPP runs conducted by Mathematica Policy Research, Sept. 1986 for FNS, using a special household file abstracted from the April Extract of Wave 3 of the 1984 SIPP panel public use files.
- (2) SIPP and the USDA non-territorial estimates are for the 50 States and D.C. USDA total figures included the territories. In WIC these include Puerto Rico, the Virgin Islands, and Guam, and for NSLP and SBP, also included are American Samoa, Northern Marianas and the Trust Territories.
- (3) The ratio of SIPP/USDA is the SIPP estimate divided by the USDA non-territorial figure.
- (4) Price categories for NSLP and SBP are: free (income less than 130 percent of poverty), reduced price (income between 130 and 185 percent of poverty), and paid (income above 185 percent of poverty).
- (5) These are missing because SIPP does not ask for general SBP participation and paid participation cannot be imputed.
- (6) These SIPP estimates break out children under 18 years old. For comparison, USDA data for infants and children under 5 years are presented. This does not count women under 18 years old participating in WIC.
- (7) These SIPP estimates did not break out women, so the SIPP data are the difference of the total and children estimates. USDA data include all women, under and over 18 years old. Further, Series P-70 reports do not differentiate women and children at all.