

Potential Sources

The data sources in this category are less useful than the principal sources because they cover limited populations, have a critical gap in participation information (for example, they include birth outcome measures but not information on WIC participation), or include outcome measures that, by comparison, are weaker than those available in the principal sources. (Some potential sources have limitations in two or more of these areas.) Many of these sources are ongoing data collection programs that could be made more useful for future FANP research if questions were incorporated to fill gaps in relevant information.

Recognized Sources

This category includes existing databases that have already been used to evaluate one or more of the FANPs. These sources are either dated (including only pre-1990 data) or have not been expanded since their initial analyses were conducted, so it is unlikely that additional analyses are warranted. Recognized sources are listed in table 1.

Insufficient Sources

Data sources assigned to this category were not considered candidates for future analyses and detailed assessments were not completed. Although many of these sources include relevant data, they were judged to have very little potential for evaluating outcomes of FANPs. Sources were classified as insufficient for having one or more of the following drawbacks:

- including only pre-1990 data;
- having limited or nonexistent measures of interest (program participation and/or outcomes), with the gaps either impossible to fill (extant databases) or unlikely to be rectified (narrowly focused ongoing data collection program);
- including a very limited population (descriptive studies of program participants are in this category);
- being proprietary; or
- being an administrative database that would require a complex linkage to another data source to combine information on program participation and outcomes.

A list of insufficient data sources is given in Appendix A.

It should be noted that the classification of administrative databases as insufficient is based on the purposes of this study. Nevertheless, these data sources can be merged with other databases that provide information on program participation. A good example is the WIC-Medicaid database constructed for USDA's Food and Nutrition Service (FNS) in the late 1980s (Devaney et al., 1991).

The next sections provide detailed descriptions of principal and potential data sources, respectively. A detailed profile of each source is provided in Appendix B.

Principal Data Sources

The data sources described in this section are currently available datasets that can be used to examine the effects of FANPs on nutrition and health outcomes. Each source meets the minimum requirements described in the preceding section. In addition, all but two of the principal data sources are ongoing national data collection programs that are updated on a regular schedule, allowing update of any analyses as subsequent data become available.² The recurring nature of these data collection programs also provides the opportunity for future expansion of program participation information and/or nutrition and health outcome measures. Some data collection programs have been in progress for some time, offering the potential for longitudinal analyses at the aggregate or individual level. Finally, some of the principal data sources represent the best or only source of information for certain outcomes of interest.

Table 2 summarizes key characteristics of the principal data sources. Sources are listed in alphabetical order, by title. The table shows the major FANPs for which participation information is available and the broad categories of nutrition- and health-related measures that are available.³ It also provides the time period for

² As discussed later in this section, two of the principal sources have been combined into a single ongoing program since the most recent available data were collected.

³ Table 2 focuses on participation data for the Special Supplemental Nutrition Program for Women, Infants and Children Program (WIC), the Food Stamp Program (FSP), the National School Lunch Program (NSLP), and the School Breakfast Program (SBP). These are the four FANPs most often identified in major surveys. Available participation data for other FANPs (quite limited by comparison) are discussed in the text.

Table 1—Recognized data sources

Bogalusa Heart Study

Child and Adolescent Trial for Cardiovascular Health

Food Stamp Program Cash-Out Evaluations

National Evaluation of the Elderly Nutrition Program

National Maternal and Infant Health Survey

National Maternal and Infant Health Survey, Longitudinal Followup

Nationwide Food Consumption Survey (NFCS)

School Nutrition Dietary Assessment Study (SNDA-I)

WIC-Medicaid Database

Table 2—Summary of key data elements in principal data sources

Data source	Latest year available*	FANPs identified				Nutrition- and health-related measures available ¹							
		WIC	FSP	NSLP	SBP	Food expenditures	Food/nutrient intake	Food sufficiency/hunger	Physical/biochemical measures	Birth outcomes	Health-related behaviors ²	Health status/care ³	Physical/cognitive/emotional status or performance ⁴
Consumer Expenditure Surveys (CES) Interview and Diary Surveys	1999		✓	✓ ⁵	✓ ⁵	✓						✓	
Continuing Survey of Food Intakes by Individuals (CSFII)	1994-96, 1998	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	
Current Population Survey-Food Security Supplement (CPS-FSS)	1999	✓	✓	✓	✓	✓		✓				✓	
Early Childhood Longitudinal Study, Kindergarten Cohort (ECLS-K)	1998-99	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓
National Food Stamp Program Survey (NFSPS)	1996-97	✓	✓	✓	✓	✓	✓ ⁶	✓			✓	✓	
National Health and Nutrition Examination Survey (NHANES) III	1988-94	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
National Longitudinal Survey of Youth 1979 (NLSY79)	1999	✓	✓			✓	✓		✓	✓	✓	✓	✓
National Longitudinal Survey of Youth-Mothers and Children (NLSY-MC)	1998	✓	✓			✓	✓		✓	✓	✓	✓	✓
National Longitudinal Survey of Youth-Young Adults (NLSY-YA)	1998	✓	✓				✓		✓	✓	✓	✓	✓
National Survey of America's Families (NSAF)	1999	✓	✓	✓	✓			✓				✓	✓
Panel Study of Income Dynamics-Child Development Supplement (PSID-CDS)	1997	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Survey of Income and Program Participation (SIPP)	2000	✓	✓	✓	✓			✓				✓	✓
Survey of Program Dynamics (SPD)	1998	✓	✓	✓		✓		✓			✓	✓	✓

¹See text for definitions and outcome categories.²Includes breastfeeding, immunization, and other health-related behaviors.³Includes medical conditions related to nutrition, general health status, and health care utilization/expenses.⁴Includes physical development/performance, cognitive development/performance, emotional/social development/health, school attendance/performance.⁵Identifies participants in school lunch or breakfast program, treating the two programs as a program rather than two separate programs.⁶Household food use and availability of nutrients are reported using a 7-day household food use record.

*As of 12/21/01.

the most recent data. Tables and text presented later in this section give more detailed information on the specific measures within each of the broad categories shown in table 2.

Overview of Principal Sources

The following pages describe each of the principal sources and the kinds of data they provide. Sources are reviewed in alphabetical order, as they appear in table 2. Following these individual descriptions, separate sections describe the information on FANP participation and specific nutrition- and health-related measures available in each source.

Consumer Expenditure Surveys (CES): Interview and Diary Surveys

The CES are a continuing series of studies on all types of expenditures by consumers, ranging from food and other expendable items to major purchases of durable goods and housing expenses. The objectives of the CES are “to provide the basis for revising the weights and associated pricing samples for the Consumer Price Index (CPI) and to meet the need for timely and detailed information on the spending patterns of different types of families.”⁴ The Bureau of Labor Statistics (BLS), U.S. Department of Labor, has overall responsibility for the CES, and the Bureau of the Census, U.S. Department of Commerce, performs the data collection and initial processing under contract with the BLS.

The current version of the CES began in 1979, after a series of less frequent consumer expenditure surveys. The CES has two separate components: the quarterly Interview Survey and the annual Diary Survey. The Interview Survey gathers detailed quarterly data on large and regularly occurring expenditures, employment, and household income (including food stamp benefits and public assistance). One potentially useful component is the series of items on out-of-pocket health care expenditures and health insurance premiums. This survey also collects global estimates of food and other frequent, variable expenses; these estimates include the frequency and average price of school meals purchased by or for children in the

household.⁵ Each sampled household participates for five consecutive quarters, with one-time questions on household composition, demographics, and certain types of income (such as alimony and child support).

For the Diary Survey, which has an independent sample, each consumer unit (household) completes a diary for 2 consecutive weeks, providing detailed, item-level records of expenditures on food and beverages (at home and away) and on other small, frequent purchases for which a quarterly recall is likely to be inaccurate (such as nonprescription drugs). A Census interviewer collects information from each Diary Survey household on household composition and on individual characteristics, including age, sex, race, marital status, work experience, annual earnings, and annual income from public assistance, food stamp benefits, and other nonearned sources. Since the Diary and Interview Surveys involve separate samples, data from these surveys cannot be combined at the household level, but it can be combined at higher levels, such as for demographic characteristics.

The Consumer Expenditure Survey uses a multistage, nationally representative probability sample of civilian noninstitutionalized households. The sample of households is selected within 101 primary sampling units (PSUs), which are counties, parts of counties, or independent cities. The main sample frame is the most recent Census 100-percent detail file, which is updated with new construction permits. For the Diary Survey, 8,020 addresses are selected annually in order to yield an effective sample of 5,870 households. The Diary Survey response rate in 1994 was 81 percent. For the Interview Survey, 8,910 addresses are contacted each quarter, with one-fifth being new to the sample. The effective sample size is targeted at 6,160; this figure excludes households in the first quarter of participation, for whom the expenditure data are collected for bounding purposes. The 1994 Interview Survey had a response rate of 83 percent.

The CES has few measures related to nutrition or health, but the food expenditure data it provides are of potential interest. With the discontinuation of USDA's Nationwide Food Consumption Survey, the CES is the

⁴ U.S. Department of Labor, Bureau of Labor Statistics (1997). BLS Handbook of Methods, p. 161.

⁵ The Interview Survey does not differentiate between school lunches and breakfasts, so this source cannot be used to assess discrete impacts for the NSLP or SBP. It could be used, however, to study overall “school-based” Child Nutrition programs. The same type of information is collected in the Diary survey using a 30-day reference period.

most comprehensive ongoing source of information about how much low-income families spend for food and what they purchase, although the National Food Stamp Program Survey also provides data on this topic, as discussed later in this section.

Continuing Survey of Food Intakes by Individuals (CSFII 1994-96, 1998)

The CSFII 1994-96, 1998, conducted by the Agricultural Research Service (ARS), was USDA's 10th nationwide food consumption survey and the 6th to include information on individual dietary intake.⁶ The survey was designed to measure the kinds and amounts of foods eaten by a nationally representative sample of noninstitutionalized individuals of all ages in the 50 States and Washington, DC.

Dietary intake was measured through two nonconsecutive 24-hour recalls. In addition to detailed dietary recalls, the survey included a nonquantitative food frequency table, questions about food sufficiency and breastfeeding, and self-reported height, weight, and general health status. Finally, the CSFII included questions about individual household members' participation in the FSP, WIC, NSLP, and SBP.

The sample design used for the 1994-96 CSFII is a stratified, multistage area probability sample. Households were screened to identify appropriate numbers of sample persons in specified sex/age groups, with oversampling of households at or below 130 percent of the Federal poverty guidelines.

In all, 19,830 sample persons were identified through screening over the 3 years of the survey (1994-96). At households where one or more sample persons were selected, interviewers administered the household questionnaire. This interview included individual-level data on FANP participation for each household member. Any adult household member was an acceptable respondent for the household interview, but an effort was made to conduct this part of the survey with the main meal planner/preparer or a person knowledgeable about characteristics such as household income. Approximately 85 percent of the households that were screened responded to this interview. Interviewers then attempted to conduct the first 24-

hour recall interviews with sample persons/proxies (making repeated in-person visits, when necessary, to do so). The protocol for the 24-hour recall in the CSFII did not allow interviewers to schedule appointments with respondents for followup attempts and day-2 intake interviews after the first scheduled interview; it was believed that respondents' eating behavior might be influenced if they knew when they would be asked to report what they had eaten. The second dietary recall was to be conducted 3 to 10 days after the first. Both recall interviews used identical methodology, including a "multiple pass" method to maximize the sample person's ability to remember what he or she had consumed. The overall response rate for the first recalls was 80 percent; for the second recalls it was 76 percent.

In addition to the CSFII, USDA also conducted the Diet and Health Knowledge Survey (DHKS) among a random sample of the CSFII respondents who completed the day-1 intake and were age 20 and over. When USDA added the DHKS to the CSFII in 1989-91, the DHKS was the first national survey of dietary attitudes and knowledge in which the results could be linked to the respondents' food and nutrient intakes. The DHKS provides information on respondents' perceived adequacy of their food and nutrient intakes, their knowledge about the recommendations in the Food Guide Pyramid (USDA, 1992), the personal importance they place on dietary guidance messages, their awareness of relationships between diet and health, and their use and understanding of food labels. Data from the DHKS are used to improve understanding of factors that affect food intake and to identify ways to implement effective dietary guidance. The DHKS was conducted mainly as a telephone survey, with 5,765 respondents completing it, a response rate of 74 percent, in 1994-96.

A supplemental survey of a sample of 5,559 children up to the age of 9 was completed in 1998. This survey (CSFII 1998) used the same methods as the CSFII 1994-96 and obtained the same food and nutrient intake data. The supplemental sample was added to provide an adequate sample of children for analyzing exposure to pesticide residues. However, the combined CSFII 1994-96 and 1998 data on children's food and nutrient intakes will also be useful for analyses of children's nutritional and health status.

⁶ In 2000, a decision was made to merge the CSFII and the National Health and Nutrition Examination Survey (NHANES). The CSFII dietary recall instrument and data processing system will become part of the NHANES protocol.

Starting in 2002, the CSFII will be integrated with the National Health and Nutrition Examination Survey (NHANES), as discussed in the section on NHANES.

Current Population Survey (CPS) Food Security Supplement

The CPS is a continuing monthly household survey of the U.S. civilian noninstitutionalized population, designed to provide updates of population, demographic, and labor force data, including uniform national data on employment and unemployment rates. This survey has been conducted by the BLS for over 50 years. The monthly CPS uses a multiframe, multistage stratified random sample of approximately 60,000 households, designed to produce reliable State estimates on an annual basis for items in the basic monthly questionnaire. The sample is divided into eight panels or rotation groups. Each rotation group is interviewed for 4 consecutive months, is out of sample for the next 8 months, and then is interviewed for 4 additional months before being retired from the survey. Therefore, there is approximately a 75-percent overlap of sample from month to month. Each time a household enters (or reenters) the sample, the CPS interview is conducted in person; at other times, telephone interviews are conducted if possible. The basic monthly CPS has no FANP participation or nutrition/health outcome data.

Various supplements to the CPS are collected annually or on other schedules. The Annual Demographic Supplement (ADS), conducted in person every March, collects information on income, public assistance, and FANP participation in the prior calendar year. The ADS also gathers data on educational attainment and geographic mobility, and it provides the basis for annual profiles of the U.S. population. The March CPS sample for the ADS is supplemented by approximately 2,500 Hispanic households from the previous November sample, who are out of the current CPS sample. (Other supplemental topics collected on various schedules include school enrollment, fertility, and marital history.)

The CPS is the principal source for data on food security among FANP participants and nonparticipants. In April 1995, the Census Bureau administered the first annual Food Security Supplement (FSS) to the CPS. The FSS, which was developed by USDA and other Federal agencies, comprised two related series of questions about food

sufficiency, hunger or skipping meals, and coping strategies when food supplies available through usual means were insufficient. One set of questions used a 12-month reference period, while the other used a 30-day period. Through a statistical modeling process, the 12-month series was used to develop a continuous scale of food insecurity and hunger (Hamilton et al., 1997).⁷ Eighteen questions are used to construct this scale; these questions have been included in annual CPS-FSS data collection from 1996 through the present.

The CPS-FSS also includes questions on program participation (WIC, FSP, NSLP, and SBP) and other important household characteristics not covered by the regular monthly CPS.⁸ Screening questions are used to exclude households with incomes above 185 percent of the poverty level, except for those that indicate possible food insecurity through responses to screening questions. The FSS obtains self-reported data on household food expenditures and general health status of adult respondents.

The CPS-FSS data for 1996-97 have been analyzed under a contract to FNS, and the 1998 data have been analyzed by ERS. Preliminary results from these analyses have been published by FNS (Bickel et al., 1999) and ERS (Andrews et al., 2000). These results indicate that the food security scale is stable and robust. ERS has also funded a study to test the food security measure in a sample of low-income households in Hawaii.⁹

Although USDA has already committed considerable resources to analyzing the available CPS-FSS data, it is considered a principal source of the information needed to examine the relationship between food security and FANP participation (single or multiple programs). Moreover, the sample overlap between the

⁷ The 30-day items were used to construct another scale, but this scale was not considered sufficiently robust for further use.

⁸ The CPS-FSS also identifies preschoolers and children in childcare who receive free or reduced price meals. The qualification of free or reduced-price meals clearly identifies low-income FANP participants; however, it is not possible to tell whether meals are provided by the NSLP (preschools or childcare associated with NSLP schools) or the Child and Adult Care Food Program (CACFP) (other childcare institutions). Moreover, because children participating in the CACFP through family childcare homes are not means tested, the question would fail to identify these children.

⁹ Jennifer Anderson, "Independent Validation of the Core Food Security Measure with Asian and Pacific Islanders," research in progress at Colorado State University, under a USDA-ERS small grant through Institute for Research on Poverty.

April FSS and the March ADS provides additional opportunities for analysis.

Use of the CPS-FSS is subject to several caveats. First, although the response rate for the basic CPS is quite high (around 95 percent) and the sample frame is of very high quality, coverage rates for some demographic groups (especially Blacks under the age of 40) fall below 85 percent. Second, the effective response rate for the 1995 FSS was only 77 percent. Third, the CPS does not include homeless persons, who may represent the population relying most on food stamps and other benefits to avoid hunger (particularly homeless adults without dependents). Fourth, the analytic literature suggests that the CPS has tended to understate FSP participation rates, based on comparisons with estimates derived from the SIPP and administrative data, although the 1994 redesign of the CPS may have reduced this bias (Castner and Cody, 1999).

Early Childhood Longitudinal Study-Kindergarten Cohort (ECLS-K)

The ECLS is designed to collect nationally representative data on the status and development of young children and on their family, school, and community environments. The primary focus of this study is on the child's educational progress and experience, including transition to nonparental care, preschool education, preparedness for school, and experiences and growth through the fifth grade. The National Center for Education Statistics (NCES) has undertaken this study with the goal of creating a "comprehensive and reliable data set that can be used to inform policies related to early and middle childhood education" (NCES, 1999). The study is designed (1) to provide reliable descriptive data on children from birth through the fifth grade and (2) to support analytic tests of hypotheses about the relationships between children's developmental experiences, their individual characteristics, and the characteristics of their families, schools, and communities.

The ECLS will follow two cohorts of children, kindergarten and birth, for several years. The study has begun collecting data on the kindergarten cohort (ECLS-K), a nationally representative sample of about 22,000 children who entered kindergarten during the 1998-99 school year. According to current plans, this

cohort will be followed through the fifth grade in 2004. In 1999 and 2000, field tests were conducted for the study of the birth cohort (ECLS-B). According to available plans for the study, ECLS-B will include a nationally representative sample of 15,000 children born in 2001 and will follow the children through the first grade (NCES, 2001). The ECLS-B instruments are currently undergoing revisions to address problems encountered in the field tests, and the available information is limited.¹⁰ Therefore, only the ECLS-K is clearly a principal source that is available and useful for FANP research. Nevertheless, if current plans are realized, the ECLS-B will likely have considerable search value, particularly with respect to FANP impacts on the development of infants and toddlers.

The ECLS-K uses a multistage design with sampling of PSUs, schools, and students. Asian and Pacific Islander children were oversampled to provide a sufficient sample for analysis, as were private schools and kindergartens. The study is designed to support estimates for Black, Hispanic, and White children without oversampling.

ECLS-K baseline data were collected from children, parents, and teachers in the fall of 1998, when the cohort entered kindergarten. Data were collected again from these three groups and from the schools in the spring of 1999.¹¹ In the fall of 1999 (the start of the first grade year for children who leave kindergarten), data were collected from a subsample of children and their parents. Data from the full sample of children, parents, teachers, and schools were collected in the spring of 2000 and will be repeated in the spring of 2002 and of 2004 (that is, near the end of first, third, and fifth grades for children who progress each year). Child assessments are being done in school via computer-assisted personal interview (CAPI); Spanish-speaking children not proficient in English are being assessed in Spanish. Parent interviews are being done by computer-assisted telephone interview (CATI) or, for households without telephones, by CAPI.

¹⁰ Current plans for the ECLS-B call for collection of data on pregnancy and birth outcomes; breastfeeding and other infant feeding practices; food security; height, weight and other body measurements; early childhood health status; and cognitive, social, emotional, and physical development.

¹¹ Data for the base year of ECLS-K (fall and spring kindergarten) were released in December 2000.

Results from the 1998-99 school year data collection suggest some potential problems with response rates. Only 69 percent of the 1,277 sampled schools participated in the fall, but the response rate for these schools increased to 74 percent in the spring, and 73 substitute schools were added to increase the spring sample (West, Denton, and Reaney, 2000). Cooperation rates for child assessments, parent interviews, and teacher questionnaires were quite high (between 85 and 90 percent), but the school nonresponse rates drove down the effective response rates to levels that might be cause for concern (66 percent for the child assessments and 63 percent for parent interviews). NCES asserts that the response rates are comparable to its other school-based longitudinal studies. NCES is currently conducting a multifaceted analysis of potential nonresponse bias.

ECLS-K data of particular interest include participation in FANPs and a wealth of developmental outcomes related to nutrition and health. FANP participation data will include WIC participation for the mother and child, household food stamp participation, and the child's participation in NSLP, SBP, and snacks provided in childcare.

The ECLS-K will provide the opportunity to relate program participation by children and their families to objective measures of the child's well-being and development, as well as to educational and social outcomes. Key nutrition- and health-related measures include food security, eating patterns, height and weight, birth outcomes, health-related behaviors, general health status, measures of physical, cognitive, and social/emotional development, and school performance. In addition, the ECLS-K will collect a considerable array of demographic and contextual information on the children, their parents or guardians, their teachers and schools, and their communities.

National Food Stamp Program Survey (NFSPS, 1996-97)

The NFSPS was conducted under contract to USDA's Food and Nutrition Service between June 1996 and January 1997. Among the principal data sources, the NFSPS is the only one-time survey. The survey examined the monetary and nonmonetary costs of participating in FSP, customer satisfaction with services provided, accessibility of the FSP, access to and satisfaction with food stores, food security status of FSP participants and eligible nonparticipants, and

nutrient availability of food use by a subset of FSP participants. Even though there is no plan to repeat the NFSPS in the future, it is considered a principal data source due to the strengths discussed below.¹²

The NFSPS employed both computer-assisted telephone interview (CATI) and computer-assisted personal interview (CAPI) methods to collect data from low-income households, including 2,454 FSP participants, 450 eligible nonparticipants, and 405 near-eligible nonparticipants. Social, demographic, and economic characteristics of sampled households were collected. The respondents' experience, time required, and cost incurred in FSP application and recertification were recorded. The reasons that low-income eligible households did not apply for Food Stamp benefits were also asked. Therefore, the NFSPS data are ideally suited for understanding the factors affecting low-income households' decisions about FSP participation.¹³

There are two major strengths in the NFSPS data. First, approximately 950 FSP households provided records on food use over a 1-week period. The records include data on both the quantity and prices of food used (but not the intake), as well as on expenditures for food at home and away from home. This is the most recent of USDA surveys that have collected household-level data on food use, as opposed to the individual food intake data collected by the CSFII.¹⁴ The Food Intake Analysis System (FIAS) was used to create a nutrient database of the food purchased, enabling researchers to study nutrient availability to FSP households. A second strength of the NFSPS data lies in the consistent timeframe for data related to food expenditure, household income, and food stamp benefits; household income and FSP benefit amounts were collected for the same month in which food use was reported.

Other useful information collected in the NFSPS includes the 18-item food security module and data on shopping practices and habits, diet- and health-related attitudes and knowledge, and special dietary needs of

¹² The final reports for the NFSPS are available at www.fns.usda.gov/oane/menu/published/fsp/fsp.htm.

¹³ The reasons for nonparticipation were a major topic of the NFSPS analysis conducted for FNS (Ponza et al., 1999).

¹⁴ Earlier surveys include the cash-out demonstration studies conducted in Alabama, San Diego, and Washington State, as well as the Nationwide Food Consumption Surveys conducted in 1977-78 and 1987-88.

household members. The questions on diet and health attitudes and knowledge are similar to those questions in the Diet and Health Knowledge Survey, discussed in the section on the CSFII.

In addition to detailed information on FSP participation, several pieces of information on participation in other FANPs were collected. The survey asked if the household had received, during the last 30 days, (1) free or reduced-cost meals for the elderly, (2) free or reduced-cost school lunches or breakfasts, (3) WIC food packages (and if so, the number of household members participating in WIC), and (4) free foods from other programs, such as a food bank or pantry.

National Health and Nutrition Examination Survey, Third Round (NHANES-III)

The NHANES-III is the latest in a series of seven national health examination studies conducted by the National Center for Health Statistics (NCHS) of the Centers for Disease Control and Prevention (CDC). Beginning in 1971, a large nutrition component was added to the basic design, enabling the NHANES-III to contribute periodic information on the nutritional status of the U.S. population. The NHANES-III has contributed substantially to the formulation and conduct of public health policy for the Nation and is one of the major national surveys in the National Nutrition Monitoring and Related Research Programs. NHANES-III data were collected between 1988 and 1994.

The NHANES-III was designed to obtain information for assessing the nutritional and health status of the U.S. civilian, noninstitutionalized population. NHANES-III data allow estimation of the national prevalence of selected diseases, investigation of the natural history of selected diseases, and assessment of nutritional and health status. The survey addressed a broad array of nutrition and health outcomes and included a single 24-hour recall, a detailed nonquantitative food frequency, information on food sufficiency and hunger, anthropometric measurements, nutritional biochemistries (blood, serum, and urine), and selected clinical assessments.¹⁵ The survey also included questions about participation in the FSP, WIC, the NSLP, and the SBP.

The first stage of the sample design for NHANES-III was the selection of 81 primary sampling units (PSUs), which were principally individual counties. Using lists of addresses, households in each county were screened, and individuals were then selected from sampled households based on gender, age, and race or ethnicity. The procedure was designed to draw large numbers of young children, older persons, African Americans, and Mexican Americans in order to reduce sampling errors for these subgroups.

About 40,000 persons 2 months of age and over were selected, and they (or their proxies, in the case of young children) were asked to complete extensive interviews and examinations in a large mobile examination center. After the sample individuals were selected, the interviewer administered either the Household Adult Questionnaire (for those 17 years and over) or the Household Youth Questionnaire (for those 2 months through 16 years of age) to the sampled person or proxy respondent. These surveys focused on the incidence of common diseases and health conditions. The interview closed with the Family Questionnaire, which was administered to a responsible adult household member. This questionnaire collected household information on educational levels, ethnicity, occupations, health insurance coverage, family income, and housing arrangements. Sampled persons were then asked to visit a Mobile Examination Center (MEC) for physical examinations, other tests and measurements, nutrition interviews, and collection of blood and urine specimens. Approximately 77 percent of those who were sampled completed the MEC portion of the survey.

The NHANES-III sample consists of 31,311 individuals. From previous work with the NHANES-III data, we know that 4,745 of these sample members are children aged 12 to 59 months. After excluding children with incomplete or inconsistent data on WIC participation and income eligibility, the database includes 1,010 child WIC participants, 2,101 nonparticipating children who are financially eligible, and 1,261 children who are financially ineligible (defined as those whose family income is over 200 percent of the Federal poverty level).¹⁶

The current NHANES began to operate under a new approach in 1999 as a continuous, annual survey with

¹⁵ Because data collection for NHANES-III began before the official module of food security questions was finalized by FNS, the survey did not include the full module of 18 items.

¹⁶ In these exploratory analyses for FNS, we defined WIC income eligibility a little more broadly than the actual 185-percent-of-poverty cutoff because household income fluctuates from month to month and WIC income eligibility is checked only when a household applies for the benefit.

nationally representative samples of 5,000 people per year. This change will enhance timely release of NHANES data. NHANES will share PSUs and questionnaire content with the National Health Interview Survey (NHIS). The Department of Health and Human Services plans to provide links to Medicare records and the National Death Index. In 2002, the CSFII and NHANES-III data collections will be combined, providing a single national data source for information on the nutrient intake, nutritional status, and health status of Americans (NCHS, 2000; Dwyer et al., 2001).

National Longitudinal Survey of Youth, 1979 Cohort (NLSY79)

The NLSY79 is a continuing longitudinal survey of a nationally representative cohort of men and women who were ages 14-22 when data collection began in 1979. The purpose of the study is to gather information about the lives of the study cohort, with particular attention to their family backgrounds, education and job training, labor market experiences, and marital and childbearing experiences. The NLSY79 is the successor to surveys of earlier NLS cohorts of young men and women begun in the late 1960s. The NLS program is directed by the BLS. The Center for Human Resource Research (CHRR), Ohio State University, contributes to the survey design and manages survey operations and data dissemination, and the National Opinion Research Center (NORC) conducts the surveys under subcontract to CHRR.

Although the NLSY79 is primarily focused on employment-related activities and experiences, it provides a substantial amount of longitudinal information on respondents' food expenditures, health, prenatal care, dietary practices during pregnancy, birth outcomes, postnatal infant care, and infant feeding.¹⁷ It also provides detailed data on household composition, income, assets, housing assistance, food stamp receipt, WIC receipt, and demographic and environmental variables. The survey uses a main annual questionnaire that is relatively consistent from year to year but has evolved as the cohort has aged; special-topic modules are added periodically to address additional subjects of interest. Supplemental surveys have included a 1980 survey of respondents' schools to gather enrollment

data, test scores, and school characteristics; a 1980-83 survey of completed high school transcripts; and the administration of the Armed Services Vocational Aptitude Battery. With the exception of 1987, over 80 percent of interviews have been conducted in person, with computer-assisted personal or telephone interviewing (CAPI/CATI) used since 1993.

The NLSY79 cohort had 8,636 respondents (87 percent of the 9,964 eligible members) in 1996, the most recent year for which final counts are available. The original study sample of 12,686 youth included three subsamples: a nationally representative main sample of 6,111 youths; a supplemental sample of 5,295 youths representing Hispanic, Black, and economically disadvantaged White youth; and a sample of 1,280 youths representing enlistees in the Armed Forces. The sample has diminished because of attrition and because the subsamples of military enlistees and disadvantaged non-Hispanic Whites have been discontinued.

National Longitudinal Survey of Youth-Mother and Child Supplements (NLSY-MC) and National Longitudinal Survey of Youth-Young Adults (NLSY-YA)

Two related studies have collected longitudinal data on the children of the NLSY79 cohort. The Mother and Child Supplements (NLSY-MC) began in 1986 to collect supplementary data on the birth and early childhood experiences of mothers in the NLSY79 cohort and their children. Since then, these children (and subsequent children born to the NLSY79 women) have been assessed biennially on cognitive, psychological, and social/emotional dimensions, both through interviews with their mothers and through direct administration of standardized developmental tests. Older children (ages 10-14) have been given self-administered questionnaires on sensitive topics concerning behavior, attitudes, relationships, and educational expectations. Starting in 1994, the NLSY79 cohort's children aged 15 and older have been interviewed biennially as a new cohort of young adults (NLSY-YA). NLSY-YA collects information on education and training, work, health, dating and marriage, pregnancy and birth outcomes, infant feeding practices, childcare, household composition, and family income and assets.

The longitudinal nature of the NLSY permits the NLSY79 data on the mothers to be linked with the NLSY-MC data on their children and with the

¹⁷ Pregnancy and birth outcomes include: maternal weight gain, length of gestation/weeks premature, and infant birthweight and length.

subsequent NLSY-YA data on those children as young adults and their early experiences as parents. The main NLSY questionnaire collects information on maternal characteristics, which can be linked, through the two subsequent surveys, to child demographics and family background; prenatal and postnatal health and healthcare services; parent-reported height and weight; infant feeding practices; disability-related services; pediatric health care; and educational experiences. Assessments conducted by trained interviewers provide data on the nature and quality of the home environment, cognitive development, and motor, social, and emotional development. Educational experiences have been further documented by a 1995 survey of schools attended by NLSY children in 1993-94 or 1994-95; this survey gathered both school-level characteristics and individual educational outcomes of the respondents, including attendance, grades, and transcripts. As described above, further sources include the self-administered questionnaires for older children and the NLSY-YA interviews. Both FSP and WIC participation data are available for the NLSY79 mothers, the NLSY-MC children, and the NLSY-YA cohort. The impact of WIC participation on infants' birthweights, health, and development in the NLSY-MC is the subject of a research project funded by ERS through a grant administered by the Institute for Research on Poverty.¹⁸

The NLSY-MC cohort of mothers and their children has grown from 4,971 respondents in 1986 to 7,103 respondents in 1996. During this time, the youngest age group (birth to age 9) has declined from 4,676 to 3,480, while the older group (10-14 years) grew from 294 in 1986 to a peak of 2,084 in 1994, before dropping to 1,951 in 1996 as children aged out of the NLSY-MC. The NLSY-YA cohort had 851 respondents in 1994 and 1,672 respondents in 1996.

The sampling designs of the NLSY-MC and NLSY-YA have both strengths and weaknesses. On the one hand, the longitudinal data on the mothers of the sample members offer a rich set of variables to explore relationships between maternal histories and children's subsequent development. On the other hand, the NLSY-MC and NLSY-YA cohorts are not nationally representative, for several reasons. First, they represent a truncated portion of the potential offspring of the women in the cohort represented by the NLSY, because data have not been collected on the earliest

and latest childbearing years (that is, the data are left-censored and right-censored). Second, the study does not represent young women who immigrated after 1979 and their children. Last, attrition of the sample affects these studies as it does all panel studies: of the 10,507 children born to the original cohort of women in the NLSY79, data were collected on 7,103 offspring in 1996—a retention rate of 68 percent (CHRR, 1998).

National Survey of America's Families (NSAF)

The NSAF is designed to assess the well-being of children and adults, to identify changes over time, and to examine the relationships between indicators of well-being and changes in the structure and operation of the social safety net. The NSAF is part of the Assessing the New Federalism (ANF) project, a multiyear study of the devolution of social programs and associated policy changes, such as those resulting from recent welfare reforms. The NSAF is designed and directed by the Urban Institute, with assistance from Child Trends Inc. in developing measures of child well-being. Westat Inc. is conducting the survey. The ANF project is funded by a number of foundations.

NSAF collects data on seven domains of well-being: (1) economic security for children, adults, and households or families, including income, employment, receipt of cash and food assistance, and food sufficiency; (2) health and healthcare for children and adults, with additional data for children on (3) education and cognitive development, (4) social development and positive activities, and (5) behavior problems; (6) family environment measures for children, adults, and family units, including family structure, psychological well-being of adults, family stress, immigration status, and childbearing practices; and finally, (7) adults' on their knowledge of available community services.

The NSAF sample has two parts. The primary sample was designed to provide State-level estimates for the 13 States that comprise over half of the U.S. population: Alabama, California, Colorado, Florida, Massachusetts, Michigan, Minnesota, Mississippi, New Jersey, New York, Texas, Washington, and Wisconsin. In each State, the NSAF sampled 1,000 households with children and 1,000 nonelderly adults who do not live with children as parents or guardians. An additional sample was drawn from the balance of the Nation to make the overall sample nationally representative. Low-income households were

¹⁸ See L. Kowaleski-Jones and G. Duncan (2000).

oversampled, so 53 percent of households with children in the sample had incomes below 200 percent of the poverty level. Elderly adults and homeless or institutionalized persons were excluded.

All interviews were conducted by telephone from February to November 1997. The completed sample included 42,973 households with telephones and 1,488 households without telephones, who were contacted by field staff and interviewed using cellular phones. Two sample frames were used: an RDD frame for households with telephones and an area probability sample for others. The total sample included 75,437 adults and 34,439 children. A second cross-sectional survey of 50,277 households was conducted in 1999. The 1999 sample partially overlapped the 1997 sample and was designed to provide more precise national estimates.¹⁹

There are some weaknesses in the use of the NSAF to study FANP outcomes. Raw response rates for the combination of the screener (used to identify eligible households) and the full interview were 65 percent for children and 61 percent for adults (Brick, 1999). (Responses for children were provided by the most knowledgeable adult.) After weights were applied for different portions of the sample and other technical adjustments were made, the overall response rate was 70 percent. The adjusted response rate for the 1999 NSAF was 64 percent. One indicator of potential nonresponse bias is the coverage rate, which in 1997 was 93 percent for children, comparable to that of the CPS, but the coverage rate for adults was only 86 percent (versus 91 percent for the CPS).²⁰ The coverage rate for children fell to 90 percent in the 1999 survey, while the rate for adults rose to 87 percent. Several studies of nonresponse in the 1997 NSAF have found little or no evidence of bias, but analysis of this potential problem is ongoing (Safir et al., 2001).

Summary results from the 1997 NSAF were released in January 1999; 1999 NSAF results were released in October 2000. Available public-use files from the 1997 NSAF include child data, adult data, and family data; all of these files include weights to adjust for

differential sampling rates, nonresponse, and undercount (relative to Census data). Some analyses, such as relating food sufficiency to FSP participation, may require linking different datasets using individual, family, and household identifiers. From the 1999 NSAF, a public-use file of selected child and family data is available. The discussion of data availability in this report is based on the 1997 data.

Panel Study of Income Dynamics and Child Development Supplement (PSID-CDS)

The PSID is a longitudinal study of income, employment, family composition, and residential location in a representative sample of U.S. civilian households. The PSID was begun in 1968 by the Office of Economic Opportunity to study poverty and government-sponsored antipoverty programs. It is run by the Survey Research Center of the Institute for Social Research (ISR) at the University of Michigan, with funding from the National Science Foundation and other Federal agencies.

The core questions, which have been consistent over the life of the PSID, focus on income sources and amounts, employment, family composition and changes, and demographic characteristics and events. The income questions include information on FSP participation, spell incidence, duration, and benefit levels. Other core topics include food and housing expenditures, food sufficiency, health status, and fertility histories. Supplements have gathered data on health experiences and expenditures, education, childcare, neighborhood characteristics, and wealth.

The PSID began with a sample of 5,000 households in 1968, and data have been collected annually since then. The study had grown to 8,700 households in 1995 as a result of births, other additions to sample households, formation of new households by panel members, and the addition of a national sample of 2,000 Latino households in 1990. There has been substantial turnover, but the panel still includes members that have been interviewed since 1968.

In 1997, a Child Development Supplement (CDS) was added to the PSID. Funded by the Departments of Health and Human Services, Agriculture, and Education, this supplement focuses on the development and well-being of children. The panel for this study comprises 2,500 families from the PSID sample who

¹⁹ In the 1999 survey, about 60 percent of the telephone numbers and 93 percent of the area segments for interviews with non-telephone households were taken from the 1997 sample.

²⁰ The coverage rate is the estimate of the total population from weighted survey data divided by a control total presumed to be more complete.

have at least one child age 12 or younger.²¹ The PSID-CDS includes age-specific measures of the cognitive, behavioral, and health status of 3,500 children, collected through direct assessment of the children (age 3 and up) and interviews with mothers and other caregivers, teachers, and school administrators.

Like the main PSID, the CDS is designed as an annual survey with several components. The CDS primary caregiver interview gathers data on participation in WIC, FSP, NSLP, and SBP.²² This interview provides numerous nutrition and health outcome variables for caregiver and child, including the full food security battery, pregnancy and birth outcomes, breastfeeding choices, child immunization, health status, and healthcare utilization. The caregiver also provides information on the child's health history, behavior, childcare history, and school attendance and performance. Child assessments include height and weight (using a combination of parent report and interviewer measurement), cognitive ability (reading, math, and memory), and social/emotional development. Teacher interviews provide additional professional assessments of the child's academic ability and behavior in preschool and elementary school. The 1997 data from child assessments and primary caregiver interviews have been released, along with demographic data on the CDS children and their families.

There is mixed evidence concerning the representativeness of the main PSID sample from which the CDS sample is drawn. The original 1968 PSID sample was designed to be nationally representative, incorporating a stratified, multistage sample of the civilian noninstitutionalized population of the United States and a national survey of urban low-income families. Following rules were developed to retain the representativeness of the sample as individuals moved in and out of the original households. The initial response rate in 1968 was 76

²¹ Some children in CDS sample families will not be included in the CDS, because they are not in the PSID sample. The PSID has a complex set of rules for determining when new household members are added to the sample. See Hill (1992).

²² PSID-CDS also identifies preschoolers and children in childcare who receive free or reduced-price meals. The qualification of free or reduced-price meals clearly identifies low-income FANP participants; however, it is not possible to tell whether meals are provided by the NSLP (preschools or childcare associated with NSLP schools) or the Child and Adult Care Food Program (CACFP) (other childcare institutions). Moreover, because children participating in the CACFP through family childcare homes are not means tested, the question would fail to identify these children.

percent, and the 1969 reinterview response rate was 89 percent. Although subsequent response rates were quite high, the cumulative effect of attrition was that by 1988 only 56 percent of the persons in the original households responded. ISR has developed weights to adjust for differential sampling and attrition in the original sample, and for the addition of the Latino sample, with the intention of providing a basis for nationally representative estimates from the PSID sample. The PSID User's Guide cites several studies that favorably compare the PSID to the SIPP and the CPS in several lines of analysis; the study findings suggest that attrition and other factors have not adversely affected the generalizability of the PSID data (Hill, 1992). Nevertheless, researchers should carefully consider the potential effects on their analyses of the PSID's sample design, following rules, and resulting sample composition.

Survey of Income and Program Participation (SIPP)

The SIPP is a series of longitudinal, nationally representative studies of the dynamics of employment, income, eligibility for and participation in assistance programs, and demographics in the civilian noninstitutionalized U.S. population. It is specifically designed for use in program planning, policy analysis, and evaluation. It also supports more-basic research on patterns of income, poverty, and household composition.

The first SIPP panel was created by the Bureau of the Census in 1983 and continued with interviews every 4 months until July 1986. Since then, new panels of households have been inaugurated at varying times, with varying sample sizes and numbers of interview waves. To facilitate cross-sectional analyses, the Bureau of the Census has released public-use files from individual survey waves as the data become available. Upon completion of all interviews for a given panel, the bureau has constructed longitudinal analysis files in which all of the data are linked across time and weighted to account for attrition, nonresponse, and differential sampling rates.

Each SIPP panel has a core questionnaire that is administered in each wave (that is, every 4 months to each household) and a series of topical modules administered one or more times during the panel. The core questionnaire varies somewhat from panel to panel, but it has generally included questions on household composition and demographics,

employment and earnings, application for and receipt of cash and food assistance, and other income. Program participation information has been obtained for FSP, WIC, NSLP, and SBP, as well as for cash assistance programs. (This information has been supplemented by a Welfare History module to gather information on participation spells prior to the start of the panel.) The core questionnaire also has included limited information on health status and disability relating to working, attending school, or performing other functions. More extensive information on illness, disability, and healthcare utilization has been obtained in a Health and Disability module administered to several SIPP panels. A Child Well-Being module administered to each panel has gathered information on children's school enrollment, last grade completed, and suspension/expulsion experiences (as well as information on time use, enrichment activities, and adult supports). The adequacy of household food supplies and incidence of hunger have been measured by two related modules, the Extended Measures of Well-Being module and the Basic Needs module. Other modules have asked detailed questions on assets and shelter costs, facilitating identification of fully eligible FSP nonparticipants (rather than simply using an income cutoff). Further modules of potential interest cover migration history, fertility history, and childcare.

The SIPP uses a combination of personal and telephone interviews. Each household member 15 or older is asked to respond individually, but proxy responses may be used if a person is unavailable.

The most recent completed SIPP panels were begun in 1991, 1992, 1993 and, after significant redesigning, 1996. The 1991 panel consisted of approximately 14,000 households that were interviewed eight times (covering 32 months), starting in February 1991. The 1992 panel consisted of 20,000 households interviewed 10 times (covering 40 months), starting in February 1992.²³ These panels, which together contained information on a total of 2,715 infant and child WIC participants, were used in a recently completed analysis of the dynamics of WIC participation among children (Burststein, Fox, et al., 2000). Since then, additional data have become available, including the longitudinal analysis file for the 9-wave 1993 panel, and Waves 1-12 of the 1996 panel. The 1993 panel consisted of

20,000 households. The 1996 panel (completed in 2000)) comprised some 37,000 households, with oversampling of economically disadvantaged groups (Blacks, Hispanic Whites, and female-headed households). Approximately 35,000 households from the 1992 and 1993 SIPP panels were interviewed in the 1997 "bridge survey" for the new Survey of Program Dynamics (SPD). As discussed below, the SPD is expected to run until 2002, providing up to 10 years' data on these panels.

As with the other panel surveys, the usefulness of the SIPP hinges in part on its sample design and patterns of attrition. The SIPP uses a multistage stratified random sampling design, with counties or groups of counties as PSUs. The 1996 SIPP uses PSUs based on 1990 Census data, with steps taken to minimize between-PSU variance on stratification variables and to maximize overlap with the PSUs derived from the 1980 Census for earlier SIPP panels (Siegel and Mack, 1995). Past SIPP panels generally have not oversampled low-income households, but the 1996 panel does, using 1990 Census data to stratify households within sampled PSUs. Initial response rates for the SIPP panels are around 80 percent, and final response rates have historically been on the order of 67 to 74 percent. The Census Bureau has developed weights to compensate for differential sampling, Census undercounts, and nonresponse. As noted earlier, some literature suggests that the SIPP compares favorably to other sources (particularly the pre-1994 CPS) on the accuracy of data on food stamp participation and other measures of interest to FANP studies, while other literature points to reasons for caution in using the SIPP rather than sources such as the PSID and CPS. The 1996 panel is still relatively new, so there is much yet to learn about the results of the changes in the SIPP's design.

Survey of Program Dynamics (SPD)

The SPD is a Congressionally mandated longitudinal study of a nationally representative sample of the U.S. population.²⁴ The SPD will collect annual data for 10 years on the demographic, social, and economic characteristics of this sample, focusing on the dynamics of employment, earnings, participation in welfare programs, and adult and child well-being. A major objective of the SPD was to aid study of the results of welfare reforms and their effects on Americans.

²³ One of the four rotation groups was interviewed only nine times.

²⁴ The SPD was mandated and funded by Section 414 of P.L. 104-193.

The SPD is an extension of the 1992 and 1993 SIPP panels. The data collected on these panels provide a baseline of 3 years prior to the enactment of PRWORA in 1996. The SPD follows the households in these panels from 1996 through 2001.

As implied by the study's name, a major focus of the SPD is on the dynamics of participation in means-tested assistance programs, including cash assistance, food and nutrition assistance, housing assistance, and government-funded health insurance. There are detailed data on two other major domains, income and employment. For children, the SPD captures data on school status and problems, childcare, healthcare, child support, residence history, time use, and activities that promote cognitive, emotional, and social development.

Data collection for the SPD began in 1997 with a "bridge survey" that recontacted the sample persons from the 1992 and 1993 SIPP panels, who had last been interviewed in 1995. The first round of interviews with the SPD instruments was in 1998. Collection of data from the SPD panel, including a core questionnaire and topical modules, was planned to continue on an annual basis through 2001. Each year's survey provides retrospective data on the previous 12 months. Unlike the SIPP, the main questionnaire for the SPD collected data on all members of the household through an in-person interview with a single knowledgeable household member aged 15 and older. The 1998 SPD also included a self-administered audiocassette questionnaire for persons age 12 to 17. Available public-use data from the SPD include the 1997 survey file and a longitudinal file of 1992 through 1998 data.

Because the SPD began with the 1992 and 1993 SIPP panels, the sample was originally representative of the U.S. population but is subject to attrition, both during and after the SIPP data collection from these panels. The 1997 bridge survey had a sample of about 38,000 households, of which 30,125 were interviewed (79 percent). The 1998 sample of 18,500 households was a subsample of the 1997 respondents, including all households with children in the panel and an oversampling of households below or near the poverty level. Data were collected on every member of the sample household, including those who had joined or returned to the household since the last wave of data collection.

A major limitation of the SPD is the cumulative effect of nonresponse and shrinking samples over the 10-year series of surveys from which it draws. The cumulative response rate for the SPD from sample selection (in 1992-93) to the 13th interview in 1999 was 50 percent (Weinberg and Shipp, 2000). The SPD was also constrained by budget limitations, which reduced the size of the sample for the 1998 survey to 67 percent of the eligible 1997 sample. Subsequent samples were essentially the same in size. About 1,900 nonrespondents to the 1997 bridge survey were interviewed in 2000 (Census, 2001).

Information on FANP Participation

The scope of the participation data on a given program is a critical factor in determining the kinds of analyses that can be performed. Therefore, we reviewed the availability of program participation data from each principal source in terms of three important dimensions: the reference period for which participation is determined, whether and how the duration of participation is determined, and whether and how the size of the benefit "dose" is measured (for example, FSP benefit level or the frequency of subsidized meals). In addition, we identified which participation data cover entire households or families and which refer to specific individuals.

It is important to note that, in addition to the characteristics described below, the longitudinal data sources (ECLS-K, NLSY79, NLSY-MC, NLSY-YA, PSID-CDS, SIPP, and SPD) permit the construction of longer-term histories of FANP participation by merging data collected in different waves.

FSP Participation

Table 3 summarizes the data on FSP participation available in each of the principal sources, all of which provide this information at the household level. Several sources (CSFII, NLSY-MC, NSAF, PSID-CDS, SIPP, and SPD) also have participation data for one or more individuals in the sampled households. Most of the sources use a 12-month reference period for FSP participation, either alone or in combination with other periods. The exceptions are the CPS-FSS, NFSPS, NLSY-YA, and SIPP.

Table 3—Information available on food stamp program participation

Data source	Reference period ¹				Duration ¹		Benefit level ¹		
	Current	Last month	12 months ²	Other	Months in reference period ³	Other	Current/ most recent monthly	Total for reference period	Other
Consumer Expenditure Surveys (CES) Interview and Diary Surveys		✓ ⁴	✓ ⁴	Past 4 months ⁵	✓		✓ ⁴	✓ ⁵	
Continuing Survey of food intakes by Individuals (CSFII)	✓ ⁶		✓ ⁶			Date last received ⁶	✓		
Current Population Survey-Food Security Supplement (CPS-FSS)		✓					✓		
Early Childhood Longitudinal Study, Kindergarten Cohort (ECLS-K)			✓	Since birth of sample child	✓ ⁷				
National Food Stamp Program Survey (NFSPS)	✓ ⁶	✓ ⁶		Lifetime		Date last received length of last spell	✓		
National Health and Nutrition Examination Survey (NHANES) III	✓		✓						
National Longitudinal Survey of Youth 1979 (NLSY79)			✓		✓	Specified months	✓		
National Longitudinal Survey of Youth-Mothers and Children (NLSY-MC)			✓ ⁸		✓ ⁸		✓ ⁸		
National Longitudinal Survey of Youth-Young Adults (NLSY-YA)				Current calendar year, lifetime	✓	Dates and length of up to 5 spells for current recipients	✓		Monthly average for each year
National Survey of America's Families (NSAF)	✓		✓ ⁹	Lifetime, previous year	✓		✓ ¹⁰	✓ ¹⁰	
Panel Study of Income Dynamics-Child Development Supplement (PSID-CDS)		✓	✓	Prenatal ¹¹	✓		✓	✓	
Survey of Income and Program Participation (SIPP)				Past 4 months ⁶	✓ ⁶	Start and length of 1st spell, number of spells for primary recipient	✓	✓	Monthly detail
Survey of Program Dynamics (SPD)			✓ ⁶		✓			✓ ¹²	

¹All data are household level except as noted.²Includes sources using last 12 months or last calendar year.³Depending on reference period, may include one or more spells of participation (ongoing or completed).⁴Diary Survey component of CES.⁵Interview Survey component of CES.⁶Individual level data for every household member.⁷Number of months in last 12 months.⁸Data from main NLSY79 questionnaire for mother.⁹NSAF participation data identify whether adults, children, or both received benefits in previous year.¹⁰NSAF asks for annual total or monthly average benefits for last calendar year.¹¹In Child Development Supplement, for mother of focus child.¹²SPD asks for annual total benefits for household using monthly average, estimated total, or varying benefit amounts.

Most of the principal sources identify the specific number of months of FSP participation in the reference period, but CSFII, CPS-FSS, and NHANES-III lack this information. All of the sources except ECLS-K and NHANES-III have data on FSP benefit levels, most often the current or most recent monthly benefit.

WIC Participation

Table 4 provides detailed information on the WIC participation data available from all but one of the principal sources. (The CES has only FSP participation data.) In general, WIC participation data are less detailed than FSP participation data. Only CSFII, SIPP, and SPD have duration of WIC participation for every household member. NHANES-III has relatively rich data on sample members, including individual-level participation for three reference periods (current, last month, and last year) and duration for the current or most recently completed spell. The NFSPS asked the number of household members who received WIC foods during the past 30 days.

The information available in other data sources is somewhat more limited. The CPS-FSS has only household-level WIC participation data, although it does identify the number of WIC participants in the household. The three NLSY sources offer only the most basic information: whether anyone in the household received WIC benefits during the last 12 months. Given that eligibility for WIC participation is restricted to a very narrow group of individuals, however, it should be possible to make reasonable deductions about which member(s) participated in the program.

Three sources provide a clear basis for identifying infants and children whose mothers received WIC benefits during pregnancy: ECLS-K, PSID-CDS and SIPP. This relationship can be deduced for many cases in the NLSY-79 and NLSY-MC, and possibly in the SPD. In fact, as noted previously, an ERS-funded grant is currently examining the relationship between WIC participation and birth outcomes using data from the NLSY-MC.²⁵ The PSID-CDS also has current WIC participation for the focus children under 3 years of age.

NSLP Participation

Table 5 indicates the specific information available on NSLP participation for the nine principal sources that provide any information. Questions are asked to elicit five different measures of program exposure, as discussed below.

The first question is whether the child attends a school that participates in the NSLP. CSFII, ECLS-K, and NHANES-III offer data on whether the NSLP is available at the child's school (which, to be sure, is almost always true for public schools).²⁶ In the CSFII, this question, and all questions related to NSLP participation, are asked for every child in the household between the ages of 5 and 18 years. Thus, one could easily construct measures that would reflect household-level participation in the NSLP.

The second question is how often the child takes the NSLP meal. All of the listed sources have some information on this question except the NSAF. CSFII, ECLS-K, and NHANES-III quantify the frequency of school lunch consumption for individual children (all children in the CSFII and sample members who are children in ECLS-K and NHANES-III). SIPP provides quantitative frequency data at the household level and identifies (in the 1996 panel) individual children who "usually" take school lunches. SPD identifies each child in the household who "usually" eats the lunch offered at school. PSID-CDS has only a qualitative measure of whether the focal child usually takes the school lunch.²⁷

The third question is whether the child receives free or reduced-price lunches. NHANES-III has no data on this. All of the other principal sources with NSLP data have at least an indicator of free or reduced-price status, but only CSFII and PSID-CDS identify individuals according to free vs. reduced-price status (all household members for the CSFII and sample members for the PSID-CDS). SIPP differentiates free vs. reduced-price participation at the household level (for all children in the house as a group). SPD identifies whether each child in the household got free or reduced-price lunches or breakfasts, thus allowing

²⁵ Greg Duncan and Lori Kowaleski-Jones, "Effects of Participation in Food Assistance Programs: Evidence from NLSY Children," research in progress at Northwestern University.

²⁶ Questions are framed in terms of the availability of "complete meals offered for the same fixed price every day," which provides a reasonable proxy for the NSLP.

²⁷ The PSID-CDS asks: "Does (the child) usually eat a complete hot lunch offered at (daycare/nursery school/ preschool/school)?"

Table 4—Information available on WIC participation

Data source	Reference period				Duration	
	Current	Last month	12 months ¹	Other	Months in reference period ²	Other
Continuing Survey of Food Intakes by Individuals (CSFII)	✓ ³				✓ ³	
Current Population Survey-Food Security Supplement (CPS-FSS)		✓ ⁴				
Early Childhood Longitudinal Study, Kindergarten Cohort (ECLS-K)				Prenatal, infancy ⁵		
National Food Stamp Program Survey (NFSPS)		✓ ⁴				
National Health and Nutrition Examination Survey (NHANES) III	✓ ⁵	✓ ⁵	✓ ⁵		✓ ⁵	Completed spell ⁶
National Longitudinal Survey of Youth 1979 (NLSY79)			✓ ⁴			
National Longitudinal Survey of Youth-Mothers and Children (NLSY-MC)			✓ ⁴			
National Longitudinal Survey of Youth-Young Adults (NLSY-YA)			✓ ⁴			
National Survey of America's Families (NSAF)			✓ ⁷			
Panel Study of Income Dynamics-Child Development Supplement (PSID-CDS)	✓ ⁸			Prenatal ⁹		
Survey of Income and Program Participation (SIPP) ⁵				Past 4 month ³	✓ ³	Monthly detail ³
Survey of Program Dynamics (SPD)			✓ ³		✓ ³	

¹Includes sources using last 12 months or last calendar year.

²Depending on reference period, may include one or more spells of participation (ongoing or completed).

³Individual-level data for each household member.

⁴Information available for the number of WIC food packages received by the household.

⁵Information available for individual sample member.

⁶Length of completed spell ending in reference period, regardless of start date.

⁷Household-level data.

⁸In Child Development Supplement, for focus child under 3 years old.

⁹In Child Development Supplement, for mother of focus child.

Table 5—Information available on NSLP participation

Data source	Attends NSLP school ¹	Frequency takes NSLP meals	Receives free or reduced-price meals	Dietary recall data	Other
Continuing Survey of food intakes by Individuals (CSFII)	✓ ²	✓ ²	✓ ³	✓ ⁴	
Current Population Survey-Food Security Supplement (CPS-FSS)			✓ ⁵		
Early Childhood Longitudinal Study, Kindergarten Cohort (ECLS-K)	✓ ⁶	✓ ⁶	✓ ⁶		
National Food Stamp Program Survey (NFSPS)		✓ ⁷	✓ ⁷		
National Health and Nutrition Examination Survey (NHANES) III	✓ ⁸	✓ ⁸		✓ ⁹	
National Survey of America's Families (NSAF)			✓ ¹⁰		
Panel Study of Income Dynamics-Child Development Supplement (PSID-CDS)		✓ ¹¹	✓ ³		
Survey of Income and Program Participation (SIPP)		✓ ¹²	✓ ⁵		✓ ¹³
Survey of Program Dynamics (SPD)		✓ ¹⁴	✓ ¹⁵		

¹Question asks whether child attends school where a complete meal is offered every day for the same fixed price, a reasonable proxy for the existence of an NSLP lunch program (as opposed to a strictly a la carte program).

²CSFII has data for each household member between 5 and 18 years of age.

³CSFII and PSID-CDS differentiate free participants from reduced-price participants.

⁴CSFII data allow differentiation of foods obtained and eaten at school from foods eaten at school but obtained elsewhere.

⁵Data collected at household level. CPS-FSS does not differentiate between free and reduced-price meals; the SIPP asks about each separately.

⁶ECLS-K data are for sample child.

⁷In the household food use component of NFSPS, the number of school lunches eaten was collected for the last 7 days. In the NFSPS main survey, each household member reported if free or reduced-price lunches were consumed for the last 30 days. No distinction was made between free and reduced-price lunches.

⁸NHANES-III collected data for sampled children/youth (ages 2 months to 16 years).

⁹NHANES-III data include codes for place eaten rather than source of food. Therefore, foods coded as “eaten at school” include foods obtained elsewhere; i.e., non-NSLP foods.

¹⁰NSAF data indicate any receipt of free or reduced-price lunches by children in the last year (household-level data).

¹¹PSID-CDS asks whether focal child “usually” takes a complete lunch offered at school.

¹²The 1993 SIPP collected information on the number of lunches consumed per week within the household. The 1996 panel questionnaire obtained information on which children consumed lunches.

¹³The SIPP also collects information on average price paid.

¹⁴The SPD asks which children usually eat lunch offered at school.

¹⁵For each child, the SPD asks whether the child received a free or reduced-price lunch or breakfast because he/she was qualified for the NSLP. This information can be used to infer whether NSLP participation was via free or reduced-price meals.

differentiation between free/reduced-price NSLP participants and those who are eligible for free/reduced price meals but choose to take full-price meals instead. NFSPS asked for each household member receiving free or reduced-price lunches or breakfasts for the last 30 days. In the household food-use component of NFSPS, each FSP household stated the number of times household members received free lunches and breakfasts over the past 7 days. CPS-FSS has household but not individual data and does not differentiate between free and reduced-price participation. (This could be imputed based on household income and size).

The fourth question is the nutrient content of the NSLP meals consumed by participating children and the contribution of those meals to children's total diets. CSFII and NHANES-III are the only sources providing this information. Both sources provide dietary recall data. CSFII data include information on whether the foods consumed at lunch were prepared at home or school, whereas NHANES-III only differentiates lunches eaten at school from those eaten at home. Thus, the CSFII provides a superior measure of the nutrient content of meals consumed by NSLP participants.²⁸

The SIPP asks for a fifth data item on NSLP participants: the average price paid. This item might be useful in explaining variation in participation among children not eligible for free or reduced-price meals.

SBP Participation

As shown in table 6, eight of the nine sources with NSLP participation data also identify SBP participants; the SPD does not. Six of the sources provide the same participation data for the SBP as for the NSLP. The SIPP provides all of the same items for SBP as for NSLP except the average price paid per meal. The ECLS-K does not directly ask whether SBP participants receive free or reduced-price meals, but this can be inferred from the response on free/reduced price status for the NSLP.

²⁸ In NHANES-III, the frequency of taking the NSLP meal could be used to identify which children's lunches are likely to be NSLP meals; however, this approach might require the exclusion of data for infrequent NSLP participants and thereby produce biased results.

Participation in Other FANPs

In addition to the four most commonly identified USDA programs, participation in one other FANP can be approximated in a few of the principal sources. The CPS-FSS, NHANES-III, and PSID all include questions about elders' receipt of meals from congregate feeding sites or Meals on Wheels. NHANES-III differentiates between the two sources of meals. In addition, as noted in preceding discussions, the CPS-FSS and PSID-CDS provide information about children in childcare facilities who receive free or reduced-price meals, but this does not allow differentiation of meals provided through the NSLP or CACFP. Moreover, because children participating in the CACFP through family childcare homes are not means tested, survey questions are unlikely to pick up these children. The NFSPS asked if household members had received, during the past 30 days, free or reduced-cost meals for the elderly or at a daycare or Head Start program.

None of the other FANPs is represented in the principal data sources. For some programs this is not an unexpected finding, given that participation is defined at the institutional rather than individual level. Survey respondents are unlikely to know, for example, whether the food pantry from which they received emergency food supplies participates in The Emergency Food Assistance Program (TEFAP). Likewise, neither parent nor child respondents are likely to know whether school-based nutrition education activities receive funding from the Nutrition Education and Training (NET) Program. For other FANPs, however, participants could potentially be identified in data collected via the principal sources if appropriately worded questions were added to survey instruments. These include participants in the Summer Food Service Program, Commodity Supplemental Food Program, Special Milk Program, Food Distribution Program on Indian Reservations, and WIC Farmer's Market Nutrition Program.

Data on Nutrition- and Health-Related Measures

The principal data sources include a wide variety of nutrition- and health-related measures. For the discussion that follows, these measures have been divided into seven groups:

Table 6—Information available on SBP participation

Data source	Attends SBP school ¹	Frequency takes SBP meals	Receives free or reduced-price meals	Dietary recall data
Continuing Survey of food intakes by Individuals (CSFII)	✓ ²	✓ ²	✓ ³	✓ ⁴
Current Population Survey-Food Security Supplement (CPS-FSS)			✓ ⁵	
Early Childhood Longitudinal Study, Kindergarten Cohort (ECLS-K)	✓ ⁶	✓ ⁶	✓ ⁶	
National Food Stamp Program Survey (NFSPS)		✓ ⁷	✓ ⁷	
National Health and Nutrition Examination Survey (NHANES) III	✓ ⁸	✓ ⁸		✓ ⁹
National Survey of America's Families (NSAF)			✓ ¹⁰	
Panel Study of Income Dynamics-Child Development Supplement (PSID-CDS)		✓ ¹¹		
Survey of Income and Program Participation (SIPP)		✓ ¹²	✓ ⁵	

¹Question asks whether child attends school where a complete meal is offered every day for the same fixed price, a reasonable proxy for the existence of an SBP breakfast program (as opposed to a strictly a la carte program).

²CSFII has data for each household member between 5 and 18 years of age.

³CSFII and PSID-CDS differentiate free participants from reduced-price participants.

⁴CSFII data allow differentiation of foods obtained and eaten at school from foods eaten at school but obtained elsewhere.

⁵Data collected at household level. The CPS-FSS and NFSPS do not differentiate between free and reduced-price meals; the SIPP asks about each separately.

⁶ECLS-K data are for the sample child. Receipt of free/reduced price breakfast can be inferred from free/reduced price lunch and SBP participation. The ECLS-K also has information on number of meals or snacks in day care or other child care.

⁷In the household food use component of NFSPS, the number of school breakfasts eaten was collected for the last 7 days. In the NFSPS main survey, each household member reported if free or reduced-price breakfasts were consumed for the last 30 days. No distinction was made between free and reduced-price breakfasts.

⁸NHANES-III collected data for sampled children/youth (ages 2 months to 16 years).

⁹NHANES-III data includes codes for place eaten rather than source of food. Therefore, foods coded as “eaten at school” include foods obtained elsewhere; i.e., non-SBP foods.

¹⁰NSAF data indicate any receipt of free or reduced-price breakfasts by children in the last year (household-level data).

¹¹PSID-CDS asks whether focal child “usually” takes a complete breakfast offered at school.

¹²The 1993 SIPP collected information on the number of school breakfasts consumed per week within the household. The 1996 panel questionnaire obtained information on which children consumed school breakfasts.

- food expenditures and intake;
- sufficiency of the individual's or household's food supply;
- physical and biochemical measures related to nutritional status;
- birth outcomes;
- breastfeeding, immunization, and other health-related behaviors;
- health status and other health-related variables; and
- measures related to physical, cognitive, and emotional status or performance.

The text and tables that follow provide specific information about the data available in each of these categories. Each table repeats the information on program participation data, so that readers can easily see the overlap between available program participation information and available nutrition- and health-related measures.

Food Expenditures and Intake

Table 7 shows the availability of data from the principal sources on the following types of outcomes:

- food expenditures (how much is spent on food or what foods are purchased)
- food intake (meals, food groups, or specific foods consumed)
- nutrient intake (daily consumption of energy and nutrients)

CES provides the most detailed data on food expenditures, including information on the specific foods purchased by sampled households. Data are obtained through a diary in which respondents record purchases of food, household supplies, and other items for two 1-week periods over the course of a year. NFSPS provides detailed data on the quantity and expense of specific food purchased and used in a 1-week period, but only for the FSP households. In contrast, all of the other data sources obtain much-more-general information. NLSY-MC, NLSY79, PSID-CDS, and SPD obtain measures of total food expenditures over the preceding 12 months, using a brief set of survey questions. CSFII and NFSPS use a similar set of questions to obtain data on at-home and away-from-home food expenditure for the previous 3 months, while CPS-FSS obtain the data for the

previous week. None of the sources, except NFSPS, directly measures the proportion of purchased food that is actually used or nutrient equivalents of the household food supply (nutrient availability at the household level). Neither ECLS-K, NSAF, nor SIPP provides any information on food consumption.

In terms of information on food and nutrient intake, a contrast exists between the two sources that are national surveys included in the NNMRRP — NHANES-III and CSFII — and the other data sources that provide these types of data. Both NHANES-III and CSFII obtain detailed information on the foods consumed by survey respondents through guided recalls covering a 24-hour period (one such period for NHANES-III and two nonconsecutive periods for CSFII). These recalls are then used to estimate intakes of food energy and a broad array of nutrients. CSFII also provides food intakes for 71 food groups and 30 pyramid food groups. Both CSFII and NHANES-III include a nonquantified food frequency. NHANES-III has an infant feeding history. The NFSPS collected data on household food use, and a nutrient database is used to derive the household nutrient availability from the food use data.

The other sources offer much-more-limited data on selected eating habits or practices. NLSY79 and NLSY-YA, for example, have a series of questions about dietary practices during pregnancy and infant feeding practices. PSID-CDS has only one food intake item: how often the focal child eats breakfast.

Food Sufficiency

As table 8 illustrates, 9 of the 13 principal sources provide some type of self-reported information on the sufficiency of food available to respondent households or individuals. The most authoritative sources of information on this topic are CPS-FSS, ECLS-K, NFSPS, PSID-CDS, and SPD. As noted in the preceding descriptions of each data source, these sources include the full 18-item food security scale developed for FNS (Hamilton et al., 1997).

CSFII, NHANES-III, NSAF, and SIPP have more limited questions about whether the household has sufficient food and, if not, the reasons why. (The main PSID has similar questions.) In addition, NHANES-III, NSAF, and SIPP have a few questions on hunger, framed in terms of skipping meals or losing weight because of not enough money or other resources to get

Table 7—Available information on food expenditures and intake

Data source	FANPs identified				Food expenditures	Food intake	Nutrient intake
	WIC	FSP	NSLP	SBP			
Consumer Expenditure Surveys (CES) Interview and Diary Surveys		✓			Detailed expenditures diary (2 weeks/year)		
Continuing Survey of food intakes by Individuals (CSFII)	✓	✓	✓	✓	Food expenditures: household and away from home	2 nonconsecutive 24-hour recalls Food intakes in 71 food groups & 30 pyramid food groups	Use of vitamin & mineral supplements (type/frequency)
Current Population Survey-Food Security Supplement (CPS-FSS)	✓	✓	✓	✓	Food expenditures: household and away from home		
National Food Stamp Program Survey (NFSPS)	✓	✓	✓	✓	Food expenditures: household and away from home	Household food use and nutrient availability for 7 days	
National Health and Nutrition Examination Survey (NHANES) III	✓	✓	✓	✓		24-hour recall Nonquantified food frequency (12+ years) Infant feeding history (<12 mos)	Use of vitamins and mineral supplements (type/frequency)
National Longitudinal Survey of Youth 1979 (NLSY79)	✓	✓			Food expenditures: household and away from home	Vitamin/mineral supplementation, calorie reduction, salt reduction, during pregnancy; infant feeding practices ¹	
National Longitudinal Survey of Youth-Mothers and Children (NLSY-MC)	✓	✓			Food expenditures: household and away from home	Infant feeding practices ¹	
National Longitudinal Survey of Youth-Young Adults (NLSY-YA)	✓	✓				Vitamin/mineral supplementation, calorie reduction, salt reduction during pregnancy; infant feeding practices	
Panel Study of Income Dynamics-Child Development Supplement (PSID-CDS)	✓	✓	✓	✓	Food expenditures: household and away from home	Child usually eats breakfast	
Survey of Program Dynamics (SPD)	✓	✓	✓	✓	Food expenditures: household and away from home		

¹Infant feeding not available in NLSY79 1994-1996. NLSY79 main questionnaire is the source for food expenditure and intake data for the NLSY-MC sample.

Table 8—Information available on food sufficiency and hunger

Data source	FANPs identified				Food sufficiency outcomes		
	WIC	FSP	NSLP	SBP	Full food security model ¹	Limited food sufficiency questions ²	Limited questions on hunger ³
Continuing Survey of food intakes by Individuals (CSFII)	✓	✓	✓	✓		✓	
Current Population Survey-Food Security Supplement (CPS-FSS)	✓	✓	✓	✓	✓		
Early Childhood Longitudinal Study, Kindergarten Cohort (ECLS-K)	✓	✓	✓	✓	✓		
National Food Stamp Program Survey (NFSPS)	✓	✓	✓	✓	✓		
National Health and Nutrition Examination Survey (NHANES) III	✓	✓	✓	✓		✓	✓
National Survey of America's Families (NSAF)	✓	✓	✓	✓		✓	✓
Panel Study of Income Dynamics-Child Development Supplement (PSID-CDS)	✓	✓	✓	✓	✓	✓	
Survey of Income and Program Participation (SIPP)	✓	✓	✓	✓		✓	✓
Survey of Program Dynamics (SPD)	✓	✓	✓	✓	✓		

¹Reference period is past 12 months; household level. In addition, NFSPS included a reference period of past 30 days.

²Questions about adequacy of available food, resources to purchase food, use of food pantries, etc. Household level for all, plus individual level for sample members in NHANES-III.

³Questions about meal skipping, diminished size of meals, experiencing hunger, etc. Both household and individual levels in NHANES.

food. NHANES-III has both individual and household data on food sufficiency; all other sources with this information, including CPS-FSS and PSID-CDS, provide only household-level data.

Physical and Biochemical Measures

Of the 13 principal sources, 7 have data on the heights and weights of individuals in the sample. As indicated in table 9, self-reported heights and weights are obtained by NLSY-YA, CSFII, and NLSY79.²⁹ PSID-CDS has heights measured by interviewers and self-reported weights for the focal children. ECLS-K, NLSY-MC and NHANES-III have heights and weights measured by trained field staff. ECLS-K and NLSY-MC obtained child height and weight data as part of more general standardized assessments of child development. NHANES-III collected this information as part of medical examinations in which skinfold thickness and head circumference also were measured. NHANES-III is alone among the principal sources in providing data on nutritional biochemistries, including blood iron levels and serum and blood levels of other selected nutrients.

Birth Outcomes

Except for CSFII, all of the sources that provide data on height and weight also have information on birth outcomes (table 9). The most common data include birthweight and gestational age, as reported by the current primary caregiver at the time of the interview. These data are available from ECLS-K, NHANES-III, PSID-CDS, NLSY79 (for the mothers in this cohort), NLSY-MC (for their children), and NLSY-YA (for the NLSY79 offspring who have become mothers). The NLSY sources provide the potential for combining data across generations (such as examining the relationships between birthweight, subsequent growth of the child, pregnancy outcomes in young adulthood, and WIC participation). The NLSY sources and PSID-CDS permit longitudinal analyses to examine trends over time in differences between WIC participants and nonparticipants on the outcome measures (for instance, the trend in the difference in birthweights between infants born to women who were on WIC during pregnancy and those born to nonparticipants). These sources could also be used to examine successive pregnancies and birth outcomes for WIC participants and nonparticipants. The birth height and weight data

for the ECLS-K sample could be analyzed in the context of the caretakers' reports of WIC participation during pregnancy and infancy, but the recall period for all of these data is rather long (4 to 5 years).

Health Behaviors

Table 9 also shows the availability of data on two health-related behaviors that the WIC program specifically seeks to influence—breastfeeding and child immunizations. Except for the ECLS-K, all of the sources that provide information on birth outcomes also include information on whether mothers attempted to breastfeed. CSFII and NFSPS also provide this information.

NHANES-III and PSID-CDS are the only principal sources that include information on children's immunizations; however, the data are quite limited. NHANES-III asks whether the child has received a DPT or tetanus shot and how long ago the last shot was received. If the shot record is available, it is used to verify this information. PSID-CDS has only one self-reported item: "Is your child up to date on his/her shots?"

Other health-affecting behaviors, such as smoking, exercise, and selected dietary patterns, may be of interest to analysts as direct outcome measures or as important covariates for such outcomes as birthweight and gestational age. All of the principal sources except CES, CPS-FSS, and SIPP have questions on one or more health-related behaviors (data shown in table 10).

Health Status and Other Health-Related Variables

All of the principal sources have self-reported data on respondents' general health, specific diseases, and/or some measure of healthcare utilization. As indicated in table 9, five of the sources have all three of these types of data: NLSY-YA, NHANES-III, NLSY-79, SIPP, and PSID-CDS. Most of the data on these outcomes are focused on conditions that impede adults' ability to work, attend school, or care for themselves or others. Some nutrition-related diseases are identified, however, such as diabetes and heart disease. NHANES-III also includes self-reported information on the incidence of anemia, as does NLSY-MC and PSID-CDS. Other items of potential relevance to FANP research include parent-reported data on infant and early childhood healthcare that can be found in the

²⁹ For children, parents or caregivers serve as proxy providers of self-reported items.

Table 9—Information available on nutrition- and health-related outcomes

Data source	FANPs identified				Physical/ biochemical measures ¹		Health-related behaviors ²		Health status/care		
	WIC	FSP	NSLP	SBP	Height & weight	Birth outcomes	Breastfeeding	Immunizations	Health conditions ³	Self-assessed health status	Health care utilization
Consumer Expenditure Surveys (CES) Interview and Diary Surveys		✓									✓ ⁴
Continuing Survey of food intakes by Individuals (CSFII)	✓	✓	✓	✓	✓ ⁵		✓		✓	✓	
Current Population Survey-Food Security Supplement (CPS-FSS)	✓	✓	✓	✓						✓	
Early Childhood Longitudinal Study, Kindergarten Cohort (ECLS-K)	✓	✓	✓	✓	✓ ⁶	✓				✓	
National Food Stamp Program Survey (NFSPS)	✓	✓	✓	✓			✓		✓ ⁷		
National Health and Nutrition Examination Survey (NHANES) III	✓	✓	✓	✓	✓ ⁸	✓	✓	✓ ⁹	✓	✓	✓
National Longitudinal Survey of Youth 1979 (NLSY79)	✓	✓			✓ ¹⁰	✓	✓		✓	✓	✓
National Longitudinal Survey of Youth- Mothers and Children (NLSY-MC)	✓	✓			✓ ⁸	✓	✓		✓		✓
National Longitudinal Survey of Youth-Young Adults (NLSY-YA)	✓	✓			✓ ⁵	✓	✓		✓	✓	✓
National Survey of America's Families (NSAF)	✓	✓	✓	✓						✓	✓
Panel Study of Income Dynamics-Child Development Supplement (PSID-CDS)	✓	✓	✓	✓	✓ ¹¹	✓	✓	✓ ¹²	✓	✓	✓
Survey of Income and Program Participation (SIPP)	✓	✓	✓	✓						✓	✓
Survey of Program Dynamics (SPD)	✓	✓	✓	✓						✓	✓

¹NHANES-III also includes an extensive battery of physical measurements and nutritional biochemistries (see text).

²Other health behaviors are shown in table 10. Self-reported unless otherwise noted.

³Self-reported disease or health conditions.

⁴Out-of-pocket expenses for health care (Quarterly Interview).

⁵Self-reported height and weight.

⁶Measured height and weight.

⁷NFSPS asked if any household member is on a special diet, and if yes, which special diet.

⁸Measured and self-reported height and weight.

⁹Two questions: Ever received DPT or tetanus shot and how long since last DPT or tetanus. Verified with shot record if available.

¹⁰Self-reported weight, height in 1981, 1982 and 1985.

¹¹Measured height and parent-reported weight for focus child in CDS.

¹²One question: "Is your child up to date on his shots?"

Table 10—Information available on behavioral, developmental, and performance-related outcomes

Data source	FANPs identified				Miscellaneous health-related behaviors ¹	Physical/cognitive/emotional status or performance			
	WIC	FSP	NSLP	SBP		Physical development/performance	Cognitive development/performance	Emotional/social development/health	School attendance/performance
Consumer Expenditure Surveys (CES) Interview and Diary Surveys		✓							
Continuing Survey of food intakes by Individuals (CSFII)	✓	✓	✓	✓	✓				
Current Population Survey-Food Security Supplement (CPS-FSS)	✓	✓	✓	✓					
Early Childhood Longitudinal Study, Kindergarten Cohort (ECLS-K)	✓	✓	✓	✓	✓	✓ ²	✓ ²	✓ ^{2,4}	✓ ⁴
National Food Stamp Program Survey (NFSPS)	✓	✓	✓	✓	✓				
National Health and Nutrition Examination Survey (NHANES) III	✓	✓	✓	✓	✓	✓ ²	✓ ²		
National Longitudinal Survey of Youth 1979 (NLSY79)	✓	✓			✓			✓ ³	✓ ³
National Longitudinal Survey of Youth-Mothers and Children (NLSY-MC)	✓	✓			✓	✓ ³	✓ ²	✓ ³	✓ ²
National Longitudinal Survey of Youth-Young Adults (NLSY-YA)	✓	✓			✓			✓ ³	✓ ³
National Survey of America's Families (NSAF)	✓	✓	✓	✓				✓ ³	✓ ³
Panel Study of Income Dynamics-Child Development Supplement (PSID-CDS)	✓	✓	✓	✓	✓	✓ ³	✓ ²	✓ ³	✓ ³
Survey of Income and Program Participation (SIPP)	✓	✓	✓	✓					✓ ³
Survey of Program Dynamics (SPD)	✓	✓	✓	✓	✓			✓ ³	✓ ³

¹Includes exercise, dieting, smoking, alcohol consumption, and drug abuse.²Measured and self-reported. Parent is proxy for child on self-reported data.³Self- or parent-reported.⁴Teacher questionnaire and school records abstraction.

NLSY-MC, NLSY-YA, NLSY79, PSID-CDS, and SIPP. Finally, NHANES-III includes medical and dental assessments for children and adults, plus radiographs and performance tests for persons age 60 and older. Both CSFII and NFSPS include self-reported information on special diets.

Physical, Cognitive, and Emotional Status/Performance

As indicated in table 10, the principal sources provide a variety of data on developmental or performance measures in the physical, cognitive, and emotional/social domains. In the physical domain, NLSY-MC and PSID-CDS provide data on physical development of children (especially motor skills), based on parent reports elicited with standardized scales. ECLS-K has a combination of parent-reported and test-based data on motor skills. NHANES-III has both parent-reported data on physical development for children up to 4 years old and medical assessments for children 5 years and older. These sources also provide objective data on children's cognitive development or performance, ranging from general professional assessments to formal tests of memory, language skills, mathematical skills, and other areas.³⁰

Eight of the sources provide parent-reported data on children's school attendance and performance. Depending on the source, this may include grade attended, incidence of academic and disciplinary problems, or relative ranking in the child's class. NLSY-MC also incorporates the results of a one-time school survey providing data from school records on attendance and grades, as well as descriptive information on school characteristics.³¹ ECLS-K includes periodic teacher surveys, principal surveys, and abstraction of information from school records. Several sources also include data on the social or emotional development of children or on adults' mental health. These data are all parent-reported, except for teacher assessments and school records obtained for the ECLS-K.

³⁰ NLSY-79 is unique among these sources in providing cognitive test scores and school transcript data for youth and young adults, but these data are of limited usefulness because they were collected in 1980-83.

³¹ To obtain the school survey data, users must make special arrangements with the data repository, at the Center of Human Resources Research, Ohio State University.

Potential Data Sources

The data sources described in this section are considered "potential" because, although they include useful data, they have limitations that the previously described principal data sources do not. Some potential sources are not useful at the present time because they either include no information on FANP participation or have a critical gap in this information (for example, a source that includes information on birth outcomes but not on prenatal WIC participation). ERS has worked with other Federal agencies to fill critical data needs for FANP research; these potential data sources represent further opportunities for ERS to fill information gaps through collaboration with sponsoring agencies and organizations.

Other potential sources focus on populations that are limited to a specific lifecycle group (such as preschoolers or the elderly) and/or specific States or localities. Although less useful than the nationally representative data sources described in previous sections, these sources can be used for case study or exploratory analysis.

Nutrition- and health-related measures available in the potential data sources are often (but not always) of lower quality than comparable measures in principal data sources. For example, a potential data source might include parental reports about cognitive performance, while comparable data in principal sources are based on results of standardized tests administered by trained field staff. As described below, some of the potential sources have high-quality outcome data, but these sources have other important limitations.

The following sections describe each of the potential sources, grouped by their major limiting factor. Each section includes a table that summarizes available information on FANP participation and nutrition- and health-related measures. Except as noted in this section, all of the potential sources have public-use data sets, available now or planned for the near future.

Sources with Poor Match Between Program and Outcome Data

These data sources (table 11) have both FANP participation data and potentially useful nutrition- or health-related measures, but the combination of these data does not offer a strong basis for relating program