Chapter One
Introduction

This report describes the nutrition and health characteristics of participants and nonparticipants in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), using data from the Third National Health and Nutrition Examination Survey (NHANES-III).[1] The NHANES survey is the primary source of information used in monitoring the Nation's nutrition and health status. NHANES-III was completed between 1988 and 1994 and provides data for a large nationally representative sample of individuals.[2]

A broad array of measures is used to describe the nutrition and health characteristics of WIC participants and two groups of nonparticipants: low-income individuals who were income-eligible for WIC (household income at or below 185 percent of poverty) and higher-income individuals who were not income-eligible for WIC (household income above 185 percent of poverty). Because of age-based variations in NHANES-III data collection protocols and small samples of pregnant and postpartum women, data were not consistently available for the three major categories of WIC participants (pregnant and postpartum women, infants, and children). Data availability was greatest for children and most limited for women.

For children, data are provided on dietary intake, breastfeeding and infant feeding history, birth characteristics, weight status, nutritional biochemistries, general measures of childhood health, and dental health. For infants, information is provided on breastfeeding and infant feeding practices, birth characteristics, and hospitalizations, accidents, and injuries since birth. Data reported for women include physical activity, use of alcohol and tobacco, pregnancy history, and dental health. Finally, data on general health status, exposure to second hand smoke, health insurance coverage, and access to a regular source of health care are provided for all three groups (women, infants, and children).

This research was not designed to assess program impacts or in any way attribute differences observed between WIC participants and either group of nonparticipants to an effect of the program. Rather, it was designed to establish a baseline from which to monitor the nutrition and health characteristics of WIC participants and nonparticipants over time and to generate questions and hypotheses for future research. The data presented in this report provide useful background information for researchers interested in studying the nutrition and health characteristics of low-income populations and/or the impact of participation in food assistance programs, or other variables, on nutrition and health characteristics. The data also provide important insights for individuals who plan and implement nutrition or health programs for preschool children, infants, and pregnant and postpartum women.

This introductory chapter provides an overview of the WIC Program as well as a brief descrip-

[1] Similar reports have been prepared for participants and nonparticipants in the Food Stamp Program (FSP) (Fox and Cole, 2004a), for school-age children (Fox and Cole, 2004b), and for older adults (Cole and Fox, 2004).

[2] Beginning in 1999, NHANES became a continuing survey, without breaks between data collection cycles. Similar sampling and data collection procedures are used, although at least two years of data are necessary to have adequate sample sizes for subgroup analyses (Flegal et al., 2002). Data for the first two continuous years of the ongoing NHANES (1999-2000) have been released since the tabulations presented in this report were prepared. Data for subsequent years are expected in mid-2005.

tion of the NHANES-III data and the general approach to the analysis. The five chapters that follow present data on the nutrition and health characteristics listed previously. Details on data and methodology may be found in appendices referenced throughout the report.

The WIC Program

The WIC program, administered by the U.S. Department of Agriculture's (USDA) Food and Nutrition Service (FNS), provides supplemental foods, nutrition education, and health and social service referrals to eligible pregnant women, breastfeeding and nonbreastfeeding postpartum women, infants, and children up to 5 years of age. In FY 2002, WIC served 7.5 million participants per month and accounted for approximately 11.4 percent of the $38 billion Federal expenditure for food assistance and nutrition programs (FANPs) (USDA, FNS, 2003a).

Program Eligibility

WIC eligibility is based on four factors: State residence, categorical eligibility, income eligibility, and nutritional risk. WIC participants must be residents of the State or other jurisdiction (U.S. territory or Indian Tribal Organization) supplying the WIC benefits, unless they are part of a migrant farm worker family.

Participants must also belong to one of five categorically eligible groups—women during pregnancy and up to 6 weeks after delivery, breastfeeding women (who may participate for up to a year after giving birth), postpartum women who are not breastfeeding (who may participate for up to 6 months after giving birth or other termination of pregnancy), infants (0-12 months), and children up to the age of 5 years. Children and infants comprise the majority of WIC participants. In April 2002, 50 percent of all WIC participants were children and 26 percent were infants. The remaining 24 percent were women—11 percent pregnant women, 7.5 percent postpartum nonbreastfeeding women, and 5.7 percent breastfeeding women (Bartlett et al., 2003 and Kresge, 2003).

Income-eligibility criteria are defined by each State WIC agency according to Federal guidelines. The income limit may not exceed 185 percent or be less than 100 percent of Federal poverty guidelines, which are based on household size. As of April 2000, all State agencies defined income eligibility for WIC as less than or equal to 185 percent of poverty (Bartlett et al., 2002).

Income eligibility may also be established by participation in other means-tested programs. FNS regulations require WIC agencies to accept applicants as adjunctively income-eligible for WIC if they document participation in Medicaid, Temporary Assistance for Needy Families (TANF), or the Food Stamp Program (FSP).[3] As of October 1998, applicants not certified under adjunctive income-eligibility provisions must present documentation of income at certification (P.L. 105-336). Before P.L. 105-336 went into effect, some States allowed applicants to self-report income without documentation.

Finally, each WIC participant must be determined to be at nutritional risk, based on assessment by a competent professional authority such as a physician, nutritionist, nurse, or other health professional. For participants over 9 months of age, assessment of nutritional risk must include, at a minimum, measurement of height (or

[3]Since the mid-1980s, several legislative actions have expanded Medicaid income eligibility for pregnant women, infants, and children. As a result, some States have adopted Medicaid income-eligibility limits that exceed the WIC maximum of 185 percent of poverty. Although the number of States using such income-eligibility requirements has been increasing in recent years, this situation was relatively uncommon when the NHANES-III data were being collected. In 1990, the earliest year for which data are available, Medicaid eligibility guidelines in all States were consistent with WIC eligibility guidelines (National Governor's Association (NGA), 1990). In 1994, the last year of NHANES-III data collection, two States had Medicaid income- eligibility limits for pregnant women and infants that exceeded the WIC cutoff (NGA, 1994).

length) and weight and a hematological test for anemia.

Prior to 1999, State agencies established their own nutritional risk criteria following broad guidelines in Federal regulations. This autonomy meant that the criteria used to define nutritional risk and, consequently, program eligibility, varied across State agencies. This variability raised concerns about equity. To address these concerns, FNS asked the Institute of Medicine (IOM) to review the scientific basis for the risk criteria used in the program. The IOM reviewed nutritional risk criteria being used by States and made recommendations about appropriate criteria for future use (IOM, 1996). The IOM report formed the basis for a standardized list of nutritional risk criteria to be used in all WIC programs nationwide. States are still free to define the specific criteria used to determine program eligibility but, since April 1, 1999, criteria must be selected from the approved list.

Some of the measures examined in this report are indicators of nutritional risk that may qualify individuals for WIC participation. Consequently, the prevalence of these characteristics may be greater among WIC participants than nonparticipants. To the extent feasible, text discussions point out nutritional risk criteria that may have been used by States during the NHANES-III data collection period (based on mention in the IOM (1996) report).

Program Participation

The number of individuals participating in WIC increased steadily from the program's inception in 1975 through the late 1990s. Since then, WIC participation has leveled off. Average monthly WIC participation increased from 4.5 million in 1990 to 7.5 million in 2002. However, during this period the annual percentage increase in participation declined from an average of 9 percent during 1990 to 1995 to only 1 percent during 1996 to 2002 (USDA, FNS, 2003a).

In addition, there has been a slight shift in the composition of the WIC participant population since the early 1990s. This shift occurred largely as a result of increased funding that allowed local programs to serve lower-priority participant groups, such as children.[4] Specifically, the number of children has increased, relative to the number of women and infants. In 1990, children comprised 46.3 percent of WIC participants. In 2002, children comprised 50.1 percent of all WIC participants. Over the same time period, the percentage of WIC participants who were pregnant or postpartum women remained relatively constant (23.9% in 1990 vs. 24.1% in 2002), and the percentage of WIC participants who were infants decreased (29.8% in 1990 vs. 25.7% in 2002) (Randall and Boast, 1994 and Bartlett et al., 2003).

Program Benefits

WIC seeks to improve the health of program participants by serving as an adjunct to good health care and by providing supplemental foods, nutrition education, and referral to needed health and social services.

Supplemental Foods

The supplemental foods provided by WIC are good sources of nutrients that research has identified as typically lacking in the diets of low-income pregnant women and children—protein, iron, calcium, and vitamins A and C. Foods available in WIC food packages include milk, eggs, cheese, dried beans and peas, peanut butter, full-strength (100%) fruit or vegetable juices, breakfast cereals that are high in iron and low in sugar, and, for certain breastfeeding women, carrots and canned tuna. Infant packages include iron-fortified infant formula and

[4]WIC employs a priority system for filling vacancies that occur after a local agency has reached its maximum caseload (based on available funding). Children have a lower priority in this system than pregnant women, breastfeeding women, and infants with specific types of nutritional risks.

infant cereals as well as infant juices that are high in vitamin C.

The type and quantity of foods provided vary according to participants' eligibility category, nutritional needs, and, to the extent possible, personal preferences. Most WIC participants receive vouchers or checks to use in purchasing supplemental foods at local grocery stores. In a limited number of geographic areas, foods are delivered to participants' homes or participants pick up foods at warehouses. In recent years, several States have conducted pilot tests on the use of electronic benefits transfer (EBT) systems in disbursing WIC benefits. At least one State has implemented EBT Statewide and several other States are considering Statewide EBT systems.

Nutrition Education

The WIC food package does not meet participants' total nutrient needs. Therefore, nutrition education is an essential part of the WIC Program. It provides a mechanism for ensuring that WIC participants learn about healthy eating practices and that they are encouraged to adopt positive food-related attitudes and behaviors. Program regulations define two broad goals for WIC nutrition education:

- to stress the relationship between proper nutrition and good health, with special emphasis on the nutritional needs of the program's target populations; and

- to assist individuals at nutritional risk in achieving a positive change in food habits, resulting in improved nutritional status and the prevention of nutrition-related problems.

In practice, WIC nutrition education encompasses many other topics such as breastfeeding promotion, the need to avoid cigarettes, alcohol, illicit drugs, and over-the-counter medications during pregnancy, and the importance of childhood immunizations.

Each year, State agencies are required to use for nutrition education activities an amount that is equal to at least one-sixth of their annual expenditures for nutrition services and administrative (NSA) costs. Local WIC agencies are required to offer all adult participants and caretakers of infant and child participants at least two nutrition education contacts during each certification period. Participants are generally certified for periods of 6 months; however, infants may be certified for 1 year and pregnant women are certified for the duration of their pregnancy and up to 6 weeks postpartum. For infants with certifications that extend beyond 6 months, nutrition education must be offered to parents or caregivers on a quarterly basis.

Although local WIC agencies are required to offer nutrition education, participants are free to decline these services without affecting receipt of other program benefits. There is evidence that some WIC participants do not take advantage of the nutrition education opportunities provided by WIC (Fox et al., 1999). To maximize participation, local agencies tend to schedule nutrition education activities to coincide with issuance of WIC vouchers.

State and local WIC agencies have broad autonomy to develop plans and procedures for providing nutrition education to WIC participants. Consequently, WIC nutrition education is quite diverse and may vary both in quantity and quality from one site to the next. A variety of different methods may be used to provide nutrition education. For example, participants may be counseled one-on-one, may attend classes, or may view videos, filmstrips, or slide presentations on a variety of nutrition- and health-related topics. Providers are encouraged to ensure that nutrition education messages take

into account participants' educational levels, nutritional needs, household situations, and cultural preferences.

Referrals to Health Care and Social Services

Local WIC agencies are expected to promote routine use of preventive health care services. Through co-location with health service providers or referrals to other agencies, WIC service delivery sites serve as a link between the participant and the health care system. Coordination between WIC and social service programs has increased since 1989, when Federal law created adjunctive income-eligibility for WIC benefits based on eligibility for other programs. Local WIC staff are encouraged to provide referrals, as needed, to appropriate social services, such as the FSP, Medicaid, TANF, and other programs relevant to participants' needs (such as smoking cessation programs, alcohol and drug treatment programs, parenting classes). The degree to which local WIC agencies facilitate access and referrals to other services varies, depending on the adequacy of health and social service infrastructures at the State and local level and the extent to which participants are already linked into health and social service networks before coming to WIC (Fox et al., 1999).

The Third National Health and Nutrition Examination Survey

NHANES-III was conducted by the National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention (CDC) between 1988 and 1994. The survey included interviews and physical examinations and was designed to provide national estimates of the health and nutrition status of the civilian, noninstitutionalized population in the 50 United States.

NHANES-III was based on a complex multistage probability sample design (NCHS, 1994). Persons were selected on the basis of sex, age, and race or ethnicity. Children under 6 years of age, adults over 60 years of age, and black and Mexican American persons were oversampled. NHANES-III collected data from 33,994 persons 2 months of age and older. Response rates were 85.6 percent for the household interviews and 78.8 percent for the physical examinations (NCHS, 1996). Total NHANES-III samples for the population subgroups served by WIC are 4,744 children under 5 years of age, 1,961 infants, and 667 pregnant and postpartum women.

Interviews were conducted in respondents' homes and physical examinations and measurements were completed in a Mobile Exam Center (MEC). The MEC examination included a physical exam, dietary interview, health interview, blood tests, body measurements, and a dental exam. The dietary interview included a single 24-hour recall that collected quantitative data on foods and beverages consumed during the preceding 24 hours.[5] NCHS staff used these data to calculate nutrient intakes, using food composition data from the Survey Nutrient Database maintained by USDA's Agricultural Research Service (ARS).

Analytic Approach

WIC participants and nonparticipants in the NHANES-III sample were identified by response to a question that asked about current WIC participation: "(Are you/is [infant/child]) now receiving benefits from the WIC program?" This question was asked during the MEC interview, which included a subsample of all NHANES-III respondents. Consequently, the analyses presented in this report are based on the MEC-examined subsample. (The other volumes in this series use the NHANES-III household

[5]For adults (17 years and older), NHANES-III also included a food frequency questionnaire, administered as part of the household interview. The food frequency had a 1-month reference period and was designed to collect qualitative information about dietary patterns. Data from the food frequency were not analyzed for this report.

interview sample or MEC sample, depending on the analysis variable being examined).

Respondents who reported current WIC participation were considered WIC participants. Those who did not report current participation were considered nonparticipants.[6] Nonparticipants were further subdivided into those who were income-eligible for WIC (household income at or below the WIC cutoff of 185 percent of poverty) and those whose income exceeded eligibility requirements (income above 185 percent of poverty).[7]

Participants and nonparticipants were divided into three subgroups corresponding to the three major categories of WIC participants: pregnant and postpartum women, infants (2-12 months of age), and children (1-4 years of age). To accurately reflect categorical-eligibility criteria, the sample of women was limited to pregnant women, nonbreastfeeding women who gave birth within the past 6 months, and breastfeeding women who gave birth within the past 12 months.

[6]Some nonparticipants may have participated in WIC previously. For example, nonparticipant women may have participated in WIC during a previous pregnancy or, for postpartum women, during their pregnancy. Nonparticipating infants and children may have participated at some point prior to the time data were collected. NHANES-III data on WIC participation are not adequate to examine patterns of WIC participation over time. Burstein et al. (2000) analyzed data from the 1993 panel of the Survey of Income and Program Participation (SIPP) and found that most infants and children who enter the WIC program (70 percent) do so during infancy. Most infants (81 percent) go on to participate as children, but participation declines sharply as children age.

[7]NHANES-III data include individuals who reported participation in WIC and reported household income above the 185 percent of poverty cutoff used to define income-eligibility for WIC. This was true for 9.6 percent of those reporting WIC participation. Several factors may contribute to these situations: NHANES-III measures income as a range rather than as an exact value and uses the midpoint of the range to compare household income to the poverty line; WIC eligibility is based on contemporaneous measures of household income, while NHANES-III measured income retrospectively (over the past 12 months); NHANES-III interviewers and WIC staff may have used different probes or techniques to ascertain household income; and, as noted above, during the last 2 years of NHANES-III data collection two states used an income-eligibility cutoff for Medicaid that exceeded 185 percent of poverty. Individuals who reported WIC participation are included in the WIC participant group, regardless of reported household income.

For each variable examined, detailed tables were produced showing estimates for each of the subgroups for which data were available. Data for children were also broken down by year of age. Readers interested in comparing data for women, infants, or children to the population as a whole, or to other subgroups of the population, are referred to volume I in this series (Fox and Cole, 2004a). The detailed tables that accompany that volume include data for the entire population as well as for 72 gender-and-age-specific subgroups.

Table 1 illustrates the format used in the detailed tabulations. Table columns show data for all persons as well as for WIC participants and the two groups of nonparticipants. Table rows show data for the specific subgroups included in the tabulation. Table 1 also shows the maximum sample size for each table cell. For comparison purposes, sample sizes for the full NHANES-III household interview are provided as well (column 1). (As noted previously, this report used the MEC-examined sample because the question on current WIC participation was collected as part of the MEC interview).

All detailed tables include footnotes that clearly identify data source(s). Brief descriptions of the various NHANES-III data files are provided in appendix A. Tables also include footnotes, as appropriate, that identify reference standards used in interpreting NHANES-III data. Reference standards are described in appendix B. To the extent possible, standards are based on those used in the *Healthy People 2010* objectives (U.S. Department of Health and Human Services (U.S. DHHS), 2000a).

Age and Population Adjustment

Detailed tables that show data for children by year of age also present data for the total population of children. These "Total, age-adjusted" estimates are standardized according to the age distribution of the U.S. population in the year

Table 1—Number of NHANES-III respondents: WIC participants and nonparticipants

	Household Interview	MEC Examined			
	Total persons	Total Persons	Currently Receiving WIC Benefits	Income-eligible Nonparticipants	Higher-income Nonparticipants
Women[1]	1,050	667	181	247	185
Infants	2,107	1,961	787	348	731
Children					
1 year old	1,339	1,258	419	391	357
2 years old	1,350	1,269	253	545	387
3 years old	1,186	1,119	201	513	325
4 years old	1,169	1,098	137	547	342
All children	5,044	4,744	1,010	1,996	1,411
Total	8,201	7,372	1,978	2,591	2,327

[1] Pregnant women responded yes to 'Are you now pregnant? Pregnant women identified only by urinalysis results are not included in table.

Source: NHANES-III, 1988-94. WIC participation is asked during the MEC exam.

2000. Age-adjustment is important for comparisons between subgroups and for trend analyses between NHANES surveys. When comparing subgroups such as WIC participants and nonparticipants at a point in time, age-adjustment eliminates between-group differences that are due solely to differences in the age distributions of the groups (U.S. DHHS, 2000b).

Detailed tables that show data for each of the three participant categories (women, infants, and children, or W-I-C) also present data for the total population. These "Total, population-adjusted" estimates are standardized according to the year 2000 distribution of pregnant and postpartum women, infants, and children 1-4 years of age. Population adjustment eliminates between-group differences that are due solely to differences in the sample distribution across categories (W-I-C).

It is important to understand that age- and population-adjusted estimates do not represent the *true* or raw estimates for a given population or subgroup. Rather, the adjusted estimates should be viewed as constructs or indices that provide information on the relative comparability of two or more populations (in this case, WIC participants and nonparticipants) on a particular measure (U.S. DHHS, 2000b).[8]

The choice of a standard population to use in making age and population adjustments is somewhat arbitrary. For this report, adjustments are based on year 2000 Census estimates and year 2000 Vital Statistics data for the number of births, with the number of births used to derive the estimated number of pregnant and postpartum woman.[9] Use of year 2000 population estimates facilitates comparison of NHANES-III estimates with estimates from NHANES 1999-2000.

Population estimates are shown in table 2. The year 2000 population distribution shown in column 1 of table 2 was used to weight participant categories (W-I-C) in the NHANES-III sample frame, for WIC participants and each group of nonparticipants, so that totals reflect the year 2000 population distribution.

Statistical Tests

In addition to descriptive tabulations, the statistical significance of differences between WIC participants and each group of nonparticipants was tested using t-tests. When multiple outcome categories were examined simultaneously, the Bonferroni adjustment was used to adjust for multiplicity (Lohr, 1999). Nonetheless, because of the large number of t-tests conducted, caution must be exercised in interpreting results. In general, findings discussed in the text are limited to those with strong statistical significance (1 percent level or better) or those that are part of an obvious trend or pattern in the data.

Text discussions generally focus on differences between WIC participants and one or both groups of nonparticipants. Reference may be made to other between-group differences when the differences are noteworthy, for example, differences among children by year of age. The statistical significance of these secondary comparisons has not been tested, and this fact is

[8]Separate estimates for children by year of age, infants, and women *do* represent true or raw estimates for these population subgroups.

[9]Table 2 shows Census 2000 population estimates for infants and children (by year of age and total) in April 2000. The estimated population of women (pregnant, breastfeeding, and nonbreastfeeding postpartum) in April 2000 is based on the number of births in the year 2000 adjusted by the following multipliers: number of pregnant women with gestation > 3 months = # births * 7/12; number of postpartum women (breastfeeding and nonbreastfeeding) who gave birth in past 6 months = # births * 0.5; number of breastfeeding women between 6 and 12 months postpartum = # births * 0.2.

Table 2—Age distribution of WIC participants and nonparticipants in NHANES-III sample frame and year 2000 population

	Year 2000 population distribution		NHANES-III sample frame							
	Total Persons		Total Persons[1]		Currently Receiving WIC Benefits		Income-eligible Nonparticipants		Higher-income Nonparticipants	
	Population (thousands)	Percent	Population (thousands)	Percent	Population (thousands)	Percent	Population (thousands)	Percent	Population (thousands)	Percent
Women	5,208	21.6	5,233	23.8	865	20.5	1,518	21.9	2,851	26.3
Infants	3,815	15.8	2,987	13.6	1,133	26.9	527	7.6	1,328	12.2
Children										
1 year old	3,789	15.7	3,406	15.5	915	21.7	904	13.0	1,587	14.6
2 years old	3,757	15.6	3,572	16.2	518	12.3	1,310	18.9	1,743	16.1
3 years old	3,753	15.5	3,525	16.0	488	11.6	1,352	19.5	1,685	15.5
4 years old	3,825	15.8	3,271	14.9	293	7.0	1,321	19.1	1,656	15.3
All children	15,124	62.6	13,773	62.6	2,214	52.6	4,887	70.5	6,672	61.5
Total	24,147	100.0	21,994	100.0	4,212	100.0	6,931	100.0	10,851	100.0

[1] Total includes persons with missing income.

Source: NHANES-III, 1988-94. Year 2000 population of infants and children is from U.S. Census Bureau, *Monthly Estimates of the United States Population*, April 2000.
The estimated population of pregnant, breastfeeding, and nonbreastfeeding postpartum women for April 2000 is based on the number of births in the year 2000 adjusted by the following multipliers: number of pregnant women = # births * 7/12; number of postpartum women (breastfeeding and nonbreastfeeding) who gave birth in past 6 months = # births * 0.5; number of breastfeeding women between 6 and 12 months postpartum = # births * 0.2. It is assumed that pregnant women self-report their pregnancy status only after the second month of pregnancy.

noted in the text. Statistical tests were not performed on these second-level differences because of the expansive number of statistical tests performed in the main analysis and because these comparisons are not the focus of the report.

Additional information about the analytic approach, including use of NHANES-III sampling weights, calculation of standard errors, age standardization, and guidelines used to flag point estimates deemed to be statistically unreliable, is provided in appendix C. Individual point estimates may be deemed statistically unreliable because of small sample size or a large coefficient of variation. In keeping with NHANES-III reporting guidelines, such estimates are reported in detailed tables and are clearly flagged.

The chapters that follow summarize key findings. Graphics are used to illustrate observed differences between WIC participants and nonparticipants. Differences that are statistically significant at the 5 percent level or better are highlighted. Detailed tables provided in appendix D differentiate three levels of statistical significance ($p < .001$, .01, and .05). It is important to note that differences between WIC participants and nonparticipants may be statistically significant even if point estimates are unreliable. When this occurs, the text describes the existence and direction of the significant difference and identifies the group(s) for which point estimates are unreliable.

Comparisons between WIC participants and income-eligible nonparticipants are of primary interest. These comparisons provide useful insights into policy-relevant questions about program targeting, for example: are low-income individuals with the greatest nutritional and health needs receiving WIC services? Comparisons between WIC participants and higher-income nonparticipants are also of interest. These comparisons provide information on nutrition- and health-related disparities between WIC participants and individuals who are not constrained by low incomes. Both sets of comparisons also provide information on whether WIC participants do as well as other groups with respect to outcomes that WIC might be expected to improve.

As noted previously, however, this research was not designed to measure program impacts. Thus, significant differences that are observed between participants and nonparticipants cannot be attributed to participation in the WIC program; and similarly, the absence of a significant difference cannot be interpreted as evidence that WIC participation has no effect. Accurate assessment of WIC impacts requires specially designed studies or, at a minimum, complex analytical models that require a variety of measures that are not available in the NHANES-III dataset. It is also important to remember that, for characteristics used to define nutritional risk, differences observed between participants and nonparticipants may simply be a reflection of criteria for selection into the program.