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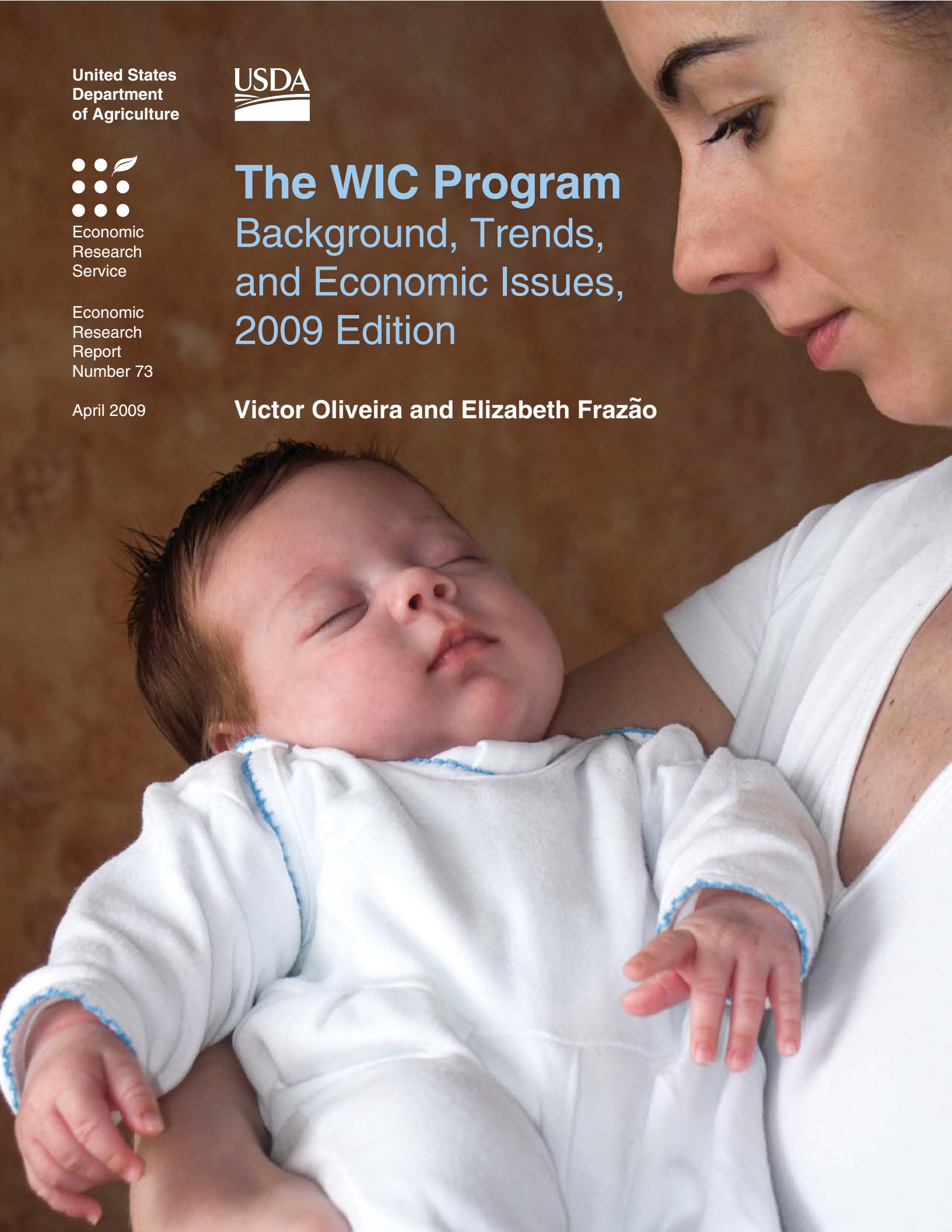
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The WIC Program Background, Trends, and Economic Issues, 2009 Edition

Victor Oliveira and Elizabeth Frazão



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The WIC Program

Background, Trends, and Economic Issues, 2009 Edition

Victor Oliveira and Elizabeth Frazão

Abstract

The mission of the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) is to safeguard the health of low-income women, infants, and children through age 4 who are at nutritional risk. WIC provides nutritious foods to supplement diets, nutrition education, and referrals to health care and other social services. Administered by USDA's Food and Nutrition Service (FNS), almost half of all infants and about a quarter of all children ages 1-4 in the United States participate in the program. WIC is USDA's third-largest food and nutrition assistance program, accounting for 10 percent of total Federal spending on food and nutrition assistance. This report describes the WIC program—how it works, its history, program trends, and the characteristics of the population it serves. It also examines current issues facing WIC, focusing mainly on those with important economic implications.

Keywords: Food and Nutrition Assistance Programs, Special Supplemental Nutrition Program for Women, Infants, and Children, WIC, administrative-based issues, outcome-based issues

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Summary

The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) was created to safeguard the health of low-income women, infants, and children ages 1-4 who are at nutritional risk. WIC provides supplemental food, nutrition education, and referrals to health care and other social services. Almost half of all infants and about a quarter of all children ages 1-4 in the United States participate in the program. WIC is the U.S. Department of Agriculture's third-largest food and nutrition assistance program, with Federal expenditures of \$6.2 billion in fiscal year (FY) 2008.

What Is the Issue?

The Child Nutrition and WIC Reauthorization Act of 2004 (P.L. 108-265), which authorized funds for the WIC program, expires on September 30, 2009. Reauthorization provides an opportunity for policymakers to examine issues associated with the operation and effectiveness of the program. The goal of this report is to provide a better understanding of how WIC works, provide its history and program trends, and inform public debate on major economic issues facing the program.

What Did the Study Find?

Numerous issues are associated with administering a program of WIC's size and complexity. This report identifies and frames some of these issues, focusing mainly on those with important economic implications.

Expansion of the WIC Program. As a discretionary grant program, the number of participants served by WIC depends on the annual appropriation and the cost of operating the program. Participation has grown dramatically over time, due largely to increased congressional appropriations and to savings generated by cost-containment practices. Although funding has been sufficient to serve all eligible people *seeking to enroll* in the program in recent years, many eligible people still do not participate in WIC. Some groups contend that WIC should continue to increase participation among those eligible, but others claim that WIC eligibility requirements are too lenient and that WIC has expanded too much. They also question whether WIC would be more effective providing more intensive services to fewer participants.

Federal Funding and State Incentives. Unlike the other major USDA food assistance programs, such as the Supplemental Nutrition Assistance Program (formerly the Food Stamp Program), WIC is 100 percent federally funded—that is, State matching funds are not required. With little or no State funds at stake, State officials have few incentives to restrict WIC enrollment and may have little interest in WIC operations—factors cited in the increasing number of participants and the proliferation of WIC-only stores (stores that sell only or predominantly WIC foods and serve only or predominantly WIC participants) in the early 2000s.

Funding for Nutrition Services and Administration (NSA). WIC State agencies receive NSA grants to cover the costs of administering the program and the costs associated with providing key services, such as nutrition education and breastfeeding promotion and support. NSA funds are based on a set amount per participant, adjusted annually for inflation, and currently account for 28 percent of total program costs. NSA funding levels have been a source of considerable conflict. The debate centers on whether NSA funds are too high and should be capped to allow for a greater proportion of appropriated funds to be used for food benefits or whether the funds merely reflect the success of the WIC program in keeping food costs low while serving more participants from infant formula rebates.

Food Package Revisions. In December 2007, USDA revised the WIC food packages to encourage positive changes in participants' behaviors and outcomes while minimizing vendor burden and maintaining cost neutrality. These revisions—which must be implemented by October 1, 2009—represent the most significant changes to the WIC program since its inception. The potential impacts of the revised food packages on participants, vendors, and food manufacturers, as well as on non-WIC consumers, are unknown.

Rising Food Prices. Prices for food at home rose 6 percent in 2008—the largest single-year increase since 1990. Because food accounts for almost three-quarters of total WIC costs, changes in food prices have important implications for program funding and the number of participants the program can serve.

Increasing Infant Formula Costs. Federal law requires that WIC State agencies enter into cost-containment contracts to purchase infant formula. Typically, WIC State agencies obtain substantial discounts through negotiated rebates from infant formula manufacturers for each can of formula. In exchange, the manufacturer is given the exclusive right to provide its product to WIC participants in that State. Rebates, totaling about \$1.8 billion in FY 2007, support about a quarter of all WIC participants. Recent ERS research indicates, however, that the per can cost of formula to WIC has increased. Because of the large volume of infant formula purchased through WIC—the program purchases over half of all infant formula sold in the United States—even small increases in the per can cost could have far-reaching negative implications for the program.

WIC's Effect on the Health of Participants. Much of the research on WIC's impact on the health of participants has focused on its effect on birth outcomes (e.g., birthweight, preterm delivery, and infant mortality). Less research is available on other health outcomes, such as the growth and development of children, or on other participant groups. Changes in how the program operates and in participant characteristics also contribute to the need for new research. Methodological issues and the complexity of health outcomes complicate researchers' ability to assess the program's impact.

The Effectiveness of WIC's Nutrition Education Program. Evaluating the effectiveness of WIC's nutrition education is complicated by variation among and within States in its content, how it is implemented, and the characteristics

of the participants. Efforts to improve nutrition education are constrained by limited staff time with clients and limited financial resources.

WIC and Childhood Obesity. Increasing childhood obesity has raised questions as to whether food and nutrition assistance programs, such as WIC, contribute to the problem by providing too much food and encouraging overeating. The prevalence of overweight, however, is growing among both WIC and non-WIC children, and there is little evidence that participation in WIC is associated with increased prevalence of overweight. WIC food packages have recently been revised, partly to reduce the amount of saturated fat, cholesterol, and total fat provided in the supplemental food package and improve eating patterns that promote healthy weight.

WIC and Breastfeeding Rates. Low breastfeeding rates among WIC participants have raised questions about WIC's effects on breastfeeding. The 2007 WIC food package revisions provide stronger incentives for breastfeeding by increasing the market value of the food packages for infant/mother pairs who are fully breastfeeding. How effective these increases will be in getting more women to breastfeed and what effects higher breastfeeding rates may have on program costs, given infant formula rebates, remains to be seen.

How Was the Study Conducted?

Researchers from USDA's Economic Research Service (ERS) examined WIC's laws and regulations, program trends in terms of program expenditures, number of participants, and infant formula rebates, and a large number of WIC-related research publications.

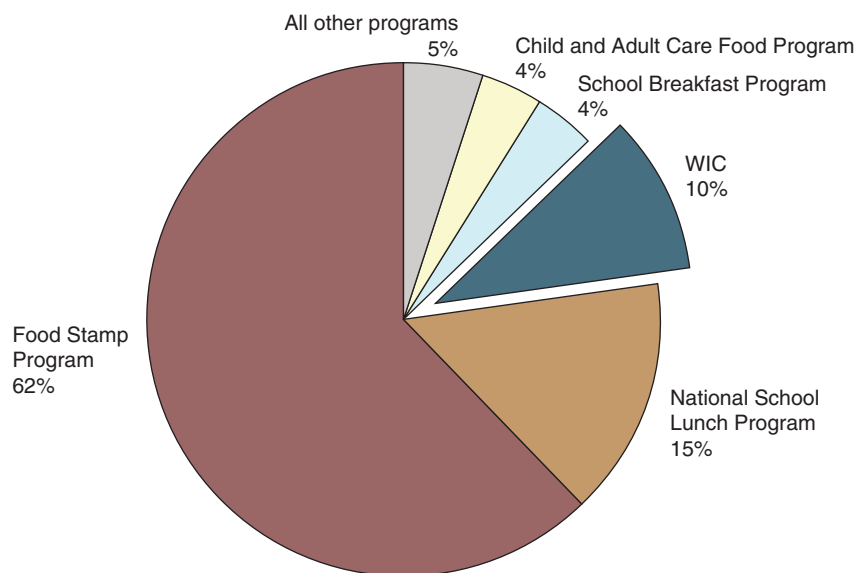
Introduction

The mission of the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) is to safeguard the health of low-income women, infants, and children ages 1-4 who are at nutritional risk by providing supplemental food, nutrition education, and referrals to health care and other social services. WIC is based on the premise that early intervention programs during critical times of growth and development can help prevent future medical and developmental problems. Administered at the Federal level by USDA's Food and Nutrition Service (FNS), the program provides grants for supplemental foods, nutrition services, and administration to 90 WIC State agencies, including all 50 States, the District of Columbia, 34 Indian Tribal Organizations, and 5 territories (Guam, the U.S. Virgin Islands, American Samoa, the Commonwealth of Puerto Rico, and the Commonwealth of the Northern Mariana Islands).

Since its establishment in 1972, WIC has become one of the central components of the Nation's food and nutrition assistance system. With Federal expenditures of \$6.2 billion in FY 2008—or 10 percent of total USDA expenditures for domestic food and nutrition assistance—WIC is the country's third-largest food and nutrition assistance program, trailing only the Food Stamp Program (\$37.5 billion) and the National School Lunch Program (\$9.3 billion) (USDA, 2008b) (fig. 1).¹ WIC was the fastest growing food assistance program in FY 2008 in terms of Federal expenditures, growing 15 percent over the previous year. WIC served an average of 8.7 million participants per month during FY 2008.

¹ The 2008 Farm Bill changed the name of the Food Stamp Program to the Supplemental Nutrition Assistance Program (SNAP) effective October 1, 2008. This report continues to use the older name because most of the references to the program cited were prior to the change.

Figure 1
USDA expenditures for food and nutrition assistance program, FY 2008



Note: USDA expenditures for food and nutrition assistance totaled \$60.7 billion in FY 2008. Source: USDA, 2008b.

The Child Nutrition and WIC Reauthorization Act of 2004 (P.L. 108-265), which authorized funds for WIC and child nutrition programs, is set to expire on September 30, 2009. Reauthorization provides an opportunity for policymakers to examine the operation and effectiveness of the program. This report updates a previous report released in 2002 (Oliveira et al., 2002).² Specifically, this report provides information on how the program works, WIC's legislative and regulatory history, program trends with regard to costs and participation levels, and the characteristics of the population WIC serves. It also examines current issues facing WIC, focusing mainly on those with important economic implications.

² Since that time, important changes to the program have been implemented and new research published, necessitating an updated version of the report.

Overview of the WIC Program

WIC has a number of features that make it unique among food and nutrition assistance programs. For example, WIC has a narrowly defined target population. It requires that applicants be at nutritional risk and it uses a priority system to determine who gets served when funds are short. WIC also provides participants with a package of benefits, including supplemental foods, nutrition education, and health care referrals. Food benefits are directed to specific nutritional needs. To increase budgetary efficiency, WIC negotiates substantial rebates from infant formula manufacturers.

Participant Eligibility

To qualify for WIC, applicants must meet categorical, residential, income, and nutritional risk eligibility requirements.

Categorical Eligibility

To participate in the WIC program, a person must be either:

- A pregnant woman;
- A nonbreastfeeding woman up to 6 months postpartum;
- A breastfeeding woman up to 1 year postpartum;³
- An infant up to his/her first birthday; or
- A child up to his/her fifth birthday.

Residential Eligibility

WIC applicants must reside within the State where they establish eligibility.

Income Eligibility

The family income of WIC applicants must meet specified guidelines.⁴ All WIC State agencies currently set the income cutoff at the maximum 185 percent of the Federal poverty guidelines (annual income of \$39,220 for a family of four living in the 48 contiguous States as of July 1, 2008) (table 1). Either the income of the family during the past 12 months or the family's current rate of income may be used to determine an applicant's income eligibility, whichever most accurately reflects the family's status.⁵

Table 1

WIC income eligibility guidelines for the 48 contiguous States and DC (effective from July 1, 2008 to June 30, 2009)

Family size	Annual income
<i>Number of people</i>	<i>Dollars</i>
1	19,240
2	25,900
3	32,560
4	39,220
5	45,880
6	52,540
7	59,200
8	65,860
For each additional member, add	6,660

Note: Alaska and Hawaii have higher guidelines.
Source: 73 *Federal Register* 19048.

³ Breastfeeding is defined as the practice of feeding a mother's breastmilk to her infant(s) at least once a day, on average (7 Code of Federal Regulations (CFR) 246.2).

⁴ WIC regulations state that the maximum allowable family gross income (i.e., before taxes are withheld) must not exceed the guidelines for reduced-price school meals, which are 185 percent of the Federal poverty guidelines (7 CFR 246.7). State agencies may set the income guideline equal to State or local guidelines for free or reduced-price health care as long as they are equal to or less than 185 percent of the poverty guideline and not less than 100 percent of the poverty guidelines.

⁵ WIC regulations define "family" as a group of related or nonrelated individuals living together as one economic unit. Residents of a homeless facility or an institution shall not be considered as members of a single family (7 CFR 246.7). The regulations leave open the timeframe for determining "current" rate of income.

Applicants who participate in the Food Stamp, Medicaid, or Temporary Assistance for Needy Families (TANF) programs are adjunctively income eligible; that is, they are deemed to meet the income eligibility criteria automatically and do not have to provide documentation of income when they apply.⁶ In addition, WIC State agencies have the option to deem individuals automatically income eligible if they participate in other State-administered programs that use income guidelines at or below 185 percent of the Federal poverty guidelines and routinely require income documentation.

Nutritional Risk

Applicants must be at nutritional risk, as determined by a health professional, such as a physician, nutritionist, dietician, or nurse. During the determination process, the height (or length) and weight of each applicant is measured and a blood test for anemia is administered to everyone except infants under 9 months (Bartlett et al., 2007).⁷ The medical history and dietary patterns of participants are also considered. Federal regulations recognize five major types of nutritional risk for WIC eligibility:

- Detrimental or abnormal nutritional conditions detectable by biochemical or anthropometric measurements (such as anemia, underweight, or overweight).
- Other documented nutritionally related medical conditions (such as nutrient deficiency diseases, metabolic disorders, or lead poisoning).
- Dietary deficiencies that impair or endanger health (such as inadequate dietary patterns).
- Conditions that directly affect the nutritional health of a person (including alcoholism or drug abuse).
- Conditions that predispose a person to inadequate nutritional patterns or nutritionally related medical conditions (including, but not limited to, homelessness and migrancy) (7 Code of Federal Regulations (CFR) 246.2).

WIC participants are typically eligible to receive benefits for a 6-month period. They then must be recertified to continue receiving benefits. Pregnant women, however, are certified for the duration of their pregnancy and up to 6 weeks postpartum. Breastfeeding women and their infants can be certified up to the infant's first birthday at the WIC State agency's option (table 2).⁸

Participant Benefits

The WIC program offers three types of benefits to participants: a supplemental food package, nutrition education, and referrals to health care and other services. All benefits are provided to participants free of charge.

Supplemental Food Package

WIC provides participants with a package of supplemental foods designed to address the nutritional needs of the specific population of low-income pregnant, breastfeeding and nonbreastfeeding postpartum women, infants,

⁶ Applicants are also adjunctively income eligible if they are a member of a family that is certified as eligible to receive assistance under TANF or if they are a member of a family in which a pregnant woman or an infant is certified as eligible to receive assistance under Medicaid (7 CFR 246.7).

⁷ WIC State agencies can require tests for anemia for infants younger than 9 months (7 CFR 246.7).

⁸ Most States certify breastfeeding women and their infants for 1 year (communication from FNS on November 20, 2008).

Table 2

Certification periods, by WIC participant categories

Pregnant woman	For the duration of the pregnancy and up to the last day of the month in which the infant becomes 6 weeks old or the pregnancy ends.
Postpartum woman	Up to the last day of the sixth month after the baby is born or the pregnancy ends.
Breastfeeding woman	Approximately every 6 months. The State agency may permit its local agencies to certify a breastfeeding woman up to the last day of the month in which her infant turns 1 year old or until the woman ceases breastfeeding, whichever occurs first.
Infant	Approximately every 6 months. The State agency may permit its local agencies to certify an infant younger than 6 months up to the last day of the month in which the infant turns 1 year old, provided the quality and accessibility of health care services are not diminished.
Child	Approximately every 6 months and ending with the last day of the month in which a child reaches his/her fifth birthday.

Source: 7 CFR 246.7.

and children at nutritional risk. Federal regulations define specific WIC foods and the maximum quantities included in the packages (7 CFR 246.10). The food package is supplemental; it is not intended to be a primary source of food or general food assistance. The foods included in the packages are high in nutrients determined to be beneficial for pregnant, breastfeeding, and postpartum women, infants, and children, as prescribed by the Secretary (7 CFR 246.2). A lack of such nutrients may result in adverse health consequences.

Packages are designed to meet the specific needs of each participant category. For example, breastfeeding women whose infants do not receive infant formula from WIC can receive an enhanced food package that includes canned tuna and carrots in addition to other WIC foods, while nonbreastfeeding postpartum women do not. Unlike the Food Stamp Program, the amount of food provided to recipients does not vary with household income. The authorized maximum monthly allowances for all WIC foods must be made available to participants if medically and nutritionally warranted (7 CFR 246.10). WIC State agencies, however, may tailor an individual's food package based upon their nutritional or health status, their nutritional risk factors, food restrictions, intolerances, and preferences.⁹ WIC State agencies also have the authority to make adjustments to WIC foods for administrative convenience and to control costs (e.g., restricting container sizes, brands, types, and physical forms).

Prior to revisions in the food packages in 2007, there were seven food packages that included different types and quantities of food depending on participant category and the nutritional needs of the participant:

- Infants through 3 months.
- Infants 4-11 months.

⁹ For example, overweight participants may be provided food instruments for low-fat rather than whole milk.

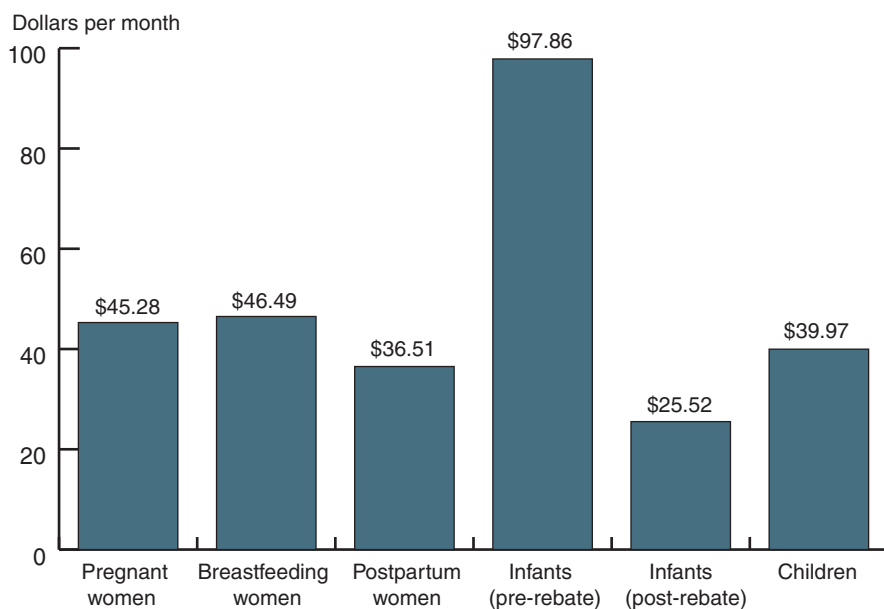
- Children or women with special dietary needs.
- Children ages 1-4.
- Pregnant and breastfeeding women (basic).
- Nonbreastfeeding postpartum women.
- Breastfeeding women (enhanced).

These packages included combinations of the following foods: iron-fortified infant formula; iron-fortified infant and adult cereal; vitamin C-rich fruit juice and/or vegetable juice; eggs; milk; cheese; peanut butter and/or dried beans or peas; tuna; and carrots. Special infant formulas and certain medical foods could also be provided by the WIC food package when prescribed by a physician or health professional for a specific medical condition. Participants received quantity-based vouchers that entitled them to specific amounts of WIC-approved foods. The monthly cost of the packages varied greatly by participant category, ranging from \$36.51 for postpartum women to \$97.86 for infants (before rebates) in FY 2005 (fig. 2).¹⁰

In December 2007, program regulations governing the WIC food packages were revised to better reflect advances in nutrition science and dietary recommendations and to address current supplemental nutritional needs of WIC participants (72 *Federal Register* 68965-69032). WIC State agencies are required to implement the new provisions between February 4, 2008, and October 1, 2009. There are still seven food packages. Food package I now covers infants up to 5 months, food package II covers infants 6-11 months, and food package III covers all individuals with medical needs, including infants.

¹⁰ See section on “Cost-Containment Measures” for more information on WIC rebates.

Figure 2
Monthly WIC food package costs, by participant category, FY 2005



Note: The average cost of the WIC food packages in FY 2005 was \$55.18 before rebates.
 Source: USDA, 2007b.

Other changes to the food packages include reducing the maximum monthly allowances for some foods (e.g., milk, juice, and eggs), allowing additional foods (e.g., soy-based beverages and tofu as alternatives to milk in the women’s packages and in children’s packages with medical documentation), adding new foods (e.g., fruits, vegetables, and some whole-grain products) to most food packages, and removing juice from the older infant food package (table 3). Under the new food packages, participants will receive vouchers with a fixed monthly cash value for fruits and vegetables (\$6 for children, \$10 for fully breastfeeding women, and \$8 for all other women).¹¹ For all other WIC foods, WIC participants are still given quantity-based WIC food vouchers. (For additional details about the revised food packages, see the section on “Potential Impacts of the Revised WIC Food Packages,” pg. 44.)

¹¹ The cash-value vouchers set a dollar limit on the amount of food that can be purchased and provide greater flexibility to participants on the quantity and variety of food they can purchase.

Nutrition Education

WIC makes nutrition education available to all participants (or to the parents or caretakers of infant/child participants). The nutrition education is designed to achieve two broad goals:

1. Emphasize the relationship between nutrition, physical activity, and health, with special emphasis on the nutritional needs of pregnant, postpartum, and breastfeeding women, infants, and children younger than 5 and awareness about the dangers of using drugs and other harmful substances during pregnancy and while breastfeeding.
2. Assist individuals at nutritional risk improve their health status and achieve a positive change in dietary and physical activity habits, resulting in improved nutritional status and in the prevention of nutrition-related problems through optimal use of the supplemental foods and other nutritious foods (7 CFR 246.11).

All pregnant participants are encouraged to breastfeed, unless contraindicated for health reasons. Local WIC agencies are required to offer participants or caretakers at least two nutrition education sessions during each 6-month period. Individuals who do not attend the nutrition education activities, however, are not denied the WIC food package.

Referrals to Health Care and Social Services

WIC was designed to serve as an adjunct to good health care during critical times of growth and development. Local WIC agencies assist WIC participants in obtaining health care and social services (such as immunizations, food stamps, and Medicaid) either through onsite health services or referrals to other agencies.

Table 3

WIC food packages, before and after the 2007 revisions

Food	Food package and participant group						
	I	II	III	IV	V	VI	VII
<i>Prior to 2007 revisions</i>							
	Infants 0-3 months	Infants 4-11 months	Children/ women with special dietary needs	Children 1-4 years	Pregnant and breastfeeding women (basic)	Nonbreast- feeding postpartum women	Breastfeeding women (enhanced)
Infant formula	X	X	X				
Juice		X	X	X	X	X	X
Infant cereal		X					
Cereal			X	X	X	X	X
Milk				X	X	X	X
Eggs				X	X	X	X
Cheese							X
Dried beans/peas and/or peanut butter				X	X		X
Tuna (canned)							X
Carrots							X
<i>After 2007 revisions</i>							
	Infants 0-5 months ¹	Infants 6-11 months ¹	Infants/ children/ women with special dietary needs ²	Children 1-4 years	Pregnant/ partially breastfeeding women	Postpartum women	Fully breastfeeding women
Infant formula	X	X	X				
Infant cereal		X					
Baby food (fruits/vegetables)		X	X				
Baby food (meat) ³		X					
Juice			X	X	X	X	X
Cereal			X	X	X	X	X
Milk			X	X	X	X	X
Eggs			X	X	X	X	X
Cheese			X				X
Fruits/vegetables			X	X	X	X	X
Whole-wheat bread and other whole grains			X	X	X	X	X
Legumes and/or peanut butter			X	X	X	X	X
Fish (canned)			X				X

¹ The amount of formula, and the types and quantities of other foods in food package II, varies according to infant feeding option (fully formula feeding, partially breastfeeding, or fully breastfeeding).

² Participants receiving food package III receive the same types and amounts of food they would be entitled to in their respective categories with the addition of WIC formula, which also includes exempt infant formula and WIC-eligible medical foods.

³ Allowable only to fully breastfeeding infants who do not receive any WIC formula.

Source: 72 *Federal Register* 68965-69032.

Food Delivery Systems

To provide program participants with supplemental food packages, WIC State agencies may use three types of food delivery systems (or any combination of the three):

- Retail—participants obtain supplemental food by exchanging a food instrument (e.g., check or voucher) at authorized retail outlets.¹²
- Home delivery—supplemental food is delivered to the participant’s home.
- Direct distribution—participants pick up supplemental food from storage facilities operated by the State or local agency.

In both home delivery and direct distribution food delivery systems, WIC State agencies may purchase the supplemental food in bulk lots to take advantage of discounts. Most State agencies, however, have found that these systems were not feasible due to the costs associated with administering the program or because of its impact on participants (USDA, 1991). As a result, most participants receive their supplemental foods via retail food delivery systems.¹³ Under retail food delivery systems, WIC State agencies provide food instruments to participants who then exchange them for supplemental foods at authorized retail outlets. The food instrument specifies the types and quantities of supplemental foods that can be purchased. Food instruments may be issued to participants every 1, 2, or 3 months (7 CFR 246.12).¹⁴ Most participants pick up their food instruments in person at the local agency or clinic. WIC State agencies, however, may issue the food instrument through alternative means, such as mailing or electronic benefit transfer (EBT).¹⁵

WIC Vendors

Only vendors authorized by the WIC State agency may accept WIC food instruments. Although WIC State agencies are not required to authorize all qualified stores, they must authorize an appropriate number of stores in a geographic distribution that ensures the lowest practicable food prices consistent with adequate participant access and effective WIC State agency management and oversight (7 CFR 246.12). WIC State agencies are also required to establish minimum requirements for the variety and quantity of WIC foods that vendors must stock. Vendors are authorized for a maximum of 3 years, at which time they must apply for reauthorization. To ensure that vendors charge competitive prices for WIC foods, WIC State agencies are required to establish a vendor peer group system with distinct competitive price criteria and allowable reimbursement levels for each peer group.¹⁶ By regulation, WIC food purchases are not subject to State or local sales taxes (7 CFR 246.12).

At the end of FY 2005 (the latest data available), there were 44,458 authorized WIC vendors nationwide (USDA, 2008c).¹⁷ Ninety percent of authorized vendors were regular retail vendors, 6 percent were pharmacies, 3 percent were “WIC-only” or “above-50-percent” vendors, 1 percent

¹² Checks are routed through the banking system from the vendor’s bank account to the State agency’s account with a contractor bank, while vouchers refer to food instruments that the vendor submits directly to the State agency (USDA, 2008c).

¹³ Vermont uses a home delivery system, while Mississippi, parts of Chicago, IL, and two Indian Tribal Organizations State agencies use direct distribution. All other State agencies currently use a retail food delivery system.

¹⁴ The requirement that prevents WIC agencies from issuing more than a 3-month supply of food instruments to a recipient at a single time was first implemented in 1977 to encourage recipients to attend the local WIC clinic more frequently than once every 6 months (the length of the certification period for most WIC participant categories) and thus take part in nutrition education classes (42 *Federal Register* 43206-43220).

¹⁵ EBT is an electronic process that replaces the paper WIC food instrument. It allocates WIC food prescriptions to a participant account, which is accessed electronically during the checkout process at an authorized retailer point of sale, and WIC food benefits are electronically reconciled against the available food balance. As of May 2008, only Wyoming and New Mexico had implemented statewide EBT systems.

¹⁶ State agencies must include at least two criteria for establishing peer groups, one of which must be a measure of geography, such as metropolitan or other statistical areas that form distinct labor and product markets (7 CFR 246.12).

¹⁷ Over 90 percent of WIC vendors were also authorized Food Stamp Program retailers (USDA, 2008c).

participated in the home delivery or direct distribution systems, and less than 1 percent were military commissaries.¹⁸

The WIC Farmers' Market Nutrition Program

The WIC Farmers' Market Nutrition Program (FMNP) was established in 1992 to provide fresh, unprepared, locally grown fruits and vegetables to WIC participants and to expand the awareness of, use of, and sales at farmers' markets (7 CFR 248.1). In FY 2007, the FMNP operated in parts of 38 States, the District of Columbia, Guam, Puerto Rico, and 5 Indian Tribal Organizations (ITOs). Federal funds support 100 percent of the program's food costs and 70 percent of its administrative costs. States operating the FMNP must therefore contribute at least 30 percent of the program's total administrative cost. Women, children, and infants over 4 months who have either been certified to receive WIC program benefits or who are on a waiting list for WIC certification are eligible to participate in the program. Eligible WIC participants are issued FMNP coupons in addition to their regular WIC food instruments. These coupons can be used to buy fresh, unprepared fruits, vegetables, and herbs from farmers, farmers' markets, or roadside stands approved by the FMNP State agency to accept FMNP coupons. Until the December 2007 revisions to the WIC food packages, FMNP provided the only source of fruits and vegetables not in juice form to WIC participants other than the provision of carrots to breastfeeding women. The Federal food benefit level for FMNP recipients may not be less than \$10 or more than \$30 per year per recipient. During FY 2007, 2.3 million WIC participants received benefits from farmers' markets. That same year, 15,062 farmers, 3,217 farmers' markets, and 2,371 roadside stands were authorized to accept FMNP coupons.¹⁹ Coupons redeemed through the FMNP resulted in over \$20 million in revenue to farmers for FY 2007.

Administration of WIC

WIC operates through a Federal/State/local partnership.

- At the Federal level, WIC is administered by USDA's Food and Nutrition Service (FNS), which provides separate cash grants for food benefits and for Nutrition Services and Administration (NSA) to the 90 WIC State agencies. In addition, FNS issues regulations, monitors compliance with these regulations, provides technical assistance to the WIC State agencies, and conducts studies of program operations and compliance.
- WIC State agencies are responsible for program operations within their jurisdictions.²⁰ They allocate funds to local WIC sponsoring agencies, negotiate rebate contracts with infant formula manufacturers, and provide assistance to local agencies with respect to program operations. WIC State agencies have considerable latitude in operating their programs within broad regulatory guidelines (Macro International, 1995).²¹ For example, WIC State agencies decide the specific brands, forms, and package sizes to include in their list of approved WIC foods.
- About 2,000 local WIC agencies, mostly State and county health departments, but also some public and private nonprofit health or human service agencies, provide services to WIC participants either directly

¹⁸ An above-50-percent vendor derives more than 50 percent of its annual food sales revenue from WIC food instruments, and a WIC-only vendor is a type of above-50-percent vendor that derives all or nearly all of its annual food sales revenue from WIC food instruments. Pharmacies provide only infant formula, exempt infant formula, and/or WIC-eligible medical foods in exchange for WIC food instruments.

¹⁹ Data provided by FNS on October 3, 2008.

²⁰ Most of the WIC State agencies retain a portion of the funds from USDA to cover costs incurred for State-level program operations. In addition, some State agencies, including most of the ITOs, operate WIC without delegating authority to local agencies (U.S. General Accounting Office, 2000).

²¹ It is important to note that the most successful cost-containment strategy used in WIC—the use of infant formula rebates—was initiated by the States.

or through about 10,000 local service sites or clinics, including county health departments, hospitals, mobile vans, community centers, schools, and migrant health centers and camps. Local WIC clinics certify applicants, provide nutrition education, make referrals to health care and other social services, and distribute food instruments.

Unlike other food and nutrition assistance programs, WIC is 100 percent federally funded (i.e., State matching funds are not required).²² Federal grants to WIC State agencies are divided into food grants and NSA grants. Total spending for the WIC program in FY 2008 was \$6.2 billion, of which \$4.5 billion (73 percent) was spent on food and \$1.7 billion (27 percent) was spent on NSA (USDA, 2008b).²³ Food grants cover the cost of supplemental foods, while NSA grants cover nonfood costs, such as certifying participants, determining nutritional risks, conducting blood tests for anemia, providing outreach and nutrition education services, breastfeeding promotion and support, referrals to health and social services, printing food instruments, administering the food delivery system, and staff salaries. At least a sixth of a State agency's NSA expenditures must be used for nutrition education, and an additional portion of NSA funds must be used for breastfeeding promotion and support (7 CFR 246.14). (For more information on NSA, see the section on "Funding for Nutrition Services and Administration (NSA)," p. 39.)

Priority System

WIC is a discretionary grant program funded annually by appropriations law. The number of participants that can be served each year depends on the annual appropriation and WIC's operating costs.²⁴ Because WIC may not be able to serve all eligible people, WIC uses a seven-point priority system to ensure that people with the greatest nutritional risk and most likely to benefit from WIC intervention receive program benefits (table 4).

Once a local agency has reached its maximum participation level (i.e., is serving the maximum number of participants under its current budget), the priority system is applied to people on the local agency's waiting list. In general, priority is given to people demonstrating medically based nutritional risks over dietary based nutritional risks, to infants and pregnant and breastfeeding women over children, and to children over postpartum women. Increases in funding and savings from infant formula rebates during the 1990s allowed a greater number of lower priority applicants, such as children, to participate. As a result, the role of the seven-point priority system in allocating available program slots among applicants decreased in importance relative to previous years when program funds were more limited. As of spring 2008, anecdotal evidence indicates that funding in recent years has been sufficient to provide benefits to all eligible people seeking to enroll in the program, including those at the lowest priority levels.

²² A few States, however, use their own funds to supplement the Federal grant. For example, in 2001, 13 States contributed about \$45 million to WIC (some State-level WIC agencies, ITOs, and local WIC agencies also received in-kind contributions) (U.S. General Accounting Office, 2001b). The General Accounting Office also noted evidence that non-Federal support for NSA has decreased since FY 1992.

²³ Food and NSA grants are allocated to WIC State agencies through a complex funding formula, and a particular State's funding level is not necessarily proportional to the number of WIC-eligible people in that State (7 CFR 246.16).

²⁴ In contrast, USDA's Food Stamp Program is an entitlement program whereby everyone who meets the eligibility criteria may receive benefits if they so choose.

Table 4

WIC nutritional risk priorities

Priority (from highest to lowest)	Description
I	Pregnant women, breastfeeding women, and infants at nutritional risk as demonstrated by hematological or anthropometric measurements or other documented nutritionally related medical conditions that demonstrate the need for supplemental foods.
II	Except those infants who qualify for Priority I, infants up to 6 months of age of program participants who participated during pregnancy, and infants up to 6 months of age born of women who were not program participants during pregnancy but whose medical records document that they were at nutritional risk during pregnancy due to nutritional conditions detectable by biochemical or anthropometric measurements or other documented nutritionally related medical conditions that demonstrated the person's need for supplemental foods.
III	Children at nutritional risk as demonstrated by hematological or anthropometric measurements or other documented medical conditions that demonstrate the child's need for supplemental foods.
IV	Pregnant women, breastfeeding women, and infants at nutritional risk because of an inadequate dietary pattern.
V	Children at nutritional risk because of an inadequate dietary pattern.
VI	Postpartum women at nutritional risk.
VII	Individuals certified for WIC solely due to homelessness or migrancy and, at State agency option, previously certified participants who might regress in nutritional status without continued provision of supplemental foods.

Notes: Priorities I through VI must be used in all States. State agencies may, at their discretion, expand the priority system to include Priority VII.

Source: 7 CFR 246.7.

Cost-Containment Measures

Because WIC can serve only as many participants as funding allows, WIC State agencies have tried to reduce food costs through a variety of cost-containment measures. The most effective cost-containment measure is the use of infant formula rebates. WIC accounts for over half of all infant formula sales in the United States (Oliveira et al., 2004). Since 1989, Federal law has required that WIC State agencies enter into cost-containment contracts for the purchase of the infant formula used in WIC. Typically, WIC State agencies obtain significant discounts in the form of rebates from infant formula manufacturers for each can of formula purchased. In exchange for the rebates, a manufacturer is given the exclusive right to provide its product to WIC participants in that State. As a result, WIC pays the lowest price for infant formula. (See the section on "Infant Formula Costs," p. 51, for more information on the WIC infant formula rebate system.)

In FY 2005, pre-rebate food package costs (i.e., estimated retail cost of WIC foods at the time of purchase) averaged \$55.18 per participant compared with \$37.42 per participant post-rebate (i.e., after taking into account savings from infant formula rebates) (USDA, 2007b). Estimated infant formula rebates for FY 2007 totaled \$1.8 billion, an amount that supported about a quarter of WIC participants (USDA, 2008d).

Some WIC State agencies have instituted rebate systems for other foods, such as infant cereal and infant fruit juice, but their savings are much smaller than for infant formula.²⁵ Additional cost-containment practices used by some WIC State agencies include limiting authorized food vendors (such as supermarkets and grocery stores) to outlets with lower food prices and limiting food-item selection according to brand, package size, form, or price (for instance, requiring purchase of least-cost items) (Kirlin et al., 2003).

²⁵ Savings from rebates for other food products are lower than for infant formula, partly because no other single product accounts for as large a portion of WIC costs as infant formula, but also because the market characteristics of other products make it unlikely that manufacturers would offer large rebates per item (U.S. General Accounting Office, 1998).

Legislative and Regulatory History of the WIC Program

During WIC's history, a number of legislative acts and Federal regulations have shaped the program (table 5). This chapter describes WIC's evolution by examining its legislative and regulatory history.

The 1960s and 1970s: Establishment of the WIC Program

The origins of WIC date back to the 1960s when the Nation began to recognize that many low-income Americans were suffering from malnutrition. Various studies identified hunger as a major problem in this country. Events such as the Poor Peoples' March on Washington, DC, and the CBS documentary "Hunger in America" helped publicize the problem (USDA, 1999). In 1968, a group of physicians met with officials from the U.S. Department of Health, Education, and Welfare (HEW) and USDA in Washington, DC (Leonard, 1994). The physicians described young women, often pregnant, in their clinics with various ailments caused by lack of food. Out of this meeting came a plan to build food commissaries attached to neighborhood clinics. Doctors or clinic staff would prescribe needed foods and the prescription served as a voucher that the women would take to the commissary to obtain a food package. Later that year, the first USDA commissary program was established in Atlanta, GA.²⁶ Independently, another voucher program to distribute foods in a Baltimore, MD, neighborhood was developed by Dr. David Paige of Johns Hopkins University (Leonard, 1994).

In response to the growing public concern about malnutrition among low-income mothers and children, USDA established the Commodity Supplemental Food Program (originally named the Supplemental Food Program) in 1969 (Institute of Medicine, 1996). The program provided commodities to feed low-income pregnant women, infants, and children up to age 6. It was eventually recognized, however, that the available food assistance programs, including the Food Stamp Program and the Commodity Supplemental Food Program, were not meeting the special needs of pregnant women and infants (USDA, 1999).

In December 1969, the White House Conference on Food, Nutrition and Health focused national attention and resources on the problem of malnutrition and hunger due to poverty. Among the recommendations stated in the conference report was the need for special attention to be given to the nutritional needs of low-income pregnant women and preschool children (White House Conference on Food, Nutrition and Health, 1970).

On September 26, 1972, WIC was formally authorized by an amendment to the Child Nutrition Act of 1966. The legislation (P.L. 92-433), sponsored by Senator Hubert H. Humphrey, established the Special Supplemental Food Program as a 2-year pilot program.²⁷ The legislation's writers used the earlier Johns Hopkins voucher program as a model and designed the program to be a 2-year demonstration, with the expectation that the program's benefits

²⁶ The commissary in this program was stocked with USDA commodity foods.

²⁷ In 1973, the Department chose to call it the Special Supplemental Food Program for Women, Infants, and Children (WIC program) to prevent confusion with the supplemental food program being operated as an adjunct of the Food Distribution Program (38 *Federal Register* 18447-18451). In 1994, P.L. 103-448 changed WIC's name to the Special Supplemental Nutrition Program for Women, Infants, and Children to emphasize its role as a nutrition program.

Table 5

WIC timeline

1972	Legislation created the Special Supplemental Food Program as a 2-year pilot project (Public Law (P.L.) 92-433).
1973	The program was renamed the Special Supplemental Food Program for Women, Infants, and Children (WIC), and two food packages were created—one for infants and one for children and pregnant and breastfeeding women. WIC supplemental foods included infant formula, milk, cheese, eggs, infant and adult cereals, and fruit juice.
1974	The first WIC site officially opened in Pineville, KY.
1975	Legislation established WIC as a permanent national health and nutrition program (P.L. 94-105).
1977	USDA issued regulations that established a priority system based on nutritional need to determine who shall receive program benefits first. The regulations also allowed State agencies to operate up to three types of food distribution systems (home delivery, retail purchase, and direct distribution) and added a third WIC food package (for children with special dietary needs).
1978	The Child Nutrition Amendments of 1978 (P.L. 95-627) established a national income standard for program eligibility based on the income standards prescribed for reduced-price school lunches. The standards in 1978 stated that a household's income had to be 195 percent of the Federal poverty guidelines or lower. The act also strengthened WIC's nutrition education component by requiring that nutrition education be provided to all program participants.
1980	The number of food packages increased from three to six. Dry beans and peas or peanut butter were added to the food packages for children and pregnant and breastfeeding women, and a maximum level of 6 grams of sugar per dry ounce for adult cereals was set. Wyoming became the last State to implement WIC (the District of Columbia implemented its program in 1981).
1981	The maximum income level for reduced-price lunches was lowered to 185 percent of the Federal poverty guidelines. Since the WIC income eligibility standard was tied to the National School Lunch Program's eligibility standard, the maximum income level for WIC was also lowered to 185 percent of poverty.
1987	Tennessee became the first State to implement an infant formula rebate program.
1988	The Hunger Prevention Act of 1988 (P.L. 100-435) provided grants in up to 10 States to conduct Farmers' Market Demonstration Projects.
1989	The Child Nutrition and WIC Reauthorization Act of 1989 (P.L. 101-147) required WIC agencies with retail food distribution systems to use competitive bidding to procure infant formula unless another cost-containment approach yielded equal or greater savings. The act established adjunct income eligibility for Food Stamp, Medicaid, and Aid to Families with Dependent Children (AFDC) recipients. The act also required that USDA promote breastfeeding.
1992	To encourage breastfeeding among WIC mothers, an enhanced WIC food package (food package VII) was created that added two new food items—carrots and canned tuna—along with increased amounts of juice, cheese, and beans/peas and peanut butter for women who exclusively breastfeed their infants. The WIC Farmers' Market Nutrition Act of 1992 (P.L. 102-314) established the WIC Farmers' Market Nutrition Program.
1994	The Healthy Meals for Healthy Americans Act of 1994 (P.L. 103-448) changed the name of the program to the Special Supplemental Nutrition Program for Women, Infants, and Children to emphasize its role as a nutrition program.
1997	USDA kicked off the National Breastfeeding Promotion Campaign to encourage WIC participants to begin and continue breastfeeding.
1998	The William F. Goodling Child Nutrition Reauthorization Act of 1998 (P.L. 105-336) required at certification that, except in limited circumstances, all applicants for WIC must be physically present, document their income, and present proof of residency.
1999	WIC State agencies are required to use definitions of nutritional risk from a national list established for the WIC program. States are not required to use all of the nutritional risk criteria on the list.
2004	The Child Nutrition and WIC Reauthorization Act of 2004 implemented provisions to maintain competitive pricing among WIC vendors, including peer group pricing.
2007	Interim final rule revises regulations governing the WIC food packages by adding fruits, vegetables, and whole grains; reducing the amounts of certain foods in the existing packages (e.g., juice and milk); and allowing more food substitution that accommodates different cultural eating patterns.

would be so overwhelming that it would continue as a full program (Leonard, 1994).

The legislation assigned USDA the responsibility of administering a program to provide supplemental foods to participants. Specific foods were not identified; however, supplemental foods were defined as foods containing nutrients currently lacking in the diets of populations at nutritional risk, particularly foods containing high-quality protein, iron, calcium, vitamin A, and vitamin C.²⁸ Also, no mention was made of providing nutrition education or health care referrals. The legislation, however, which grew out of concern that low-income families were not receiving good health care or proper nutrition, created a close association between the supplemental food aspect of the program and health care services by requiring that WIC eligibility depend on participants being at nutritional risk as determined by health professionals (U.S. General Accounting Office, 1979).²⁹

Because USDA took little action, the Food Research and Action Center (FRAC) filed suit against USDA, and a Federal court judge ordered USDA to issue regulations to implement the program (Leonard, 1994; 38 *Federal Register* 18447-18451). The regulations, issued in July 1973, created two food packages—one for infants and one for children and pregnant and breastfeeding women—and specified the maximum monthly quantities of each food to be made available to participants. Authorized WIC foods were infant formula, milk, cheese, eggs, infant and adult cereals, and fruit juice. Later that year, legislation (P.L. 93-150) was enacted that authorized federally recognized Indian tribes to act as their own WIC State agencies.

The first WIC site officially opened in Pineville, KY, on January 15, 1974 (USDA, 1999). By the end of the year, WIC was operating in parts of 45 States.³⁰ At this time, WIC provided supplemental foods only to pregnant and breastfeeding women, infants, and children ages 1–3.³¹ Nonbreastfeeding postpartum women and children age 4 and older were excluded.

On October 7, 1975, P.L. 94-105 established WIC as a permanent program. The legislation stated, “Congress finds that substantial numbers of pregnant women, infants, and young children are at special risk in respect to their physical and mental health by reason of poor or inadequate nutrition or health care, or both. It is, therefore, the purpose of the program authorized by this section to provide supplemental nutritious food as an adjunct to good health during such critical times of growth and development in order to prevent the occurrence of health problems.” Categorical eligibility was extended to nonbreastfeeding women (up to 6 months postpartum) and children up to their fifth birthday.³² Eligibility was limited to people determined by the program to be at nutritional risk because of inadequate nutrition and inadequate income. What constituted inadequate nutrition and inadequate income, however, was not defined. The program was designed to supplement food stamps and, as a result, participation in the Food Stamp Program did not preclude a person from participating in WIC.³³ The legislation required that the program begin in areas most in need of special supplemental food and allowed costs for nutrition education as administrative expenses.

²⁸ Nutrition research in the 1970s identified these nutrients as most likely to be lacking in the diets of low-income women, infants, and children (72 *Federal Register* 68965).

²⁹ The U.S. General Accounting Office (1979) reported that the proponents of the legislation creating WIC “envisioned that, since participants would be routinely visiting health clinics in connection with obtaining the supplemental food, they would be treated for medical conditions that otherwise would go untreated.”

³⁰ In 1980, Wyoming became the last State to enter the program (USDA, 1999).

³¹ The U.S. General Accounting Office (1979) reported that these groups were highly vulnerable because they were in critical periods of growth and development and were susceptible to a variety of potentially harmful nutritional and nutritionally related medical problems. The inclusion of pregnant women was justified primarily by the vulnerability of the developing fetus and the beneficial impact of early WIC intervention. Support and reinforcement of breastfeeding practices, along with the increased nutritional demands associated with lactation, justified the inclusion of breastfeeding women. In the case of infants and young children, the rapid and critical stages of their growth and development and the nutritional demands and health risks they impose justified their inclusion.

³² It has been suggested that Congress established the age limit at 5 years as a bridge between WIC and other child nutrition programs that begin when the child enters school (U.S. General Accounting Office, 1985).

³³ However, participation in the Commodity Supplemental Food Program disqualifies a person from participating in the WIC program.

In 1977, regulations were issued that established a priority system based on nutritional need to ensure that people most in need received program benefits first (42 *Federal Register* 43206-43220). The system specified priorities for serving categories of participants within the target population. Because of the difficulties associated with determining inadequate dietary patterns as indicators of nutritional need, it was deemed that people with clinical indicators of nutritional need (e.g., people suffering from anemia, abnormal growth patterns, or medical conditions) deserved higher priority levels than people with no clinical indicators. The regulations also allowed State agencies to operate up to three types of food distribution systems (home delivery, retail purchase, and direct distribution) and added a third WIC food package (for children with special dietary needs).³⁴

In 1978, P.L. 95-627 defined nutritional risk and established income eligibility standards linked to the income standards prescribed for free and reduced-price school meals.³⁵ The legislation required that nutrition education be provided to all program participants (or their parents/caretakers) and that not less than a sixth of administrative funds be used for nutrition education activities. The act removed any reference to specific nutrients by defining supplemental foods as “those foods containing nutrients determined by nutrition research to be lacking in the diets” of the target population, as prescribed by the Secretary of Agriculture. The Secretary (“to the degree possible”) was also to ensure that the fat, sugar, and salt content of the foods prescribed by WIC were appropriate. The act strengthened the link between WIC and the third component of its benefit package—referrals to health and other services—by requiring that WIC State agencies describe their plans to coordinate WIC operations with special counseling services, such as family planning, immunization, child abuse counseling, and alcohol and drug abuse prevention counseling.

The 1980s and 1990s: WIC Expands

The WIC program saw a number of changes in the 1980s and 1990s, during which time program caseloads nearly quadrupled. Prior to 1980, WIC provided three food packages: one for infants, one for women and children, and one for children with special dietary needs. These food packages were designed so that local WIC agencies could tailor the packages to suit the nutritional needs of the individual. In 1980, new regulations increased the number of food packages from three to six: infants 0-3 months, infants 4-11 months, children/women with special dietary needs, children 1-4 years, pregnant and breastfeeding women, and nonbreastfeeding postpartum women (45 *Federal Register* 74854-74877). The additional food packages took into account the different nutritional needs of participants and the belief that little tailoring was taking place.³⁶ Dry beans and peas or peanut butter were added to the food packages for children and pregnant and breastfeeding women to increase food variety and enhance nutrient value. The regulations also set a maximum level of 6 grams of sugar per dry ounce for adult cereals due to concerns over sugar’s contribution to tooth decay.

In 1989, P.L. 100-435 established a Farmers’ Market Coupon Demonstration Project in which 3-year grants were awarded in 10 States to create

³⁴ To receive the food package for children with special dietary needs, a physician was required to document that the child’s condition precluded the use of the conventional food package for children.

³⁵ The current guideline for free school meals is household income at or below 130 percent of the Federal poverty guidelines; households with income between 130 and 185 percent of the Federal poverty guidelines are eligible for reduced-price school meals.

³⁶ A 1979 study by the U.S. General Accounting Office (1979) concluded that nearly all WIC participants were given the maximum allowable quantities of WIC foods without any attempts to tailor the kinds and amounts of food to meet the nutritional needs of individuals.

demonstration projects designed to provide WIC participants with coupons that could be exchanged for fresh, unprepared foods at farmers' markets. Largely as a result of the success of these demonstration projects, P.L. 102-314 in 1992 permanently established the WIC Farmers' Market Nutrition Program (FMNP). Because of limited funding, the FMNP is only available in some geographical areas. Participants in the FMNP receive \$10-\$30 worth of coupons per year to be spent at approved farmers' markets (a set of vouchers can be provided to a household or to an individual.)³⁷

One of the most important legislative acts required WIC State agencies to implement cost-containment practices. In the mid-1980s, infant formula accounted for nearly 40 percent of total WIC food costs and infant formula retail prices were rising more quickly than prices for other foods. These factors led several WIC State agencies to look into cost-containment practices to reduce infant formula costs. In 1987, Tennessee became the first State with a retail food delivery system to implement a rebate system to control costs associated with infant formula. It used competitive bidding to award a contract to an infant formula manufacturer for the exclusive right to provide its product to WIC participants in the State in exchange for a rebate on the formula. The practice proved to be so successful in containing costs that P.L. 101-147 was enacted in 1989, requiring that all WIC State agencies enter into cost-containment contracts for the purchase of infant formula. Because funding for WIC is fixed by congressional appropriations, cost-containment practices allow the program to serve more participants or absorb higher food costs. Since establishment of the infant formula rebate system, rebates have increased dramatically. (For more information on the infant formula rebate program, see the section on "Infant Formula Costs," p. 51.)

While the savings from infant formula rebates allowed WIC State agencies to serve more participants, the escalation in participation increased States' administrative burden (Macro International, 1995). When infant formula rebates were first implemented, the NSA portion of the States' Federal appropriations was fixed at 20 percent of the total appropriation.³⁸ As a result, the increase in participation reduced the amount of NSA dollars per participant. To address this funding constraint, P.L. 101-147 (enacted in 1989) changed how the total Federal WIC appropriation to WIC State agencies is allocated for NSA. The new law changed the funding for NSA to a per participant basis based upon the 1987 national average NSA grant per participant (i.e., before the large-scale implementation of infant formula rebates) adjusted annually for inflation.

P.L. 101-147 also established adjunct income eligibility for Food Stamp, Medicaid, and Aid to Families with Dependent Children (AFDC) participants.³⁹ This was intended to simplify the WIC application process since, at that time, the income eligibility criteria for these other programs were lower than those for WIC.⁴⁰ This eligibility provision also had the effect of increasing the coordination between WIC and these other programs (Bartlett et al., 2000). Through the provision of onsite health services or referrals to other health care and social service providers, WIC became an important source for an array of health and social services as it "evolved from being an adjunct to maternal and child health services to becoming an

³⁷ This is the Federal share of benefits received. States may provide additional benefits.

³⁸ Federal grants to WIC State agencies are divided into food grants and nutrition services and administration (NSA) grants.

³⁹ P.L. 104-193 replaced AFDC with the Temporary Assistance for Needy Families program in 1996.

⁴⁰ Eligibility rules and practices in some States now enable people with incomes above 185 percent of poverty to enroll in Medicaid and therefore be income eligible for WIC.

important gateway program through which many low-income households entered the public health system” (Macro International, 1995).

The late 1980s also saw an increased emphasis on breastfeeding promotion and support in WIC.⁴¹ Concern about low breastfeeding rates among WIC mothers prompted Congress in 1989 to mandate \$8 million to support breastfeeding promotion activities in WIC and allow the use of administrative funds to purchase breastfeeding aids by WIC agencies as part of P.L. 101-147 (U.S. General Accounting Office, 1993). A Breastfeeding Promotion Consortium was established in 1990 to exchange ideas on how the Federal Government and private health organizations can collaboratively promote breastfeeding as the optimal form of infant feeding to WIC participants and the general public. The 1991 Act (P.L. 102-342) required that the Secretary of Agriculture establish a promotion program to promote breastfeeding as the best method of infant nutrition and to foster wider public acceptance of breastfeeding in this country. In 1992, USDA established an enhanced WIC food package for breastfeeding mothers whose infants do not receive WIC infant formula. The enhanced package added two new food items—carrots and canned tuna—along with increased amounts of juice, cheese, and beans/peas and peanut butter, to the items provided in the food package for pregnant and breastfeeding women. In 1994, P.L. 103-448 required WIC to spend at least \$21 (to be adjusted annually for inflation) for breastfeeding promotion on every pregnant and breastfeeding woman participating in the program.

As WIC expanded rapidly in the 1990s, the potential for misuse of program funds and violation of program regulations increased. Legislative and regulatory actions were enacted to strengthen the integrity of the program. For example, the 1998 William F. Goodling Child Nutrition Reauthorization Act (P.L. 105-336) required that, except in limited circumstances, applicants must be physically present at certification to document their income if they were not adjunctively income eligible based on enrollment in other programs and provide proof of residency (to prevent dual participation).⁴² P.L. 105-336 also required WIC State agencies to permanently disqualify WIC vendors convicted of trafficking food instruments (i.e., accepting food instruments for cash).

In 1999, the WIC program standardized nutritional risk criteria for determining program eligibility and assigning individual priority levels. As noted earlier, the priority system was designed to ensure that, in the event that program funds were not sufficient to serve all eligible people, WIC benefits would be provided to those most in need. Prior to April 1, 1999, each WIC State agency developed its own nutritional risk criteria subject to broad Federal parameters. As of April 1, 1999, however, WIC State agencies are required to use consistently defined nutritional risk criteria selected from a list of nearly 100 risk factors established specifically for use in the WIC program and issued by FNS (USDA, 1998).⁴³ WIC State agencies may choose to use some or all of the nutritional risk criteria on the national list.

⁴¹ Although breastfeeding was always an area of concern in the WIC program, the level of concern rose as the program grew because of the increasing number of women being served and WIC’s growing share of the infant formula market (Schwartz et al., 1992).

⁴² Dual participation refers to simultaneous participation in the WIC and Commodity Supplemental Food Program as well as to participation in more than one local WIC program at the same time.

⁴³ Concerned about the variation in criteria used to determine nutritional risk eligibility among WIC State agencies, Congress directed USDA in 1989 (P.L. 101-147) to conduct a review of risk criteria (USDA 1998). In 1993, USDA awarded a grant to the Institute of Medicine (IOM) to conduct a comprehensive independent review of the nutritional risk criteria in use at that time. Following the publication of the IOM report in 1996 (Institute of Medicine, 1996), a joint National Association of WIC Directors (NAWD)/FNS workgroup called the Risk Identification and Selection Collaborative (RISC) was formed to review each of the criteria addressed by IOM. In 1998, FNS issued the list of the national nutritional risk criteria (several nutritional risk criteria have been added or modified since then).

2000 to the Present: Recent Developments

The beginning of the decade saw a rapid increase in the number of “WIC-only” stores (i.e., stores that sell only or predominantly WIC foods and serve only or predominantly WIC participants). Under the retail food delivery system used by most WIC State agencies, WIC participants exchange food vouchers (or instruments) for supplemental foods at authorized retail outlets. Although WIC participants receive their WIC foods for free, market forces discourage regular WIC vendors from taking advantage of the price insensitivity of WIC participants and charging higher prices for WIC foods. That is because regular WIC vendors serve both WIC and non-WIC customers and if a WIC vendor charges too high a price for the WIC foods, the non-WIC customers—who pay out of pocket for their food—may shop at another store, resulting in a loss of revenue for the vendor. Since WIC-only stores do not serve non-WIC customers, there is less economic incentive for them to keep prices low. As a result, the prices at WIC-only stores are generally higher than those of other WIC vendors.⁴⁴ Neuberger and Greenstein (2004) estimated that WIC-only stores in California increase WIC food costs by about \$33 million per year. Because WIC participants are not required to obtain all the foods listed on their food instrument, it is not clear to what extent WIC-only stores have higher costs because of higher prices or because WIC vouchers are more likely to be redeemed in full there.

To address concerns about the increasing number of WIC-only stores with higher food costs, the Child Nutrition and WIC Reauthorization Act of 2004 (P.L. 108-265) included several vendor cost-containment provisions. The new law required that WIC State agencies establish a vendor peer group system, distinct peer competitive price criteria, and allowable reimbursement levels for each peer group. WIC State agencies must use the competitive price criteria to evaluate the prices a vendor applicant charges for supplemental foods compared with the prices charged by other vendor applicants and authorized vendors. State agencies must establish peer groups to determine the competitive-price criteria and maximum reimbursement levels applicable to vendors; vendors are assigned to peer groups based on characteristics such as geographic location, number of cash registers, WIC sales volume, type of ownership (sole proprietorship, corporate, or partnership) and other criteria indicating that all of the vendors in a peer group would be expected to have similar prices. The law also mandated special cost-containment requirements for “above-50-percent vendors,” (i.e., vendors that derive more than 50 percent of their annual food sales revenue from WIC food instruments). P.L. 108-265 requires that WIC State agencies ensure that the prices of above-50-percent vendors do not result in higher total food costs.⁴⁵

This decade also saw major changes to WIC food packages. Prior to 2007, WIC food packages had remained largely unchanged since the 1970s, even as the WIC population became more diverse, food patterns and participants’ nutritional risks changed, and nutritional science advanced. For many years, WIC program administrators, medical and scientific communities, advocacy groups, and Congress had expressed an interest in updating the food packages. In December 2007, USDA published an interim final rule that overhauled the WIC food packages (72 *Federal Register* 68965-69032).⁴⁶

⁴⁴ There may be other reasons for the higher prices in WIC-only stores. For example, smaller WIC-only stores may be less able to take advantage of economies of scale in their purchases.

⁴⁵ P.L. 108-447 (which contained the FY 2005 appropriations for WIC) and P.L. 109-97 (which contained the FY 2006 appropriations for WIC) prohibited the authorization of new above-50-percent vendors except for stores needed to ensure participant access to program benefits or stores that had moved short distances. This prohibition was not continued in succeeding years because P.L. 108-265 required FNS certification of a State agency’s vendor cost-containment system for a State agency to authorize above-50-percent vendors. These certifications were completed by the end of FY 2006.

⁴⁶ An interim final rule has the full force and effect of a final rule, yet allows the Department to obtain feedback on the provisions while implementation goes forward.

The interim final rule's revisions largely reflect recommendations made by the Institute of Medicine (IOM) of the National Academies in its report, "WIC Food Packages: Time for a Change," with certain cost-containment and administrative modifications that ensure cost neutrality (Institute of Medicine, 2005).⁴⁷ The interim final rule revised regulations to align WIC food packages with the *Dietary Guidelines for Americans* (U.S. Department of Health and Human Services and U.S. Department of Agriculture, 2005) and with the current infant feeding guidelines set by the American Academy of Pediatrics. This alignment was aimed at promoting and supporting the establishment of successful long-term breastfeeding, providing WIC participants with a wider variety of food and WIC State agencies with greater flexibility in prescribing food packages for participants with cultural food preferences. In order to serve the greatest number of eligible applicants, the revised food packages were designed to be cost-neutral (i.e., to cost no more than the packages they replaced). Although WIC State agencies could begin to phase in the revised food packages by February 2008, none did so.⁴⁸ All WIC State agencies are required to implement the new provisions no later than October 1, 2009. (For additional details about the WIC food packages revisions, see the section on "Potential Impact of the Revised WIC Food Packages," p. 44.)

⁴⁷ For example, the IOM report recommended adding yogurt to the WIC food packages as a milk substitute for children and women and providing fruit and vegetable vouchers with a cash value of \$10 per month for women and \$8 per month for children. To maintain cost neutrality, however, the interim final rule did not include yogurt and the cash value of the fruit and vegetable vouchers was reduced to \$8 for nonbreastfeeding women and \$6 for children.

⁴⁸ New York and Delaware were the first States to begin implementing the revised food packages in January 2009.

Program Trends

This section examines trends in program expenditures, participation, infant formula rebates, and food costs per person. Some of the trends appear to have changed in FY 2008. (For more information on converting nominal dollars to real dollars, see box, “Adjusting for Inflation,” p. 23.)

WIC Expenditures

Since WIC’s initiation in 1974, nominal (i.e., not adjusted for inflation) Federal expenditures for the program have increased each year, reaching \$6.2 billion in FY 2008 (fig. 3).⁴⁹ In real terms (i.e., adjusted for inflation), the increases in WIC expenditures have not been nearly so dramatic. Real expenditures for WIC increased each year—except for 1989—up to FY 1997. This increase was due to Congressional appropriations that were stimulated largely by favorable program evaluations that showed WIC to be a successful and cost-effective program.⁵⁰ As the program reached full participation (whereby every eligible person who applies for WIC is accepted into the program), annual Congressional appropriations flattened out and the increase in real expenditures slowed. In fact, between 1998 and 2007, real expenditures decreased in 4 of the 10 years.⁵¹ In a break from recent years, however, expenditures in real terms increased by almost 9 percent in 2008. This increase, the largest in 15 years, reflected both an increase in participation and an increase in per person food costs.

⁴⁹ Some States also contribute funds to WIC.

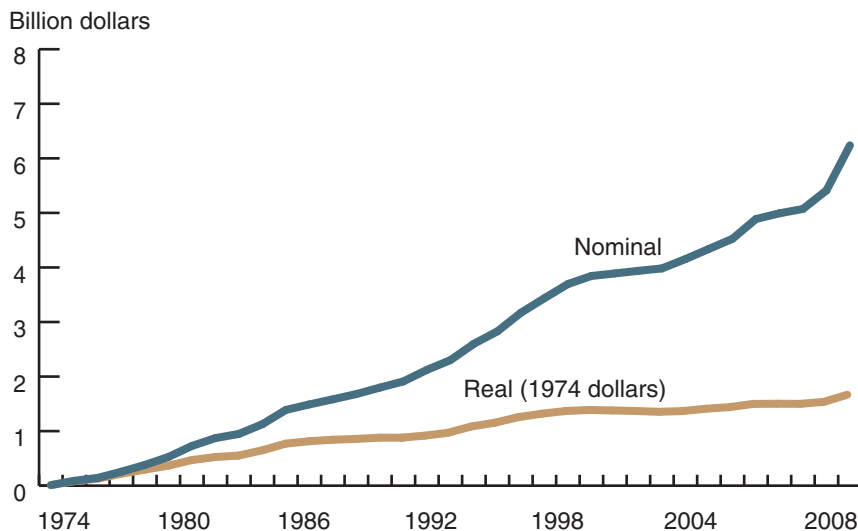
⁵⁰ See for example, Devaney et al., (1990) and U.S. General Accounting Office (1992).

⁵¹ Expenditures for WIC in real terms decreased in 1998, 1999, 2000, and 2006.

Participation

Since WIC’s formal inception, the number of program participants has expanded dramatically. From an average of 88,000 participants per month in 1974, the number of participants increased each year reaching 7.4 million

Figure 3
Federal expenditures for WIC, FY 1974-2008



Source: ERS calculations of real expenditures based on USDA Food and Nutrition Service estimates of nominal expenditures adjusted by the Bureau of Labor Statistics' Consumer Price Index for food at home.

Adjusting for Inflation

To account for the effects of inflation or general price changes over time, the estimates for WIC expenditures, infant formula rebates, and per person food costs in this section were converted into real (i.e., inflation-free) dollars. This raised the question—which index should be used to adjust these WIC-related variables for inflation? Various price indices, based on different market baskets of goods, are used to measure different aspects of inflation. The most widely used measure of inflation is the Consumer Price Index (CPI) for all items, which is a broad, comprehensive price index that measures the average change over time in prices paid by urban consumers for a fixed market basket of consumer goods and services. Because WIC foods (which are usually consumed at home) account for about three-quarters of total WIC expenditures, this report uses the CPI for food at home (i.e., foods purchased at retail food stores) to deflate costs associated with WIC expenditures and food costs per person. For consistency, the CPI for Food at Home was also used to deflate the dollar amount of infant formula rebates received by WIC. Although not presented in this report, WIC expenditures, per person food costs, and infant formula rebates were also deflated using the CPI for all items. The same general trends were observed regardless of which CPI was used.

per month in 1997 (fig. 4). (See box, “Number of Births in the United States Is Increasing,” p. 25, for more information about participation trends.) Congressional funding for WIC increased steadily during this period. The rapid growth in participants from 1989 to 1997, when participation increased by an average 8 percent per year, coincided with the startup of the infant formula rebate program. The only decrease in participation in WIC’s history occurred from 1998 to 2000, when the number of participants fell 1-2 percent each year. During this period, Federal expenditures for WIC in real terms (i.e., after adjusting for inflation) decreased by 2 percent. From 2000 to 2007, participation once again increased, but at a slower rate (about 2 percent per year). In FY 2008, however, participation increased 5 percent, the largest single-year increase since 1995.

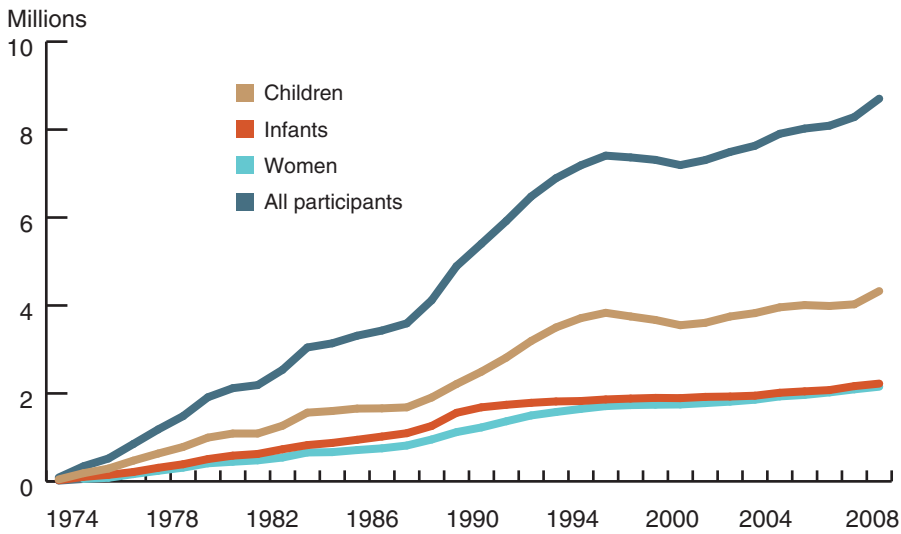
Participation patterns have varied among the three main participant categories. For example, since the program began in 1974, the number of women and infants participating in the program has increased each year except for 2000 when the number of infants decreased by less than 1 percent. The number of children in WIC has experienced greater fluctuation, increasing sharply from 1988 to 1997 (by 128 percent) before decreasing by 7 percent from 1997 to 2000. The number of children also decreased slightly in 2006. In FY 2008, the number of children experienced a large increase—7 percent compared with only 3 percent for women and infants. In general, infants and pregnant and breastfeeding women have a higher priority in WIC than do children, so they may be more “protected” when program funds are limited. Because children have a lower priority, they will be less likely to be able to participate when funding is tight. Conversely, as funding increases,

there may be greater outreach efforts aimed at bringing children into the program since eligible infants and pregnant and breastfeeding women are more likely to already be in the program.

Per Person Food Costs

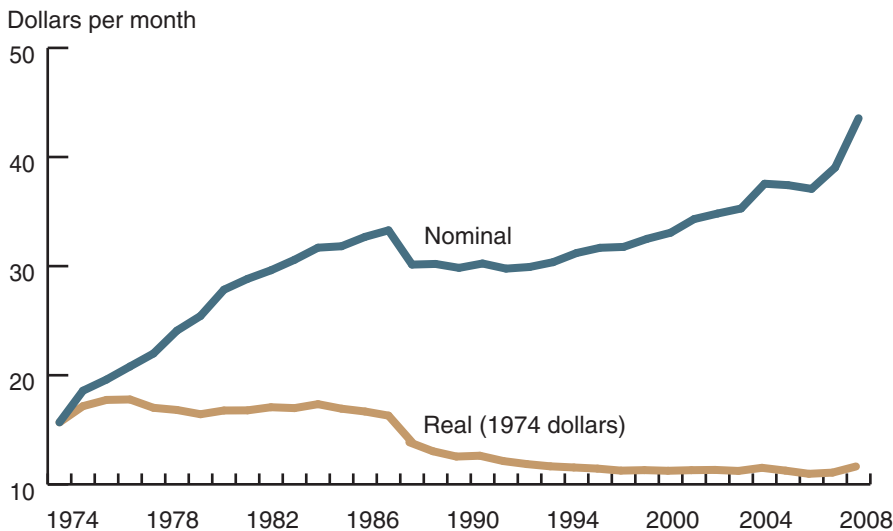
In the first 15 years of the WIC program, the nominal per person cost of the WIC food package increased by 112 percent (from \$16 in FY 1974 to \$33 in FY 1988) (fig. 5). From 1988 to 2007, however, nominal costs increased by a total of only 17 percent, increasing by almost 12 percent in FY 2008 alone.

Figure 4
Average number of WIC participants per month, FY 1974-2008



Source: USDA, Food and Nutrition Service.

Figure 5
Average WIC food costs per person, FY 1974-2008

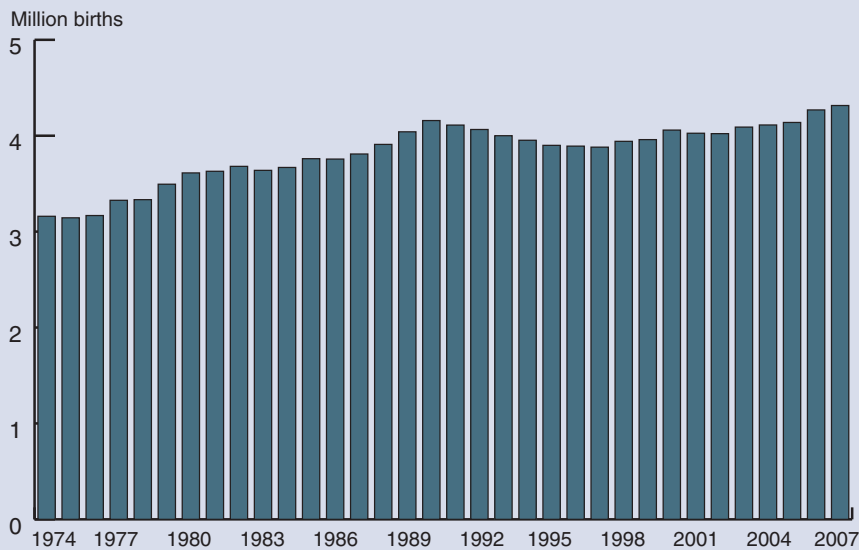


Source: ERS calculations of real average WIC food cost per person based on USDA, Food and Nutrition Service estimates of WIC per person food costs adjusted by the Bureau of Labor Statistics' Consumer Price Index for food at home.

Number of Births in the United States Is Increasing

The number of persons eligible for WIC is largely a function of economic conditions and the number of people in the target subpopulations. Provisional data from the Centers for Disease Control and Prevention indicate that, in 2007 (the latest year in which data are available), the number of live births in the United States reached over 4.3 million, the largest number of births recorded since the WIC program began in 1974. After a downward trend from 1990 to 1997, the number of live births has increased in 8 of the last 10 years.

Live births in the United States, 1974-2007



Note: Data for 2006 and 2007 are provisional.

Source: Tejada-Vera and Sutton, 2008 and Martin et al., 2007.

In real terms (1974 dollars, after adjusting for inflation), the average monthly cost per person of the WIC food package actually decreased by 28 percent from 1974 to 1998. Much of this decrease occurred in the late 1980s and early 1990s as a result of the infant formula rebate program that WIC State agencies began to implement during that time. Real average WIC food costs per person were flat for most of the last decade—decreasing by 1 percent between 1998 and 2007—before increasing by 5 percent in FY 2008. This increase, largely the result of rising food prices, represented the largest single-year increase in percentage terms since 1975 when WIC was only in its second year of operation.

Infant Formula Rebates

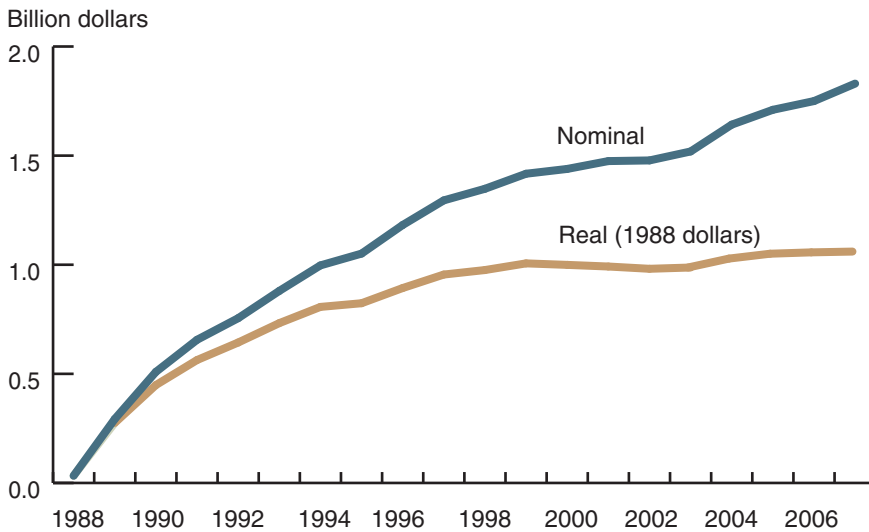
Rebates from infant formula manufacturers have become an integral component of the WIC program. Since the use of rebates began in the late 1980s, the amount of the rebates in nominal terms has increased each year, reaching an estimated \$1.8 billion in FY 2007 (fig. 6). In real terms, rebates have largely leveled off. Since 1999, real rebates have increased by only 4 percent.

The amount of total rebates received by WIC tells only part of the story. While the total amount of rebates received by WIC has leveled off, the number of infants participating in the program has continued to increase.⁵² As a result, the average rebate per WIC infant (in real terms) has decreased in recent years (fig. 7).⁵³ Since peaking at almost \$44.18 (in 1988 dollars) per month in FY 1999, the average real rebate per infant has decreased in 6 of the last 8 years, falling to about \$40.77 in FY 2007.

⁵² For example, the number of infants participating in WIC increased by 14 percent from FY 1999 to FY 2007.

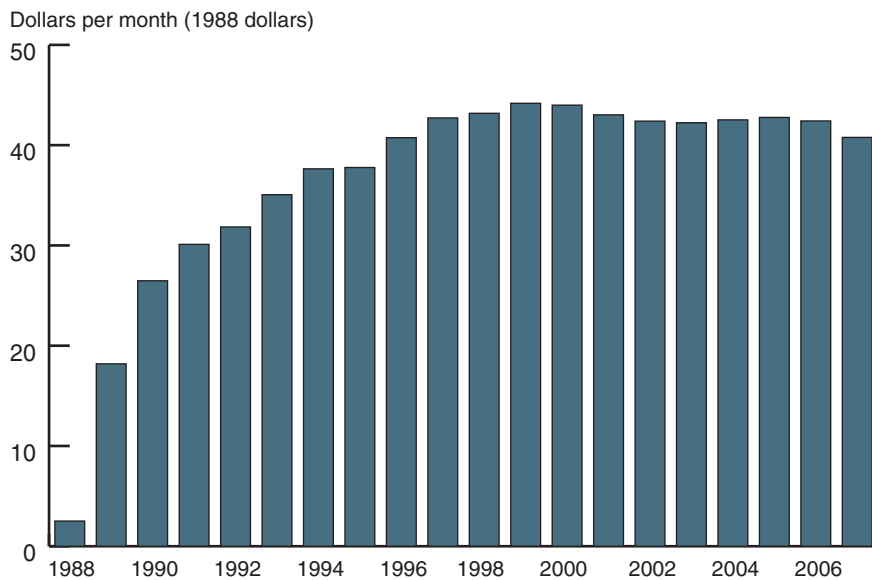
⁵³ The number of infants in WIC who receive infant formula through the program is not available.

Figure 6
Infant formula rebates, FY 1988-2007



Source: ERS calculations of real infant formula rebates based on USDA, Food and Nutrition Service estimates of infant formula rebates adjusted by the Bureau of Labor Statistics' Consumer Price Index for food at home.

Figure 7
Average real rebate per infant, FY 1988-2007



Source: ERS calculations of real infant formula rebates based on USDA, Food and Nutrition Service estimates of infant formula rebates adjusted by the Bureau of Labor Statistics' Consumer Price Index for food at home divided by the number of infants participating in WIC.

Characteristics of WIC Participants

Descriptive information on the characteristics of WIC participants is available from USDA's Food and Nutrition Service (see box below, "FNS Data on WIC Participant Characteristics"). This chapter describes participants' characteristics in terms of participant categories, race and ethnicity, nutritional risks, participation in other programs, and income and poverty status.

Participant Category

Children accounted for 49 percent of all WIC participants in April 2006 (fig. 8). The number of children in WIC decreased as their ages increased: 17 percent of all WIC participants were 1 year of age, 13 percent were 2 years of age, 11 percent were 3 years of age, and 8 percent were 4 years of age. Infants made up another 26 percent of all WIC participants. Women accounted for 25 percent of all WIC participants, with pregnant women making up 11 percent of all participants and nonbreastfeeding postpartum women and breastfeeding women each accounting for 7 percent of all participants. Among pregnant women, over half (51 percent) enrolled in the program during their first trimester and 38 percent in the second. Only 10 percent of pregnant women enrolled in their third trimester.

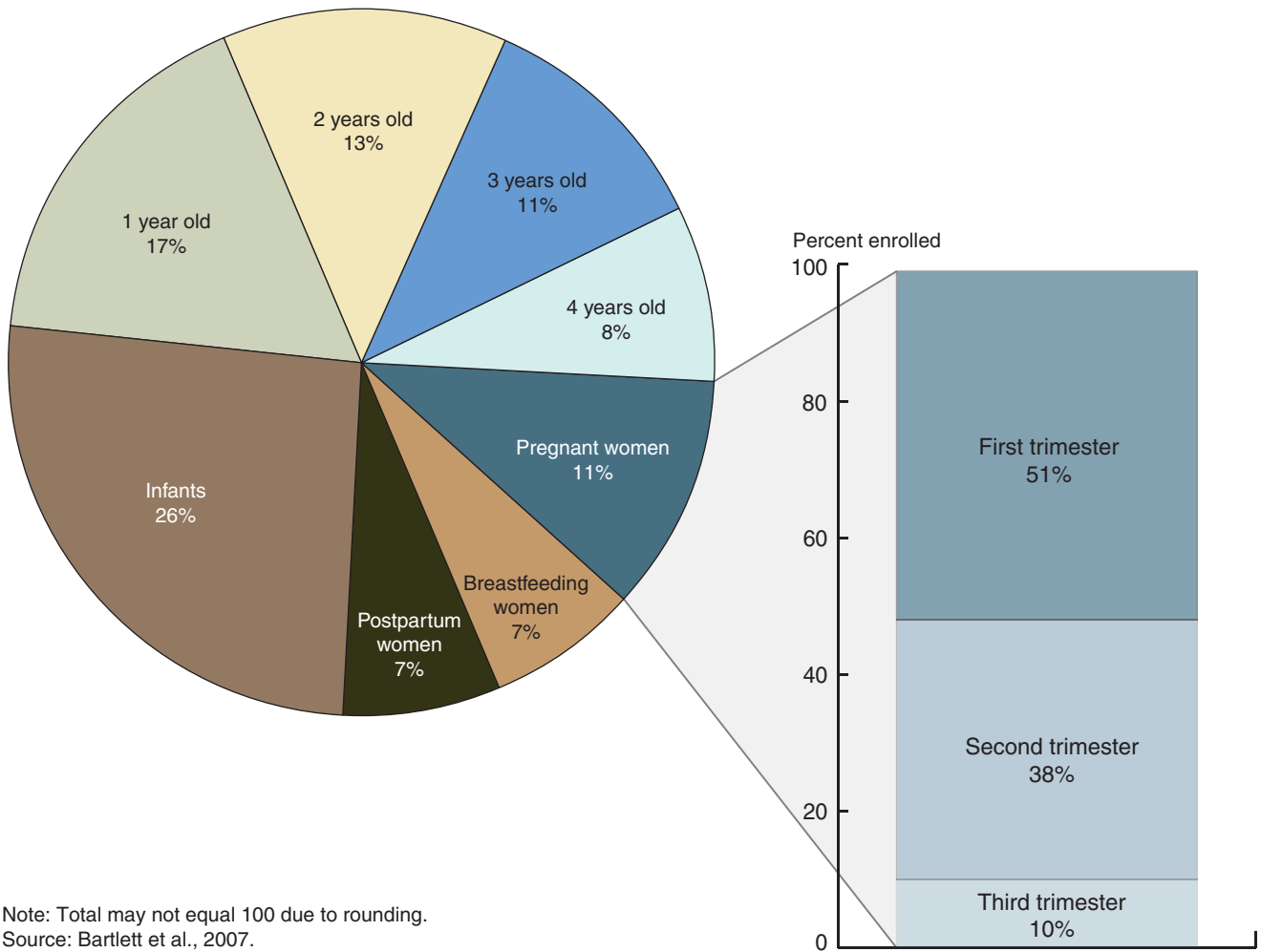
Race and Ethnicity

One of the more dramatic trends that has emerged since the early 1990s is the change in the racial/ethnic composition of WIC participants. Accounting for only 23 percent of all participants in 1992, Hispanics accounted for 41 percent in 2006—more than any other racial/ethnic group (fig. 9). During the same period, the percentage of Whites and Blacks combined decreased from 72 percent to 52 percent.

FNS Data on WIC Participant Characteristics

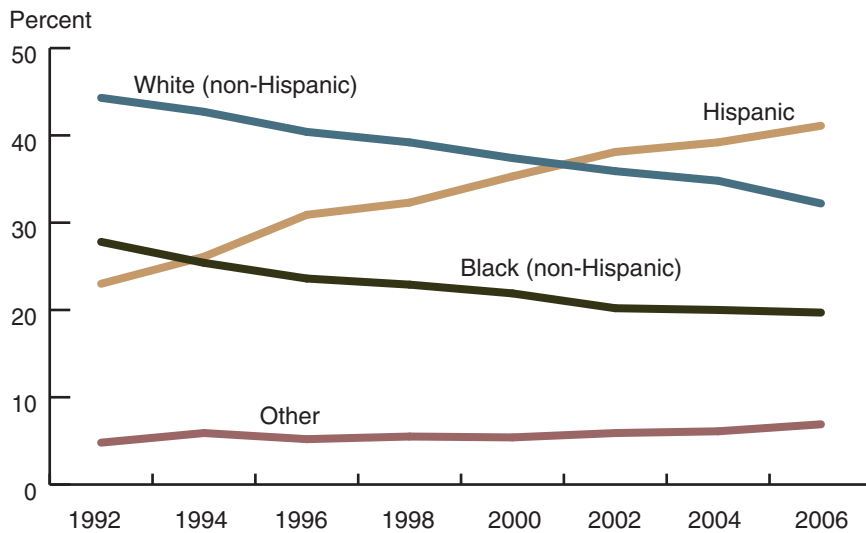
Every 2 years, USDA's Food and Nutrition Service (FNS) sponsors a study on the characteristics of WIC participants and the agencies administering the program, publishing the results in the *WIC Participant and Program Characteristics* (PC) series of reports. The most recent report (PC2006) is based on a near-census of people enrolled in WIC in April 2006 (Bartlett et al., 2007). In that month, 8.8 million women, infants, and children were enrolled in the program. Only about 91 percent of enrollees, however, actually picked up their WIC food instruments. For simplicity and comparability with the PC reports' terminology, enrollees (including the 9 percent who did not pick up their WIC food instrument) are referred to as participants in the discussion of participant characteristics.

Figure 8
Distribution of WIC participants, by participation category, 2006



Note: Total may not equal 100 due to rounding.
 Source: Bartlett et al., 2007.

Figure 9
WIC participants, by race/ethnicity, 1992-2006



Source: Bartlett et al., 2007.

Nutritional Risks

For the PC2006, States could report each applicant's 10 highest priority nutritional risks present at certification.⁵⁴ For women, high weight-for-height (46 percent), "other dietary" risks (40 percent), and inappropriate weight gain (30 percent) were the risks most often reported. Eighty-one percent of infants were recorded at risk due, at least in part, to the WIC-eligibility of their mothers or because their mothers were at risk during pregnancy. "Other dietary" risks (61 percent), inadequate or inappropriate nutrient intake (27 percent), and high weight-for-height (23 percent) were the most frequently recorded risks for children.

Participation in Other Programs

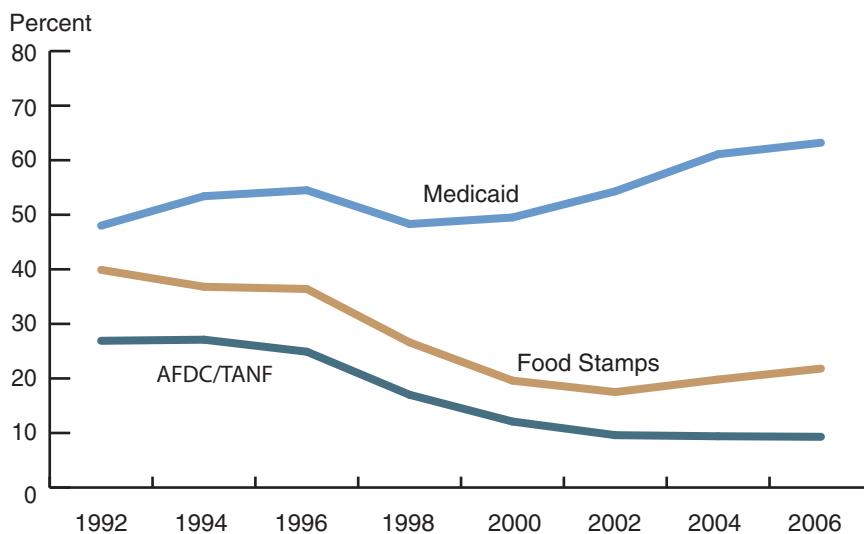
Participants from Medicaid, Food Stamp, or TANF programs are automatically income eligible for WIC. In 2006, 66 percent of WIC participants received benefits from at least one of these other public assistance programs at the time of their WIC certification, 16 percent received benefits from two of these programs, and 6 percent received benefits from all three.⁵⁵ Medicaid was received by 63 percent of WIC participants, food stamps by 22 percent, and TANF by 9 percent.

From 1992 to 2006, participation in the TANF or AFDC programs by WIC participants at time of certification decreased from 27 percent to 9 percent, reflecting the overall decline in participation in these programs since passage of the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) of 1996 (a.k.a., the Welfare Reform Act of 1996) that replaced AFDC with TANF (fig. 10). Similarly, participation among WIC participants in the Food Stamp Program fell from 40 percent to 22 percent due, at least in part, to fewer WIC participants meeting income eligibility requirements of

⁵⁴ Because States are not required to report all nutritional risks and because of possible variations in the methods States use and the number of risks they report, the data reported here may not provide a complete picture of nutritional risks among WIC participants.

⁵⁵ Because local WIC staff provide information on other programs at certification, some WIC participants may apply to other programs *after* information on their participation in other programs is recorded (Bartlett et al., 2007). As a result, participation estimates from other programs reported here may underestimate actual participation by WIC participants in those programs.

Figure 10
Share of WIC participants participating in other public assistance programs, 1992-2006



Source: USDA, Food and Nutrition Service, PC data, various years.

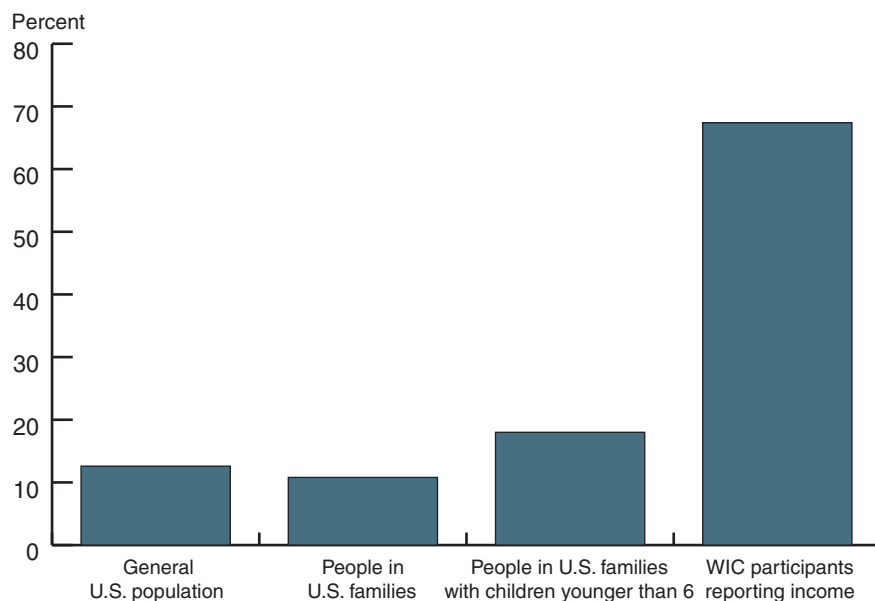
the Food Stamp Program.⁵⁶ On the other hand, participation in the Medicaid program by WIC participants at time of certification increased from 48 percent in 1992 to 63 percent in 2006. Implementation of two legislative changes, the State Children’s Health Insurance Program (SCHIP) and Title XXI of the Balanced Budget Act of 1997—which expanded Medicaid eligibility for children—contributed to the increase in Medicaid participation among WIC participants (Bartlett et al., 2007). (For additional information on the effect of Medicaid participation on WIC, see the section on the “Expansion of the WIC Program,” p. 31.)

Income and Poverty Status

In the PC2006, almost 10 percent of participants had missing values for income (86 percent of those with missing income were adjunctively income eligible due to their participation in the Medicaid, Food Stamp, or TANF Programs). Among WIC participants with reported income in 2006, the average annualized income of their family/economic units was \$15,577. Most WIC participants were poor; two-thirds (67 percent) of those reporting income were at or below the poverty level compared with 13 percent of the general population (fig. 11). In contrast, 2 percent of participants reporting income had incomes above the 185 percent of poverty guidelines that cap WIC participation (some participants with incomes above the cap can legally participate in WIC because Medicaid participation makes them income eligible and Medicaid participation in several States is capped at income levels greater than 185 percent of the poverty guidelines).

⁵⁶ The monthly income of most households must be 130 percent or less of the Federal poverty guidelines to be eligible for food stamps. Over time, the number of WIC participants with incomes over 130 percent of the poverty level has slightly increased. For example, PC data indicate that about 13 percent of WIC participants reporting income had incomes of 131 percent of poverty or higher in 1992 compared with about 18 percent in 2006. As a result, a smaller percentage of WIC participants have been eligible for food stamps in recent years.

Figure 11
People in poverty, 2006



Source: Bartlett et al., 2007.

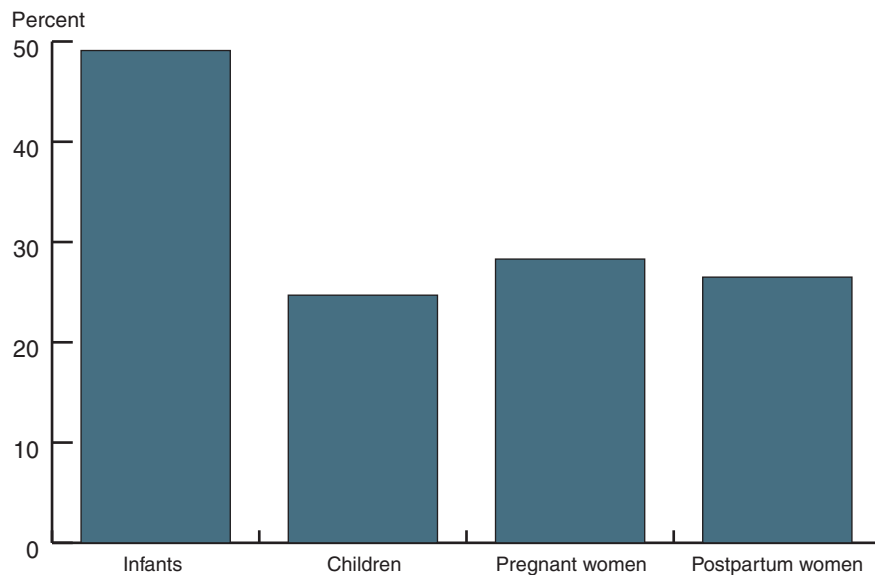
Administrative-Based Issues in WIC

Numerous issues are associated with administering a program of WIC's size and complexity, including administrative-based issues and their economic implications. These administrative issues include expanding WIC enrollment, Federal funding and State incentives, funding for NSA, potential impacts of revisions to the WIC food packages, food prices, and infant formula costs. Many of these issues are interrelated. For example, food prices may affect the expansion of the WIC program, which, in turn, could impact the costs of infant formula to WIC. Administrative-based issues may also impact program outcomes, which are discussed in the next chapter.

Expansion of the WIC Program

The number of WIC participants has increased dramatically over time (see fig. 4). By 2006, almost half of all infants and a quarter of all children ages 1-4, pregnant women, and postpartum women (up to 1 year after giving birth) in the United States were estimated to have participated in the program (fig. 12). Although funding has been sufficient to serve all eligible people seeking to enroll in recent years, many eligible people still do not participate in WIC. The latest estimates of 2003 WIC program coverage show that only 57 percent of the 13.5 million people eligible for WIC actually participated (USDA, 2006). The proportion of the eligible population that participated varied by participant category, ranging from 45 percent of children to 83 percent of infants (fig. 13). Some groups contend that WIC should continue efforts to increase participation among those eligible. For example, the Food Research and Action Center (FRAC) claims that having unserved eligibles in WIC "is especially disturbing in light of the obesity epidemic and the

Figure 12
WIC recipients as a share of U.S. population subgroups, 2006



Note: Postpartum women include both breastfeeding and nonbreastfeeding women.
Source: Economic Research Service estimates (see appendix on p. 82 for information on how the percentages were estimated).

continuing hunger, poverty, poor nutrition, and ill health among the Nation's low-income families" (Food Research and Action Center, 2005). On the other hand, Besharov and Germanis (2001) contend that the WIC program has expanded beyond the truly disadvantaged and that cutbacks should be made at the upper levels of income eligibility.

WIC's Eligibility Requirements Are Less Restrictive Than Those of Food Stamps

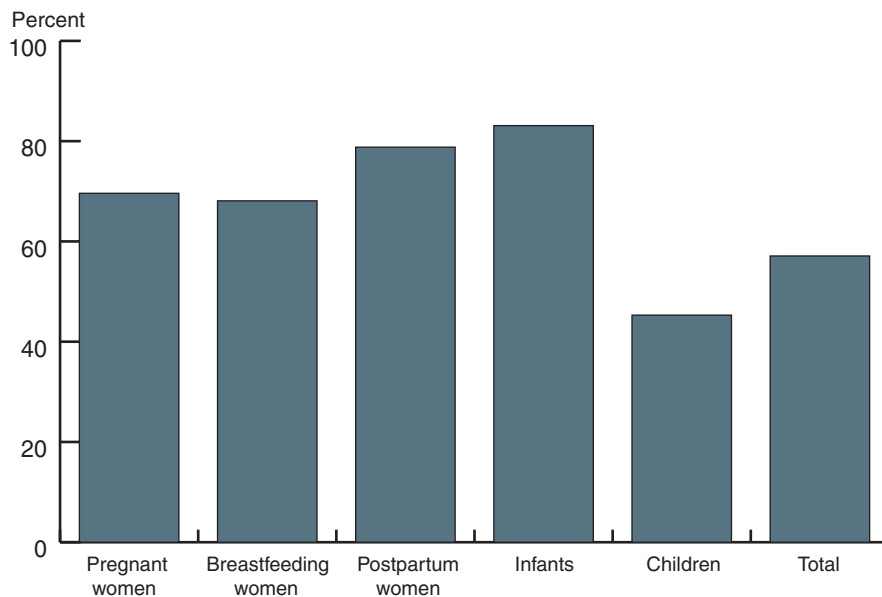
Among the arguments for tightening WIC's eligibility requirements is that many of WIC's eligibility requirements are too lenient, especially when compared with those of the Food Stamp Program (the country's principal food and nutrition assistance program). For example:

- Undocumented immigrants are eligible to receive WIC benefits, but are not eligible for food stamp benefits.
- A family's assets play no role in determining its income eligibility for WIC, unlike the rules governing the Food Stamp Program.⁵⁷
- The income eligibility limit for WIC is 185 percent of poverty, which is higher than the 130 percent of poverty limit required for participation in the Food Stamp Program.
- WIC regulations allow for considerable flexibility in how WIC agencies interpret the period used in determining an applicant's income eligibility. WIC State agencies may "consider the income of the family during the past 12 months and the family's current rate of income to determine which indicator more accurately reflects the family's status" (7 CFR 246.7).⁵⁸ (Note that WIC regulations leave the period for determining a family's "current rate" of income undefined.) As a result, people

⁵⁷ Under Food Stamp Program rules, households may have no more than \$2,000 in countable resources, such as a bank account (\$3,000 if at least one person in the household is age 60 or older or is disabled). Certain resources are not counted, such as a home and lot. Special rules are used to determine the resource value of vehicles owned by household members (http://www.fns.usda.gov/fsp/applicant_recipients/eligibility.htm).

⁵⁸ WIC regulations define "family" as a group of related or nonrelated individuals living together as one economic unit, but does not include residents of a homeless facility or an institution (7 CFR 246.7).

Figure 13
WIC program coverage rates, by participant category, 2003



Note: Coverage rate equals the number of WIC participants as a share of persons estimated to be eligible for WIC.
Source: USDA, 2006.

whose *annual* income is above 185 percent of poverty, but who are experiencing a temporary decline in monthly earnings (e.g., from deciding not to work right before and/or right after childbirth), may still meet the income eligibility criteria for WIC. FNS estimates that 29 percent of the 13.5 million people eligible for WIC (but not necessarily participating in WIC) in 2003 had annual incomes above 185 percent of poverty (USDA, 2006). These people were presumably eligible because they had periods of low income during the year or because they were adjunctively eligible due to enrollment in Medicaid (see next section).

- WIC regulations do not require WIC participants to report changes in income that would make them ineligible if they were applying for benefits (that is, their income increases to above 185 percent of poverty). On the other hand, food stamp recipients are required to report changes in income that would make them ineligible for benefits.

Expansion of Adjunctive Eligibility Through Medicaid

A number of States now allow some people with incomes greater than 185 percent of the poverty guidelines to participate in Medicaid programs, and participation in Medicaid makes them automatically income eligible for WIC.⁵⁹ As of January 2008, 24 States and the District of Columbia had Medicaid programs for *infants* with income eligibility guidelines greater than 185 percent of the Federal poverty guidelines, including four States (Hawaii, Maryland, New Hampshire, and Vermont) and the District of Columbia that had income eligibility guidelines at 300 percent of the Federal poverty guidelines.⁶⁰ Twelve States and the District of Columbia had Medicaid programs for *children* with income eligibility guidelines greater than 185 percent of the Federal poverty guidelines, including three States (Hawaii, Maryland, and Vermont) and the District of Columbia that had income eligibility guidelines at 300 percent of the Federal poverty guidelines. Nineteen States and the District of Columbia had Medicaid programs for *pregnant women* with income eligibility guidelines greater than 185 percent of the Federal poverty guidelines, with the District of Columbia having income eligibility guidelines at 300 percent of the Federal poverty guidelines.

As shown earlier in figure 10, almost two-thirds (63 percent) of all WIC participants at the time of certification in 2006 participated in Medicaid, up from 48 percent in 1992. This increase in the proportion of WIC participants who also participate in Medicaid (and who may therefore have income greater than 185 percent of the Federal poverty guidelines) has led some to suggest that WIC may be increasingly serving those who are less economically needy. Questions have also been raised as to whether WIC can continue to absorb increases in participation associated with the expansions in Medicaid eligibility (Thiel, 2008). Examination of WIC participants' family income as a percentage of the Federal poverty guidelines shows that it has shifted modestly over time—a smaller proportion of participants report incomes at or below 50 percent of poverty, while a larger proportion report incomes between 101 and 185 percent of poverty (table 6). The number of WIC participants reporting income above 185 percent of poverty, however, remains relatively small—only 2 percent in 2006 (Bartlett et al., 2007). Thus,

⁵⁹ The legislation (P.L. 101-147) establishing adjunct income eligibility for food stamp, Medicaid, and AFDC participants was intended to simplify the WIC application process since, at the time the legislation was enacted in 1989, the income eligibility criteria for these other programs were lower than those for WIC.

⁶⁰ Figures are based on income eligibility levels under Medicaid or State Children's Health Insurance Program (SCHIP) funded Medicaid expansions. The source of the data is the Kaiser Family Foundation website at <http://www.statehealthfacts.org/compare-table.jsp?ind=203&st=3>, accessed October 2008.

Table 6

Distribution of WIC participants by percentage of Federal poverty level among those reporting income, 1992-2006

Percent of Federal poverty level	1992	1994	1996	1998	2000	2002	2004	2006
	<i>Percent</i>							
0-50	40.7	43.4	39.1	34.0	30.9	31.7	33.4	33.0
51-100	34.4	33.4	34.2	34.7	34.0	32.8	33.5	34.3
101-130	12.1	12.0	12.9	15.1	15.9	16.1	15.3	15.1
131-185	12.0	10.6	13.0	15.4	18.0	17.8	16.2	15.6
Over 185	0.7	0.7	0.7	0.7	1.1	1.6	1.7	2.0

Source: USDA, Food and Nutrition Service, program characteristics (PC) data, 1992-2006.

even with the more relaxed income eligibility guidelines in some States, program data do not indicate that WIC has been flooded in recent years by participants with incomes above the 185-percent level.⁶¹ Furthermore, analysis conducted by the Center on Budget and Policy Priorities indicates that WIC caseloads in States with Medicaid eligibility limits greater than 185 percent of poverty have not grown more rapidly than caseloads in States with Medicaid limits at or below 185 percent of poverty (Greenstein, 2008).⁶²

Differing Medicaid eligibility standards across States raise issues of equity in WIC. For example, Fox et al. (2003) asks, “should individuals in states with Medicaid eligibility higher than 185 percent of poverty qualify for WIC while those in other states do not?” Others have argued for eliminating adjunctive eligibility for people with incomes above some specified level. For example, the President’s FY 2009 budget for USDA proposed limiting automatic WIC income eligibility to Medicaid participants with household incomes that fall below 250 percent of the Federal poverty guidelines (USDA, 2008e). One of the arguments against capping adjunctive eligibility above some level of household income is that adjunctively eligible applicants do not have to provide information about family income, thereby speeding up the application process for applicants and staff and lowering administrative costs. The National WIC Association claims that the proposal to cap adjunctive eligibility would eliminate eligibility for only a small number of individuals and would increase costs due to additional administrative burden in affected States by requiring duplicative income documentation for all Medicaid recipients applying for WIC and discouraging otherwise eligible applicants from applying to WIC if they think they are not eligible (National WIC Association, 2008).

Nutritional Risk Eligibility Requirements Are Nonbinding

WIC applicants seemingly face one eligibility requirement that applicants of other food and nutrition assistance programs do not. In order to participate in WIC, applicants must meet one of several nutritional risk criteria.⁶³ These criteria include detrimental or abnormal nutritional conditions detectable by biochemical or anthropometric measurements; other documented

⁶¹ An average of 16 percent of WIC households included in the eight PC reports published from 1992-2006 did not report income. FNS is currently conducting an income verification study for the WIC program that will provide more information on the income of WIC recipients.

⁶² Between 1997 and 2007, WIC caseloads in States with Medicaid limits at or below 185 percent of poverty increased 13 percent compared with a 12-percent increase in WIC caseloads in States with higher Medicaid eligibility limits (Greenstein, 2008).

⁶³ The nutritional risks reported in the various PC reports were not examined in this report due to differences in the methodology used to collect the information that affect comparisons across years. For example, prior to 1999, the nutritional risk criteria used to determine eligibility varied from State to State. In 1999, FNS implemented nationally uniform standards that were first reflected in PC2000. Beginning in PC2006, States could report up to 10 nutritional risks for participants, whereas prior to 2006, only 3 nutritional risks could be reported.

nutritionally related medical conditions; dietary deficiencies that impair or endanger health; conditions that directly affect the nutritional health of a person, including alcoholism or drug abuse; and conditions that predispose people to inadequate nutritional patterns or nutritionally related medical conditions, including, but not limited to, homelessness and migrancy (7 CFR 246.12). However, an FNS-sponsored study by the Institute of Medicine (2002) to evaluate the dietary assessment methods used by WIC to establish nutritional risk estimated that more than 96 percent of all people in the United States (and an even greater percentage of the low income) do not usually consume the number of servings recommended by the Food Guide Pyramid and would therefore be at dietary risk based on the criteria *failure to meet Dietary Guidelines*. IOM concluded that because “nearly all U.S. women and children” are at dietary risk and therefore meet the nutritional risk criteria established by WIC, in practice the WIC nutritional risk criteria have little effect on restricting program participation.

Instead of Expanding Enrollment, Should WIC Target Those Most in Need?

WIC has also been criticized because all WIC recipients in the same participant category (i.e., children, postpartum women, etc.) basically receive the same package of benefits despite differences in need among the individuals within each participant group (Besharov and Germanis, 2001). That is, although family income is used to determine eligibility for WIC, once a person is deemed eligible for WIC, income is not used to determine the amount of benefits they receive. For example, a child in a family with income less than 50 percent of poverty will receive the same WIC benefits as a participating child in a family with income 185 percent of poverty (or even 300 percent of poverty due to participation in some States’ Medicaid program). In contrast, food stamp benefits are reduced by 30 cents for every dollar of income net of program deductions, and there are different subsidy levels for meals served in the National School Lunch Program and the School Breakfast Program depending on the child’s household income.

A report by the U.S. General Accounting Office (1985) stated that WIC program officials generally considered income to be an unreliable indicator of vulnerability. With the exception of the Commodity Supplemental Food Program, participation in WIC does not preclude an individual from participating in other food assistance programs, such as food stamps. Therefore, the child at 50 percent of poverty may be able to receive food stamps in addition to WIC benefits, while the child at 185 percent of poverty would not be eligible for food stamps. The report further stated that many WIC policy officials believed that individuals whose family incomes are too high to be eligible for assistance from other programs may have greater economic need and nutritional risk than individuals with lower incomes but who qualify for other assistance programs.

In their book *Rethinking WIC*, Besharov and Germanis (2001) state that “WIC’s positive effects are probably concentrated among its most disadvantaged recipients” and that, “instead of adding more people to the rolls, it might make sense to change WIC’s rules to allow local agencies to provide more food benefits and educational services to poorer families who

palpably need more aid than those at higher incomes.”⁶⁴ Because of the lack of data on the issue, however, little is known about the degree to which WIC benefits accrue to the most disadvantaged, such as those at the lowest income, the most nutritionally at risk, the youngest children, etc. Increasing benefits or services to some WIC participants also raises regulatory and budgetary questions. WIC regulations currently limit the types and amounts of foods that can be provided to participants (7 CFR 246.10). State and local WIC agencies are prohibited from providing either additional types of food or additional amounts of foods to participants without a change in the regulations. Although WIC regulations do not prohibit local WIC agencies from providing additional *services* to participants, budget constraints would necessitate either reducing other services or cutting back services to other WIC recipients in order to do so. (See the section on “Effectiveness of WIC’s Nutrition Education Program,” p. 62, for an expanded discussion on the implications of enhancing nutrition education in WIC.)

Economic Factors Could Impact Future WIC Caseloads

WIC funding in recent years (up to FY 2008) has been sufficient to provide services to all eligible people seeking to participate, and participation levels continued to increase. The program is likely to face increased demand for program services in the upcoming years. If the current recession continues, the number of people eligible for the program may increase, resulting in more applicants and/or participants staying in the program longer (for example, more infants participating in WIC as children).⁶⁵ At the same time, costs per participant will also increase if several economic trends continue (such as, increasing infant formula costs and rising food prices) or if the revisions to the WIC food packages raise the total cost of packages (see the sections on “Potential Impacts of the Revised WIC Food Packages,” p. 44, “Food Prices and WIC,” p. 48, and “Infant Formula Costs,” p. 51, for more information). Increases in the number of applicants and in per person program costs will increase budgetary pressure on the program. Congressional appropriations will have to increase to serve all eligible applicants or the seven-point priority system may once again be needed to allocate program slots among applicants on waiting lists.

Federal Funding and State Incentives

As mentioned earlier, WIC is 100 percent federally funded (i.e., State matching funds are not required).⁶⁶ This differentiates WIC from the other large food assistance programs that require States to share at least some expenses. For example, States share approximately half of all administrative expenses in the Food Stamp Program (7 CFR 277.4), and the average cost of producing school meals exceeds Federal subsidies for the meals (Bartlett et al., 2008). Other major assistance programs, such as Medicaid and TANF, also receive substantial State and local funding, in addition to Federal funding (Isaacs, 2008). WIC’s unique status, in which States are not required to share the program’s expenses, may be a factor in the increasing number of WIC participants over time as well as the proliferation of WIC-only stores in the early 2000s.

⁶⁴ Some have referred to the provision of increased WIC benefits to families based on some measure of need as “WIC-Plus.”

⁶⁵ December 2007 marked the beginning of the current recession (National Bureau of Economic Research, 2008).

⁶⁶ Some States, however, use their own funds to supplement the Federal grant.

Moral Hazard and the Expansion in WIC Caseloads

As seen previously, participation in the WIC program has grown dramatically over time, fueled largely by funding increases from Congress and savings from cost-containment practices. In fact, except for a 3-year period from 1998 to 2000 (when participant numbers fell 1-2 percent each year), the number of WIC participants has grown each year since its establishment in 1974. Some believe that WIC's unique financial status, whereby the program is funded in full by the Federal Government but operated by State and local WIC agencies, has contributed to this almost continual expansion of participants. Since States bear little of the costs associated with more participants in their WIC programs, they have little incentive to curtail expanding WIC caseloads. Besharov and Call (2009) refer to the separation of determining WIC eligibility from paying WIC program costs as an example of a "moral hazard," whereby a party insulated from risk (or costs) may behave differently than if it were fully exposed to the risk (or costs). Since States and local WIC agencies bear little of the costs associated with expanding their WIC programs, they have little incentive to restrict WIC enrollment.⁶⁷

In contrast, only 46 of the 90 WIC State agencies participate in the WIC Farmers' Market Nutrition Program (FMNP), which requires State funding contributions.⁶⁸ Federal funds support 100 percent of FMNP food costs, but only 70 percent of the administrative costs (i.e., States operating the FMNP must contribute at least 30 percent of the total administrative cost of the program). WIC also differs from the Food Stamp Program, where States share approximately half of all administrative expenses, but Federal funding is also tied to performance (e.g., State agencies' federally funded share of Food Stamp Program administrative costs can increase if the State has payment error rates below specified levels (7 CFR 275.23)).

"Orphan Program" and WIC-Only Stores

The proliferation of WIC-only stores is another consequence of State's insulation from WIC program costs. WIC-only stores—vendors that derive all or nearly all of their annual food sales revenue from WIC food instruments—came about because entrepreneurs recognized the profit-making potential of targeting WIC participants (see the section on "2000 to the Present: Recent Developments," p. 20, for an expanded discussion on WIC-only stores). Since transaction of the WIC food instrument provides foods to the WIC participant without any payment from personal funds, WIC participants are not sensitive to a particular store's price for the item. As a result, WIC-only stores have little economic incentive to keep prices low.⁶⁹

WIC-only stores competed for WIC customers using nonprice factors, such as convenience and increased customer services. For example, many WIC-only stores were located in close proximity to WIC clinics and some provided free transportation to and from the store (Neuberger and Greenstein, 2004). A study by the U.S. Government Accountability Office (GAO) found that WIC-only vendors often gathered the food items listed on the food instrument for WIC participants from food maintained behind a counter, eliminating participants' need to search store aisles and shelves for the

⁶⁷ Besharov argues that WIC has expanded to serve less needy families. For example, in some States, Medicaid participants with income up to 300 percent of the Federal poverty guidelines are adjunctively income eligible for WIC.

⁶⁸ Based on information provided by FNS in October 2008.

⁶⁹ Federal regulations require that each State establish a maximum reimbursement amount that it will pay WIC-approved vendors for WIC food instruments. The maximum reimbursement amount was typically set high enough to cover the higher costs associated with small stores. Regular stores generally set their prices for WIC food items in a competitive fashion, usually considerably below the maximum allowed in order to attract non-WIC shoppers. Data suggest that food instruments from WIC-only stores tend to be closer to the maximum allowable reimbursement levels (Neuberger and Greenstein, 2004).

specified food type, brand, and size (U.S. Government Accountability Office, 2006b). Shopping at WIC-only vendors is also likely to reduce the stigma associated with using Government checks to purchase food in regular grocery stores. In the past, WIC-only vendors also gave away incentive items to attract customers, including strollers, diapers, gift certificates, and even cash (U.S. Government Accountability Office, 2006b).⁷⁰

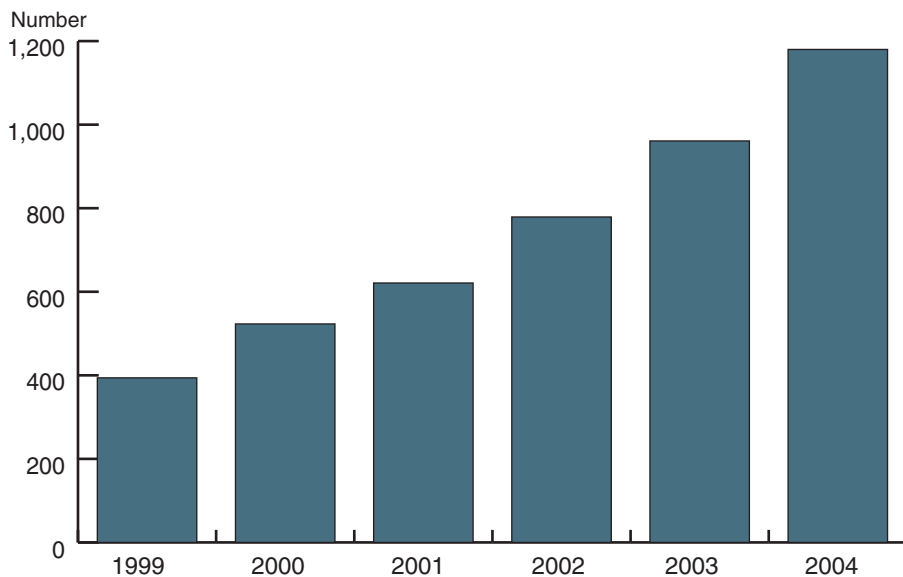
WIC-only stores proved to be popular with WIC participants and, beginning around 2000, the number of WIC-only stores increased rapidly (U.S. Government Accountability Office, 2006b). From 1999 to 2004, the number of WIC-only stores almost tripled (fig. 14). Although WIC-only stores accounted for only 2 percent of all WIC vendors in 2002, they accounted for 9 percent of all WIC redemptions that year (Neuberger and Greenstein, 2004). In California, the State with the largest number of WIC participants, WIC-only stores accounted for about 40 percent of WIC redemptions in FY 2004. WIC-only stores in California have been estimated to increase WIC food costs by about \$33 million per year (Neuberger and Greenstein, 2004).

WIC's status as an "orphan program" at the State legislative level may be one factor responsible for the rapid increase in WIC-only stores.⁷¹ Because States are not required to match Federal funds, State government officials have little financial stake—and therefore little interest—in WIC operations. As a result, State WIC administrators may have difficulty instituting vendor cost-containment measures through State law and regulations. Although WIC State agencies have considerable latitude in the design and operation of their vendor management practices, including the authorization of WIC vendors, California illustrates the difficulty that State WIC administrators may have instituting vendor cost-containment measures through State law and regulations (California WIC Association, 2005). In the early 2000s, the

⁷⁰ P.L. 108-265, enacted in 2004, largely eliminated the giveaway of incentive items at WIC-only stores.

⁷¹ The authors first heard of the term "orphan program" to describe WIC during a discussion in 2006 with Larry Sawyer, former Director of Government Relations at General Mills.

Figure 14
National total of WIC-only vendors, FY 1999-2004



Source: U.S. Government Accountability Office, 2006b.

California WIC agency attempted to enact State legislation that would have ensured that WIC-only stores in California would not be reimbursed for higher food prices than regular price-competitive stores. The owners of WIC-only stores responded by hiring lobbyists to fight the proposed legislation. With no State funds at stake, the California WIC agency had difficulty garnering the political support needed to overcome the lobbying effort, and the agency's attempt to enact State legislation was defeated (Neuberger and Greenstein, 2004).

When the WIC State agencies were unable to address the growth of WIC-only stores and increased food costs to WIC, the Federal Government intervened and enacted legislation to stop the growth of these stores (see box, "Federal Legislation Affects WIC-Only Stores," p. 40).⁷²

Tradeoffs and Preferences

Because States are not required to provide funds for WIC, they experience few negative consequences when the program expands. They do, however, face tradeoffs with regard to the authorization of WIC-only stores. In California, State interest in supporting WIC-only store owners—and thereby promoting small businesses—overrode concerns that higher cost WIC-only stores might reduce the number of low-income residents served by WIC.⁷³ Congress also faces tradeoffs when it comes to the WIC program. Because WIC is a discretionary program, it has to compete with other discretionary programs for congressional appropriations. The annual increases in congressional appropriations for WIC, which in recent years have allowed every eligible person who applies for WIC to participate, suggests that Congress has revealed its preference for expanding WIC.

Funding for Nutrition Services and Administration (NSA)

WIC State agencies receive Federal funding under two separate grants: (1) food grants, which cover the cost of the supplemental foods; and (2) Nutrition Services and Administration (NSA) grants, which cover not only the costs of administering the program (certifying participants, voucher issuance and redemptions, vendor management, and cost containment) but also the costs associated with providing key services (nutrition education, breastfeeding promotion and support, and preventative and coordination services, such as health care and immunization referrals).⁷⁴ Food and NSA grants are allocated to WIC State agencies through a formula based on caseload, inflation, and poverty indices.⁷⁵ In FY 2008, WIC grants to States totaled approximately \$6.2 billion, \$4.5 billion of which went to food and \$1.7 billion went to NSA (USDA, 2008b). In recent years, NSA funding has been the subject of considerable conflict.

NSA Funding Changes From Fixed Percentage to Per Participant Basis

Prior to 1989, NSA grants to WIC State agencies were allocated as a fixed percentage (20 percent) of the total WIC grants to States. Fixed-percentage allocations discouraged WIC State agencies from developing cost-

⁷² An association of WIC-only stores and three food companies filed suit in December 2005 to stop the Federal legislation, claiming that it would reduce the stores' WIC reimbursements to an unsustainable level (U.S. Government Accountability Office, 2006b). The case was dismissed in February 2006.

⁷³ The association of WIC-only stores that filed the lawsuit to stop implementation of the 2004 Federal regulations aimed at stopping the growth in the number of WIC-only stores characterized themselves as small businesses (U.S. Government Accountability Office, 2006b).

⁷⁴ According to FNS, "salary costs represent by far the most significant contributor to WIC NSA costs" (64 *Federal Register* 56670).

⁷⁵ WIC State agencies typically retain about a fourth of the funds for State-level operations and distribute the remaining funds to local WIC agencies (U.S. General Accounting Office, 2001b).

Federal Legislation Affects WIC-Only Stores

The Child Nutrition and WIC Reauthorization Act of 2004 (P.L. 108-265) includes several vendor cost-containment provisions in response to the rapid increase in the number of WIC-only stores. State agencies must establish peer groups to determine the competitive-price criteria and maximum allowable reimbursement levels applicable to each peer group. Vendors are assigned to peer groups based on characteristics such as geographic location, number of cash registers, WIC sales volume, and type of ownership (sole proprietorship, corporate, or partnership), and other criteria, indicating that all of the vendors in a peer group would be expected to have similar prices. State agencies must use the competitive-price criteria to evaluate the prices a vendor applicant charges for supplemental foods as compared with those charged by other vendor applicants and authorized vendors and must authorize vendors selected from those that offer competitive prices.

P.L. 108-265 mandated special requirements to contain the costs of “above-50-percent vendors” (i.e., vendors that derive more than 50 percent of their annual food sales revenue from WIC food instruments). State agencies must ensure that the prices of above-50-percent vendors do not inflate the competitive-price criteria and allowable reimbursement levels for the peer groups or result in higher total food costs if program participants transact their food instruments at above-50-percent vendors rather than at other vendors. The new law also prohibits the authorization of payments to above-50-percent vendors who provide incentive items or other free merchandise to program participants, unless the incentives are of nominal value or were obtained at no cost.

P.L. 108-447, which contained the FY 2005 appropriations for WIC, and P.L. 109-97, which contained the FY 2006 appropriations for WIC, prohibited the authorization of new above-50-percent vendors with the exception of stores needed to ensure participant access to program benefits. This prohibition was not continued in succeeding years because P.L. 108-265 required FNS certification of a State agency’s vendor cost-containment system as a condition for authorizing above-50-percent vendors; these certifications were completed by the end of FY 2006.

containment measures to reduce WIC food costs, since WIC State agencies that lowered their food costs and used the savings to serve more eligible individuals could not receive additional NSA funds to cover the additional participants. This resulted in a reduction in the per participant NSA grant. To correct for this disincentive to reduce food costs, the methodology used to distribute WIC funds between food and NSA was changed by P.L. 101-147 in 1989 to allocate NSA costs on a per participant basis. That is, per person NSA funding at the national level is held constant over time, except for an adjustment for inflation.⁷⁶ Under this system, WIC State agencies that serve more eligible individuals through cost-containment savings are not penalized with a decrease in their per participant NSA funds.

⁷⁶The amount allocated for NSA on a national level is based on the national average of NSA grant expenditures that were made per participant per month in 1987, adjusted for inflation.

***NSAs Increasing Share of Program Funding—
A Sign of Program Inefficiency or Efficiency?***

As intended by the 1989 legislation, per participant NSA grants have remained constant in inflation-adjustment terms—that is, they have increased by the full rate of inflation (58 percent between 1989 and 2006). In recent years, the administration has proposed capping the per participant NSA grant. The President’s proposed budget for FY 2006, which was rejected by Congress, requested that NSA be capped at 25 percent of total WIC grants to States. Subsequent budgets, which have also been rejected by Congress, also included proposals to cap NSA. In FY 2009, the President’s budget proposed capping the average per participant NSA grant at the FY 2007 level (\$14.97) for an estimated savings of \$145 million in FY 2009 (USDA, 2008e).⁷⁷ The rationale is that the cap would encourage WIC State agencies “to strive for administrative efficiency and allow for a greater proportion of appropriated funds to be used for food benefits,” which would enable the program to serve more participants (Johner, 2008).

⁷⁷ The average NSA grant per person in FY 2008 was \$15.71.

The National WIC Association opposes the cap, which they believe will erode benefits and services for participants and “irreparably damage effective State food and vendor cost containment measures” (National WIC Association, 2008). The Center on Budget and Policy Priorities (CBPP) argues that the increase in the NSA share of program funding simply reflects the success of the current system in reducing WIC food costs (Neuberger and Greenstein, 2006). Between 1989 and 2006, WIC per participant food costs increased by 25 percent—less than half the 53-percent increase in grocery store food costs as measured by the Consumer Price Index (CPI) for food at home. The smaller growth in per participant food grants (25 percent), relative to per participant NSA grants (58 percent), explains the increase in the NSA share of total WIC grants to States. Rather than indicating program inefficiencies, the CBPP argues that the increase in NSA share indicates program efficiencies in reducing food costs.

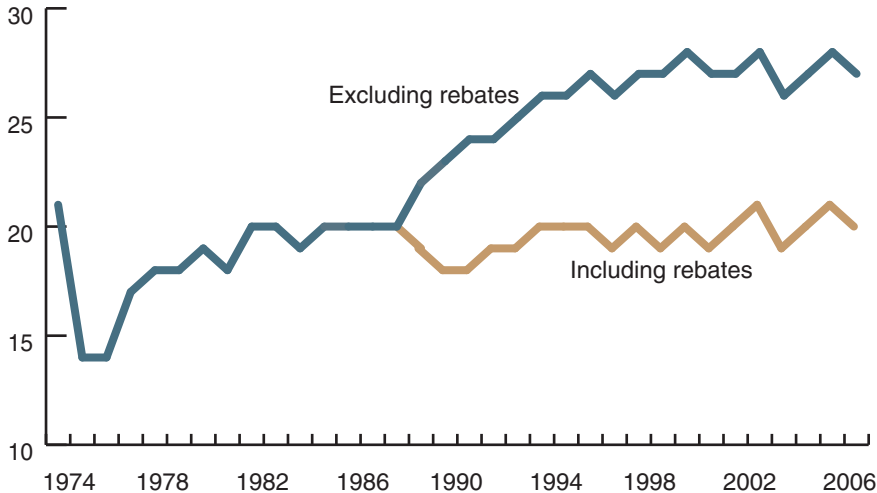
The view that increasing NSA share is not a sign of administrative inefficiencies, but a sign of the success and increased efficiency of WIC’s cost-containment measures, is supported by a GAO study. The study shows that, when total program costs are taken into account—when the infant formula rebate funds are added to Federal program costs—NSA costs remained constant at roughly 20 percent of total program costs between 1988 and 1999 (the most recent year for which data were available at the time of the GAO study) (U.S. General Accounting Office, 2001b). More recent data indicate that NSA costs as a percentage of total program costs plus rebates have continued at about 20 percent through FY 2007 (fig. 15). The CBPP points out that infant formula rebates have leveled off in recent years and the share of WIC funds allocated for NSA has plateaued, remaining fairly constant at about 27 percent excluding rebates (Neuberger and Greenstein, 2006).

The GAO study also describes a number of challenges that raise the cost to WIC of delivering nutrition services (U.S. General Accounting Office, 2001b). For example:

Figure 15

Percent of WIC expenditures for NSA, including and excluding infant formula rebates, FY 1974-2007

Percent of WIC expenditures for NSA



NSA=Nutrition Services and Administration.

Note: Update of chart in U.S. General Accounting Office, 2001b.

Source: Economic Research Service analysis of USDA, Food and Nutrition Service data.

- Since the late 1980s, WIC program staff have been required to perform additional administrative and service delivery tasks—such as cost-containment measures, breastfeeding promotion, screening and referring children for immunizations, and controlling program abuse—with no additional funding or reimbursement and little reduction in other activities.⁷⁸
- The rapid growth since 1991 in the percentage of Medicaid beneficiaries who are enrolled in managed care and welfare reform’s elimination of TANF, Food Stamp, and Medicaid benefits for many individuals have made it more difficult for WIC agencies to identify eligible individuals and coordinate services with the participants’ health care providers.⁷⁹ As a result, WIC staff spend more time collecting and reviewing documents to determine eligibility and in outreach and coordination efforts.
- The greater prevalence of obesity and related diseases (such as gestational diabetes and noninsulin dependent diabetes) has increased the complexity of nutrition education issues. It takes considerably more than WIC’s typical two short sessions to deliver effective, obesity-related counseling. It may also require greater skills and knowledge by the person providing the nutrition education. Yet, many agencies report a shortage of professional staff, partly as a result of noncompetitive salaries and/or benefits.
- The greater ethnic diversity of WIC’s participants increases the complexity of providing culturally relevant nutrition education, leading many agencies to develop materials in multiple languages. Many agencies also pay for interpreter services. All of these services raise the cost of delivering an effective program.
- Welfare reform’s emphasis on participant work has intensified the pressure on WIC agencies to offer WIC services outside of normal working

⁷⁸ Little is known about how much meeting these additional requirements costs the program. Costs have been estimated for only two of these requirements. USDA estimated that strengthening vendor monitoring would cost States and local agencies about \$7 million annually. The National Association of WIC Directors (the predecessor of the National WIC Association) estimated that increasing the emphasis on immunization education, documentation, and referrals could cost as much as \$37 million annually. Officials from the Centers for Disease Control and Prevention agreed with this cost estimate (U.S. General Accounting Office, 2001b).

⁷⁹ Many managed care organizations are not colocated with WIC clinics and lack knowledge of WIC services, thereby increasing the barriers to coordination (Bell et al., 2007).

hours. Improving access, which may involve offering evening or weekend hours, can result in higher costs to the WIC program.

- State budget cuts have resulted in reductions in State and local in-kind services, such as shared rent and utilities.

According to the GAO report, 56 percent of WIC State agency automated management information systems (MIS) were not capable of performing or efficiently performing one or more of 19 program automation tasks essential for efficient program operations. The cost of bringing WIC's essential program tasks up to standard over 6 years was estimated by USDA at between \$147 million and \$267 million (U.S. General Accounting Office, 2001b).⁸⁰ Since States must meet their MIS needs almost entirely from their Federal NSA grants, GAO's finding suggests that NSA funding is not just insufficient, but may lead to both administrative and outcome inefficiencies.^{81, 82} For example, no data are collected on health referrals, which makes it difficult to determine referral effectiveness or its role in participants' health outcomes.

CBPP argues that placing a cap on NSA funds is synonymous with ignoring the lessons policymakers learned in the 1980s, undermining what may be the most effective cost-containment practices instituted by any Federal health-related program. Because of the likely deleterious effects on WIC cost containment, an NSA cap could cost the Federal Government significant sums over time (Neuberger and Greenstein, 2006). A cap on NSA could also increase administrative inefficiencies by hampering WIC State agencies' efforts to update their MIS and further delay efforts to convert from paper food instruments to an EBT system.⁸³ Lack of funds could also force WIC State agencies to cut costs and make changes in service delivery, with potentially negative impact on the quality of WIC services and participant outcomes.

NSA Cap Could Impact Implementation of the Revised Food Packages

A cap on NSA in FY 2009 may hinder WIC State agencies' efforts to implement the revised food packages (for additional details on the revised WIC food packages, see the section on "Potential Impacts of the Revised WIC Food Packages," p. 44). The changes reflect the most significant revisions to the WIC food packages since the program's inception and require that all WIC State agencies begin implementing the revised food packages by October 1, 2009. In order to be ready to implement the interim final rule, WIC State agencies must undertake a number of complex and time-consuming activities that will likely increase NSA-related costs, including:

- For the new foods, identify specific brands of foods that meet federally mandated nutritional profiles and are widely available within the State.
- For brands that do not meet federally mandated nutritional profiles or are not widely available within the State, meet with manufacturers regarding their interest and ability to bring their products into compliance.

⁸⁰ For example, MIS should be able to automatically assess whether an applicant's income exceeds the maximum income level for eligibility based on data entered into the system (U.S. General Accounting Office, 2001b).

⁸¹ For example, a GAO site visit found staff counting the number of participants manually to generate the monthly participation report required by the State because the agency's MIS was not capable of automatically preparing the report (U.S. General Accounting Office, 2001b).

⁸² Other sources of funding—such as special grants or set-asides—have also become more difficult to access. For example, although the 2005 WIC reauthorization legislation established a \$30 million annual set-aside for MIS, in FY 2006, the appropriations legislation overrode the reauthorization set-aside and provided \$20 million for MIS if contingency funds are not needed to serve eligible applicants (Neuberger and Greenstein, 2006). Unfortunately, the contingency funds have been needed, and, as a result, the funds have been unavailable for MIS.

⁸³ As of March 2008, only two EBT systems have been implemented statewide (Wyoming and New Mexico) (<http://www.fns.usda.gov/wic/EBT/wicebtstatus.htm>). Burger (2008) estimated that the costs of not converting to EBT are quite high. For example, cost studies for EBT pilot studies in Michigan and New Mexico suggest that the paper systems cost \$0.05 more per participant per month than EBT. He estimated that it would take less than 8 years to recoup the costs of implementing WIC EBT nationally.

- Conduct price surveys on all brands and package sizes of eligible foods that meet federally mandated nutritional profiles and are widely available within the State, deciding which specific foods, brands, and package sizes, to include on the State food list.
- Modify the State’s MIS (older systems may require extensive upgrades) and incorporate the ability to track the new cash voucher for fruits and vegetables.
- Program hardware to print the new cash vouchers for fruits and vegetables.
- Meet with authorized retailers to ensure that all allowable foods are available at the time of implementation.
- Provide both WIC program staff and authorized retailers with timely training on the revised food package foods.
- Identify what additional nutrition education and breastfeeding promotion and support efforts will be needed to support the food package changes.

No State-Matching Requirements for NSA

Because WIC has no State-matching requirement, WIC State agencies rely almost entirely on Federal grants to cover NSA costs. Although some State governments voluntarily provide their WIC State agency with additional NSA funds, both the number of States providing additional funds and the amount they contribute have been declining. For example, in FY 1992, 18 States appropriated \$91 million for WIC, while in 2001, 13 States made only \$45 million available (U.S. General Accounting Office, 2001b). Similarly, both monetary and in-kind contributions (such as office space) by local governments and nonprofit organizations have declined, increasing WIC State and local agencies’ dependence on Federal funding to cover NSA costs (U.S. General Accounting Office, 2001b).

Higher per participant NSA amounts may enhance WIC services and administrative efficiencies, helping the program meet its responsibility as an adjunct to health care and improving program outcomes. There are no guarantees, however, that additional resources would be spent efficiently or improve outcomes. Higher NSA amounts (for a given appropriation) reduce resources available for food benefits. It is also difficult to justify additional NSA funds when there is no information about how much it costs to provide essential services and/or the cost-effectiveness of nutrition services (for more information on program effectiveness, see the section on “Effectiveness of WIC’s Nutrition Education Program,” p. 62).

Potential Impacts of the Revised WIC Food Packages

On December 6, 2007, USDA published an Interim Final Rule revising the WIC food packages (72 *Federal Register* 68965-69032).⁸⁴ These rule changes represent the most significant revisions to the WIC program since its inception in the early 1970s (see box, “Summary of Major Revisions to the WIC Food Packages,” p. 45).

⁸⁴ An interim final rule allows FNS to obtain feedback on the major changes while allowing implementation to move forward. The interim final rule comment period ends on February 1, 2010. USDA will issue a final rule after review and analysis of public comments.

Summary of Major Revisions to the WIC Food Packages

- Addition of fruits and vegetables (as commercial baby foods for older infants and as cash-value vouchers for children and women).
- More whole-grain foods—at least half of the cereals in a State’s list of approved WIC foods must be whole grain. New whole-grain products are allowed, including breads, brown rice, tortillas, and bulgur.
- Addition of baby food meats for fully breastfed older infants.
- Greater variety, such as soy beverages and tofu as substitutes for milk for women.
- Less milk, cheese, eggs, and juice. New constraints on choices include a reduced amount of cheese that may be substituted for fluid milk; no whole milk except for 1-year-old children or with medical documentation for other participant categories; no juice for infants.
- Delayed provision of complementary infant foods from 4 to 6 months (only infant formula will be provided until the infant is 6 months old).
- Less infant formula for partially breastfed infants and for older infants (6-11 months) and more infant formula for fully formula fed infants ages 4-5 months (to compensate for the elimination of complementary infant foods for this age group).

See table 3 for more information on the specific changes to the WIC food packages.

The WIC food package revisions were designed to bring about positive changes in participants’ behaviors and outcomes, while minimizing vendor burden and maintaining cost neutrality. There are a number of issues, however, that might influence whether the revised food packages achieve their desired objectives. There are also some questions regarding potential impacts of the revised food packages on food manufacturers and on non-WIC consumers.

Potential Impact on Program Participants

Participation Effects—The food package revisions may increase food package desirability, thereby attracting new families to the program. Many people eligible for WIC do not participate in the program. For example, in 2003, only about 45 percent of all eligible children participated in WIC compared with 83 percent of all eligible infants (see fig. 13). By offering a greater variety of foods to choose from—including the addition of fruits and vegetables—the revised food packages are more likely to accommodate individual and culturally based preferences, providing more incentives for families to apply for WIC. An increase in applications could lead to an increase in participation, assuming that program funds are sufficient to enroll new applicants.⁸⁵

⁸⁵ Some of the changes to the food packages also have the potential to reduce participant satisfaction. For example, some participants may become dissatisfied with the reduced amounts of some WIC foods (such as milk, eggs, and juice), the reduced amount of cheese that can be substituted for fluid milk, the elimination of whole milk from the food packages for women and children age 2 and older (unless participants with qualifying conditions provide medical documentation requesting otherwise), and some of the changes in the infants’ food packages.

Consumption Effects—Compared with the old food packages, the revised packages are estimated to provide greater amounts of nearly all the nutrients identified by the IOM as lacking in the diets of the WIC-eligible population, such as iron, fiber, and vitamin E (Institute of Medicine, 2005). The revised food packages for women and children also provide less saturated fat, cholesterol, total fat, and sodium than the old packages. One of the most significant changes is the addition of fruits and vegetables to most food packages.⁸⁶ Data from fruit and vegetable voucher demonstration projects in California and New York indicate that the vouchers increased WIC participants' *purchases* of fruits and vegetables (Herman et al., 2006; Klein, 2008).⁸⁷ The demonstration project in California also shows an increase in *consumption* of fruits and vegetables (Herman et al., 2008).

The impact of the revised food packages on fruit and vegetable consumption is likely to vary depending on how WIC State agencies choose to operationalize the revised food packages. For example, WIC State agencies have the flexibility to determine what combination of canned, frozen, and fresh forms of fruits and vegetables they will allow; whether to allow participants to redeem their vouchers at farmers' markets; what denomination to use for each voucher; the types of nutrition education provided to participants; and the minimum stocking requirements for authorized stores.⁸⁸

The addition of new substitutes for milk—such as calcium-set tofu and calcium-fortified soy beverages—in the packages for women may increase their calcium intake. Similarly, the addition of whole-wheat bread and other whole-grain products is anticipated to increase consumption of whole grains and fiber. The impact of these changes will depend on the uptake of new foods by participants and, to a large extent, on the availability of some of the new foods.

On the other hand, the reduced amounts of milk, eggs, and juice and the elimination of whole milk from the food packages for women and children age 2 and older could reduce consumption of those foods and potentially increase negative consumption substitutions. For example, some participants may replace some of the “shortfall” in WIC juice with fruit drinks or other sweetened beverages. Participants who do not adapt to the taste of lower fat milks may choose to drink less milk.

Health Outcomes—The addition of fruits and vegetables and the emphasis on whole grains are consistent with the *Dietary Guidelines'* recommendations for food patterns that may contribute to a healthy weight, potentially improving the proportion of WIC participants with healthy weight (U.S. Department of Health and Human Services and U.S. Department of Agriculture, 2005). In addition, the revised food packages were designed to encourage breastfeeding, which may also contribute to a reduced risk of overweight in children. (For more information on the impact on obesity and breastfeeding, see the sections on “WIC and Childhood Obesity,” p. 64, and “WIC and Breastfeeding Rates,” p. 66.)

⁸⁶ Fruits and vegetables were not added to the food package for infants younger than 6 months.

⁸⁷ Note that increased store sales of fresh fruits and vegetables may not necessarily translate to increased total consumption of fruits and vegetables by WIC participants. For example, households may substitute fresh fruits and vegetables for processed fruits and vegetables, and/or other household members may increase their consumption of fruits and vegetables but the WIC participant may not.

⁸⁸ WIC State agencies must authorize *fresh* fruits and vegetables in their food packages; canned and frozen fruits and vegetables are options.

Potential Impact on WIC Vendors and Farmers

Implementation of the revised WIC food packages will impact WIC-authorized vendors in a variety of ways. Vendors will be required to stock at least two varieties of fruits, two varieties of vegetables, and one whole-grain cereal.⁸⁹ Thus, some small vendors may have to expand their current stock of foods. Vendors will also have to reprogram their store computers to accept WIC transactions using the standard food instrument as well as the new cash-value voucher for fruits and vegetables.

Vendors will need to provide employee training on the new requirements and may also consider whether they need to provide additional assistance to WIC shoppers (i.e., determining the cost of unpackaged produce selections or identifying the specific types of foods eligible for the program, like whole-grain breads and tortillas). The additional requirements and responsibilities associated with the revised food packages could lead some vendors—small vendors, in particular—to decide not to participate in the program. On the other hand, a pilot demonstration project in New York State showed that providing WIC participants with cash vouchers for fruits and vegetables increased store sales, not just for fruits and vegetables but overall, with little vendor burden other than staff training (Klein, 2008). The pilot significantly increased store sales, even though stores did not have to increase payroll or bring in a new product line and required virtually no operational changes. By the end of the pilot program, participating stores averaged 12-14 voucher transactions per day, with fresh fruits and vegetables (averaging 40 percent gross margin) accounting for 71 percent of sales. Canned fruits and vegetables accounted for 19 percent of sales, and frozen products accounted for the remaining 10 percent. For those stores that were tracked, the produce department averaged a 4.7-percent increase in sales. Furthermore, after the pilot ended, produce sales remained higher than before the pilot began.⁹⁰

The new fruit and vegetable cash-value vouchers could also lead to increased sales opportunities for some fruit and vegetable farmers if their WIC State agency chooses to allow participants to redeem vouchers at farmers' markets.

Potential Impact on Food Manufacturers

The interim final rule expanded the list of foods allowed by the WIC program to increase the cultural acceptability of the food packages and the variety of foods from which participants could choose. The inclusion of these foods (including fruits and vegetables, soy-based beverages, tofu, whole-grain products, and baby foods) in the WIC food packages may result in increased sales of these products. Conversely, the revised food packages reduce the amounts of some food allowances, particularly milk, eggs, and juice, that could result in a decrease in their sales.

Several of the new foods must meet strict nutritional standards and size requirements that may not be commonly available. For example, the revised food packages established a maximum allowance of 2 pounds of whole-wheat bread or other whole-grain options for children in Food Packages III and IV and 1 pound of whole-wheat bread or other whole-grain options for women in Food Packages III, V, and VII. Bread, however, is not typically

⁸⁹ WIC State agencies have the option to increase these requirements and to specify whether vendor fruit and vegetable stocking requirements must include fresh forms. WIC State agencies also have the option to establish different minimum requirements for different vendor peer groups, thereby taking into account the difficulty that some small vendors may have in stocking a wide variety of fruits and vegetables, particularly in fresh form. Larger vendors may be required to stock a wider variety of WIC foods.

⁹⁰ Most of the initial difficulties were easily addressed. For example, lack of participant familiarity with a produce scale was solved by laminating simple instructions in both English and Spanish near the scales. The biggest issue was explaining to WIC participants that a red-skinned potato was still a "white potato" and was therefore not eligible for the voucher (Klein, 2008).

sold in either 1- or 2-pound loaves (typical sizes are 18 or 24 ounces).⁹¹ Similarly, none of the soy beverages currently available in markets meet the required nutritional standards. WIC requirements have influenced manufacturers' behavior in the past, and manufacturers may be willing to redesign their processing lines to produce the WIC-specified size of container or reformulate their products to meet WIC requirements.⁹² Such changes are more likely to occur if they are fairly simple and inexpensive, the reformulation does not adversely affect the taste or appearance of the product, and/or the increased demand from the WIC market justifies the cost.⁹³

Potential Impact on Non-WIC Consumers

Increased demand for the new foods from the WIC program may increase food prices, affecting non-WIC consumers.⁹⁴ This increased demand may be particularly relevant for baby food fruits and vegetables because nearly half of all infants in the United States participate in the WIC program and the number of baby food manufacturers is limited. It may also be relevant if some of the new foods have to be reformulated to meet the program's requirements and have few manufacturers—such as whole-wheat breads sold in 1- and 2-pound packages and soy beverages. WIC's definition of a particular package size may increase opportunities for stores and manufacturers to price discriminate between WIC and non-WIC customers.

State-Level Food Costs

The food package revisions were required to be cost-neutral at the national level so the program could continue to serve the same number of eligible applicants. Thus, in order for a new food to be added to the package, something had to be deleted or reduced. Cost-neutrality estimates were based on assumptions about the take-up rates of the various foods among WIC participants. For example, the interim final rule assumed that about 3 percent of WIC women would choose tofu and that fruit and vegetable vouchers would be redeemed at a rate of 87.5 percent.⁹⁵ States that experience a higher-than-estimated demand for the higher cost food alternative (i.e., a take-up rate greater than 3 percent for tofu) are likely to see an increase in food costs. Some WIC State agencies may implement or increase cost-containment practices to offset anticipated price increases. Since WIC State agencies retain the right to exclude particular products from their food packages, some WIC State agencies may choose not to include some of the higher cost alternatives.

Food Prices and WIC

Because food accounts for almost three-quarters of total WIC costs, changes in food prices have important implications for program funding and the number of participants who can be served. Variation in food prices across geographic areas also raises issues of equity.

Rising Food Prices

Overall, prices of food at home rose 6.4 percent in 2008 compared with an average 2.4 percent per year for the previous 10 years (fig. 16). The increase

⁹¹ In the interim final rule, FNS asked the food industry to notify them of whole-wheat and whole-grain products that meet the new WIC food requirements.

⁹² The clearest example of how WIC nutritional standards have influenced manufacturers' behavior in the past focuses on WIC's requirement that adult cereals be iron fortified and contain no more than 6 grams of sugar per ounce. Manufacturers responded by reformulating some of their cereals. Many of the cereals currently available to U.S. consumers meet these requirements, including popular brands, such as Cheerios, Corn Flakes, Kix, Life, Honey Bunches of Oats, Grape Nuts, Special K, Total, Wheaties, and Cream of Wheat.

⁹³ Several manufacturers informed FNS that they are making new WIC foods available to meet the requirements of the interim final rule (based on communication with FNS on October 3, 2008).

⁹⁴ WIC has previously been shown to increase the price of food to non-WIC consumers. An ERS study by Oliveira et al. (2004) determined that WIC and its infant formula rebate program resulted in modest increases in the supermarket prices of infant formula, especially in States with a high percentage of WIC formula-fed infants. Infant formula, however, is unique among WIC-authorized foods since WIC accounts for over half of all infant formula sold in this country. WIC is not expected to account for nearly as much of the market share for the new foods included in the revised food packages.

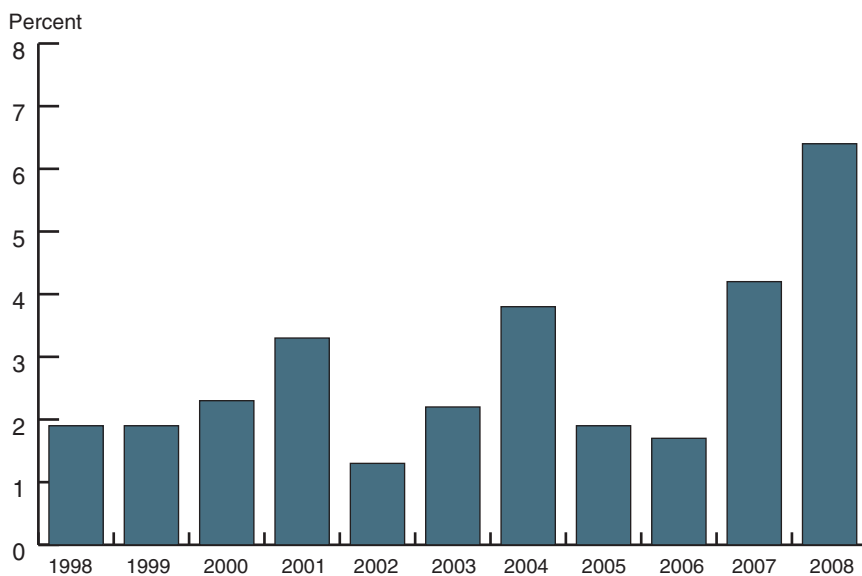
⁹⁵ The take-up rate of tofu is based on market consumption data, indicating that about 3 percent of all U.S. households with WIC-eligible incomes purchased tofu (72 *Federal Register* 68965-69032), and the fruit and vegetable redemption rate is based on a 2004 evaluation of a WIC fruit and vegetable intervention in Los Angeles (Herman, 2004).

in 2008 prices represents the largest single-year increase since 1990. Rising commodity prices, led by corn, is one of the main factors impacting retail food-price inflation (Leibtag, 2008).

The percentage increase in food prices varies by food item. In 2008, the price of some items in the WIC food packages, such as eggs (up 14.0 percent), cereals and bakery products (up 10.2 percent), and dairy products (up 8.0 percent), increased by more than the average for all items (table 7).

Higher food prices can strain the WIC State agencies' ability to serve all eligible program applicants. As a discretionary grant program, the number of participants that can be served each year depends upon annual appropriations from Congress and the cost of operating the program. WIC regulations require that the authorized maximum monthly allowances of all WIC foods be made available to participants if medically and nutritionally warranted (7 CFR 246.10). As a result, WIC State agencies are prohibited from reducing the amounts of food offered to participants in order to reduce food costs. However, WIC State agencies can implement cost-containment practices to stretch their food dollars. In addition to negotiating rebate contracts with manufacturers of infant formula, other cost-containment practices used by some WIC State agencies include limiting authorized vendors to outlets with lower food prices; limiting approved brands, package sizes, forms, or prices (e.g., requiring purchase of least-cost items or requiring the purchase of store brands or private labels); and negotiating rebates with food manufacturers or suppliers (e.g., rebate contracts with manufacturers of infant cereal) (Kirlin, et al., 2003). Absent the implementation of further cost-containment practices by WIC State agencies, an increase in food prices will lead to higher WIC food costs and

Figure 16
Change in prices for food at home, 1998-2008



Source: Economic Research Service calculations using Bureau of Labor Statistics' Consumer Price Index data for food at home.

Table 7

Change in food prices for selected items, 2008

Food	Annual change
	<i>Percent</i>
All food	5.5
Food at home	6.4
Dairy products	8.0
Eggs	14.0
Cereals and bakery products	10.2
Fruits and vegetables	6.2
Fresh	5.2
Processed	9.5

Source: USDA, 2009.

fewer people will be able to participate in the program without increased congressional appropriations.

Unlike the regular quantity-based WIC food vouchers that entitle participants to a specific amount of WIC-approved food, the new fruit and vegetable vouchers provided in the recent WIC food package revisions have a fixed monthly cash value (\$6 for children, \$10 for fully breastfeeding women, and \$8 for all other women). Thus, it might appear that these vouchers would be immune (from a cost perspective to WIC) from price increases for fruits and vegetables. These vouchers, however, are adjusted annually for inflation, so participants do not lose value (in terms of the amount of food they can purchase) if food prices increase.⁹⁶ Therefore, an increase in fruit and vegetable prices will result in an increase in the cost of the fruit and vegetable vouchers, further stressing WIC State agency resources.

Geographic Variation in Food Prices

Another issue relates to the geographic variation in food prices. To measure differences in prices across States, an ERS study simulated the average food costs for specific quantities of nine WIC-authorized foods in 17 States, using supermarket scanner data on food prices from 1997 to 1999 (Davis and Leibtag, 2005). Average monthly food costs per participant varied markedly across States, ranging from a low of \$29 in Texas to a high of \$37 in Tennessee. Variation in food costs across States may result from differences in cost-containment practices, differences in food prices, as well as differences in the proportion of participants receiving food packages (i.e., WIC caseload composition). Since each category of WIC enrollees (women, infants, or children) qualifies for food packages that differ in cost, variation in overall average food costs can arise as the mix of enrollees (composition of participants) differs across States. The study also found that variation in food prices across the Nation for the same food group plays an important role in the differing costs of WIC food packages from State to State. Simulated average monthly food costs suggest that States with higher-than-average WIC costs usually have higher-than-average food prices. Similarly, States with lower-than-average WIC costs generally have lower-than-average food prices. The study also found that interstate variation in WIC participant

⁹⁶ The maximum value of the vouchers is adjusted annually in whole-dollar increments using the Consumer Price Index (CPI) for fresh fruits and vegetables (7 CFR 246.16). That is, the maximum value of the vouchers will not change until the cumulative increase in the CPI is sufficient to raise the voucher's value by a dollar.

caseload composition also contributes to variations in average monthly food costs across States, although to a lesser degree than the interstate variation in food prices. In addition, cost-containment practices by WIC State agencies provide different levels of cost savings in different States.

These results raise questions about program equity across States. Prior to the 2007 revisions to the WIC food packages, a WIC participant in one State could receive the same amount of food as a participant in either a different part of the State or in a different State altogether. The recent revisions included the introduction of cash-value vouchers for fruits and vegetables for children and women.⁹⁷ Because of price differences both *across and within States*, participants in States with relatively high fruit and vegetable prices will not be able to purchase as much as participants in other States or their fruit and vegetable choices may be limited to lower priced products.

Infant Formula Costs

WIC's most effective cost-containment measure is the use of infant formula rebates. Over half of all infant formula sold in the United States is purchased through the WIC program. Without the rebates, which totaled \$1.8 billion in FY 2007, infant formula would be the single most expensive food item provided by WIC (fig. 17). For example, without the rebates offered in FY 2005, infant formula would have cost the program \$2.3 billion, or 44 percent of all food costs, compared with the actual \$0.6 billion, or 17 percent of all food costs after rebates (USDA, 2007b).⁹⁸ The dramatic expansion of the WIC program since the late 1980s is partly due to the savings generated from infant formula rebates. Since 1997, about a quarter of all WIC participants have been supported by infant formula rebates (fig. 18). In recent years, however, some WIC State agencies have reported a marked increase in their per can cost of formula. Because of the large volume of infant formula purchased through WIC, even small increases in the per can cost of infant formula to WIC could have far-reaching negative implications for the program.

Infant Formula Rebate Program

Since 1989, Federal law has required that WIC State agencies enter into cost-containment contracts for the purchase of infant formula.⁹⁹ Typically, WIC State agencies obtain substantial discounts in the form of rebates from infant formula manufacturers for each can purchased. In exchange, the manufacturer is given the exclusive right to provide its product to WIC participants in the State. These sole-source contracts are awarded on the basis of competitive bids: The firm offering the lowest *net wholesale price* (equal to the manufacturer's wholesale price minus the rebate) wins the WIC contract. The contract-winning manufacturer is billed by the WIC State agencies for rebates on all infant formula purchased by WIC participants with vouchers at authorized retail outlets. The brand of formula provided by WIC will vary by State depending on which manufacturer holds the contract for that State.¹⁰⁰ Currently, three infant formula manufacturers—Mead Johnson, Abbott, and Nestle—hold rebate contracts in various States. The rebate program has successfully reduced the cost of formula to WIC. The percentage discount rebates (i.e., the amount of the rebate expressed as

⁹⁷ Although the fruit and vegetable vouchers may be adjusted annually for inflation, the adjustment would be made at the national, and not the State, level (7 CFR 246.16).

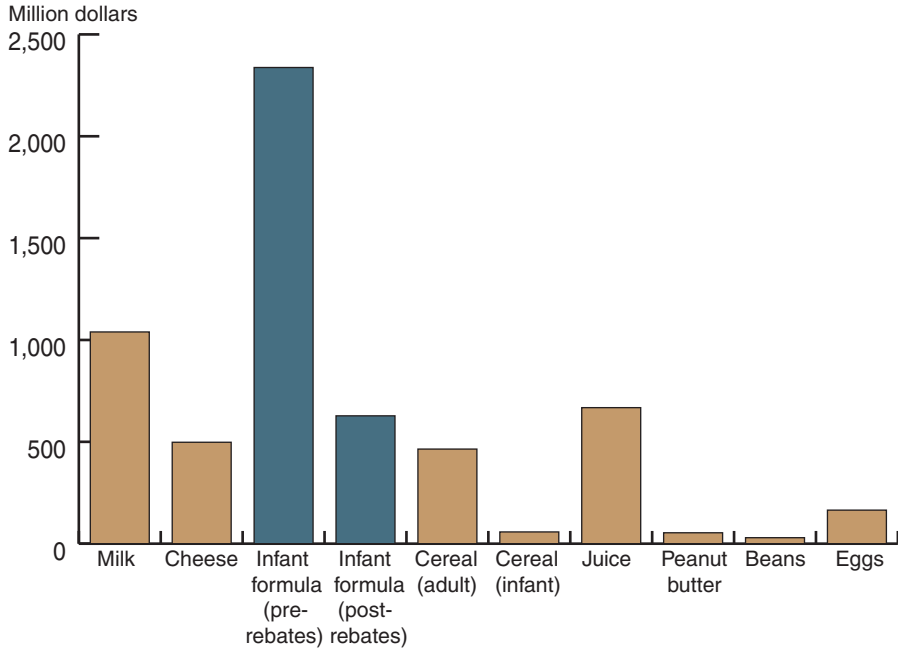
⁹⁸ Pre-rebate costs reflect the estimated retail cost of infant formula at the time of the purchase, while post-rebate costs reflect actual reported costs and take into account savings from infant formula rebates (USDA, 2007b).

⁹⁹ While the use of infant formula rebates has lowered program costs and enabled more people to participate in WIC, not everyone encourages the practice. For example, Burstein (2001) argued that "it is hard to defend the government's using its monopsony power to extract an involuntary program subsidy from an industry."

¹⁰⁰ States can either hold an individual contract for infant formula or be part of a multistate group contract or alliance whereby WIC State agencies join in a single rebate agreement to obtain infant formula. In this way, WIC State agencies with fewer clients can pool their buying power to leverage higher rebates. In 2004, however, Congress limited the use of this cost-saving practice. P.L. 108-265 prohibits the formation of multistate alliances for the purchase of infant formula if the total number of infants served by the States exceeds 100,000 (except alliances that had 100,000 infants as of October 2003). Any alliance in existence as of October 2003 may expand to serve more than 100,000 infants, but may not expand to include any additional WIC State agencies (an exception is made if the WIC State agency to be added served fewer than 5,000 infants as of October 2003). The belief is that this regulation—which grew out of concern that not all infant formula manufacturers would be able to compete for the larger multistate contracts due to production capacity—will help maintain competition among the infant formula manufacturers by helping to ensure that all manufacturers can compete for the rebate contracts (73 *Federal Register* 11308).

Figure 17

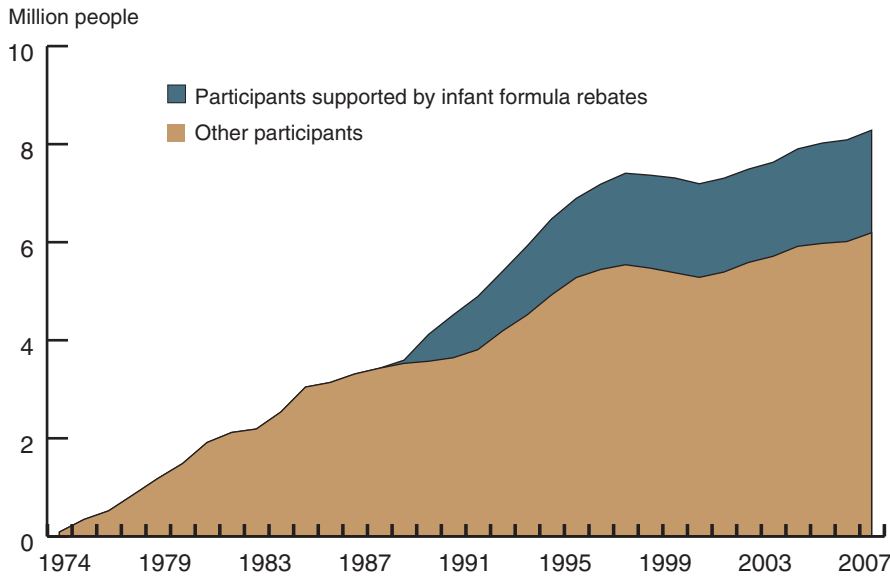
WIC food costs, by food item, FY 2005



Source: USDA, 2007b.

Figure 18

Average number of WIC participants, FY 1974-2007



Note: The number of WIC participants supported by infant formula rebates was calculated by multiplying the total number of WIC participants by rebates' share of total program expenditures and rebates.

Source: Economic Research Service calculations based on Food and Nutrition Service data.

a percentage of the manufacturer's wholesale price) for contracts awarded from 1999 to 2008 averaged 86 percent. In other words, the infant formula purchased through WIC, on average, cost the program only 14 percent of its wholesale price (plus the amount of the retail markup) (Oliveira and Davis, 2006).¹⁰¹ Both supply-side and demand-side characteristics of the infant formula market may explain why WIC State agencies receive such large rebates from infant formula manufacturers. On the supply side, the formula market is highly concentrated—a factor often associated with higher profit margins. This could give manufacturers the cushion to offer high rebates. On the demand side, WIC participants purchase over half of all infant formula, ensuring large sales for the contract-winning manufacturer. In addition, manufacturers may realize spillover benefits from their WIC contract: Retailers may devote more shelf space to the WIC contract brand, and hospitals and/or physicians may be more likely to recommend the WIC-contract brand to their patients, spurring sales to non-WIC consumers.

WIC Infant Formula Has Two Cost Components

Net wholesale price—which is determined by infant formula manufacturers—is only part of the cost that WIC pays for infant formula.¹⁰² Because most WIC participants purchase their WIC foods via the retail food delivery system (i.e., participants purchase WIC foods at full retail price from grocery and other food stores using their WIC vouchers or coupons), WIC also pays for the *retail markup* of the formula.¹⁰³ Retail markup is equal to the retail price minus the wholesale price and is determined by retailers (fig. 19).¹⁰⁴

Retailers play an important role in determining the cost of infant formula to WIC, as they—not the infant formula manufacturers—set the retail price. Although wholesale prices are a major determinant of retail prices, retailers consider additional factors: the cost of transporting the formula from the warehouse to the store, shelf space, overhead, product movement, profit, and other local supply and demand factors.¹⁰⁵ An earlier analysis of retail infant formula prices found that formula identified as the WIC-designated brand increased the retail price of formula, especially in areas with a high percentage of WIC infants (Oliveira et al., 2004). This finding is consistent with economic theory. Winning the WIC contract increases the demand for the contract brand of formula among WIC participants, resulting in an increase in its retail price (WIC recipients do not pay for their WIC formula out of their own pocket, so they are price insensitive). Demand for the contract brand of formula may also increase among non-WIC consumers to the degree that winning the WIC contract results in increased store shelf space and greater product visibility.

Increasing WIC Infant Formula Costs

Results from a recent ERS study that examined trends in WIC infant formula costs from 1998 to 2006 indicate that after adjusting for inflation, both of the cost components to WIC—net wholesale price and retail markup—have increased in recent years (Oliveira and Davis, 2006).

In most States, the retail markup, and not the net wholesale price, is now

¹⁰¹ Rebate contracts contain inflationary provisions. In the event of an increase in the wholesale price after the date of the bid opening, there is a cent-for-cent increase in the rebate amounts so the net price remains the same.

¹⁰² Infant formula manufacturers sell their product at the wholesale price to retailers who are reimbursed by WIC for the formula purchased via WIC vouchers and coupons. The manufacturers then give a portion of the wholesale price to WIC in the form of rebates. As a result, the net wholesale price can be thought of as what WIC ultimately pays manufacturers for the formula.

¹⁰³ All States, except Mississippi and Vermont (along with parts of Chicago, IL), use the retail food delivery system to provide infant formula to WIC infants.

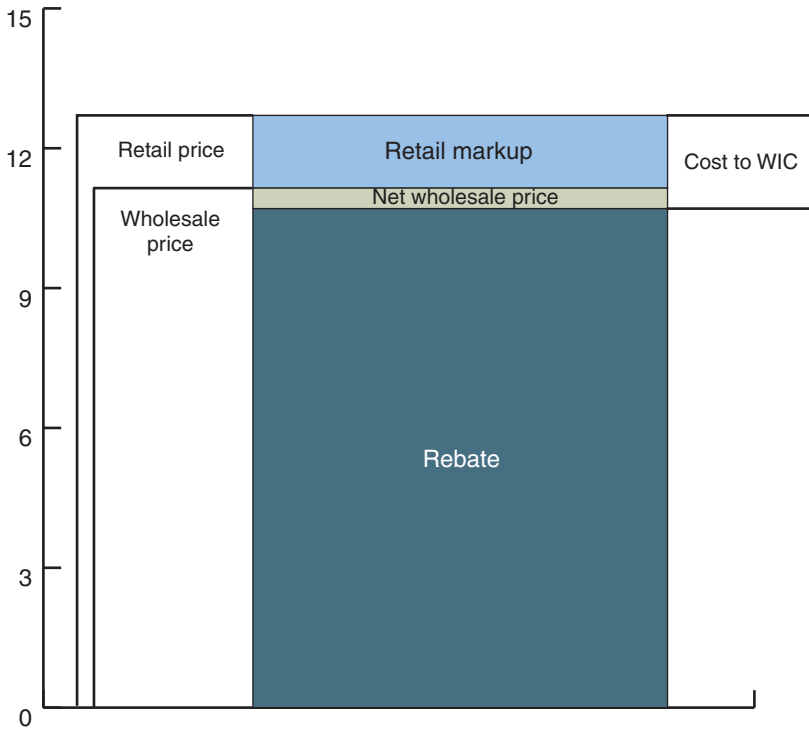
¹⁰⁴ Although retailers are reimbursed by WIC for the full retail price of infant formula, they purchase the infant formula from infant formula manufacturers at the wholesale price. Retailers add a retail markup to the wholesale price and sell the formula to consumers, including WIC. So, the retail markup can be thought of as what WIC ultimately pays retailers for the formula purchased through the program.

¹⁰⁵ Retail markup can vary widely depending on a store's pricing strategy. For example, at one extreme, some retailers may use infant formula as a loss leader, whereby they price the product below cost to attract people into their store to purchase other items at full markup.

Figure 19

Cost components for can of infant formula

Dollars per can



Note: Example based on a 12.9-oz can of Ross Similac with iron (milk-based powder) in the California WIC program during the second quarter of 2004.

Source: Oliveira and Davis, 2006.

the largest component of infant formula costs to WIC (because of the effectiveness of the rebate program, net wholesale prices are low relative to retail markups). All WIC State agencies now offer the DHA- and ARA-supplemented formulas (see box, “DHA/ARA-Supplemented Formulas,” p. 55) to their participants, and the percentage retail markup for these formulas exceeds that of the unsupplemented formulas (Oliveira and Davis, 2006). This markup difference is likely because purchasers of the more expensive supplemented formula may be less price sensitive than purchasers of unsupplemented formula.

Real net wholesale prices have been increasing since 2003 (fig. 20). Some of this increase can be attributed to the introduction of DHA- and ARA-supplemented formulas that have higher wholesale prices relative to unsupplemented formulas. So, if the amount of the rebate is held constant, the net wholesale price will be higher. Furthermore, the percentage discount rebates have trended downward. That is, manufacturers are offering lower rebates as a percentage of their wholesale price. The U.S. Government Accountability Office (2006a) estimated that if the average rebate that States received per can in 2004 had fallen from 93 percent of the wholesale price of infant formula to 75 percent of the wholesale price, about 400,000 fewer participants would have been able to participate in WIC.

A number of other factors may explain the increase in net wholesale prices, all of which are based on the premise that the size of the rebates offered

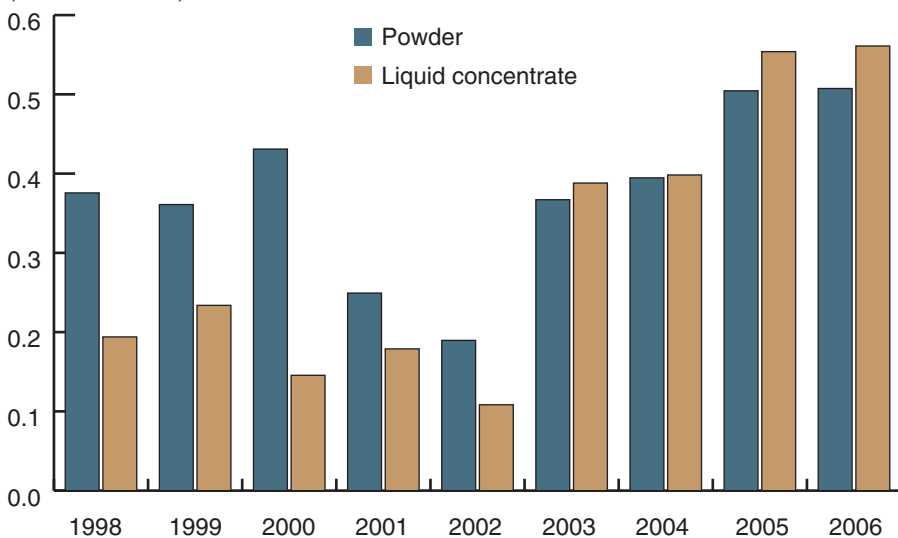
DHA/ARA-Supplemented Formulas

An important development in the domestic infant formula market was the introduction of infant formulas supplemented with the fatty acids docosahexaenoic acid (DHA) and arachidonic acid (ARA) in 2002. While some studies suggest that the addition of these fatty acids to infant formula may improve visual function and the mental development of infants, other studies have not found such a relationship.

Since their introduction, the share of total sales of infant formula attributed to DHA- and ARA-supplemented formulas has increased dramatically. By the second quarter of 2004, supplemented formula accounted for almost two-thirds (64 percent) of total dollar sales of infant formula sold in supermarkets (Oliveira and Davis, 2006). Both the wholesale and retail price of supplemented formula is significantly greater than that of unsupplemented formula.

Figure 20
Average real net wholesale prices of newly awarded infant formula rebate contracts, 1998-2006

Dollars per 26 reconstituted ounces
(Jan. 2006 dollars)



Note: Calculations are based on unweighted data—that is, the net wholesale prices for all States awarding contracts in a particular year are counted the same regardless of the size of their WIC infant population.

Source: Oliveira and Davis, 2006.

by formula manufacturers depends on the degree to which winning the WIC contract leads to increased shelf space and/or increased hospital and physicians recommendations, which in turn, lead to increased sales to non-WIC consumers. For example, Neuberger and Greenstein (2004) theorize that the increase in net wholesale price may have been related to the growth in the number of WIC-only stores (which they defined as stores that stock only WIC foods and serve only WIC customers) in the early 2000s. Since shelf space in WIC-only stores does not promote sales to non-WIC customers, as more WIC participants purchase their formula in WIC-only stores, sales of the contract brand of formula to WIC customers in traditional retail food stores decrease. Retail stores may respond by stocking less of the WIC contract brand and/or giving it less shelf space. Infant formula manufacturers may then lower their rebate bids as a result of the reduced opportunity to attract non-WIC customers to their products.

Besharov (2007) links the increase in net wholesale price to the high percentage of infants participating in WIC. He states that, as the percentage of infants in WIC increases beyond some threshold, rebates will decrease since manufacturers will have less to gain from the additional shelf space as the size of the non-WIC market decreases.

A third hypothesis holds that the increase in net wholesale price may be related to the larger retail markups associated with the WIC contract brand of formula. That is, as retail markup for the WIC brand of formula increases, so too does the retail price. Price-sensitive non-WIC consumers will respond by purchasing less of the contract brand, resulting in fewer sales in the non-WIC market. In response, manufacturers will offer lower rebates.

Increasing Breastfeeding Rates in WIC May Reduce Net Wholesale Prices

One possible way to reverse the trend in higher net wholesale prices is to increase the prevalence of breastfeeding among WIC infants. An increase in breastfeeding would reduce the number of WIC formula-fed infants and decrease WIC's demand for infant formula and its influence on the infant formula market. Retailers would not be able to take advantage of price-insensitive WIC participants to the degree they can currently if WIC consumers account for a smaller percentage of infant formula sales. Similarly, manufacturers might be more willing to offer high rebates and low net wholesale prices to win the WIC rebate contract and increase its visibility among non-WIC consumers.

One of the objectives of the 2007 WIC food package revisions was to provide stronger incentives for breastfeeding (72 *Federal Register* 68965-69032). For example, fully breastfeeding mothers receive the most variety and largest quantities of food, and fully breastfeeding infants 6 months of age or older receive larger quantities of baby food fruits and vegetables along with baby food meat. In addition, partially breastfeeding infants receive less infant formula than previously. These changes narrow the difference in the market value between the food packages for fully breastfed infants (and their mothers) and the other food packages for infant/mother pairs. The effectiveness of these revisions in increasing breastfeeding and reducing the

use of infant formula among WIC infants could reduce the costs of providing infant formula in the WIC program by decreasing both the net wholesale prices and the retail markup of the WIC brand of formula.

However, even if WIC is successful at increasing breastfeeding among program participants and lowering the cost of formula to WIC, *overall* program costs could actually increase due to the higher post-rebate cost of the food packages for fully breastfed infant/mother pairs relative to formula-fed infant/mother pairs. Whether increasing the prevalence of breastfeeding among WIC women would result in an increase or decrease in program costs depends on a number of factors: the ratio of fully formula-fed infants to partially breast fed infants; how long fully breast fed infants are breastfed (e.g., 6 or 12 months); and the impact on infant formula rebates (see the section on “WIC and Breastfeeding Rates,” page 66, for an expanded discussion on increasing breastfeeding rates among WIC mothers and the resulting increase in costs to WIC).

Outcome-Based Issues in WIC

Given that WIC was created to safeguard the health of low-income women, infants, and children, an important measure of effectiveness is whether WIC improves the health of program participants, as measured by birth outcomes, nutritional status, and nutrient intake. The effectiveness of WIC's nutrition education program and WIC's impact on childhood obesity and breastfeeding rates are also important measures of effectiveness.

WIC's Effect on the Health of Participants

With regard to its impact on nutrition and health, WIC has been one of the most studied of all Federal food and nutrition assistance programs. Research coverage among the different participant groups—infants; children; and pregnant, breastfeeding, and postpartum women—has been uneven, however, and methodological issues, such as selection bias, simultaneity bias, and the complexity of health outcomes, have made it difficult for researchers to obtain clear estimates of the program's impact (Fox et al., 2004).

Birth Outcomes

Most of the existing research on WIC's impact on nutrition and health has focused on the impact of prenatal WIC participation on birth outcomes. Although pregnant women account for only 11 percent of all WIC participants, WIC research has focused on critical birth outcomes, such as low birthweight, preterm delivery, and infant mortality. Birth outcomes have also been relatively easy to study because they are easily identified and can be observed in the short run.

Most of the studies on birth outcomes reported beneficial effects from WIC participation. In fact, much of the strong congressional support for WIC has been attributed to this research. Two of the most influential studies were published in the early 1990s. A study by Devaney et al. (1990), based on 1987-88 data from five States, found that each dollar spent on prenatal WIC services yielded a \$1.77 to \$3.13 savings in Medicaid costs for newborns and mothers over the first 60 days after birth. The study also found that prenatal WIC participation was associated with increased birthweight, fewer preterm births, and longer gestational age. The U.S. General Accounting Office (1992) statistically combined results from 17 studies conducted between 1971 and 1988 that compared rates of low birthweight among WIC participants and similar nonparticipants and found that prenatal WIC benefits reduced the rate of low birthweight births by 25 percent and reduced the rate of very low birthweight births by 44 percent. GAO concluded that "each Federal dollar invested in WIC benefits returns an estimated \$3.50 over 18 years in discounted present value" to Federal, State, local, and private payers. It is largely on the basis of these two birth outcomes studies that WIC is often cited as being one of the most cost-effective food assistance programs in the Nation.¹⁰⁶

A number of other studies have examined WIC's impact on birth outcomes since the release of the Devaney and GAO publications. Several years ago,

¹⁰⁶ Although this claim is often used to highlight WIC's effectiveness, in general, it should be noted that these studies were limited to examining the effects solely from *prenatal* participation in WIC.

ERS commissioned a comprehensive review and synthesis of published research on the impact of USDA's domestic food and nutrition assistance programs, including WIC, on participants' diet and health. The resulting report—the most systematic and thorough assessment to date of research on the topic—summarized what is and what is not known about the nutrition- and health-related impact of WIC (Fox et al., 2004). The review, which examined WIC-related research published from 1978 to 2004, concluded that, even with the pervasive problem of selection bias and other limitations, “taken as a whole, the available body of research provides strong, suggestive evidence that WIC has a positive impact on mean birthweight, the incidence of low birthweight, and several other key birth outcomes, and that these positive effects lead to savings in Medicaid costs.”¹⁰⁷ The report further notes that because of the studies' design characteristics, “it is difficult to characterize the relative size of WIC's impact.”

Besharov and Germanis (2001), however, have questioned whether the positive effects of prenatal participation in WIC have been overstated. They state that methodological weaknesses in much of the WIC research—including selection bias and simultaneity bias—add uncertainty to the findings (see the box below, “Selection Bias and Simultaneity Bias”). They also state that much of the previous research lacks generalizability because it was based on one or a few States and may not be applicable to other States. The research is also based on studies conducted over a decade ago when the

¹⁰⁷ Others have reviewed WIC evaluation studies with similar conclusions (see, Abrams, 1993; Ku et al., 1994; Owen and Owen, 1997; and Rossi, 1998).

Selection Bias and Simultaneity Bias

Issues related to selection bias and simultaneity (or gestational age) bias complicate the interpretation of the research examining WIC's impact on participants' health. WIC research is typically limited to a quasi-experimental design, comparing those who participate in the program with those who do not. A problem exists if WIC participants differ in unobservable ways from eligible nonparticipants and if these unobservable differences influence outcomes. Selection bias can either enhance or downplay the effects of WIC participation. For example, it can exaggerate the benefits of WIC when individuals who value health and nutrition are more likely to participate in the program than individuals who are at higher risk and do not see the value of participating. WIC effects can be downplayed in research if those not participating in WIC are at lower health risk than the WIC sample. The potential for selection bias is evident in almost all WIC studies. While researchers attempt to control for it in study design and analysis, it is uncertain how successful they are.

Simultaneity bias may occur because the longer a mother's pregnancy, the more likely she is to have a healthy baby. The longer she is pregnant, however, the more time she has to enroll in WIC and the greater her chance of participating in the program. As a result, it is possible that the positive effects from longer pregnancies, independent of WIC benefits, will be attributed to participation in WIC, thereby exaggerating WIC's impact.

program was considerably different. Changes in the size, composition, and characteristics of the WIC population make it difficult to generalize results from these earlier studies to today's WIC program.

More recently, a debate among researchers about WIC's relative impact on birth outcomes played out in several issues of the *Journal of Policy Analysis and Management* (JPAM). An article by Bitler and Currie (2005), based on a 19-State study of WIC-eligible Medicaid mothers, concluded that WIC participation was associated with improved birth outcomes and that the positive impact of WIC was even larger among more disadvantaged women, such as teens, single high school dropouts, and women who received public assistance the previous year. An article in a later issue by Joyce et al. (2005), however, based on a study of women on Medicaid in New York City from 1988 to 2001, found no relationship between prenatal WIC participation and measures of fetal growth among singletons (i.e., infants who are not part of a multiple birth), although there was a strong association between WIC and preterm births among U.S.-born Black twins.¹⁰⁸ Joyce et al. concluded that the mothers' prenatal participation in WIC had relatively little impact on infant health in New York City during the study period. Furthermore, they claimed that associations between WIC and birth weight are suspect (especially given the modest monetary value of the WIC packages) and questioned whether there is a plausible mechanism for WIC to improve birth outcomes given the lack of evidence from medical literature that prenatal nutritional supplementation has a strong effect on reducing preterm births.

The editor of *JPAM* invited two scholars to "make sense of the seemingly contradictory findings" in the two articles (Pirog, 2005). After reading the papers, Ludwig and Miller (2005) acknowledged that selection bias is an issue and that both WIC research and policy would benefit from a better understanding of the determinants of WIC participation. They offered a "less pessimistic conclusion about WIC's impact on birth outcomes compared with the interpretation offered by Joyce." They concluded that it was possible that WIC's bundle of services could affect preterm birth rates and that even a small impact on birth outcomes from WIC participation could be sufficient for WIC benefits to exceed costs. In a more recent *JPAM* article, Joyce et al. (2008), after attempting to address some of the limitations in previous work by including information on the mothers' timing of WIC enrollment, found modest effects of WIC "but on fewer margins and with less impact than has been claimed by policy analysts and advocates."

Other Outcomes

Other than the research on the effect of WIC on birth outcomes, research on WIC's impact on pregnant women is scarce and relatively dated (Fox et al., 2004). Even fewer studies have looked at WIC's impact on postpartum women. The limited research suggests that postpartum WIC participation may improve the birth outcomes of subsequent pregnancies. The effect of WIC on the health of breastfeeding mothers and their infants has not been studied. (For information on WIC's effect on breastfeeding rates, see the section on "WIC and Breastfeeding Rates," p. 66.)

¹⁰⁸ The authors theorize that the finding regarding Black twins was "confounded by the waning of the crack-cocaine epidemic."

Another area that has not been studied in depth is the health effect of WIC on children, even though they make up almost half of all WIC participants. Little is known about WIC's effect on the long-term growth and development on both physical and cognitive/psychological scales of children (Fox et al., 2004). It is difficult to link future health outcomes with WIC participation. Assessing WIC's impact on the growth and development of children requires a longitudinal study because a long period may be necessary to detect changes. In the early 1990s, Congress canceled a planned FNS-funded longitudinal study of the long-term developmental effects of WIC on children due primarily to the high costs of the project (Devaney, 1998).

Although results from several studies have suggested that WIC participation increases children's intake of selected nutrients, these studies were conducted using old dietary standards (Recommended Dietary Allowances, or RDAs) and outdated methods to assess nutrient adequacy. A new set of dietary reference standards—Dietary Reference Intakes (DRIs)—has been developed to replace and expand the RDAs and combined with a statistically based methodology for assessing nutrient adequacy and recommended methods for assessing program impact. It is unclear whether previously observed increases in nutrient intake attributed to WIC participation are associated with real "benefits," such as an increased proportion of WIC children with adequate nutrient intakes. Although data tabulations by Cole and Fox (2004) show that nearly all WIC infants and children consume adequate amounts of most nutrients, no research is available yet that measures the impact of WIC on nutrient adequacy.

The strongest evidence of WIC's positive impact on children is in the area of iron-deficiency anemia, a serious health concern. In their review of WIC's impact on nutrition and health, Fox et al. (2004) found that most studies of the relationship between WIC participation and iron status revealed that WIC participation had a positive effect on mean levels of hemoglobin or hematocrit and/or a reduction in the incidence of anemia. WIC may also have had an indirect effect on the iron status of nonparticipants due to the presence of WIC foods on supermarket shelves (Devaney et al., 1997). WIC products, such as infant formula and cereal, are required to be iron-fortified and are consumed by nonparticipants as well as WIC program participants.

Research Challenges

Much of the research on WIC's effect on participants' health is old and predates important changes in WIC, such as participation expansion, racial/ethnic composition changes, and WIC food package revisions. While research on the impact of today's WIC program on participants is necessary to determine the current program's effectiveness, researchers face a number of methodological challenges, in addition to issues of selection bias. For example, many program outcomes develop over a long period and may require measures of both pre- and post-participation in WIC. Studies also need to control for the complex interplay of diet, heredity, and environment that makes determining the specific impact of food and nutrition programs, such as WIC, on long-term outcomes difficult (Fox et al., 2004). Furthermore, a

majority of WIC participants also use other assistance programs, such as Medicaid and the Food Stamp Program, making it necessary to ascertain whether observed “impact” is due to WIC or to other programs.

Effectiveness of WIC’s Nutrition Education Program

Most of the existing research on WIC has focused on the combined or overall impact of WIC rather than on the effectiveness of specific components. Although WIC’s positive effects are usually attributed to the provision of supplemental food, Rossi (1998) claims that they should be viewed as the joint effects of WIC’s supplemental foods, nutrition education, and health care referrals. The importance of separating out the effects of WIC’s individual components was articulated by Besharov and Germanis (2001) who stated that “increasing WIC’s impact is best accomplished with a knowledge of which of its elements seem to have the greatest effect on recipients. That knowledge would help determine whether the intensity of the entire program should be increased or only some element of it, such as the food packages or the nutritional counseling.”

WIC’s Nutrition Education

Poor diet, along with sedentary lifestyle, is a major cause of morbidity and mortality in the United States. Some of the diseases and conditions linked to poor diet include cardiovascular disease, hypertension, type 2 diabetes, overweight and obesity, iron-deficiency anemia, malnutrition, and some cancers. WIC’s nutrition education—a mandatory component of WIC—is designed to improve health status and achieve positive changes in dietary and physical activity habits, emphasizing relationships between nutrition, physical activity, and health (7 CFR 246.2). Federal regulations require that WIC State agencies spend at least a sixth of their NSA expenditures on nutrition education (7 CFR 246.14). Local WIC agencies are required to offer participants or caretakers at least two nutrition education sessions during each 6-month period, although individuals are not required to attend.

A number of factors make evaluating the effect of WIC’s nutrition education component difficult. For example, because recipients may receive nutrition education along with supplemental foods and referrals to health care services, it is difficult to separate out the effect of each component. Also, the content of the nutrition education, how it is implemented, and the characteristics of the participants (e.g., literacy level, primary language, nutritional needs) varies both among and within States.¹⁰⁹

Previous Research

Despite these challenges, a number of attempts have been made to determine the effectiveness of WIC’s nutrition education services. A study by the U.S. General Accounting Office (GAO) (2001a) reviewed previous research conducted between 1995 and 2000 on the effectiveness of WIC’s nutrition education and referral services.¹¹⁰ The study found that the research was severely limited by methodological constraints, including the use of outdated

¹⁰⁹ WIC does not systematically collect data on the number and characteristics of participants receiving nutrition education, the types of nutrition education provided, the length and frequency of nutrition education, or the outcomes of nutrition education (U.S. General Accounting Office, 2004).

¹¹⁰ Research published prior to 1995 was eliminated from the study to better examine the program as it currently operates.

and poor-quality data, and concluded that the research provided few, if any, insights into the effectiveness of specific WIC nutrition services.

Since the GAO assessment, several studies have examined the effect of WIC's nutrition education. FNS sponsored a demonstration study of the effectiveness of innovative approaches to nutrition education on prenatal WIC participants. The study incorporated two approaches: a computerized touch-screen video for individual nutrition education and a facilitated group intervention (Randall et al., 2001b). Results showed no increase in nutrition knowledge from the interventions. The study noted, however, that the assessment tool used in the study measured knowledge only, may or may not have affected behavior, and would not detect knowledge in areas not covered by the test.¹¹¹

A more recent ERS-sponsored study found that nutrition education intervention had minimal impact on WIC participants' food purchasing behavior. Bell and Gleason (2007) examined whether WIC clients in Washington State changed their food purchasing behavior after receiving nutrition education encouraging the purchase of 1-percent and skim milk, as well as low-fat cheese, in order to prevent and reduce obesity. Data were collected on food purchases both before and after the nutrition education intervention, and researchers found no significant change in purchasing patterns among the study participants. Focus group participants explained that taste preference, pressure from family members, and historical purchasing patterns influenced their choice of milk or cheese more than WIC nutrition education. The results point out the difficulty of changing food consumption behavior.

The lack of research that demonstrates positive effects from WIC's nutrition education services may be, at least in part, the result of low exposure rates of participants to WIC's nutrition education. An FNS-funded study of the nutrition education services offered in six local WIC agencies in the mid-1990s found that large percentages of women failed to attend nutrition education sessions (Fox et al., 1998).¹¹² A GAO study of six local WIC agencies found that individual nutrition education sessions ranged from an average of only 4 to 17 minutes (U.S. General Accounting Office, 2001b).¹¹³ As Rossi (1998) points out, 15 minutes for nutrition education is "certainly inadequate for all but superficial instruction."

Enhanced Nutrition Education in WIC

While recognizing the limited effectiveness of current nutrition education services, Besharov and Germanis (2001) contend that WIC agencies should be allowed greater programmatic flexibility to try new, innovative approaches to make WIC more effective, including enhanced nutrition education for some families and requiring WIC participants to attend nutrition education classes.¹¹⁴ Many of the program enhancements, however, would require increased funding for both services and evaluations. An increase in costs would be problematic since nutrition education is supported by NSA funds that are currently held constant over time (except for inflation adjustments). The NSA grant in FY 2008 was \$15.71 per participant per month and, in addition to nutrition education, also funded breastfeeding support and

¹¹¹ FNS also funded a nutrition education demonstration study aimed at WIC's child participants. The study consisted of a preschool lesson that focused on the Food Guide Pyramid, variety in the diet, and making healthy food choices for 3- and 4-year-old children (Randall et al., 2001a). Results of the study found that children who received the preschool lesson scored significantly higher on the nutrition knowledge test than children not exposed to the preschool lesson. Although the study's findings appear to indicate that nutrition education for young children in WIC settings has limitations, the researchers concluded that providing nutrition education directly to 3- and 4-year old WIC participants is feasible and can increase nutrition knowledge.

¹¹² For example, the percentage of women in each site who received two contacts during the prenatal period ranged from a low of 24 percent to a high of 92 percent. Among postpartum women, the maximum percentage for receipt of two nutrition education contacts ranged from 5 to 59 percent.

¹¹³ An FNS-funded study estimated that nutrition education seminars in 1988 averaged 15 minutes (Williams et al., 1990).

¹¹⁴ Possible program enhancements cited by Besharov and Germanis include additional or enhanced nutrition education services to families with obese children or parents with a drug- or alcohol-abuse problem and supplementing nutrition education classes with individual counseling sessions.

promotion, health care referrals, and administrative tasks, such as outreach, eligibility determination, voucher issuance, and vendor management. Without increases in the per person NSA grant, higher nutrition education costs would necessitate cutbacks in other services funded by the NSA grants.

WIC and Childhood Obesity

WIC was established in the early 1970s to combat the malnutrition and hunger facing many low-income Americans. Since then, however, the major nutrition problems facing Americans have shifted from underconsumption to overconsumption of calories, leading to an increasing prevalence of obesity and overweight in children. Overweight children are more likely to experience health problems during their youth and also tend to become obese adults. Obesity in adulthood is a known risk factor for a number of chronic diseases, including heart disease, diabetes, stroke, and some forms of cancer. Between 1988-94 and 2003-04, the prevalence of overweight among children ages 2-5 increased from 7.2 percent to 13.9 percent (Centers for Disease Control and Prevention, 2008).¹¹⁵ As the prevalence of overweight among children increases, questions have been raised as to whether food and nutrition assistance programs, such as WIC, contribute to childhood overweight by providing too much food and encouraging overeating.¹¹⁶ Understanding the impact of WIC on children's weight status is especially important since, at any point in time, half of all infants and a quarter of all children ages 1-4 in this country participate in WIC.

Previous Research

Research has shown that the proportion of overweight or obese children participating in the WIC program is growing. An FNS-funded study (based on data from 1992, 1994, 1996, and 1998) of overweight among children participating in WIC found that overweight prevalence increased 20 percent over the period, reaching 13.2 percent in 1998 (Cole, 2001). For boys, overweight prevalence increased from 11.6 to 13.9 percent; for girls, overweight prevalence increased from 10.3 to 12.4 percent.

The prevalence of overweight, however, has also increased among non-WIC children. Evidence shows that children who receive WIC have weight similar to eligible nonparticipants, suggesting that the increase in overweight among WIC children is a reflection of the increase in overweight among the general population of children. One ERS study using 1988-94 data compared WIC children ages 1-4 with income-eligible nonparticipants and higher income children and found no difference between the three groups in the prevalence of risk for being overweight (Lin, 2005).¹¹⁷ There was also no difference between WIC children and income-eligible children in the prevalence of overweight. WIC children, however, were more likely to be overweight than higher income children. A more recent ERS study using data from two periods (1988-94 and 1999-2002) also suggests that there is little evidence that WIC participation increases the prevalence of overweight in children (Ver Ploeg et al., 2007). The study found that WIC children had BMI and probabilities for overweight similar to those of eligible nonparticipants. This was true for both boys and girls and for both survey periods. Furthermore, the weight status of WIC participants was similar to that of higher income

¹¹⁵ Children with body mass index (BMI) values at or above the 95th percentile of the sex-specific BMI growth charts were categorized as overweight.

¹¹⁶ For example, see Besharov (2002).

¹¹⁷ A child with weight-for-height at or above the 85th percentile and less than the 95th percentile was classified as at risk of being overweight, and a child with weight-for-height at or above the 95th percentile was classified as overweight.

children with one exception: In 1999-2002, higher income boys were less likely to be at risk of overweight and have lower BMI than boys participating in WIC.

Another ERS study found no evidence that participation in WIC contributes to increased caloric intake among low-income children. Oliveira and Chandran (2005) examined the consumption patterns of WIC children with those of three different groups: Eligible nonparticipating children living in non-WIC households, eligible nonparticipating children living in WIC households (i.e., some other household member participated in WIC), and children living in high-income households that made them ineligible for WIC. Participation in WIC was associated with a significant increase in calories consumed from all WIC-allowed foods combined (i.e., low-sugar cereal, 100 percent fruit and/or vegetable juice, eggs, milk, cheese, peanut butter, and dried peas/beans). WIC participants, however, consumed significantly fewer calories from non-WIC foods than the two groups of eligible nonparticipants. Although WIC participants consumed more total calories than children not eligible because their household income was too high, there was no evidence that participation in WIC contributed to increased caloric consumption among children eligible to participate. These results suggest that WIC foods replace non-WIC foods in the diets of children participating in WIC rather than add to their overall food consumption.

Revisions to the WIC Food Packages May Help Reduce the Prevalence of Obesity

Although previous research has not linked WIC participation to overweight and obesity, the high prevalence of overweight and obesity among the WIC population was one reason the IOM Committee to Review the WIC Food Packages recommended changes in the WIC food packages that promote healthy body weight for WIC participants (Institute of Medicine, 2005). Because it is difficult to achieve long-term weight loss, prevention of obesity is critical, and prevention efforts need to begin at an early age. The WIC program provides a natural entry point for early intervention because it reaches a large number of the Nation's infants and children. Furthermore, WIC targets overweight individuals for participation in the program. Overweight is one of the anthropometric nutritional risk criteria used for determining program eligibility. For a given participant category (i.e., infant, child, pregnant women, etc.), the highest priority is given to people demonstrating medically based nutritional risks, including anthropometric risks such as overweight (see table 4).¹¹⁸

Among the revisions to the WIC food packages, changes that may have a positive effect on preventing/reducing overweight among participants include:

- The addition of cash-value vouchers for fruits and vegetables.
- The elimination of juice from the infant food packages and reductions in the quantities of juice for children and women.
- Reductions in the quantities of milk and cheese for children and women.

¹¹⁸ In 2001, FNS added a new nutritional risk criteria for infants and children—at risk of becoming overweight—to the allowable criteria that may be used to establish WIC program eligibility (USDA, 2001). The new criteria, based on expert recommendations, classify children 24 months old and over with weight-for-height at or above the 85th percentile as being at risk for becoming overweight. The new criteria also include the existence of one or both obese parents as an allowable contributing factor to the overall risk of a child becoming overweight or obese in later years. This factor was based on scientific evidence suggesting that the presence of obesity in a parent greatly increases the risk of overweight in preschoolers (Whitaker, 2004).

- Reductions in the quantities of eggs for children and women.
- Authorization of only milk with 2 percent or lower fat content for women and children age 2 and older.
- The addition of whole-wheat or whole-grain products for children and pregnant and breastfeeding women, allowing substitutions of other whole-grain foods for bread, and requiring that at least half of WIC cereals be whole grain.
- A delay in the introduction of complementary foods to infants by 2 months (from child's 4th month to their 6th month).
- Additional incentives to support long-term breastfeeding.

WIC State agencies are required to implement the new food package provisions no later than October 1, 2009.

WIC and Breastfeeding Rates

Breastfeeding is widely acknowledged to be the best feeding method for most infants. Breastfeeding provides a range of benefits for infants' health, growth, immunity, and development and has also been shown to improve maternal health (U.S. Department of Health and Human Services, 2000). Breastfeeding also provides significant economic benefits, reducing health care costs and other costs.¹¹⁹ The American Academy of Pediatrics (AAP) recommends that mothers exclusively breastfeed their infants for the first 6 months of life, with continuation of breastfeeding through 12 months and beyond as other foods are introduced (American Academy of Pediatrics, 2005). Although WIC promotes breastfeeding to all its pregnant women (unless medically contraindicated), low breastfeeding rates among WIC participants have raised questions about WIC's effects on breastfeeding.

WIC Participation Is Associated With Lower Breastfeeding Rates

Historically, both breastfeeding initiation rates (as measured by breastfeeding in the hospital) and breastfeeding rates at 6 months postpartum have been lower among WIC women than among non-WIC women (fig. 21).¹²⁰ In 2003, 76.1 percent of non-WIC women initiated breastfeeding compared with only 54 percent of WIC women (Ryan and Zhou, 2006).¹²¹ The disparity in breastfeeding rates by WIC status remains pronounced at 6 months of age, with non-WIC women still more likely to breastfeed than WIC women (42.7 percent compared with 21 percent). Breastfeeding rates, both in-hospital and at 6 months, were significantly higher for non-WIC women across a variety of demographic characteristics, including mother's race/ethnicity, age, education, employment status, and census region (Ryan and Zhou, 2006).

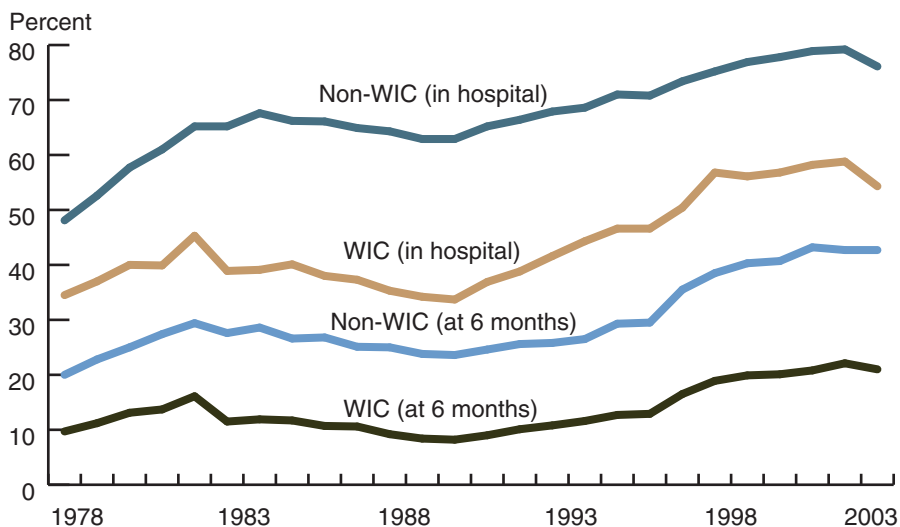
Lower breastfeeding rates among WIC women do not necessarily mean that WIC decreases the likelihood of breastfeeding. Studies of WIC are typically complicated by selection issues (i.e., mothers who choose to participate in WIC are likely to be different than mothers who do not participate). One might expect that the provision of free infant formula would make the

¹¹⁹ An ERS study estimated that a minimum of \$3.6 billion would be saved if breastfeeding rates increased from 1996 levels (64 percent in-hospital, 29 percent at 6 months) to those recommended by the U.S. Surgeon General in 2000 (75 and 50 percent, respectively) (Weimer, 2001). Riordan (1997) estimated that not breastfeeding was associated with over \$1 billion of extra health care costs each year associated with three health conditions—otitis media, infant diarrhea, and respiratory syncytial virus. Ball and Wright (1999) estimated that these three conditions cost the managed care health system between \$331 and \$475 per never-breastfed infant during the first year of life.

¹²⁰ While breastfeeding rates, both in-hospital and at 6 months, have generally increased since 1990, they remain below the breastfeeding goals set in *Healthy People 2010*, the U.S. Government's statement of national health objectives designed to identify the most significant preventable threats to health and to establish national goals to reduce these threats (U.S. Department of Health and Human Services, 2000). *Healthy People 2010's* breastfeeding goals are 75 percent in the early postpartum period, 50 percent at 6 months, and 25 percent at 1 year.

¹²¹ "Breastfeeding initiation" is not necessarily synonymous with "exclusively breastfeeding," even in the first days of an infant's life. For example, a study of breastfeeding in California hospitals found large differences in the intensity of breastfeeding even in the hospital. In some hospitals, large proportions of mothers reporting "any breastfeeding" were accompanied by very small proportions reporting "exclusive breastfeeding" (California WIC Association and UC Davis Human Lactation Center, 2007).

Figure 21
Breastfeeding rates, by WIC status, 1978-2003



Source: Ryan and Zhou, 2006.

program more attractive to mothers who choose not to breastfeed and who might not have breastfed even in the absence of the program. In addition, mothers in lower socioeconomic groups, including women who are Black, poor, and less educated—that is, women who are more likely to participate in WIC—have traditionally been less likely to breastfeed their children (Li and Grummer-Strawn, 2002). Breastfeeding may also be a challenge after the mother returns to work or school, especially for low-income women who tend to work in environments that do not allow for breaks to pump breastmilk and do not provide refrigerated storage facilities for the milk. A review of published research on the impact of WIC on breastfeeding found no solid evidence that WIC had an impact on initiation and/or duration of breastfeeding (Fox et al., 2004). Although most of the reviewed studies were completed prior to the expansion of breastfeeding promotion efforts in WIC, more recent studies also provide conflicting results.¹²²

WIC’s Breastfeeding Promotion Efforts

Breastfeeding women have been a focus of WIC since the program’s inception. The legislation first authorizing WIC as a pilot program in 1972 (P.L. 92-433) specifically identified “lactating women,” pregnant women, and infants as the program’s target groups and excluded nonbreastfeeding postpartum women. The 1975 legislation that established WIC as a permanent program (P.L. 94-105) made breastfeeding women eligible to participate up to 1 year after birth. The legislation also extended categorical eligibility to nonbreastfeeding postpartum women, but only up to 6 months after birth.

Beginning in the late 1980s, WIC instituted a number of changes aimed at increasing breastfeeding rates among participants (USDA, 2008a). For example, in 1989, the Child Nutrition and WIC Reauthorization Act earmarked \$8 million per year to promote breastfeeding, authorized the

¹²² For example, Chatterji and Brooks-Gunn (2004) found that WIC participation was associated with small increases in the probability of initiating breastfeeding, while Bitler and Currie (2005) found that WIC participation was associated with decreased likelihood of breastfeeding. Jackowitz et al. (2007) found that WIC participation was associated with decreased likelihood of exclusive breastfeeding.

use of NSA funds to purchase breastfeeding aids, such as breast pumps, and required WIC State agencies to designate a breastfeeding coordinator to provide training on breastfeeding promotion and support to local agency staff responsible for breastfeeding. In 1992, an enhanced WIC food package was established for women who exclusively breastfeed their infants. In 1994, the method for determining the amount of funds for WIC breastfeeding promotion and support was revised, and WIC State agencies were required to spend \$21 per year (adjusted annually for inflation) for each pregnant and breastfeeding woman. In 1998, the William F. Goodling Child Nutrition Reauthorization Act (P.L. 105-336) authorized the use of food funds for the purchase or rental of breast pumps for participants.

Despite these efforts, disparities in breastfeeding rates between WIC and non-WIC women still exist. In fact, the gap in breastfeeding rates at 6 months by WIC status has increased in recent years (fig. 21). Some have questioned whether WIC's breastfeeding promotion and support efforts are sufficient. Ryan and Zhou (2006) estimated that, in 2005, only \$34 million, or less than 1 percent of WIC's total budget, excluding rebates, was designated for initiatives to increase breastfeeding among WIC women. Lawrence (2006) claims this amount is too small to be effective. Increasing breastfeeding promotion and support activities, however, may present a challenge to the WIC program, given proposals to freeze funding levels for NSA, which funds breastfeeding promotion (see the section on "Funding for Nutrition Services and Administration (NSA)," p. 39).

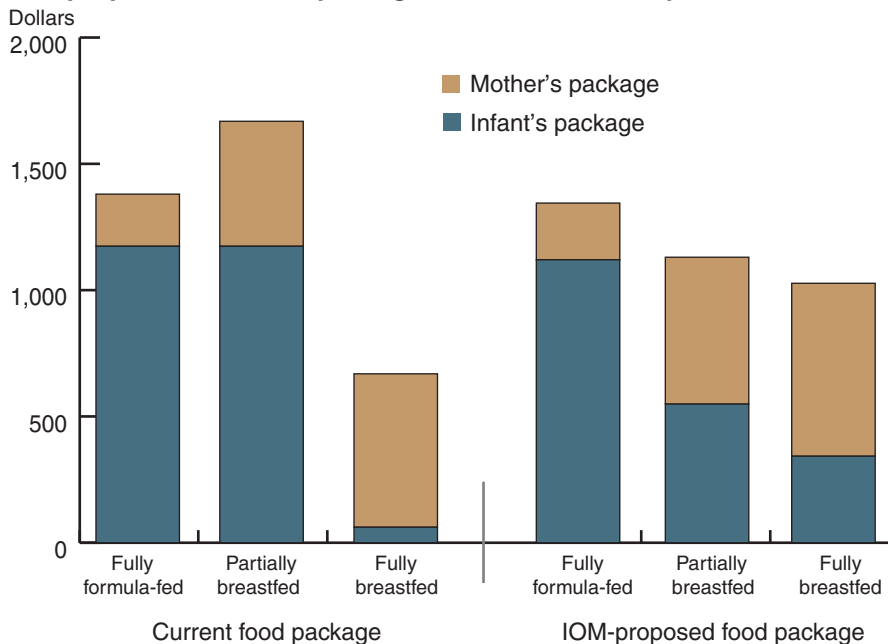
Changes to the WIC Food Packages May Increase Breastfeeding Incentives

The lower breastfeeding rates among WIC women have led some to suggest that providing free infant formula to WIC infants discourages breastfeeding. Rossi (1998) states that WIC may be providing "a perverse incentive favoring bottle feeding." Although the *old* food package for breastfeeding women offers the largest quantity of a greater selection of foods, the Institute of Medicine's review of the WIC food packages (2005) estimated that the average value for *1 year of program* benefits for fully formula-feeding infant/mother pairs (\$1,380) and for partially breastfeeding infant/mother pairs (\$1,668) is more than twice the value of program benefits for those who breastfeed and whose infants do not receive infant formula from the WIC program (\$668) (fig. 22).

The 2007 revisions to the WIC food packages for infants and all postpartum women were designed to strengthen WIC's breastfeeding promotion efforts and provide additional incentives for mothers to initiate and continue to breastfeed. A three-pronged approach was used (72 *Federal Register* 68965). The revised food packages address the fully breastfeeding woman's higher need for calories, vitamins, and minerals by providing greater quantities of a larger selection of foods. Similarly, the package for fully breastfed older infants is the only one to include baby food meats to meet the infant's need for supplemental sources of iron and zinc (Institute of Medicine, 2005). The revisions attempt to minimize early supplementation with infant formula, which can interfere with the establishment or continuation of breastfeeding. The amount of milk a breastfeeding woman produces depends

Figure 22

Estimated annual market value (pre-rebate) of current and IOM-proposed WIC food packages for infant/mother pairs, 2002



IOM=Institute of Medicine.

Note: The costs for partially and fully breastfed assumed that mothers breastfed for 12 months

Source: Economic Research Service calculations based on Institute of Medicine (2005) data.

directly on how often and how long she nurses. Providing supplemental formula to a new breastfeeding mother may interfere with her milk production and success at continued breastfeeding. Thus, the proposed rule initially recommended only two infant feeding options for the infant's first month—either full breastfeeding or full formula-feeding. Concerns were raised, however, that a mother who feels less confident about her ability to breastfeed may choose to either categorize her infant as fully formula fed, thus receiving more formula than necessary for the breastfeeding infant and further compromising successful breastfeeding, or not breastfeed at all. The revised food packages authorize three infant feeding options in the first month after birth:

- Fully formula feeding.
- Fully breastfeeding (with no supplemental formula).
- Partial breastfeeding (a State option), where an infant may receive the equivalent of not more than 104 fluid ounces of reconstituted infant formula. This allows WIC State agencies the option of issuing one can of powder infant formula to the mother upon request.

The revised food packages increase the market value of the food packages for the fully breastfeeding infant/mother pair relative to the fully formula-feeding infant/mother pair, with the objective of increasing the mother's incentive to breastfeed. There is some evidence that attractive food packages for fully breastfeeding mother/infant pairs might increase the mother's incentive to breastfeed (Institute of Medicine, 2005). Under the old food

package, the market value of the food packages is nearly twice as large for the formula-feeding infant/mother pair than for the fully breastfeeding infant/mother pair.¹²³ Under the IOM's proposed food packages (which differ somewhat from the revised food packages), the difference in market value between the formula-feeding and the fully breastfeeding infant/mother packages becomes smaller.

Using 2002 prices, the IOM estimated that the average annual costs to WIC of food benefits for the fully breastfeeding infant/mother pair increases from \$668 in the *old* food package to \$1,027 in the *proposed* food package (fig. 23).¹²⁴ This is about 75 percent of the value of the food package for the fully formula-fed infant/mother pair (which declined slightly in monetary value from \$1,380 to \$1,345).

The revised food packages affect partially breastfed infant/mother pairs the most.¹²⁵ Whereas partially breastfed infants may currently receive up to the full amount of infant formula as fully formula-feeding infants, under the revised food package, they would receive only about half the infant formula. Although the objective is to encourage mothers to increase both duration and intensity of partial breastfeeding, there are concerns that some women may choose, instead, to breastfeed even less—or not at all—to qualify for the full amount of infant formula in the fully formula-feeding package.

There is a large degree of interest in how these package changes will affect a mother's breastfeeding decisions and practices. FNS is requesting approval

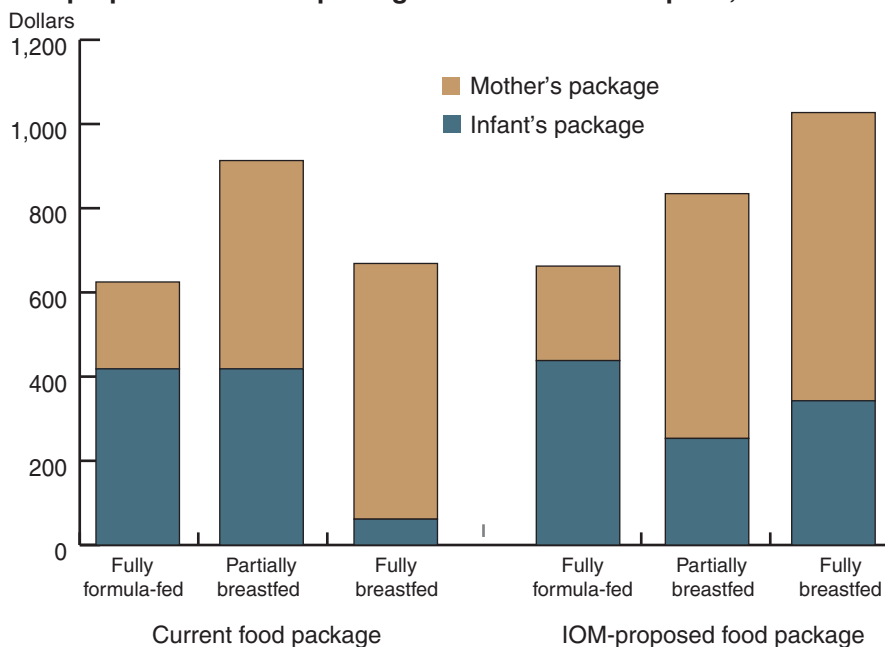
¹²³ Because a fully breastfed infant receives no WIC foods during its first few months, it is important to look at the infant/mother pair.

¹²⁴ The IOM-proposed food packages differ only very slightly from the revised food packages; mostly the proposed food package allowed yogurt in the women's food packages and did not allow for any infant formula for partially breastfed infants during the first month of life. All cost estimates are based on breastfeeding for 12 months.

¹²⁵ As already mentioned, there are very few differences between the proposed and revised food packages, and they are not likely to affect these estimates by much.

Figure 23

Estimated annual cost to WIC (post-rebate) of the current and IOM-proposed WIC food packages for infant/mother pairs, FY 2002



IOM=Institute of Medicine.

Note: The costs for partially and fully breastfed assumed that mothers breastfed for 12 months

Source: Economic Research Service calculations based on Institute of Medicine (2005) data.

from the Office of Management and Budget to collect information needed to evaluate the impact of the interim final rule on food package choices and breastfeeding outcomes for postpartum women who participate in WIC (73 *Federal Register* 34702-34703).

Breastfeeding Could Increase WIC Costs

While breastfeeding is cost effective from both the individual's and society's perspective, increasing WIC participants' breastfeeding rates could raise program costs, depending on the duration and intensity of breastfeeding. Increased breastfeeding rates could affect the level of infant formula rebates, which considerably lower the cost of buying infant formula. Using 2002 prices, the IOM estimated that the market value of the *proposed* food package was about 25 percent higher for the fully formula-feeding infant/mother pair than for the fully breastfeeding infant/mother pair (\$1,345 compared with \$1,027) if infants breastfeed for 12 months. After rebates, the cost to WIC of offering the fully formula-feeding food packages is about half (\$663) (fig. 23). Rebates have no effect on WIC's costs for offering the fully breastfeeding package, which would still cost the program \$1,027 for a year of benefits. Thus, after rebates, each breastfeeding infant/mother pair costs the program \$364 more per year than a fully formula-feeding infant/mother pair. Similarly, after rebates, each partially breastfeeding infant/mother pair would cost the program \$173 more per year than a fully formula-feeding infant/mother pair.

On the other hand, if mothers breastfeed for only 6 months (a more likely scenario, considering that only about 40 percent of all women in the United States still breastfeed at 6 months), the program would save approximately \$66 per fully breastfeeding infant/mother pair and \$48 per partially breastfeeding infant/mother pair compared with a fully formula-feeding infant/mother pair under the proposed food packages.¹²⁶ Given the similarities between the proposed and revised food packages, the cost estimates presented here are not likely to be very different for the revised food packages. Thus, the extent to which the revised food packages increase the prevalence and duration of breastfeeding among WIC mothers could have a significant impact on program costs.

¹²⁶ In 2003, 21 percent of WIC women and 43 percent on non-WIC women breastfed at 6 months (fig. 21).

Future Research Directions

Since its inception as a small pilot program in the early 1970s, WIC has grown to become one of the cornerstones of the Nation's food and nutrition safety net for low-income children and women. During its 35-year existence, a number of legislative acts and new regulations helped shape the program. Now, over 8 million people participate in the program each month, including almost half of all infants and a quarter of all children ages 1-4. Expenditures for WIC total over \$6 billion per year, or 10 percent of total Federal Government expenditures for food and nutrition assistance.

Numerous issues are associated with a program of WIC's size and complexity. Addressing these issues is essential for several reasons: (1) WIC is one of the larger food assistance programs in terms of Federal expenditures, and the program must operate efficiently to protect taxpayers' investment; and (2) WIC serves as an entry point for early nutrition and health care intervention for a large number of the Nation's infants and children, so it is important that the program operate as effectively as possible.

This report has identified and framed some of the important economic issues surrounding WIC and suggested valuable areas of research. For example, WIC participation has expanded dramatically and more research is needed on the distributional effects of WIC participation to determine if society would be better served by an expanding program or by targeting more benefits to fewer, more needy families.

Major changes were made to the WIC food packages in 2007, and WIC State agencies are required to implement the revisions by October 1, 2009. Research will be needed to examine the impact of these changes on participants. For example, will the revised food packages affect participation and/or consumption and, if so, will some participant categories be more affected than others? Research will also be needed to examine how the revisions impact WIC vendors, food manufacturers, and non-WIC consumers.

The revised food packages increase breastfeeding incentives and promote healthy body weight for WIC participants. It is important to determine what impact the revisions will have on overweight and obesity among WIC children and the prevalence of breastfeeding among WIC mothers. Whether the revised food packages increase the prevalence and the duration of breastfeeding among WIC infant/mother pairs could have a significant impact on program costs.

Because of the volume of infant formula provided through WIC, increased costs of infant formula provided through WIC have a potentially large impact on WIC program costs. Therefore, the trends in infant formula rebates and retail markup of WIC formula brands need to be monitored.

Although considerable research has focused on WIC's impact on birth outcomes (with some contradictory findings), research on other program outcomes and participation groups is more limited. Furthermore, much of the

research is fairly old, capturing a program that is considerably different from the current program. For example, much of the existing research predates important changes in WIC, such as the expansion in participation, changes in the racial/ethnic composition of participants, and revisions in the WIC food packages. More research, reflecting the current program, is needed to fill the gaps with respect to WIC's impact on the different participant groups.

NSA funds, covering both administrative and key services, currently account for over a quarter of total program costs. Little is known, however, about how NSA funds are used. Better data are needed to determine how spending allocations on key services and administration impact the program's effectiveness.

WIC State agencies are required to spend at least a sixth of their NSA expenditures on nutrition education. Little is known, however, about the effectiveness of WIC's nutrition education. More research is needed on the types of education provided and their outcomes.

A number of economic factors could have a potentially large impact on WIC in the near future. Worsening economic conditions in this country and an increasing number of births could increase the demand for WIC services. At the same time, the program could be facing greater financial pressure from higher food prices and increased infant formula costs, in addition to the possibility of increased costs associated with WIC food package revisions. As a result, WIC may come under more scrutiny. Further investment in research that addresses these issues is needed.

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Appendix: Methodology for Estimating WIC Participants as a Percent of U.S. Population Subgroups

Figure 12 illustrates the percentage of various U.S. population subgroups estimated to participate in WIC. A number of calculations were required to develop the estimates.

Infants:

The percentage of infants participating in the program was estimated by dividing the average number of infants participating in WIC per month in calendar 2006 (2,093,967 from USDA, 2007a) by the estimated number of births in the United States in 2006 (4,265,996, from Hamilton et al., 2007).

Children:

The percentage of children participating in the program was estimated by dividing the average number of children participating in WIC in calendar 2006 (3,987,749 from USDA, 2007a) by the estimated number of children under age 5 as of July, 1, 2006 (20,417,636 from U.S. Census Bureau, 2007) after subtracting the number of infants born in the United States in 2006 (4,265,996 from Hamilton et al., 2007).

Pregnant women:

The percentage of pregnant women participating in the program was estimated by multiplying the average number of women participating in WIC in calendar 2006 (2,043,836 from USDA, 2007a) by the share of pregnant women in WIC in April 2006 (.447 from Bartlett et al., 2007) and dividing it by the number of births in 2006 (4,265,996 from Hamilton et al., 2007) times .75 (since women are pregnant 9 months).

Postpartum women:

The percentage of postpartum women participating in the program was estimated by multiplying the average number of women participating in WIC in calendar 2006 (2,043,836 from USDA, 2007a) by the share of breastfeeding or postpartum women in WIC in April 2006 (.553 from Bartlett et al., 2007) and dividing it by the number of births in 2006 (4,265,996 from Hamilton et al., 2007) which served as the proxy for the number of postpartum women in 2006. Note that the denominator consists of all postpartum women (up to 1 year after birth) in the United States while the numerator consists of all breastfeeding women (up to 1 year after birth) in WIC and all postpartum women in WIC (up to 6 months after birth).