United States Department of Agriculture

WIC Participant and Program Characteristics 2018 Food Packages and Costs Final Report

U.S. Department of Agriculture | Food and Nutrition Service | Office of Policy Support | November 2020

WIC Participant and Program Characteristics 2018 Food Packages and Costs

Final Report

November 2020

Authors

Nicole Kline, Kevin Meyers Mathieu, Jeff Marr

Submitted to

Office of Policy Support
Food and Nutrition Service
U.S. Department of Agriculture
1320 Braddock Place
Alexandria, VA 22314

Project Officer

Grant Lovellette

Submitted by

Insight Policy Research, Inc.
1901 North Moore Street
Suite 1100
Arlington, VA 22209

Project Directors

Betsy Thorn and Nicole Kline

This study was conducted by Insight Policy Research, Inc. under Contract No. AG-3198-K-15-0048 with the Food and Nutrition Service.

Suggested Citation

Kline, N., Meyers Mathieu, K., & Marr, J. (2020). *WIC participant and program characteristics 2018 food packages and costs report.* Alexandria, VA: U.S. Department of Agriculture, Food and Nutrition Service. Project Officer: Grant Lovellette.

USDA is an equal opportunity provider, employer, and lender.

Acknowledgements

This report was prepared by Insight Policy Research, Inc. (Insight) under Contract No. AG-3198-K-15-0048 from the U.S. Department of Agriculture, Food and Nutrition Service. It represents a team effort in which many individuals made key contributions in addition to the authors. We gratefully acknowledge their assistance. In particular, we recognize Project Officers Grant Lovellette, Anna Potter Clifford, and Carolyn Luk, as well as Kelley Scanlon and Maggie Applebaum, for their leadership and guidance. We also thank the numerous FNS staff who have provided support, expert advice, and encouragement to the Insight team. Their insightful comments on the interim deliverables and throughout the study greatly influenced this research.

The authors also express appreciation to the dedicated individuals in each of the 90 State agencies that participated in the WIC Participant and Program Characteristics 2018 study. Their time and effort to provide complete and accurate datafiles made this research possible.

The authors also gratefully acknowledge the numerous individuals from Insight who provided valuable assistance throughout this study. In particular, we thank Betsy Thorn and Stacy Gleason for their subject matter expertise, leadership, and guidance throughout this study. We also thank Eric Budge, Denise Bellows, Dan Fein, and Kayla Novak for their diligent work with the State agencies to ensure the highest quality data were submitted; and Elaine Wilcox-Cook, Lizzie Nelson, and Caitlin Ryan for their assistance with quality assurance. We also thank Dar Haddix for editing this report, and Kim Kerson for her assistance with production. Carla Bozzolo also provided useful suggestions on the content of this report.

Contents

Executive Summary i

Chapter 1. Introduction 1

A. WIC Food Packages 3

B. WIC Food Package Costs 4

C. Organization of the Report 5

Chapter 2. Methodology 6

A. PC2018 Participant Characteristics and Food Package Data 6

B. Estimating WIC Food Package Costs 8

C. Changes in Methods From Previous Food Packages and Costs Reports 15

D. Limitations 17

Chapter 3. Contents of WIC Food Packages in 2018 20

A. Formula 20

B. Milk and Milk Alternatives 25

C. Eggs 31

D. Legumes 32

E. Canned Fish 34

F. Cereal 35

G. Whole-Wheat/Whole-Grain Bread and Other Whole Grains 35

H. Juice 37

I. Fruits and Vegetables 38

J. Infant Foods 39

Chapter 4. Estimated WIC Food Package Costs in FY 2018 41

A. Estimated Costs by Participant Category and Food Package Type 41

B. Estimated Costs by WIC-Eligible Food Category 42

Chapter 5. Changes in WIC Food Package Contents and Costs Over Time 44

A. Changes in WIC Food Package Contents Since 2016 44

B. Changes in Estimated WIC Food Package Costs Since FY 2014 47

References 50

Appendix A. Technical Notes A-1

Appendix B. Overview of WIC Food Packages B-1

Appendix C. IRI Price Calculations and WIC-Eligible Food Selection Process C-1

Appendix D. Food Package III Cost Estimates D-1

Appendix E. Additional Tabulations E-1

Tables

Table 2.1. Key Components for WIC Food Package Cost Estimates and Data Sources 9
Table 2.2. WIC Food Categories and Estimated Quantities Redeemed 12
Table 2.3. Price per Unit for WIC-Eligible Food Categories 13
Table 2.4. Comparison of Average Unit Prices for WIC-Eligible Foods between IRI Data and Study EBT Data from 12 State Agencies 18
Table 3.1. Quantity and Types of Formula Prescribed for Infants by Age of Infant 22
Table 3.2. Quantity and Types of Formula Prescribed by Participant Category 24
Table 3.3. Quantity and Types of Milk Prescribed by Participant Category 26
Table 3.4. Quantity of Soy-Based Beverage Prescribed by Participant Category 28
Table 3.5. Quantity of Tofu Prescribed by Participant Category 29
Table 3.6. Quantity of Yogurt Prescribed by Participant Category 30
Table 3.7. Quantity of Cheese Prescribed by Participant Category 31
Table 3.8. Quantity of Eggs Prescribed by Participant Category 32
Table 3.9. Quantity and Forms of Legumes Prescribed by Participant Category 33
Table 3.10. Quantity and Types of Canned Fish Prescribed by Participant Category 34
Table 3.11. Quantity of Cereal Prescribed by Participant Category 35
Table 3.12. Quantity and Types of Whole Grains Prescribed by Participant Category 36
Table 3.13. Quantity of Juice Prescribed by Participant Category 37
Table 3.14. Amount and Types of Fruit and Vegetables Prescribed by Participant Category 38
Table 3.15. Quantity of Infant Foods Prescribed for Infants Aged 6 Months and Older 40
Table 4.1. Estimated Average Monthly Pre- and Post-Rebate Food Package Costs per Participant by Participant Category 41
Table 4.2. Estimated Average Monthly Pre- and Post-Rebate Food Package Costs per Participant by Food Package Type 42
Table 4.3. Estimated Annual Contribution to Food Costs by WIC-Eligible Food Category 43
Table 5.1. Mean Amounts of Foods Prescribed to Women and Children, 2016 and 2018 44
Table 5.2. Mean Amount of Foods Prescribed to Infants, 2016 and 2018 46
Table 5.3. Differences in Average Unit Prices by WIC-Eligible Food Category, With FY 2014 Prices Adjusted for Inflation to FY 2018 Prices 47
Table 5.4. Annual FY 2014 and FY 2018 Estimated Post-Rebate Food Costs by WIC-Eligible Food Category, With FY 2014 Costs Adjusted for Inflation to FY 2018 Costs 49

Figure

Figure 2.1. Food Package Costs Estimation Process 10

Abbreviations and Acronyms

CPI	Consumer Price Index
EBT	electronic benefit transfer
FNB	full nutritional benefit
FNS	Food and Nutrition Service
FY	fiscal year
IRI	Information Resources, Inc.
MMA	maximum monthly allowance
PC	WIC participant and program characteristics
USDA	U.S. Department of Agriculture
WIC	Special Supplemental Nutrition Program for Women, Infants, and Children

Executive Summary

The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) is administered at the Federal level by the U.S. Department of Agriculture's (USDA) Food and Nutrition Service (FNS).[1] WIC benefits include nutritious supplemental foods; nutrition education and counseling, including breastfeeding promotion and support; and referrals to healthcare, social services, and other community providers for pregnant, breastfeeding, and postpartum women,[2] and infants and children up to age 5. WIC delivers food benefits to participants through food instruments in the form of vouchers, checks, or electronic benefit transfer (EBT) cards. Participants may redeem these benefits from authorized retail vendors. WIC food packages are defined by regulation and, together with nutrition education and breastfeeding promotion and support, are the primary means by which WIC affects the dietary quality and habits of women, infants, and children.

The purpose of this report is to provide descriptive statistics summarizing food package prescriptions and estimates of both pre- and post-rebate average monthly food package costs by participant category and food package type, and total food costs by WIC-eligible food category. These findings are based on analyses of several types of data: data collected for WIC Participant and Program Characteristics (PC) 2018 on participant characteristics and food packages (Kline et al., 2020); routine administrative data submitted to FNS by WIC State agencies; fiscal year (FY) 2018 Information Resources, Inc. Consumer Network Panel data on food item characteristics and purchases; EBT data provided by 12 State agencies for the WIC Food Cost Containment Practices Study (Gleason et al., 2020); data on Food Package III[3] costs from eight State agencies; and inflation data from the Consumer Price Index produced by the U.S. Department of Labor's Bureau of Labor Statistics (USDA, n.d.). Because costs for formula and nutritionals associated with Food Package III for participants with qualifying conditions could not be reliably estimated with available data, the total food costs associated with these food package types were excluded from the analysis. Further, methodological changes in the estimation of FY 2018 WIC food packages costs for this report limit comparability to estimates reported in previous WIC food package cost reports.

A. WIC Food Package Contents in 2018

Federal regulations describe the minimum requirements and specifications for supplemental foods in food packages and the maximum monthly allowance (MMA) for each food, as well as allowable food substitutions; the MMA must be prescribed to participants except in a few circumstances (e.g., based on the medical or nutritional needs of the participant).[4] Most women and children may receive food packages with cow's milk, eggs, mature legumes (i.e., dry beans/peas or peanut butter), breakfast cereal, whole-wheat/whole-grain bread, juice, and fresh fruits and vegetables. Fully Breastfeeding

[1] See 7 C.F.R. 246 (Special Supplemental Nutrition Program for Women, Infants and Children, 1985).

[2] Current regulations allow food packages to be prescribed to women up to 6 months postpartum who are nonbreastfeeding or minimally breastfeeding; these women are included in the definition of postpartum women in this report. See 7 C.F.R. 246 (Special Supplemental Nutrition Program for Women, Infants and Children, 1985).

[3] Federal regulations define seven food packages. Food Package III is reserved for women, infant, and child participants who have a documented, qualifying medical condition that requires the use of a WIC-eligible exempt infant formula or WIC-eligible nutritionals because the use of conventional foods is precluded, restricted, or inadequate to address their special nutritional needs. Medical documentation as defined in the regulations is required for Food Package III. The estimated costs for Food Package III (contract- and exempt-brand infant formulas, WIC-eligible nutritionals, and supplemental foods) are not included in the FY 2018 food cost estimates provided in this report. Costs associated with Food Package III are addressed separately in appendix D.

[4] For all references to Federal regulations in this report, see USDA FNS (2016) and 7 C.F.R. 246.10 (Special Supplemental Nutrition Program for Women, Infants and Children, 1985).

women receive an additional pound of cheese, legumes plus peanut butter and canned fish to address their increased nutritional needs. Infants may receive infant formula, infant cereal, infant fruits and vegetables, and infant food meat. State agencies may choose to offer alternatives such as soy-based beverage, tofu, yogurt, and cheese for cow's milk; canned beans for dry beans/peas; soft corn or whole-wheat tortillas, brown rice, oats, whole-wheat pasta, bulgur, and barley for whole-wheat/whole-grain bread; and processed forms of fruits and vegetables for fresh.[5]

In 2018, participants were generally issued quantities of foods consistent with the MMA with few exceptions. Aside from issuance for milk, average issuance quantities were consistent with the MMA for all participant categories except partially breastfeeding women; these women were issued about 70 percent of the MMA for legumes and about 80 percent of the MMA for juice. Among all women and children, issuance for milk was about three-quarters of the MMA because of allowed substitutions for milk (i.e., soy-based beverage, tofu, yogurt, and cheese). On average, women and children who were prescribed these foods were issued the full MMA for yogurt and cheese and at least some soy-based beverage and/or tofu.

B. WIC Food Package Costs in FY 2018

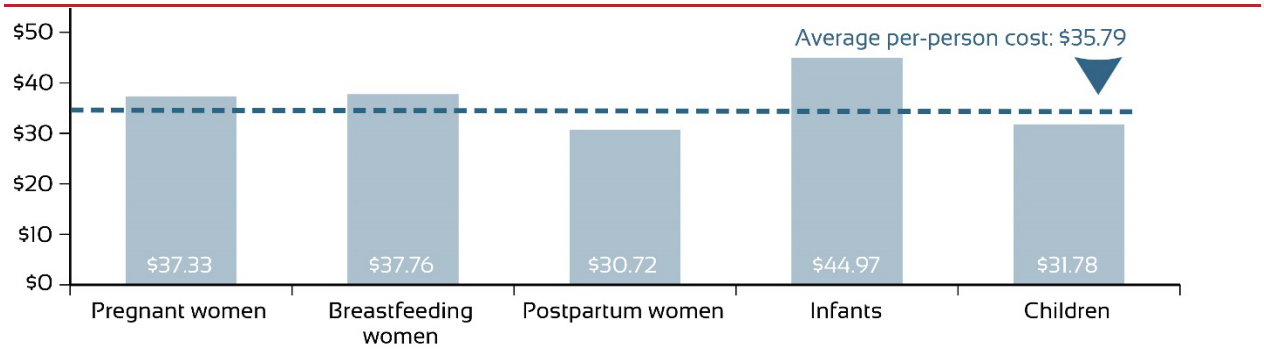
In FY 2018, total Federal WIC expenditures reported for all 90 State agencies in FNS administrative data were $5.4 billion, $3.4 billion of which were post-rebate food costs. Rebate contracts between State agencies and manufacturers of infant formula and infant foods saved the program $1.7 billion. In FY 2018, the average monthly post-rebate food package cost per participant was $40.96.

Highlights from the report include the following findings related to average monthly food package costs (see figure ES.1):

- In FY 2018, the estimated average monthly post-rebate food package cost across all WIC participant categories, excluding total costs for Food Package III, was $35.79.[6]
- Without rebates, the estimated average monthly food package cost (subtracting total food costs associated with Food Package III) would have been $57.60.
- The estimated average monthly post-rebate food package cost was the highest in FY 2018 for infants ($44.97), followed by costs for breastfeeding women ($37.76), pregnant women ($37.33), children ($31.78), and postpartum women ($30.72).
- Rebates contributed significantly to cost savings for infant formula and infant foods. Without rebates, the average monthly food package cost for infants would have been $138.64.

[5] For more information, see *WIC Food Package Policy Options II: Final Report* (Thorn et al., 2015).
[6] The estimated average monthly post-rebate food package cost across all participant categories ($35.79) was lower than the average monthly post-rebate food package cost reported in the FY 2018 FNS administrative data ($40.96) because the FNS administrative data included all 90 State agencies and Food Package III food costs.

Figure ES.1. Estimated Average Monthly Post-Rebate WIC Food Package Cost per Participant by Participant Category



Notes
Total Food Package III costs are not included in these estimates (see appendix D for additional detail).
Estimated average monthly pre- and post-rebate WIC food package costs per participant by participant category and food package type are provided in tables 4.1 and 4.2, respectively.
Sources: FY 2018 FNS administrative data; Information Resources, Inc. data

Highlights from the report include the following findings related to costs by food category (see table ES.1):

- Before rebates for infant formula and infant foods were deducted, the three greatest contributors to total food costs in FY 2018 were infant formula, which accounted for 49 percent of annual costs, followed by fruits and vegetables at 12 percent and cow's milk at 10 percent.
- After accounting for rebates for infant formula and infant foods, the three greatest contributors to total food costs were fruits and vegetables, which accounted for 20 percent of annual costs, followed by infant formula at 18 percent and cow's milk at 15 percent.

Table ES.1. Top Five Contributors to Estimated Annual Post-Rebate Food Costs by WIC-Eligible Food Category

WIC-Eligible Food Category	Pre-Rebate Contribution (percent)	Pre-Rebate Contribution ($ millions)	Post-Rebate Contribution (percent)	Post-Rebate Contribution ($ millions)
Fruits and vegetables	12.1	$550.2	19.5	$550.2
Infant formula	49.1	$2,230.5	18.2	$514.5
Cow's milk	9.5	$432.1	15.3	$432.1
Breakfast cereal	5.3	$242.7	8.6	$242.7
Juice	5.2	$234.3	8.3	$234.3

Notes
Total Food Package III costs are not included in these estimates (see appendix D for additional detail).
Estimated annual contributions to food costs for all WIC-eligible food categories are provided in table 4.3.
Sources: PC2018 data; FY 2018 FNS administrative data; study EBT data; Information Resources, Inc. data; Food Package III data

Chapter 1. Introduction

The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) is administered by the U.S. Department of Agriculture's (USDA) Food and Nutrition Service (FNS). WIC provides benefits such as nutritious supplemental foods; nutrition education and counseling, including breastfeeding promotion and support; and referrals to healthcare, social services, and other community providers for pregnant, breastfeeding, and postpartum[7] women, and infants and children up to age 5. By intervening during the prenatal period, WIC seeks to improve fetal development and reduce the incidence of low birth weight, short gestation, and maternal anemia. WIC benefits help maintain and improve the health and development of infants and children who are at nutritional risk. For breastfeeding and postpartum women, WIC seeks to improve dietary intake and promotes breastfeeding as the best source of infant nutrition.

WIC was established as a pilot program in 1972 by an amendment to the Child Nutrition Act of 1966 (Pub. L. 89–642; Pub. L. 92–433 as amended) and made permanent in 1974. The full fiscal year (FY) 2018 appropriation for the program was $6.18 billion.[8] WIC is not an entitlement program but rather a discretionary Federal grant program for which Congress authorizes a specific amount of funding each year.

For the purposes of this report, WIC participants are defined as individuals who were certified to receive WIC benefits in April of the reference year, including those who did not claim a food instrument that month. According to Federal regulations, this definition includes fully breastfed infants who were certified for WIC benefits but were not prescribed a food package during the first 6 months after the infant's birth.[9] In April 2018, WIC served 7,759,529 participants in the 50 States, the District of Columbia, and Puerto Rico. The analysis of food packages provided in this report excluded 4 U.S. territories (American Samoa, Guam, the Northern Mariana Islands, and the U.S. Virgin Islands) and all 34 Indian Tribal Organizations that administered WIC.

To receive WIC benefits, an individual must be categorically eligible: a pregnant woman during pregnancy and up to 6 weeks after the end of her pregnancy, a breastfeeding woman up to 1 year after the birth of her infant, a postpartum woman up to 6 months after the end of her pregnancy, an infant up to age 1 (the first birthday), or a child up to age 5 (the fifth birthday). Each applicant must meet income eligibility and State residency requirements. The applicant must also be individually determined to be at "nutrition risk" by a WIC competent professional authority.

Since 1988, FNS has produced biennial reports on WIC participant and program characteristics (PC). FNS uses this regularly updated information for program monitoring and for managing WIC information needs such as estimating budgets, submitting civil rights reports,[10] identifying research needs, and reviewing current and proposed WIC policies and procedures.

---

[7] Federal regulations allow food packages to be prescribed to women up to 6 months postpartum who are nonbreastfeeding or minimally breastfeeding; these women are included in the definition of postpartum women for this report; see 7 C.F.R. 246 (Special Supplemental Nutrition Program for Women, Infants and Children, 1985).

[8] The net funding level for WIC spending in FY 2018 was $5.38 billion after accounting for $800 million in rescission of unspent funds (Pub. L. 115–141).

[9] In contrast, for administrative purposes, FNS measures participation based on the number of certified individuals who claimed their food instruments each month. As a result of the difference in how participation is defined for PC reports (the number of individuals certified for WIC in April of the reference year) versus FNS administrative data (the number of certified individuals who claimed their food instruments in April of the reference year), participation as measured for PC2018 is approximately 15.3 percent greater than participation as measured for program reports based on FNS administrative data for April 2018.

[10] Federally required reports on the race and ethnicity of WIC participants

This report on WIC food packages is a supplement to the recently published PC report for 2018. Similar to all PC reports issued since 1992, the 2018 report (PC2018) was based on data collected by the reporting system developed by FNS to compile participant information collected by WIC State agencies.[11] Each PC report presents information on a census of participants conducted in the reference month of April of the reference year. For the first time in 2018, this report also provides estimated WIC food package costs. This report also examines changes in food package contents and costs over time, using for comparison the most recent reports on each; PC2018 food package contents are compared to PC2016 food package contents and FY 2018 food package costs are compared to FY 2014 food package costs. A summary of the study objectives follows.

Study Objectives

1. Provide descriptive statistics summarizing PC2018 food package prescriptions by participant category and food package type.
2. Estimate FY 2018 pre- and post-rebate food package costs by participant category and food package type.
3. Estimate total costs by WIC-eligible food category.
4. Examine changes over time in food package prescriptions and costs

The findings presented in this report are based on analyses of several types of data:

- **PC2018 data.** Data collected for PC2018 on participant characteristics and food packages (Kline et al., 2020)
- **FY 2018 FNS administrative data.** Routine administrative data submitted to FNS by State agencies (USDA, 2020)
- **IRI data.** FY 2018 Information Resources, Inc. (IRI) Consumer Network Panel data on food item characteristics and purchases
- **Study EBT data.** Electronic benefit transfer (EBT) data provided by 12 State agencies for the WIC Food Cost Containment Practices Study (Gleason et al., 2020)
- **Food Package III[12] data.** Data on Food Package III costs collected from eight State agencies
- **CPI inflation data.** Inflation data from the Consumer Price Index (CPI) produced by the U.S. Department of Labor's Bureau of Labor Statistics (USDA, n.d.)

[11] State agencies coordinate WIC services in each State, the District of Columbia, and U.S. territories and Indian Tribal Organizations served by WIC.

[12] Federal regulations define seven food packages. Food Package III is reserved for women, infant, and child participants who have a documented, qualifying medical condition that requires the use of an infant formula, WIC-eligible exempt infant formula, or WIC-eligible nutritionals because the use of conventional foods is precluded, restricted, or inadequate to address their special nutritional needs. Medical documentation as defined in the regulations is required for Food Package III. The estimated costs for Food Package III (infant formula and exempt-brand infant formulas, WIC-eligible nutritionals, and supplemental foods) are not included in the FY 2018 food cost estimates provided in this report. Costs associated with Food Package III are addressed separately in appendix D.

A. WIC Food Packages

Federal regulations specify different food packages for different categories of participants.[13] WIC food packages are intended to provide the quantities and types of foods necessary to achieve three goals: (1) address the prevalence of both inadequate and excessive nutrient intakes for each WIC participant category; (2) contribute to an overall dietary pattern consistent with the Dietary Guidelines for Americans (U.S. Department of Health and Human Services [HHS] & USDA, 2015)[14] and the American Academy of Pediatrics feeding practice guidelines for toddlers and infants;[15] and (3) deliver priority nutrients to participants to meet their supplemental nutrition needs. To achieve WIC's nutrition and health goals, the nutritional basis, or integrity, of the food packages is dependent upon the provision of the maximum allowance of WIC foods and the availability of adequate choice and variety of WIC foods for participants.

Food Categories

1. Cow's milk
2. Soy-based beverage
3. Tofu
4. Yogurt
5. Cheese
6. Eggs
7. Peanut butter
8. Legumes (dry beans and canned beans)
9. Whole-wheat/whole-grain bread/buns/rolls (hereafter referred to as whole-wheat/whole-grain bread)
10. Other whole grains (brown rice, soft corn or whole-wheat tortillas, oats, whole-wheat pasta, bulgur, and barley)
11. Breakfast cereal (ready-to-eat cold cereal and hot cereal)
12. Juice
13. Canned fish
14. Infant formula
15. Infant cereal
16. Infant fruits and vegetables
17. Infant food meat
18. Fruits and vegetables

The WIC-eligible foods issued to participants are classified into 18 categories for this report (see text box at right); the names of these categories are referenced throughout this report. The statistics on WIC food packages presented in this report are for the foods prescribed to participants in April 2018 within each of these food categories and by participant category.

WIC issues food benefits to participants through food instruments in the form of vouchers, checks, or EBT cards. Participants may redeem these benefits from authorized retail vendors for the foods they have been prescribed. Thirty-nine State agencies delivered benefits statewide through EBT as of April 2018. All the State agencies using checks or vouchers are in the process of planning for or piloting EBT to meet the legislative deadline to issue benefits solely through EBT by October 1, 2020 (USDA FNS, 2019).

Federal regulations describe the minimum requirements and specifications for supplemental foods in food packages, the maximum monthly allowance (MMA) for each food, and authorized food substitutions. Beyond these stipulations, State agencies have broad discretion in the brands, types, and forms of the foods they authorize. WIC offers seven regulatory food packages (I through VII) that

[13] For all references to Federal regulations in this report, see USDA FNS (2016) and 7 C.F.R. 246.10 (Special Supplemental Nutrition Program for Women, Infants and Children, 1985).
[14] These guidelines, which are developed jointly and updated every 5 years by HHS and USDA, provide recommendations on how to attain and maintain a healthy weight, reduce risks of chronic disease, and promote overall health.
[15] See Special Supplemental Nutrition Program for Women, Infants and Children (1985) and Institute of Medicine (2005) for more information.

provide various types and amounts of foods (see appendix tables B.1-B.4). These packages are offered to the following categories of participants:

I. Infants younger than 6 months
II. Infants aged 6 to 11 months
III. Participants with qualifying conditions
IV. Children aged 1 to 4 years
V. Women who are pregnant or partially (mostly) breastfeeding[16] up to 1 year postpartum
VI. Women who are nonbreastfeeding or partially (minimally) breastfeeding[17] up to 6 months postpartum
VII. Women who are fully breastfeeding, pregnant with, or partially (mostly) breastfeeding multiples[18]

B. WIC Food Package Costs

FNS administrative data provide information on total expenditures on food and participation, but not on average food package costs by participant category or food package type, or the relative contributions of different food categories to total costs. The estimates of WIC food costs provided in this report supplement the information available in the FY 2018 FNS administrative data by providing the following estimates:

- Pre- and post-rebate[19] food package costs by participant category and food package type
- Total costs pre- and post-rebate for each WIC-eligible food category

Food Package III, which is reserved for participants with a documented qualifying condition that requires the use of a WIC formula (nonexempt infant formula, exempt formula, or WIC-eligible nutritionals), also provides conventional foods as appropriate for the condition and participant category to meet the participant's nutritional needs. All supplemental foods in this food package (both WIC formula and conventional foods) require medical documentation for issuance. However, because the costs for WIC formula in Food Package III could not be reliably estimated with the available data, all participants who were prescribed this food package and the total food costs associated with Food Package III were subtracted and excluded from the estimates. See appendix D for additional detail.

[16] Food packages for partially (mostly) breastfeeding women are for mothers whose infants are mostly breastfed but also are prescribed some formula by WIC after the first month postpartum; the amount of formula the infant is prescribed is not more than the maximum allowed for a partially breastfed infant. A mother is eligible for this food package until her infant's first birthday. For mothers, this package provides extra quantities and varieties of foods—more than for mothers who mostly formula feed. For infants, formula amounts are tailored to help mothers continue to successfully breastfeed.
[17] Women who are not breastfeeding or breastfeeding only minimally receive Food Package VI. Minimally breastfeeding women whose infants are older than 6 months and receive more formula from WIC than is allowed for a partially breastfeeding infant do not receive a food package.
[18] Women pregnant with two or more fetuses, women participants partially (mostly) breastfeeding multiple infants from the same pregnancy, and pregnant women who are also partially (mostly) breastfeeding singleton infants receive Food Package VII. Women fully breastfeeding multiple infants from the same pregnancy receive 1.5 times the MMA for supplemental foods.
[19] Most State agencies are required to negotiate rebate contracts with infant formula manufacturers for formula purchased through WIC. Some State agencies also enter into manufacturer rebate contracts for supplemental foods other than infant formula. In FY 2018, State agencies held rebate contracts for infant cereal, infant fruits and vegetables, and infant food meat.

C. Organization of the Report

This report presents the results of the PC2018 food package prescription analysis and FY 2018 food package cost analysis; chapter 2 provides the methodology for both analyses. Chapter 3 describes the food packages prescribed for participants regarding amounts and types of food; chapter 4 describes food package costs by participant category, food package type, and WIC-eligible food category. Chapter 5 discusses changes in participant prescriptions and WIC food package costs over time. Appendix A provides detailed technical notes to accompany chapter 2, and appendix B provides details of food packages, food package types, and authorized foods, as well as MMAs by food category. Appendix C presents the list of WIC-eligible food categories in the IRI data that were used in this study, and appendix D provides an overview of the methods used to exclude the participants who received Food Package III and the associated food package costs from the analysis. Appendix E presents additional tabulations that accompany chapters 3 and 4.

Chapter 2. Methodology

This chapter details the data sources and methodology the study team used to tabulate PC2018 food package contents and estimate FY 2018 food costs. Section A describes the PC2018 participant characteristics and food package data used for tabulating food package contents. Section B describes the additional data sources and methodology used for estimating FY 2018 food costs. Appendix A provides additional detailed technical notes accompanying the methodology presented in this chapter.

A. PC2018 Participant Characteristics and Food Package Data

State agencies submitted food package data for 7,564,910 individuals (97.5 percent of the 7.8 million participants served by the 52 study State agencies in April 2018).[20] Reliable food package descriptions were provided for 7,413,063 individuals (95.5 percent of all participants served by the 52 State agencies).[21]

The remainder of this section describes the participant categories, age of infants, unreliable and missing food package data, and level of detail provided in the food package data.

1. Participant Category

PC2018 data included information on the category under which each participant was certified as eligible for benefits. The five participant categories are (1) pregnant women, (2) breastfeeding women, (3) postpartum women, (4) infants (up to the first birthday), and (5) children (up to the fifth birthday).

Unlike FNS administrative data on State agency-level participation, the participant category variable in the PC2018 dataset did not distinguish between women who were fully breastfeeding versus partially breastfeeding and did not indicate whether infants were fully breastfed, partially breastfed, or fully formula fed. This specificity within the participant categories for breastfeeding women and infants was not part of the minimum dataset for PC2018.

For this report, the study team examined foods prescribed to participants according to a modified participant category indicator. The team disaggregated the breastfeeding women category into two subgroups: partially breastfeeding women and fully breastfeeding women. This distinction was inferred from each study State agency's food package type variable, with fully breastfeeding women defined as breastfeeding women receiving Food Package VII; all other breastfeeding women were defined as partially breastfeeding.[22]

[20] The analysis of food packages examined data for the 50 States, the District of Columbia, and Puerto Rico.
[21] New Jersey was in the midst of a system change during the reference month of April 2018, which affected its ability to provide quality PC data, which included food package data, so New Jersey was excluded from the food package analysis.
[22] Participants in the partially breastfeeding women category were women who were mostly breastfeeding or minimally breastfeeding as measured by the amount of formula their infants received from WIC (definitions at http://www.fns.usda.gov/wic/breastfeeding-promotion-wic-current-federal-requirements). See appendix A for additional detail.

There were two limitations with this distinction:

- Food Package VII is assigned to fully breastfeeding women whose infants do not receive formula from WIC, as well as women partially breastfeeding multiple infants from the same pregnancy (and women pregnant with multiples). The two breastfeeding subgroups could not be distinguished because PC data did not allow linkage between the mothers' records and those of their infants. Therefore, women partially breastfeeding multiple infants from the same pregnancy were identified as fully breastfeeding for this analysis.
- Information provided by State agencies on food package types was sometimes incomplete or inconsistent; see appendix A for additional detail. Breastfeeding women with missing food package type information were classified as partially breastfeeding.

Because Louisiana was unable to provide sufficient information on food package type, the study team categorized breastfeeding women in this State agency as fully breastfeeding if their food packages contained canned fish. This method undercounts fully breastfeeding women because it fails to count those women who, for whatever reason, were not prescribed fish.

2. Age

PC2018 data included each participant's date of birth; no ages were reported. For the purposes of this report, each infant was assigned an age category corresponding to food package and food package type assignments (0–0.9 months, 1–3.9 months, 4–5.9 months, or 6 months and older) using infant ages calculated based on the date of birth and reference date of April 1, 2018. Infants born during the month of April 2018 were assigned an age of zero months.

A percentage of infants transitioned from one age range category to another during the month of April 2018; caution should be used when considering very narrow infant age range categories. Depending on a State agency's computer system and protocols, PC2018 data for a participant may have included data for a food package based on the age of the participant as of another April date (i.e., not April 1, 2018), or data for a combination of two food packages based on the two age ranges appropriate for that month. For example, a small percentage of participants certified as infants (0.9 percent) received food packages that included milk. This result does not necessarily reflect errors on the part of State agencies; it more likely indicates infants received prescriptions for child food packages if their first birthday was during April 2018.

3. Unreliable and Missing Food Package Data

In their PC2018 data submissions, State agencies used unique coding schemes to describe the food packages prescribed to each participant. Each State agency was asked to submit documentation defining each value used in its food package coding scheme. To examine food package contents in detail, the study team translated State agency data submissions and documentation into a common format describing the exact amount of each item prescribed to each participant along with the allowed forms and types of each item.

Some State agencies were not able to provide complete documentation for their food package coding schemes, causing food prescriptions for 655 participants (fewer than 0.1 percent) to be only partially translated. Food prescriptions for 73,759 participants (1.0 percent) were deemed unreliable because they included unexpected food items or unreasonably large or small quantities of prescribed foods (e.g., infant food packages containing canned fish; see appendix A for additional detail). Partially translated

and unreliable food packages were excluded from tabulations in this report. New Jersey was in the midst of a system change during the reference month of April 2018, which affected its ability to provide quality PC data. Food packages prescribed to all 78,433 participants in New Jersey (1.0 percent of all participants) were excluded from the analysis of food package contents.

For each PC report, a participant is defined as a person who was certified to receive WIC benefits in April of the reference year, including individuals who did not claim a food instrument in April. According to Federal regulations, this definition includes fully breastfeeding infants who were certified for WIC benefits but were not prescribed a food package, as well as partially (minimally) breastfeeding women who were not prescribed a food package but whose infants were prescribed a food package. In contrast, for administrative purposes, FNS measures participation based on the number of certified individuals who claimed their food instruments each month. As a result of the difference in how participation is defined for PC reports (the number of individuals certified for WIC in April of the reference year) versus FNS administrative data (the number of certified individuals who claimed their food instruments in April of the reference year), participation as measured for PC2018 is approximately 15.3 percent greater than participation as measured for program reports based on FNS administrative data for April 2018.

Some State agencies were unable to report food package information for those participants who failed to pick up or redeem their food instruments. The analysis for this report excluded 193,619 participants (2.5 percent) for whom the State agencies were unable to report a valid food package (see appendix A for additional detail). In total, food prescription information for 346,466 participants (4.6 percent) was excluded from the analysis for this report due to missing, unreliable, or invalid food package data or documentation.

4. Specificity of Food Package Descriptions

State agencies varied in how they reported specific food package prescriptions. Some State agencies issued prescriptions that allowed participants to select one of multiple forms or types of a supplemental food when redeeming their benefits (e.g., 1 gallon of either 1 percent or nonfat milk). For this report, all the forms and types specified in the documentation provided by State agencies were translated as allowed forms and types in the food package.

In many cases, State agency documentation did not specify the forms and types allowed in a prescription. Instead, the documentation described the food package as allowing all forms and types. In these cases, the study team imputed the allowed forms and types using State agency-approved product lists and/or food brochures.

The tabulations in chapter 3 use the term “allowed” or “allowable” to describe the contents of food packages that specify a single form or type and food packages that provide participants with multiple form and/or type options; these tabulations are therefore not mutually exclusive.

B. Estimating WIC Food Package Costs

Estimated total monthly WIC food expenditures were calculated as the sum of the estimated average monthly expenditures for each WIC-eligible food category.[23] The study team produced these estimates overall and stratified by participant category and food package type. For each WIC-eligible food category, average monthly expenditures were calculated by multiplying three key components: (1) the

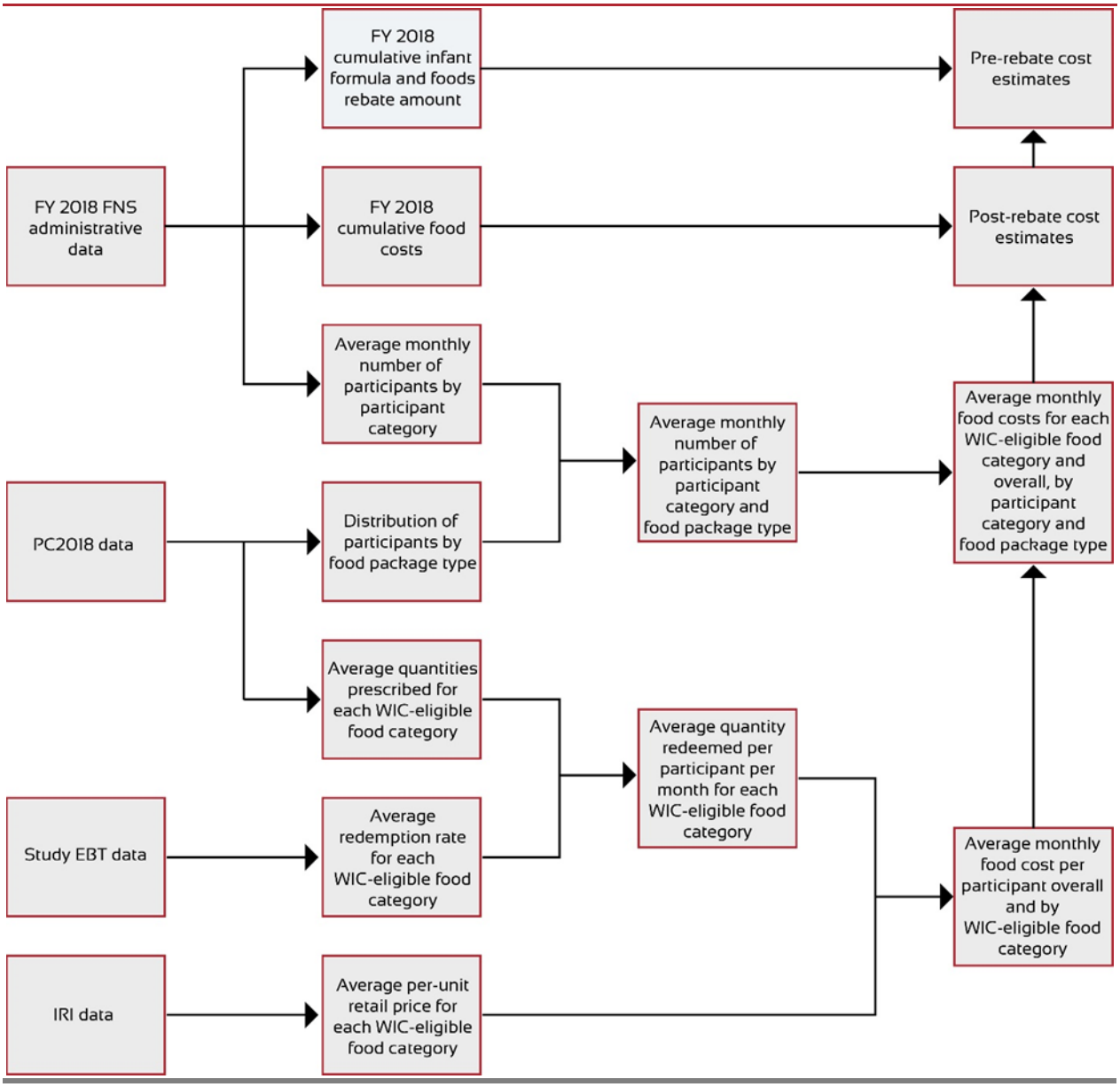
[23] This methodology was used to estimate WIC food package costs for FY 2018 because WIC EBT data on participant purchases were unavailable for all State agencies.

average monthly number of WIC participants, (2) the average quantity redeemed per participant per month, and (3) the average per-unit retail price (see table 2.1). Estimated total monthly WIC food expenditures were then adjusted to match the FY 2018 FNS administrative data. Figure 2.1 illustrates the process of combining these components to estimate pre- and post-rebate WIC food package costs.

Table 2.1. Key Components for WIC Food Package Cost Estimates and Data Sources

Component for Estimating Costs	Data Source and Description
Average monthly number of participants	▪ FY 2018 FNS administrative data ▪ PC2018 data State agencies report participant data and program cost data to FNS monthly and annually. FNS makes these data available to the public. State agencies do not provide counts by food package type. FNS collects PC data in April every 2 years. These data include information about food package type and the number of participants in each State agency by food package type. The PC2018 data reported the number of participants who were certified to receive benefits, whereas the FY 2018 FNS administrative data reported the number of participants who claimed their food instruments. The PC2018 data provided the proportion of participants by food package type, and the FY 2018 FNS administrative data provided the number of participants.
Average quantity redeemed per participant per month	▪ PC2018 data ▪ Study EBT data The PC2018 data were used to estimate the average monthly amount prescribed per participant. For foods in some food categories (cow's milk, legumes, peanut butter, whole-wheat/whole-grain bread, and other whole grains), State agencies allowed participants some flexibility in which items they purchased; as a result, disaggregated quantities prescribed for these foods were not reported in the PC2018 data. For example, participants prescribed a certain quantity of legumes could purchase either canned or dry beans. For these participants, the study EBT data were used to estimate how frequently participants selected dry beans as opposed to canned beans or peanut butter (see appendix A for additional detail). The study EBT data were also used to calculate redemption rates for each food category and then convert quantities prescribed into quantities redeemed.
Average per-unit retail price	▪ IRI data The FY 2018 IRI data were used to calculate average per-unit costs for the foods in the 18 WIC-eligible food categories using a sample of low-income households as a proxy for WIC participants; the IRI data did not include a reliable indicator of WIC participation.

Figure 2.1. Food Package Costs Estimation Process



The remainder of this section describes the methods used to derive each component of the FY 2018 food package cost estimates: (1) the number of participants by participant category and by food package type, (2) the average quantity redeemed per participant per month for each WIC-eligible food category, (3) the average per-unit retail price for each WIC-eligible food category, and (4) final adjustments applied to these estimates to match pre- and post-rebate costs reported in the FY 2018 FNS administrative data.

1. Number of Participants

To estimate food package costs, the number of participants was based on FY 2018 FNS administrative data from 52 State agencies: the 50 States, the District of Columbia, and Puerto Rico. The average monthly number of participants for the 52 study State agencies was 6,801,227. The average monthly number of participants for all 90 State agencies in FY 2018 was 6,870,128.

FY 2018 FNS administrative data provided the average monthly number of participants by participant category. However, State agencies do not report the number of participants by food package type in the FY 2018 FNS administrative data. Instead, the proportion of participants reported for each food package type in the PC2018 data was used to calculate the number of participants for each food package type in each State agency. The study team estimated the number of participants assigned each food package type by multiplying the proportion of a State agency's participants assigned each food package type in the PC2018 data by the average monthly number of participants as reported for that State agency in the FY 2018 FNS administrative data. For example, the PC2018 data indicated 3.0 percent of participants in Indiana were issued Food Package Type I-FF-A (fully formula-fed infants aged 0 to 3.9 months). The study team multiplied 3.0 percent by the average monthly number of participants in Indiana (143,730). To estimate the total number of participants in I-FF-A, the study team summed the number of participants across all study State agencies.

2. Quantity Redeemed

The estimated average monthly quantities of foods prescribed to participants were based on the food package contents as described in section A of this chapter. For each WIC-eligible food category, the total average monthly quantity prescribed was calculated as the average quantity prescribed per participant multiplied by the number of participants in the participant category. Data limitations required additional calculations for undifferentiated prescriptions for cow's milk, legumes, and whole grains (see appendix A for additional detail).

Because participants often do not redeem all the foods prescribed to them and redeem foods at different rates across food categories (Gleason & Pooler, 2011; Gleason et al., 2020; Esposito, 2013), estimating WIC food costs using the quantity prescribed may overestimate total food costs and over- and underestimates costs for individual food categories. To derive more accurate costs by food category, the study team adjusted the quantities for each food category prescribed to estimate the quantities redeemed for each food category using average redemption rates calculated using the study EBT data (see appendix table A.5).

The study team calculated the redemption rate per food category for each State agency as the sum of units redeemed divided by the sum of units issued. The average redemption rate for each food category was calculated as the mean redemption rate across State agencies weighted by the total number of units issued in the food category. The quantities prescribed for each food category were converted to estimated quantities redeemed by multiplying the average prescription quantity by the average redemption rate (see table 2.2).

Table 2.2. WIC Food Categories and Estimated Quantities Redeemed

Food Category	Unit	Pregnant Women	Breastfeeding Women	Postpartum Women	Infants	Children
Cow's milk[a]	Fluid ounces	304.6	280.8	224.1	–	221.2
Soy-based beverage[b]	Fluid ounces	8.1	7.8	5.5	–	4.8
Tofu[b]	Ounces	0.2	0.2	< 0.1	–	< 0.1
Yogurt[b]	Ounces	10.7	10.2	9.7	–	9.7
Cheese[b]	Ounces	9.7	12.9	9.0	–	9.2
Eggs	Dozens	0.7	0.9	0.7	–	0.7
Legumes[a]	Ounces[c]	7.2	6.3	3.3	–	3.9
Peanut butter	Ounces	5.9	5.0	3.7	–	3.0
Canned fish	Ounces	0.3	5.9	–	–	–
Juice	Fluid ounces	82.1	72.4	56.0	–	75.1
Whole-wheat/whole-grain bread[a]	Ounces	6.2	4.2	0.1	–	12.1
Other whole grains[a,d]	Ounces	1.2	0.8	–	–	2.3
Breakfast cereal	Ounces	18.9	19.0	18.9	–	19.0
Fruits and vegetables	Dollars	7.82	7.39	7.82	0.23	5.64
Infant formula	Fluid ounces	–	–	–	466.2	–
Infant cereal	Ounces	–	–	–	10.9	–
Infant fruits and vegetables	Ounces	–	–	–	37.1	–
Infant food meat	Ounces	–	–	–	1.3	–

Notes
Average quantities prescribed do not include any foods prescribed in Food Package III (see appendix D for additional detail on the calculation of total estimated Food Package III costs).
Average monthly quantities by food package type are provided in appendix tables E.19a, E.19b, E.19c, and E.19d.
[a] Unspecified quantities of cow's milk, legumes, peanut butter, whole-wheat/whole-grain bread, and other whole grains were calculated using the relative share of purchases in the study EBT data.
[b] Soy-based beverage, tofu, yogurt, and cheese are allowable substitutions for cow's milk.
[c] Ounces of canned beans were calculated in dry bean ounce equivalents: 1 dry bean ounce equivalent is equal to 4 ounces of canned beans.
[d] Brown rice, soft corn or whole-wheat tortillas, oats, whole-wheat pasta, and other whole grains (bulgur and barley) are allowable substitutions for whole-wheat/whole-grain bread.
Sources: PC2018 data; study EBT data

3. Average Retail Price

Average unit prices were estimated for the 18 WIC-eligible food categories using IRI data limited to WIC-eligible foods within those categories (see table 2.3). For example, "eggs" is a WIC-eligible food category; in estimating costs for eggs, the study team limited the analysis to types of eggs likely to be allowed by State agencies by excluding egg types such as brown, cage free, and organic. Appendix C provides detail on how each food category was created and specific exclusions made so that price estimates more accurately reflected WIC-eligible food items under Federal regulations. Average unit prices were estimated using IRI household food purchasing data from October 1, 2017, through September 30, 2018.[24] The IRI data did not provide a reliable identifier for WIC-eligible households, so to more closely approximate the prices paid by WIC households, average retail price estimates were based

[24] The IRI data are household purchase data from a randomly selected sample of U.S. households. The data are weighted to provide a nationally representative picture of household purchases.

on purchases by individuals with WIC-eligible incomes.[25] The retail unit prices for each WIC-eligible food category were calculated by dividing the total dollars in sales in each food category by the total volume purchased.[26]

A slightly different approach was used to calculate the average prices for nonexempt infant formulas among purchases made by low-income households as reflected in the IRI data. When calculating infant formula prices in the IRI data, the study team included only formula manufacturers and brands with State agency rebate contracts during FY 2018. The team applied manufacturer-specified dilution factors to each of these products based on the form (powder, liquid concentrate, and ready-to-feed) to estimate the number of reconstituted ounces and the WIC-eligible container size. Then, the retail unit prices for nonexempt WIC infant formula were calculated by dividing the total dollars in sales on nonexempt infant formula by the total number of reconstituted ounces purchased.

Table 2.3. Price per Unit for WIC-Eligible Food Categories

WIC-Eligible Food Category	Unit	Average Price per Unit
Eggs	Dozens	$1.44
Fruits and vegetables	Dollars	$1.00
Infant food meat	Ounces	$0.40
Infant cereal	Ounces	$0.28
Cheese	Ounces	$0.25
Canned beans	Ounces	$0.21
Infant formula[a]	Fluid ounces	$0.20
Canned fish	Ounces	$0.19
Infant fruits and vegetables	Ounces	$0.18
Whole-wheat/whole-grain bread	Ounces	$0.17
Breakfast cereal	Ounces	$0.16
Peanut butter	Ounces	$0.13
Oats	Ounces	$0.13
Tofu	Ounces	$0.13
Tortillas	Ounces	$0.09
Other whole grains	Ounces	$0.09
Dry beans	Ounces	$0.09
Brown rice	Ounces	$0.09

[25] The study team identified the households whose estimated income fell below the income eligibility thresholds in effect during FY 2018 (HHS, 2017). These households were selected based on whether the reported category of household income (e.g., $20,000 to $25,000) fell within 185 percent of the FY 2018 Federal Poverty Guidelines, taking household size into account.

[26] Each food category identifies the WIC-eligible food items in the category (see appendix C). The average retail price was estimated for the whole food category. By calculating the average price based on total sales and volume in the food category, the study team ensured the average price reflected the purchase decisions of the low-income households in the sample. If households purchased a larger volume of less expensive WIC-eligible food items in the food category, this larger share was captured in the average price.

WIC-Eligible Food Category	Unit	Average Price per Unit
Yogurt	Ounces	$0.08
Whole-wheat pasta	Ounces	$0.08
Soy-based beverage	Fluid ounces	$0.05
Juice[b]	Fluid ounces	$0.04
Whole cow's milk[b]	Fluid ounces	$0.02[c]
Fat-reduced cow's milk[b,d]	Fluid ounces	$0.02[c]

Notes
Food categories are sorted by highest to lowest price per unit.
[a] To calculate reconstituted fluid ounces, liquid concentrate formula amount was multiplied by two. Powdered formula was converted to reconstituted fluid ounces by using the dilution factor specified by the manufacturer. When a dilution factor was not available, it was imputed using the mean dilution factor of other formulas with identical form and type designations.
[b] Average prices were based on price per reconstituted ounces for any products in the category that require conversion, such as evaporated cow's milk or condensed juice.
[c] The average unit price of whole cow's milk was $0.023; the average unit price for fat-reduced cow's milk was $0.021.
[d] Fat-reduced milk includes skim milk (0.5 percent or less), lowfat milk (1 percent), and reduced-fat milk (2 percent).
Source: IRI data

4. Final Adjustments

After calculating estimated food costs using the number of participants, quantity redeemed, and average retail unit price, the study team made two adjustments to match total food costs reported in the FY 2018 FNS administrative data: (1) rebate amounts were applied to costs for infant formula and foods, and (2) total food costs were scaled up to match administrative data.

Adjusting estimates to FY 2018 FNS administrative data

The calculated pre-rebate estimated food costs for the 52 study State agencies were 29 percent lower than the FY 2018 actual cumulative food costs as reported in FNS administrative data.[27,28] To account for this difference, the study team scaled up the estimated total food costs to match the actual total food costs ($4.5 billion). The team scaled the total costs by applying the distribution of estimated pre-rebate costs to the total FY 2018 pre-rebate food expenditures reported in the FNS administrative data. In other words, the percentage of the estimated total costs for each WIC-eligible food category and each participant category and food package type was applied to the actual FY 2018 total food costs. For example, cow's milk accounted for 9.5 percent of the estimated pre-rebate costs (see table 4.3), so the study team calculated the adjusted pre-rebate cow's milk costs for FY 2018 as 9.5 percent of the total actual food costs in FY 2018. This total food cost for cow's milk was then applied across the participant categories and food package types.

[27] This comparison was based on pre-rebate food package costs after subtracting total Food Package III costs (see appendix D for information on the calculation of total estimated Food Package III costs). Underestimation of total pre-rebate food costs was due to underestimation of unit prices, quantities redeemed, or both (see chapter 2 section D).
[28] Estimated FY 2018 pre-rebate food package costs differed substantially from the FY 2014 estimates due to the application of redemption rates in the FY 2018 methodology. When redemption rates were removed from the estimation process, the FY 2018 pre-rebate food package costs were 4 percent higher than costs reported in the FY 2018 FNS administrative data; this is consistent with the estimated FY 2014 pre-rebate food package costs.

Adjusting estimates for rebates on infant formula and infant foods

After the food costs were matched to the FY 2018 FNS administrative data, additional adjustments were made to those costs for infant formula and foods (i.e., cereal, fruits, vegetables, and meat) to account for rebates received from manufacturers. The total amount of rebates received, $1.7 billion, was drawn from the FY 2018 FNS administrative data. First, the study team estimated the total rebate for each infant food for which State agencies held rebate contracts as of April 1, 2018. Rebate amounts were estimated by multiplying the rebate amount per ounce (as specified in each State agency's rebate contract), the average estimated quantity redeemed per participant, and the estimated average number of infants served by the State agency each month. The study team then summed the infant food rebates across State agencies. The rebates for infant foods totaled $4.5 million. The remainder of the $1.7 billion in total rebates was attributed to infant formula.

Post-rebate food costs for infant formula and infant foods were calculated by subtracting the calculated food category-specific rebate amount received from the pre-rebate food category cost. Pre- and post-rebate food costs were equal for all other food categories.

C. Changes in Methods From Previous Food Packages and Costs Reports

To improve reporting, the study team updated the methodologies used for previous reports on WIC food packages and food costs. Comparisons of the methodology used for reporting summary statistics of WIC food packages in this report with that for the PC2016 Food Package Report (Patlan & Mendelson, 2018) follow:

- **WIC formula categories, forms, and types.** The study team updated the methodology for assigning WIC formula category (i.e., exempt, nonexempt, WIC-eligible nutritional), form (i.e., powder, liquid concentrate, ready-to-feed), and type (e.g., metabolic, milk-based, premature). Specific changes and their effects are described below.
  - In PC2016, WIC formula category assignments for a specific product varied by participant. This methodology was updated to assign WIC formula categories universally for each product. As a result, the percentage of infants assigned Food Package III with an exempt infant formula allowed in PC2018 was greater than in PC2016.
  - In PC2016, some WIC formulas were classified as multiple types (e.g., a formula containing hydrolyzed milk protein was classified as both a milk-based formula and a hydrolysate[29]). For PC2018, WIC formula type classifications were mutually exclusive. As a result, the percentage of infants with milk-based formula allowable in PC2018 was smaller than in PC2016.
  - In PC2018, the hydrolysate formulas were disaggregated into two types (i.e., amino acid-based formulas and hydrolysate formulas) based on the inclusion of hydrolyzed protein as an ingredient. As a result, the percentage of infants with hydrolysate formulas allowable in PC2018 was smaller than in PC2016.

[29] A hydrolysate formula is an exempt infant formula or WIC-eligible nutritional containing proteins that are partially or extensively broken down or hydrolyzed.

- The methodology for assigning a form for WIC formula (i.e., powder, liquid concentrate, ready-to-feed) was revised so that single food package or item codes as submitted by the State agencies could represent all forms allowable rather than only one. As a result, the percentage of infants with liquid concentrate formulas allowed in PC2018 was greater than in PC2016.

- **Powder formula conversions.** For PC2018, the study team updated the values for converting powder formula to reconstituted ounces using dilution factors obtained from the manufacturer when available. In PC2016, unavailable dilution factors were imputed using a constant factor. For PC2018, unavailable dilution factors were imputed using the mean factors of all other formulas with the same category and type classifications. The number of food packages containing imputed dilution factors in PC2018 was significantly smaller than in PC2016.
- **Missing data for infant formula.** In PC2016, infant formula prescriptions without definitive information on the amount prescribed were considered not fully translated and excluded from tabulations. For this report, food packages with definitive information on formula category, form, and type but not amount were considered reliable, and the formula amount prescribed was set to missing. These food packages were included in the tabulation of category, form, and type but not amount (see tables 3.1 and 3.2).
- **WIC formula prescribed to women.** For PC2018, food packages that prescribed exempt or nonexempt infant formula to women were considered unreliable and excluded from tabulations.
- **Soy-based beverage.** In PC2016, soy-based beverage was tabulated as a type of cow's milk allowable in certain food packages. For PC2018, prescribed amounts of soy-based beverage were calculated for each prescription as a separate milk-alternative food category (see table 3.4).
- **Imputed forms and types.** In PC2016, the study team did not impute forms and types allowed for a food if the State agency documentation did not specify forms and types. Instead, the team translated those food packages as "unspecified" for forms and types. For PC2018, the team imputed unspecified whole-grain, canned fish, and fruit and vegetable forms and types from State agency food lists and brochures. Therefore, the PC2018 tabulations do not contain unspecified whole-grain, canned fish, or fruit and vegetable forms and types. The percentage of participants with food package prescriptions that allowed these forms or types was greater in PC2018 than in PC2016.

Comparisons of the methodology used to estimate WIC food package costs for this report with that for the FY 2014 Food Package Costs Report (Kline et al., 2018) follow:

- **Average unit price of cow's milk.** For the FY 2014 Food Package Costs Report, the average unit price of cow's milk was calculated as the unweighted average of unit prices across all cow's milk transactions. For FY 2018, the average unit price of cow's milk was calculated using the same method as used for all other food categories: the sum of dollars spent divided by the sum of units purchased. This change was implemented to ensure consistency across food categories but had a negligible impact on the estimated unit price of cow's milk.

- **Average unit price of canned beans.** The average unit price of canned beans as dollars per dry bean ounce equivalent (1 ounce of dry beans is equivalent to 4 ounces of canned beans) was calculated so that the price and quantity of redeemed values were in the same units. As a result, the share of food package costs attributable to canned beans was greater in FY 2018 than in FY 2014.
- **Infant formula and infant food rebates.** For FY 2018, rebate amounts for infant foods were estimated using estimated ounces redeemed rather than ounces prescribed. As a result, the share of the total rebate amount attributable to infant foods (i.e., cereal, fruits, vegetables, and meat) decreased and the share attributable to infant formula increased compared with FY 2014.
- **Redemption rates by food category.** The FY 2014 Food Package Costs Report assumed a uniform redemption rate across food categories when adjusting cost estimates to match FNS administrative data. For FY 2018, the study team accounted for variation in benefit redemption rate by food category using average redemption rates calculated for each food category using the study EBT data.
- **Estimated relative purchase shares.** For both the FY 2014 Food Package Costs Report and this report, the study team applied the distribution of purchases to disaggregate undifferentiated prescriptions of cow's milk, legumes, and whole grains. However, for the FY 2014 report, the team used the purchase distribution for these food categories in the IRI data, whereas for FY 2018, the team used the distribution in the study EBT data. Appendix table A.4 provides a comparison of the relative purchase shares calculated from the FY 2018 IRI data and study EBT data.

These methodological changes did not affect the results presented in chapter 5; FY 2014 food package costs results were recalculated using study EBT data redemption rates and were adjusted for inflation. However, caution should be used in comparing results from previous food package cost reports because other components of the methodology have changed.

D. Limitations

There are four data limitations to consider when using the cost estimates presented in this report: (1) estimation of unit prices; (2) representativeness of the study EBT data; (3) accuracy of estimated total Food Package III costs; and (4) overestimation of valid null food packages.

1. Estimation of Unit Prices

The study team relied on FY 2018 IRI data to calculate average unit prices for each WIC-eligible food category. Three limitations may affect the reliability of using these unit price estimates to represent prices paid by WIC participants.

1. Average unit prices were estimated at the national level despite variation in allowed foods and food costs across State agencies (e.g., brands allowed, package size requirements, allowed forms or types of foods). The study team was not able to account for differences in allowed foods across State agencies. Future research could address how variation in allowed foods across State agencies might influence the average price or food costs by food category.

2. The IRI data did not provide sufficient detail to exclude some products based on key ingredients. In particular, the IRI data did not enable the study team to include only breakfast cereals that met Federal requirements for iron minimums and sugar limits in the calculation of average retail unit price. The team removed 261 breakfast cereals (3.9 percent) with universal product code descriptions that implied high sugar content; these breakfast cereals were more expensive than those retained for analysis ($0.186 per ounce versus $0.166 per ounce). Some high-sugar breakfast cereals may have been retained for analysis because of vague product descriptions. Therefore, FY 2018 average unit prices of breakfast cereal may be biased upward.
3. The household purchases used to estimate average unit prices were a proxy for WIC-eligible participants; the IRI data did not contain a reliable indicator for WIC participation. Therefore, additional variation in WIC household purchasing patterns may not be captured in the average unit price estimates.

The study team compared unit prices derived from FY 2018 IRI data to those derived from the study EBT data and identified systematic underestimation of unit prices in the IRI data (see table 2.3). Application of unit prices from the study EBT data would increase the total estimated food cost by $378 million (21 percent) compared to the IRI data. Additionally, across all food categories, except tofu and infant fruits and vegetables, unit prices in the study EBT data were higher than those in the IRI data. These underestimated unit prices in the IRI data contribute to the 29 percent underestimation of total food costs (see section B).

Table 2.4. Comparison of Average Unit Prices for WIC-Eligible Foods between IRI Data and Study EBT Data from 12 State Agencies

WIC-Eligible Food Category	Unit	Average Unit Price, IRI Data	Average Unit Price, Study EBT Data	Percent Difference
Eggs	Dozens	$1.37	$1.88	37.4
Yogurt	Ounces	$0.08	$0.11	35.6
Cow's milk	Fluid Ounces	$0.02	$0.03	31.5
Breakfast cereal	Ounces	$0.16	$0.21	29.7
Juice	Fluid Ounces	$0.04	$0.05	22.7
Peanut butter	Ounces	$0.13	$0.16	20.0
Cheese	Ounces	$0.25	$0.30	18.9
Canned fish	Ounces	$0.19	$0.22	17.4
Soy-based beverage	Fluid Ounces	$0.05	$0.05	6.9
Whole-wheat/whole-grain bread	Ounces	$0.16	$0.18	6.9
Legumes	Ounces	$0.15	$0.16	5.3
Infant cereal	Ounces	$0.28	$0.29	4.9

WIC-Eligible Food Category	Unit	Average Unit Price, IRI Data	Average Unit Price, Study EBT Data	Percent Difference
Infant food meat	Ounces	$0.39	$0.41	4.0
Other whole grains	Ounces	$0.09	$0.09	1.4
Infant fruits and vegetables	Ounces	$0.18	$0.17	-4.0
Tofu	Ounces	$0.16	$0.14	-14.0

Notes
Data in this table were limited to the following State agencies: Colorado, Florida, Kentucky, Massachusetts, Michigan, Nevada, Ohio, Texas, Virginia, Wisconsin, West Virginia, and Wyoming
Rows are sorted by percent difference.
Unit prices for infant formula could not be reliably calculated using the study EBT data.
Unit prices for fruits and vegetables (dollar value) are not presented because unit price for these foods is constant.
Unit prices were calculated as the sum of dollars spent divided by the sum of units purchased/redeemed.
Sources: Study EBT data; IRI Data

2. Representativeness of Study EBT Data

The study EBT data were used to approximate nationwide redemption rates for each food category and to provide relative purchasing distributions for disaggregation of cow's milk, legumes, and whole grains. The redemption behavior of participants served by these 12 State agencies may not be representative of nationwide redemption behavior, resulting in biased estimates of the quantity of each WIC food category redeemed.

3. Accuracy of Total Food Package III Costs

Estimates of food package costs in this report exclude costs of Food Package III because reliable data on the unit prices of exempt formulas and WIC-eligible nutritionals typically prescribed to participants receiving Food Package III were unavailable in the IRI data. Because State agencies are not required to provide costs for Food Package III separately in FNS administrative data, the study team estimated these expenditures. To do so, the team collected data pertaining to Food Package III from eight State agencies and used these data to estimate total Food Package III costs nationwide (see appendix D for additional detail). Though the eight State agencies were selected purposefully to be as representative as possible, the data provided from these State agencies may not have been nationally representative, resulting in a biased estimate of pre-rebate total food costs for the remaining food packages.

4. Overestimation of Null Food Packages

State agencies submitted data indicating that about 490,000 participants were prescribed no food, categorized into two undifferentiable sets of participants: (1) participants ineligible to receive supplemental foods and (2) participants with missing food prescription information for some other reason (see appendix A for more detail). The analysis in this report includes participants ineligible to receive supplemental foods but excludes participants with otherwise missing food prescription information. The study team excluded over 190,000 participants with fully empty food package data (i.e., all variables for food package contents were empty). Differentiating these two sets of participants may misclassify those who should be included or excluded when food prescription variables in State agency submissions contained nonmissing null values for any food package contents variables. As a result, the proportion of participants prescribed none of each food category (see chapter 3) may be overstated; average quantities redeemed, and therefore pre-rebate food costs, may be understated (see chapter 4).

Chapter 3. Contents of WIC Food Packages in 2018

The foods provided through WIC are designed to supplement participants' diets with specific nutrients. Federal regulations include detailed food package type categories State agencies assign to participants based on infant age and breastfeeding status, child age, pregnancy or breastfeeding status among women, and whether the participant has a qualifying medical condition (appendix tables B.1–B.4 describe the food packages and show the types of foods and quantities prescribed for different categories of WIC participants). This chapter presents tabulations of the amounts, forms, and types of prescriptions for each of the food package components: formula, milk and milk alternatives, eggs, legumes, canned fish, cereal, whole-wheat/whole-grain bread and other whole grains, juice, fruits and vegetables, and infant foods. The tabulations in this chapter are presented by participant category; appendix E presents similar tabulations by food package type.

A. Formula

WIC Formula (nonexempt infant formula, exempt infant formula, WIC-eligible nutritionals) is provided to participants in Food Packages I, II, and III. Fully breastfed infants are not prescribed formula. WIC Formula must be prescribed to all categories of participants with qualifying conditions receiving Food Package III. This section discusses WIC formula prescribed for infants as well as women and children through Food Package III.

1. Formula for Infants

Food prescriptions for formula are designed to ensure infants receive formula amounts consistent with the nutritional and health goals of WIC. To allow State agencies flexibility in meeting these goals, there is both a maximum monthly allowance (MMA) and a full nutritional benefit (FNB) for formula. The FNB is the minimum amount an infant should receive (except when the package is individually tailored to meet the needs of the infant). The FNB of formula varies by infant age and breastfeeding status. According to Federal regulations, the FNB for fully formula-fed infants aged 4 to 5.9 months is 884 ounces of reconstituted liquid concentrate, whereas older and younger infants who are fully formula-fed have smaller FNBs: 806 ounces of reconstituted liquid concentrate for infants aged 0 to 3.9 months and 624 ounces of reconstituted liquid concentrate for infants aged 6 to 11.9 months (see table 3.1 and appendix table E.1). Partially breastfed infants may be issued 104 ounces of reconstituted powder in the first month of life to encourage breastfeeding; thereafter, the FNB is 312 to 442 ounces of reconstituted liquid concentrate depending on the infant's age. The MMA is larger than the FNB and varies based on infant age and breastfeeding status as does the FNB, but the MMA also varies based on formula form (i.e., powder, liquid concentrate, or ready-to-feed). The MMA is largest for powdered formula and smallest for reconstituted liquid concentrate formula.

Because of the various forms, container sizes, and reconstitution yields of formula, Federal regulations allow State agencies to round up to the next whole container of formula if necessary, to ensure participants receive the FNB over the timeframe of the food package prescribed (typically more than 1 month). When a State agency rounds up to the next whole container of formula, the number of

reconstituted ounces of formula may exceed the MMA or be less than the FNB in any given month. However, State agencies must issue enough formula to meet the FNB for the participant on average over the timeframe of the food package. This gives the State agency some flexibility in providing the FNB to participants. Formula issuance, whether using a monthly issuance or a rounding methodology, should be based on providing the amount of formula that most closely provides the FNB to all infant participants as deemed appropriate based on breastfeeding assessment, infant food package, and feeding method. At a minimum, State agencies must provide the FNB to all nonbreastfed infants. For breastfed infants, the formula amount should be tailored based on the assessed needs of the breastfed infant and provide the minimal amount of formula that meets but does not exceed the infant's nutritional needs.

The prescribed formula amounts may vary from the FNB–MMA ranges for other reasons. First, each participant receives a nutrition assessment before being prescribed a food package. The results of the assessment may indicate the need for a food package to be individually tailored (e.g., based on the breastfeeding assessment). Therefore, for partially breastfeeding infants who receive formula through WIC, it is possible for them to receive less than the FNB. Second, the exact age in months of an infant at the time of issuance is not always clear from the recorded data (see chapter 2 for additional detail).

The data on prescribed quantities in ounces of formula are presented in broad bands (at least 800, at least 600 but less than 800, at least 400 but less than 600, at least 200 but less than 400, and less than 200); these bands correspond to formula amounts for fully formula-fed packages versus partially breastfeeding packages (see table 3.1). Fully formula-fed packages were prescribed for 30.9 to 66.0 percent of infants younger than 6 months old (800 ounces or more), and 54.5 percent of infants aged 6 months or older (at least 600 ounces). Quantities prescribed in the fully formula-fed FNB–MMA ranges were most common across all infant age groups.

Partially breastfed packages were prescribed for 8.5 percent of 0- to 0.9-month-old infants (less than 200 ounces), 13.7 percent of 1- to 3.9-month-old infants and 10.9 percent of 4- to 5.9-month-old infants (at least 200 but less than 600 ounces), and 4.8 percent of infants aged 6 months or older (at least 200 but less than 400 ounces).

Nearly all (98.4 percent) infant prescriptions allowed powdered formula; liquid concentrate and ready-to-feed forms were permitted in 22.1 and 8.3 percent of infant prescriptions, respectively. Milk-based formula was allowed in 85.4 percent and soy-based formula in 4.4 percent of infant prescriptions. Hydrolysate formula[30] was allowed in 7.0 percent and premature formula in 3.1 percent of infant prescriptions.

[30] A hydrolysate formula is an exempt infant formula or WIC-eligible nutritional containing proteins that are partially or extensively broken down or hydrolyzed.

Some infants have special dietary needs that prohibit the use of standard formula; with medical documentation, these infants are prescribed Food Package III, which is intended for medically fragile participants with qualifying conditions. For example, premature and low-birthweight infants may need formula that supplies extra calories and nutrients. These participants were issued prescriptions for exempt infant formula (formula for infants with special medical or dietary needs)[31] or WIC-eligible nutritionals for fewer than 0.1 percent of infants.

Table 3.1. Quantity and Types of Formula Prescribed for Infants by Age of Infant

Formula Prescriptions	Age of Infant[a]				Total Infant Participants
	0–0.9 Months	1–3.9 Months	4–5.9 Months	6+ Months	
Total Infant Participants	56,315	369,502	281,884	1,019,547	1,727,249
FNB–MMA for fully formula-fed (oz)[b]	806–870	806–870	884–960	624–696	N/A
FNB–MMA for partially breastfed (oz)[b]	104	364–435	442–522	312–384	N/A
Quantity (oz)[c]					
Mean amount prescribed	508.1	602.8	683.5	481.9	541.5
Mean amount prescribed to those prescribed any	632.3	714.2	795.8	609.5	665.5
Percent Prescribed					
Quantity Issued (oz)[c]					
At least 800	30.9	40.0	66.0	5.3	23.4
At least 600 but less than 800	22.3	28.3	7.9	49.2	37.1
At least 400 but less than 600	9.6	5.3	8.3	18.7	13.9
At least 200 but less than 400	9.0	8.4	2.6	4.8	5.4
Less than 200	8.5	2.4	1.1	1.0	1.6
None	19.6	15.6	14.1	20.9	18.6
Form Allowable to Those Prescribed Any[d]					
Powdered	98.0	98.2	98.4	98.4	98.4
Liquid concentrate	21.3	20.7	21.2	22.9	22.1
Ready-to-feed	9.1	8.4	8.1	8.3	8.3
Category Allowable to Those Prescribed Any[d,e]					
Nonexempt infant formula	95.6	90.9	90.1	91.4	91.2
Exempt infant formula	4.7	9.5	10.2	8.8	9.0
WIC-eligible nutritionals	–	< 0.1	< 0.1	< 0.1	< 0.1

[31] Exempt infant formula is infant formula intended for commercial or charitable distribution and labeled for use by infants who have inborn errors of metabolism or low birthweight or who otherwise have unusual medical or dietary problems (see 21 C.F.R. 107.3).

Formula Prescriptions	Age of Infant[a]				Total Infant Participants
	0–0.9 Months	1–3.9 Months	4–5.9 Months	6+ Months	
Type Allowable to Those Prescribed Any[d]					
Milk based	92.6	85.7	84.0	85.3	85.4
Hydrolysate	2.3	6.4	7.6	7.3	7.0
Soy based	2.4	4.0	4.6	4.6	4.4
Premature infant formula	3.1	4.2	3.6	2.5	3.1
Amino acid based	0.1	0.5	0.7	0.8	0.7
Metabolics	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Modulars	–	< 0.1	–	< 0.1	< 0.1

Notes
Analysis included all States (except New Jersey), the District of Columbia, and Puerto Rico.
Percents may not add to 100.0 because of rounding.
N/A = not applicable; oz = ounce(s)
[a] Age calculations based on the data reported by State agencies may have resulted in some age group misclassifications for infants (see chapter 2 for additional detail on age calculations).
[b] The smaller number in this range is the FNB, which represents the minimum monthly amount of formula each participant should receive (in the absence of individual tailoring). The larger number in this range is the MMA for infant formula and differs depending on the form: powder, liquid concentrate, or ready-to-feed. The MMA is largest for powdered formula and smallest for reconstituted liquid concentrate formula.
[c] In ready-to-feed or reconstituted ounces; reconstituted fluid ounce is the form prepared for consumption as directed by the manufacturer
[d] Responses were not mutually exclusive, so percents may add to more than 100.0.
[e] Formula types are as follows:

- Nonexempt infant formula refers to infant formula as described in the regulations. Infant formula is defined as a food that meets the definition of an infant formula in section 201(z) of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 321(z)) and meets the requirements for an infant formula under section 412 of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 350a) and the regulations at 21 CFR parts 106 and 107. Infant formula meets Food and Drug Administration requirements and also meets WIC requirements for iron (at least 1.5 milligrams of iron per 100 kilocalories and at least 20 kilocalories per fluid ounce at standard dilution).
- Exempt infant formula refers to an infant formula that meets the requirements for an exempt infant formula under section 412(h) of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 350a(h)) and the regulations at 21 CFR parts 106 and 107. Exempt infant formula is infant formula intended for commercial or charitable distribution that is represented and labeled for use by infants with inborn errors of metabolism, low birthweight, or other unusual medical or dietary problems (21 CFR 107.3).
- WIC-eligible nutritionals refers to certain enteral products specifically formulated to provide nutritional support for individuals with a qualifying condition when the use of conventional foods is precluded, restricted, or inadequate. WIC-eligible nutritionals must serve the purpose of a food, meal, or diet (may be nutritionally complete or incomplete) and provide a source of calories and one or more nutrients; be designed for enteral digestion via an oral or tube feeding; and may not be a conventional food, drug, flavoring, or enzyme. WIC-eligible nutritionals include many products that meet the definition of medical foods in section 5(b)(3) of the Orphan Drug Act (21 U.S.C. 360ee(b)(3)).

Source: PC2018 data

2. Formula for Women and Children

Women and children with special nutritional needs receive Food Package III, which includes WIC formula (i.e., infant formula, exempt infant formula, and WIC-eligible nutritionals) in addition to conventional supplemental foods. Participants prescribed WIC formula consisted of 1,301 women and 77,214 children. The MMA for these groups is 455 ounces of liquid concentrate (or 910 reconstituted ounces); powder and ready-to-feed formula may be substituted at rates that provide comparable nutritive value.

Very few women and children were prescribed formula (see table 3.2 and appendix table E.2). Children were prescribed formula at slightly higher rates than women; 1.9 percent of children were prescribed any formula, and 61.8 percent of those children were prescribed WIC-eligible nutritionals.[32]

Table 3.2. Quantity and Types of Formula Prescribed by Participant Category

Formula Prescriptions	Participant Category				
	Pregnant Women	Fully Breastfeeding Women	Partially Breastfeeding Women	Postpartum Women	Children
Total Participants	650,773	263,482	300,196	499,367	3,971,997
MMA[a]	910	910	910	910	910
Quantity (oz)[b]					
Mean amount prescribed	0.8	0.2	0.1	0.1	12.0
Mean amount prescribed to those prescribed any	518.9	582.9	558.0	624.5	617.3
Percent Prescribed					
Quantity Issued (oz)[b]					
At least 800	< 0.1	< 0.1	< 0.1	< 0.1	0.7
At least 600 but less than 800	< 0.1	< 0.1	< 0.1	< 0.1	0.3
At least 400 but less than 600	< 0.1	< 0.1	< 0.1	< 0.1	0.5
At least 200 but less than 400	< 0.1	< 0.1	< 0.1	< 0.1	0.2
Less than 200	< 0.1	< 0.1	< 0.1	< 0.1	0.2
None	99.8	100.0	100.0	100.0	98.1
Form Allowable to Those Prescribed Any[c]					
Powdered	2.8	1.2	3.0	2.1	44.6
Liquid concentrate	1.3	1.2	1.5	1.0	7.7
Ready-to-feed	98.5	100.0	98.5	99.0	59.6
Category Allowable to Those Prescribed Any[c,d]					
Nonexempt infant formula[e]	–	–	–	–	19.3
Exempt infant formula[e]	–	–	–	–	19.3
WIC-eligible nutritionals	100.0	100.0	100.0	100.0	61.8

[32] Records for women who were assigned food packages with nonexempt or exempt infant formula were considered unreliable and excluded from the analysis.

Formula Prescriptions	Participant Category				
	Pregnant Women	Fully Breastfeeding Women	Partially Breastfeeding Women	Postpartum Women	Children
Type Allowable to Those Prescribed Any[c]					
Milk based	99.5	100.0	100.0	99.0	73.3
Hydrolysate	1.3	1.2	1.5	1.0	17.3
Soy based	1.3	1.2	1.5	1.0	7.2
Premature infant formula	–	–	–	–	2.4
Amino acid based	1.3	1.2	1.5	1.0	12.7
Metabolics	1.8	1.2	1.5	2.1	4.6
Modulars	1.3	1.2	1.5	1.0	4.7

Notes
Analysis included all States (except New Jersey), the District of Columbia, and Puerto Rico.
Percents may not add to 100.0 because of rounding.
oz = ounce(s)
[a] The MMA is shown in reconstituted fluid ounces; this is equivalent to 455 ounces of liquid concentrate; powder and ready-to-feed formula may be substituted at rates that provide comparable nutritive value.
[b] In ready-to-feed or reconstituted ounces; reconstituted fluid ounce is the form prepared for consumption as directed by the manufacturer
[c] Responses were not mutually exclusive, so percents may add to more than 100.
[d] Formula types are as follows:

- Nonexempt infant formula refers to infant formula as described in the regulations. Infant formula is defined as a food that meets the definition of an infant formula in section 201(z) of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 321(z)) and meets the requirements for an infant formula under section 412 of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 350a) and the regulations at 21 CFR parts 106 and 107. Infant formula meets Food and Drug Administration requirements and also meets WIC requirements for iron (at least 1.5 milligrams of iron per 100 kilocalories and at least 20 kilocalories per fluid ounce at standard dilution).
- Exempt infant formula refers to an infant formula that meets the requirements for an exempt infant formula under section 412(h) of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 350a(h)) and the regulations at 21 CFR parts 106 and 107. Exempt infant formula is infant formula intended for commercial or charitable distribution that is represented and labeled for use by infants with inborn errors of metabolism, low birthweight, or other unusual medical or dietary problems (21 CFR 107.3).
- WIC-eligible nutritionals refers to certain enteral products specifically formulated to provide nutritional support for individuals with a qualifying condition when the use of conventional foods is precluded, restricted, or inadequate. WIC-eligible nutritionals must serve the purpose of a food, meal, or diet (may be nutritionally complete or incomplete) and provide a source of calories and one or more nutrients; be designed for enteral digestion via an oral or tube feeding; and may not be a conventional food, drug, flavoring, or enzyme. WIC-eligible nutritionals include many products that meet the definition of medical foods in section 5(b)(3) of the Orphan Drug Act (21 U.S.C. 360ee(b)(3)).

[e] Records for women who were assigned food packages with nonexempt or exempt infant formula were considered unreliable and excluded from this table.
Source: PC2018 data

B. Milk and Milk Alternatives

Most participants were not prescribed the full fluid milk MMA in the form of milk because of opportunities to substitute their milk benefit for soy-based beverage, tofu, yogurt, or cheese. For women pregnant with a singleton and partially breastfeeding women, the MMA for fluid milk is 22 quarts. Most pregnant women (75.7 percent) were prescribed between 16 and 22 quarts (see table 3.3 and appendix table E.3). About 40 percent of partially breastfeeding women received at least 16 but less than 22 quarts, 45.4 percent were issued at least some but less than 16 quarts, and 13.9 percent were issued none.

The MMA for fluid milk is 24 quarts for fully breastfeeding women,[33] women mostly breastfeeding multiples, and women pregnant with multiples (recipients of Food Package VII); 9.6 percent of fully breastfeeding women were prescribed 24 quarts or more of milk, and most of the remainder (56.1 percent) were prescribed between 16 and 22 quarts. The MMA for fluid milk for children and postpartum women is 16 quarts per month. About 80 percent of children and postpartum women were prescribed at least some but less than 16 quarts of milk.

Federal regulations require nonfat and lowfat (1 percent) milk as the standard issuance for children 24 months and older and all women. Reduced-fat (2 percent) milk can be prescribed at State agency option for children 24 months and older and women with certain conditions as determined by an individual nutritional assessment.[34] Whole milk is required for children aged 12–23 months. Consistent with these regulations, most women and children were prescribed nonfat or lowfat (1 percent) milk (between 78.5 and 85.9 percent across women categories and 57.3 percent of children; between 82.6 and 94.8 percent of children 24 months and older). About 30 percent of children were prescribed whole milk (96.9 percent of 1-year-old children).

Virtually all prescriptions allowed fluid milk (about 99 percent across participant categories); dry and evaporated forms of milk were prescribed at much lower rates (0.6 to 2.4 percent and 2.2 to 3.6 percent of prescriptions across participant categories, respectively). Aside from cow's milk, buttermilk was the most common other type of milk allowed in prescriptions across participant categories (8.0 to 21.8 percent), followed by lactose-free or lactose-reduced milk (3.2 to 7.3 percent of prescriptions) and acidophilus milk (3.3 to 4.8 percent of prescriptions).

Table 3.3. Quantity and Types of Milk Prescribed by Participant Category

Milk Prescriptions	Participant Category				
	Pregnant Women	Fully Breastfeeding Women	Partially Breastfeeding Women	Postpartum Women	Children
Total Participants	650,773	263,482	300,196	499,367	3,971,997
Quantity (qt)[a]					
MMA[b]	22–24[c]	24–36[d]	0–22[e]	16	16
Mean amount prescribed	15.7	15.6	12.5	11.6	11.2
Mean amount prescribed to those prescribed any	17.1	19.2	14.6	12.5	12.5
Percent Prescribed					
Quantity Issued (qt)[a]					
24 or more	0.4	9.6	0.4	0.2	0.4
At least 22 but less than 24	4.8	4.4	2.0	0.1	< 0.1
At least 16 but less than 22	75.7	56.1	38.2	12.1	9.3
Less than 16	10.5	11.1	45.4	80.4	79.6
None	8.6	18.7	13.9	7.2	10.7

[33] The fully breastfeeding women category includes women who are fully breastfeeding multiples and are allowed 36 quarts of milk, or 1.5 times the milk MMA of Food Package VII.

[34] According to Federal regulations, with medical documentation, whole or reduced-fat (2 percent) milk may be substituted for lowfat (1 percent) or nonfat milk for children older than 24 months and women who receive Food Package III.

Milk Prescriptions	Participant Category				
	Pregnant Women	Fully Breastfeeding Women	Partially Breastfeeding Women	Postpartum Women	Children
Percent Fat Allowable to Those Prescribed Any[f]					
Skim or nonfat (0.5 percent or less)	80.9	82.8	78.5	85.9	57.3
Low fat (1 or 1.5 percent)	94.3	92.1	96.7	96.5	65.5
Reduced fat (2 percent)	8.1	6.6	4.5	7.0	5.2
Whole	1.1	3.9	0.1	0.3	31.1
Form Allowable to Those Prescribed Any[f]					
Fluid	98.6	99.2	98.1	99.1	98.8
Evaporated	2.9	2.2	3.6	3.1	2.4
Dry	2.4	0.6	2.4	1.8	0.6
Type Allowable to Those Prescribed Any[f]					
Cow's milk	84.7	86.2	74.2	89.4	88.0
Buttermilk	14.7	10.5	21.8	10.7	8.0
Lactose-free or lactose-reduced	5.8	6.2	7.3	3.2	6.2
Acidophilus	4.8	4.3	3.4	4.0	3.3
Kosher	3.7	4.3	3.2	1.8	3.5
UHT	0.8	0.5	1.0	0.6	1.6
Flavored	1.6	0.8	0.9	2.2	0.8
Goat's milk	0.9	0.7	0.9	0.6	0.9

Notes
Analysis included all States (except New Jersey), the District of Columbia, and Puerto Rico.
Percents may not add to 100.0 because of rounding.
qt = quart(s); UHT = ultra-high-temperature pasteurized
[a] Fluid milk; evaporated and dry milk were converted to fluid equivalent.
[b] The MMA is for fluid milk. The MMA can be met by combining fluid, dry, and evaporated milk and by substituting soy-based beverage, tofu, yogurt, or cheese for part of the fluid milk allowance. This table does not include prescription data for soy-based beverage, tofu, yogurt, or cheese.
[c] In this table, the pregnant women category includes women pregnant with one fetus with an MMA of 22 quarts and women pregnant with multiples with an MMA of 24 quarts.
[d] In this table, the fully breastfeeding women category includes women fully breastfeeding one infant up to 1 year postpartum and women partially (mostly) breastfeeding multiples with an MMA of 24 quarts, and women fully breastfeeding multiples with an MMA of 36 quarts.
[e] In this table, the partially breastfeeding women category includes partially (minimally) breastfeeding women up to 6 months postpartum with an MMA of 16 quarts, partially (mostly) breastfeeding women up to 1 year postpartum with an MMA of 22 quarts, and partially (minimally) breastfeeding women more than 6 months postpartum with an MMA of zero quarts.
[f] Responses were not mutually exclusive, so percents may add to more than 100.0.
Source: PC2018 data

1. Milk Alternatives: Soy-Based Beverage, Tofu, Yogurt, and Cheese

Federal regulations allow State agencies the option of allowing participants to substitute some or all the fluid milk benefit for soy-based beverage, tofu, yogurt, and/or cheese. Participants receiving Food Package VII are prescribed cheese in addition to fluid milk.

a. Soy-based beverage

Participants may be prescribed up to an equal amount of soy-based beverage for milk. However, most participants across participant categories (96.4 to 97.4 percent) were prescribed no soy-based beverage (see table 3.4 and appendix table E.4). Among those prescribed any soy-based beverage, the mean amount prescribed ranged from 12.4 to 17.7 quarts across participant categories.

Table 3.4. Quantity of Soy-Based Beverage Prescribed by Participant Category

Soy-Based Beverage Prescriptions	Participant Category				
	Pregnant Women	Fully Breastfeeding Women	Partially Breastfeeding Women	Postpartum Women	Children
Total Participants	650,773	263,482	300,196	499,367	3,971,997
Quantity (qt)					
MMA	N/A	N/A	N/A	N/A	N/A
Maximum substitution allowance	22–24[a]	24–36[b]	0–22[c]	16	16
Mean amount prescribed	0.5	0.6	0.4	0.4	0.3
Mean amount prescribed to those prescribed any	16.6	17.7	14.2	12.5	12.4
Percent Prescribed					
Quantity Issued (qt)					
24 or more	0.1	1.1	0.1	< 0.1	< 0.1
At least 22 but less than 24	0.3	0.3	0.2	< 0.1	< 0.1
At least 16 but less than 22	2.0	0.9	0.9	0.2	0.5
Less than 16	0.9	1.3	1.7	2.6	2.0
None	96.8	96.4	97.2	97.1	97.4

Notes
Analysis included all States (except New Jersey), the District of Columbia, and Puerto Rico.
Percents may not add to 100.0 because of rounding.
N/A = not applicable; qt = quart(s)
a In this table, the pregnant women category includes women pregnant with one fetus with an MMA of 22 quarts and women pregnant with multiples with an MMA of 24 quarts.
b In this table, the fully breastfeeding women category includes women fully breastfeeding one infant up to 1 year postpartum and women partially (mostly) breastfeeding multiples with an MMA of 24 quarts, and women fully breastfeeding multiples with an MMA of 36 quarts.
c In this table, the partially breastfeeding women category includes partially (minimally) breastfeeding women up to 6 months postpartum with an MMA of 16 quarts, partially (mostly) breastfeeding women up to 1 year postpartum with an MMA of 22 quarts, and partially (minimally) breastfeeding women more than 6 months postpartum with an MMA of zero quarts.
Source: PC2018 data

b. Tofu

Participants may be prescribed tofu as a substitute for milk based on an individual nutritional assessment without medical documentation at the rate of 1 pound of tofu for 1 quart of milk up to the maximum substitution allowance shown in table 3.5. If allowed by State agency policy, women and children may be prescribed additional tofu up to the maximum allowance of fluid milk for reasons that include lactose intolerance.

Few participants were prescribed any tofu—the percentage prescribed none ranged from 98.0 percent of fully breastfeeding women to 99.6 percent of postpartum women (see table 3.5 and appendix table E.5). The mean amount prescribed to those prescribed any ranged from 2.1 pounds for children to 3.1 pounds for fully breastfeeding women.

Table 3.5. Quantity of Tofu Prescribed by Participant Category

Tofu Prescriptions	Participant Category				
	Pregnant Women	Fully Breastfeeding Women	Partially Breastfeeding Women	Postpartum Women	Children
Total Participants	650,773	263,482	300,196	499,367	3,971,997
Quantity (lb)					
MMA	N/A	N/A	N/A	N/A	N/A
Maximum substitution allowance[a]	4–6[b]	6	0–6[c]	4	4
Mean amount prescribed	< 0.1	0.1	< 0.1	< 0.1	< 0.1
Mean amount prescribed to those prescribed any	3.0	3.1	2.9	3.0	2.1
Percent Prescribed					
Quantity Issued (lb)					
4 or more	0.4	1.0	0.4	0.2	0.1
Less than 4	0.4	1.0	0.4	0.2	0.5
None	99.1	98.0	99.2	99.6	99.4

Notes
Analysis included all States (except New Jersey), the District of Columbia, and Puerto Rico.
Percents may not add to 100.0 because of rounding.
lb = pound(s); N/A = not applicable
[a] Tofu could be substituted for milk based on individual nutritional assessment without medical documentation at the rate of 1 pound of tofu for 1 quart of milk up to the maximum substitution allowance shown. If allowed by State agency policy, women and children are allowed to substitute additional tofu up to the maximum allowance of fluid milk (see table 2.3 for fluid milk MMA).
[b] In this table, the pregnant women category includes women pregnant with one fetus with a maximum substitution allowance of 4 pounds and women pregnant with multiples with a maximum substitution allowance of 6 pounds.
[c] In this table, the partially breastfeeding women category includes partially (minimally) breastfeeding women up to 6 months postpartum with a maximum substitution allowance of 6 pounds, partially (mostly) breastfeeding women up to 1 year postpartum with a maximum substitution allowance of 6 pounds, and partially (minimally) breastfeeding women more than 6 months postpartum with a maximum substitution allowance of zero pounds.
Source: PC2018 data

c. Yogurt

Participants may be prescribed yogurt as a substitute for fluid milk at the rate of 1 quart of yogurt for 1 quart of milk. More than half of all participants were prescribed yogurt across all participant categories (see table 3.6 and appendix table E.6). Consistent with the MMA, the average amount of yogurt prescribed to participants receiving any was 1 quart for all participant categories.

Table 3.6. Quantity of Yogurt Prescribed by Participant Category

Yogurt Prescriptions	Participant Category				
	Pregnant Women	Fully Breastfeeding Women	Partially Breastfeeding Women	Postpartum Women	Children
Total Participants	650,773	263,482	300,196	499,367	3,971,997
Quantity (qt)					
MMA	N/A	N/A	N/A	N/A	N/A
Maximum substitution allowance[a]	1	1	1	1	1
Mean amount prescribed	0.7	0.6	0.6	0.6	0.6
Mean amount prescribed to those prescribed any	1.0	1.0	1.0	1.0	1.0
Percent Prescribed					
Quantity Issued (qt)					
1 or more	65.9	60.2	62.7	59.7	58.2
Less than 1	–	< 0.1	< 0.1	–	< 0.1
None	34.1	39.8	37.3	40.3	41.8

Notes
Analysis included all States (except New Jersey), the District of Columbia, and Puerto Rico.
Percents may not add to 100.0 because of rounding.
N/A = not applicable; qt = quart(s)
[a] Yogurt could be substituted for milk at the rate of 1 quart of yogurt for 1 quart of milk up to a maximum substitution allowance of 1 quart for all participants, except for partially (minimally) breastfeeding women more than 6 months postpartum with an MMA of zero quarts.
Source: PC2018 data

d. Cheese

Participants that receive food packages other than Food Package VII and receive milk can choose to substitute 1 pound of cheese for 3 quarts of milk. Fully breastfeeding women and other recipients of Food Package VII can substitute up to 2 pounds of cheese for 6 quarts of milk in addition to the 1 pound of cheese Food Package VII already provides for a total of up to 3 pounds of cheese. About half of fully breastfeeding women (53.5 percent) were prescribed at least 2 but less than 3 pounds of cheese, while most participants in all other categories were prescribed at least 1 but less than 2 pounds (between 78.1 and 84.5 percent; see table 3.7 and appendix table E.7).

Table 3.7. Quantity of Cheese Prescribed by Participant Category

Cheese Prescriptions	Participant Category				
	Pregnant Women	Fully Breastfeeding Women	Partially Breastfeeding Women	Postpartum Women	Children
Total Participants	650,773	263,482	300,196	499,367	3,971,997
Quantity (lb)					
MMA	0–1[a]	1–1.5[b]	N/A	N/A	N/A
Maximum substitution allowance	1–2[a]	2[b]	0–1[c]	1	1
Mean amount prescribed	0.9	1.5	0.8	0.8	0.8
Mean amount prescribed to those prescribed any	1.0	1.7	1.0	1.0	1.0
Percent Prescribed					
Quantity Issued (lb)					
3 or more	0.1	4.2	0.1	< 0.1	< 0.1
At least 2 but less than 3	1.3	53.5	1.0	0.2	0.1
At least 1 but less than 2	84.5	27.6	78.1	81.3	80.6
Less than 1	< 0.1	< 0.1	0.3	0.3	0.1
None	14.0	14.6	20.5	18.2	19.1

Notes
Analysis included all States (except New Jersey), the District of Columbia, and Puerto Rico.
Percents may not add to 100.0 because of rounding.
lb = pound(s); N/A = not applicable
[a] In this table, the pregnant women category includes women pregnant with one fetus who are allowed to substitute 1 pound of cheese for 3 quarts of milk and women pregnant with multiples with an MMA of 1 pound of cheese who are allowed to substitute up to 2 pounds of cheese for 6 quarts of milk.
[b] In this table, the fully breastfeeding women category includes women fully breastfeeding one infant up to 1 year postpartum and women partially (mostly) breastfeeding multiples with an MMA of 1 pound and women fully breastfeeding multiples with an MMA of 1.5 pounds. These women are allowed to substitute up to an additional 2 pounds of cheese for 6 quarts of milk.
[c] In this table, the partially breastfeeding women category includes partially (minimally) breastfeeding women up to 6 months postpartum and partially (mostly) breastfeeding women up to 1 year postpartum; cheese was not standard in these food packages, but 1 pound of cheese was allowed to be substituted for 3 quarts of milk. This category also includes (minimally) breastfeeding women more than 6 months postpartum with a maximum substitution allowance of zero quarts.
Source: PC2018 data

C. Eggs

The MMA for eggs is two dozen per month for fully breastfeeding women and other recipients of Food Package VII and one dozen per month for other women and for children. Most participants were prescribed eggs (86.9 to 96.5 percent across participant categories; see table 3.8 and appendix table E.8).

Table 3.8. Quantity of Eggs Prescribed by Participant Category

Egg Prescriptions	Participant Category				
	Pregnant Women	Fully Breastfeeding Women	Partially Breastfeeding Women	Postpartum Women	Children
Total Participants	650,773	263,482	300,196	499,367	3,971,997
Quantity (doz)[a]					
MMA	1–2[b]	2-3[c]	0–1[d]	1	1
Mean amount prescribed	0.9	1.7	0.9	1.0	0.9
Mean amount prescribed to those prescribed any	1.0	1.9	1.0	1.0	1.0
Percent Prescribed					
Quantity Issued (doz) [a]					
2 or more	1.6	78.4	1.6	0.4	0.1
At least 1 but less than 2	91.1	8.5	87.5	96.1	93.2
Less than 1	–	–	–	–	–
None	7.4	13.1	10.9	3.5	6.7

Notes
Analysis included all States (except New Jersey), the District of Columbia, and Puerto Rico.
Percents may not add to 100.0 because of rounding.
doz = dozen(s)
[a] Fresh eggs; dried egg mix was converted to fresh equivalent
[b] In this table, the fully breastfeeding women category includes women fully breastfeeding one infant up to 1 year postpartum and partially (mostly) breastfeeding multiples with an MMA of two dozen. Women fully breastfeeding multiples were also included in this category, with an MMA of three dozen.
[c] In this table, the pregnant women category includes women pregnant with one fetus with an MMA of one dozen and women pregnant with multiples with an MMA of one dozen.
[d] The fully breastfeeding women category includes women fully breastfeeding one infant up to 1 year postpartum and partially (mostly) breastfeeding multiples with an MMA of two dozen and women fully breastfeeding multiples with an MMA of three dozen.
[e] In this table, the partially breastfeeding women category includes partially (minimally) breastfeeding women up to 6 months postpartum with an MMA of one dozen, partially (mostly) breastfeeding women up to 1 year postpartum with an MMA of one dozen, and partially (minimally) breastfeeding women more than 6 months postpartum with an MMA of zero dozen.
Source: PC2018 data

D. Legumes

Women's and children's food packages provide legumes in the form of dry beans, peanut butter, and/or canned beans. Canned beans may be substituted for dry beans at the rate of 64 ounces of canned beans for 16 ounces of dry beans.[35]

The MMA for pregnant women, fully breastfeeding women, and partially (mostly) breastfeeding women up to 6 months postpartum is 16 ounces of dry beans and 18 ounces of peanut butter. About 70 percent of pregnant women and fully breastfeeding women and about 35 percent of partially breastfeeding women were prescribed at least 32 ounces of dry beans or 36 ounces of peanut butter (67.2 and 34.8 percent, respectively; see table 3.9 and appendix table E.9).

[35] For the purpose of calculating quantity issued/amount prescribed, canned bean amounts were converted to dry bean equivalents.

Partially (minimally) breastfeeding, postpartum women, and children can receive 16 ounces of dry beans or 18 ounces of peanut butter. These participants may also substitute canned beans for dry beans at the same rate. Half of partially breastfeeding women and 89.4 percent of postpartum women and children were prescribed at least 16 ounces of dry beans or 18 ounces of peanut butter but less than 32 ounces of dry beans or 36 ounces of peanut butter.

State agencies typically offer a choice between the different forms of legumes, treating as equivalent 16 ounces of dry beans, 18 ounces of peanut butter, and 64 ounces of canned beans. Across participant categories, 53.1–62.8 percent of prescriptions allowed dry beans, 56.0–66.9 percent of prescriptions allowed peanut butter, and 78.7–86.7 percent of prescriptions allowed canned beans.

Table 3.9. Quantity and Forms of Legumes Prescribed by Participant Category

Legume Prescriptions	Participant Category				
	Pregnant Women	Fully Breastfeeding Women	Partially Breastfeeding Women	Postpartum Women	Children
Total Participants	650,773	263,482	300,196	499,367	3,971,997
Quantity (oz)					
MMA	32/36	32/36–48/54[a]	0–32/36[b]	16/18[c]	16/18[c]
Mean amount prescribed	28.6	25.3	20.6	16.1	14.8
Mean amount prescribed to those prescribed any	31.1	31.4	23.2	16.8	16.4
Percent Prescribed					
Quantity Issued (oz)					
32/36 or more	74.6	67.2	34.8	1.5	0.3
At least 16/18 but less than 32/36	15.8	11.7	50.0	89.4	85.4
Less than 16/18	1.5	1.8	3.7	4.6	4.6
None	8.1	19.3	11.5	4.5	9.8
Form Allowable to Those Prescribed Any[d]					
Canned beans	86.7	85.9	81.6	78.7	81.1
Peanut butter	66.9	64.8	66.0	68.8	56.0
Dry beans	62.8	56.9	61.5	57.4	53.1

Notes
Analysis included all States (except New Jersey), the District of Columbia, and Puerto Rico.
Percents may not add to 100.0 because of rounding.
oz = ounce(s)
[a] In this table, the fully breastfeeding women category includes women fully breastfeeding one infant up to 1 year postpartum and partially (mostly) breastfeeding multiples with an MMA of 32 ounces dry beans or 36 ounces peanut butter and women fully breastfeeding multiples with an MMA of 48 ounces dry beans or 54 ounces peanut butter.
[b] In this table, the partially breastfeeding women category includes partially (minimally) breastfeeding women up to 6 months postpartum with an MMA of 16 ounces of beans or 18 ounces of peanut butter, partially (mostly) breastfeeding women up to 1 year postpartum with an MMA of 32 ounces beans or 36 ounces of peanut butter, and partially (minimally) breastfeeding women more than 6 months postpartum with an MMA of zero ounces.
[c] The MMA for postpartum women and children is 16 ounces of beans or 18 ounces of peanut butter.
[d] Food packages provide dry beans (or canned beans), peanut butter, or a combination of these types. Responses were not mutually exclusive, so percents may add to more than 100.0. Type allowable percentages included food packages with descriptions that specified the food type in the prescription. For example, a prescription that provided 18 ounces of peanut butter or 16 ounces of dry beans would be counted in both the type allowed dry beans category and the type allowed peanut butter category.
Source: PC2018 data

E. Canned Fish

Canned fish is prescribed for recipients of Food Package VII, which is for fully breastfeeding women and women who are partially breastfeeding multiple children or pregnant with multiples. For women fully breastfeeding multiples, the MMA is 45 ounces of canned fish. Most fully breastfeeding women (76.2 percent) were prescribed 30 ounces or more of canned fish, though 23.1 percent of fully breastfeeding women were not prescribed any canned fish (see table 3.10 and appendix table E.10). For all other women, the MMA for canned fish is 30 ounces. However, more than 98 percent of pregnant and partially breastfeeding women were prescribed no canned fish.

Federal regulations allow State agencies the option to offer participants light tuna, salmon, sardines, and/or mackerel. Light tuna and salmon were permitted in nearly all prescriptions (96.9–99.3 percent and 93.5–95.4 percent, respectively). Sardines were allowed in about one-third to more than one-half (34.2–58.9 percent), and mackerel in about one-third or fewer (7.5–32.4 percent), of prescriptions.

Table 3.10. Quantity and Types of Canned Fish Prescribed by Participant Category

Canned Fish Prescriptions	Pregnant Women	Fully Breastfeeding Women	Partially Breastfeeding Women
Total Participants	650,773	263,482	300,196
Quantity (oz)			
MMA	30	30-45[a]	30
Mean amount prescribed	0.6	23.0	0.4
Mean amount prescribed to those prescribed any	29.9	30.0	30.0
Percent Prescribed			
Quantity Issued (oz)			
30 or more	1.9	76.2	1.5
Less than 30	< 0.1	0.7	< 0.1
None	98.1	23.1	98.5
Type Allowable to Those Prescribed Any[b]			
Light tuna	98.3	96.9	99.3
Salmon	95.4	94.7	93.5
Sardines	58.9	52.2	34.2
Mackerel	32.4	27.5	7.5

Notes
Analysis included all States (except New Jersey), the District of Columbia, and Puerto Rico.
Percents may not add to 100.0 because of rounding.
oz = ounce(s)
[a] In this table, the fully breastfeeding women category includes women fully breastfeeding up to 1 year postpartum and partially (mostly) breastfeeding multiples with an MMA of 30 ounces, and women fully breastfeeding multiples with an MMA of 45 ounces.
[b] Responses were not mutually exclusive, so percents may add to more than 100.0.
Source: PC2018 data

F. Cereal

The MMA for cereal is 24 ounces per month for infants aged 6 months or older and 36 ounces per month for all women participant categories and children. Most participants were prescribed at least that amount of cereal (78.4 to 88.9 percent across participant categories; see table 3.11 and appendix table E.11).

Table 3.11. Quantity of Cereal Prescribed by Participant Category

Cereal Prescriptions	Participant Category					
	Pregnant Women	Fully Breastfeeding Women	Partially Breastfeeding Women	Postpartum Women	Infants 6+ Months	Children
Total Participants	650,773	263,482	300,196	499,367	1,019,503	3,971,958
Quantity (oz)						
MMA	36	36–54[a]	0–36[b]	36	24	36
Mean amount prescribed	31.0	29.1	28.4	32.2	20.1	31.4
Mean amount prescribed to those prescribed any	35.8	36.0	35.8	35.9	24.0	35.9
Percent Prescribed						
Quantity Issued (oz)						
36 or more	85.5	80.4	78.4	88.9	1.7	86.4
At least 24 but less than 36	< 0.1	< 0.1	< 0.1	< 0.1	79.6	0.4
Less than 24	1.1	0.6	0.9	0.9	2.2	0.6
None	13.4	19.0	20.8	10.2	16.4	12.6

Notes
Analysis included all States (except New Jersey), the District of Columbia, and Puerto Rico.
Percents may not add to 100.0 because of rounding.
Infants received infant cereal; all others received breakfast cereal.
oz = ounce(s)
[a] In this table, the fully breastfeeding women category includes women fully breastfeeding one infant up to 1 year postpartum and partially (mostly) breastfeeding multiples with an MMA of 36 ounces and women fully breastfeeding multiples with an MMA of 54 ounces.
[b] In this table, the partially breastfeeding women category includes partially (minimally) breastfeeding women up to 6 months postpartum with an MMA of 36 ounces, partially (mostly) breastfeeding women up to 1 year postpartum with an MMA of 36 ounces, and partially (minimally) breastfeeding women more than 6 months postpartum with an MMA of zero ounces.
Source: PC2018 data

G. Whole-Wheat/Whole-Grain Bread and Other Whole Grains

The MMA for whole-grain products is 2 pounds for children and 1 pound for pregnant women and fully breastfeeding women; most pregnant women (94.8 percent) and fully breastfeeding women (82.5 percent) were prescribed at least 1 but less than 2 pounds (see table 3.12 and appendix table E.12).

The MMA for partially breastfeeding women varies by the extent of breastfeeding and the time postpartum. The MMA for partially breastfeeding women is 1 pound for the first 6 months postpartum, after which partially (minimally) breastfeeding women have an MMA of zero pounds. Partially (mostly) breastfeeding women maintain an MMA of 1

pound up to a year postpartum; less than half of all partially breastfeeding (42.5 percent) were prescribed at least 1 but less than 2 pounds of whole grain products.

Across participant categories, the majority of those prescribed whole grains were allowed whole-wheat/whole-grain bread, soft corn or whole-wheat tortillas, brown rice, and whole-wheat pasta. Oats, bulgur, and barley were allowed for fewer participants.

Table 3.12. Quantity and Types of Whole Grains Prescribed by Participant Category

Whole-Grain Prescriptions	Participant Category			
	Pregnant Women	Fully Breastfeeding Women	Partially Breastfeeding Women	Children
Total Participants	650,773	263,482	300,196	3,971,997
Quantity (lb)				
MMA	1	1–1.5[a]	0–1[b]	2
Mean amount prescribed	1.0	0.9	0.4	1.8
Mean amount prescribed to those prescribed any	1.0	1.0	1.0	2.0
Percent Prescribed				
Quantity Issued (lb)				
2 or more	0.7	3.1	< 0.1	91.7
At least 1 but less than 2	94.8	82.5	42.5	1.0
Less than 1	< 0.1	< 0.1	< 0.1	< 0.1
None	4.5	14.4	57.5	7.3
Type Allowable to Those Prescribed Any[c]				
Whole-wheat/whole-grain bread	98.2	99.0	98.5	98.4
Soft corn or whole-wheat tortillas	97.1	96.6	97.4	97.0
Brown rice	96.6	96.3	97.0	96.4
Whole-wheat pasta	85.7	89.6	88.9	88.3
Oats	50.1	55.4	53.5	53.1
Bulgur	22.8	28.7	25.3	24.8
Barley	18.4	22.6	22.0	20.5

Notes
Analysis included all States (except New Jersey), the District of Columbia, and Puerto Rico.
Percents may not add to 100.0 because of rounding.
lb = pound(s)
[a] In this table, the fully breastfeeding women category includes women fully breastfeeding one infant up to 1 year postpartum and women partially (mostly) breastfeeding multiples with an MMA of 1 pound and women fully breastfeeding multiples with an MMA of 1.5 pounds.
[b] In this table, the partially breastfeeding women category includes partially (minimally) breastfeeding women up to 6 months postpartum with an MMA of 1 pound, partially (mostly) breastfeeding women up to 1 year postpartum with an MMA of 1 pound, and partially (minimally) breastfeeding women more than 6 months postpartum with an MMA of zero pounds.
[c] Responses were not mutually exclusive, so percents may add to more than 100.0.
Source: PC2018 data

H. Juice

The MMA for juice is 144 ounces for pregnant, partially (mostly) breastfeeding, and fully breastfeeding women. About 82 percent of pregnant women and 72.8 percent of fully breastfeeding women were prescribed at least 144 ounces of juice (see table 3.13 and appendix table E.13). For nonbreastfeeding and partially (minimally) breastfeeding postpartum women, the MMA is 96 ounces; 83.5 percent of postpartum women were prescribed at least 96 but less than 128 ounces. The MMA for juice is 128 ounces for children. Nearly 90 percent of children were prescribed at least 128 but less than 144 ounces.

The partially breastfeeding women category represents three subgroups with different MMAs: partially (mostly) breastfeeding women (144 ounces), partially (minimally) breastfeeding women up to 6 months postpartum (96 ounces), and minimally breastfeeding women more than 6 months postpartum (zero ounces). This composition is reflected in the distribution of the prescription amounts: 37.6 percent were prescribed 144 ounces or more, 44.7 percent were prescribed at least 96 ounces but less than 144, 3.3 percent were prescribed less than 96 ounces, and 11.9 percent were prescribed zero ounces.

Table 3.13. Quantity of Juice Prescribed by Participant Category

Juice Prescriptions	Participant Category				
	Pregnant Women	Fully Breastfeeding Women	Partially Breastfeeding Women	Postpartum Women	Children
Total Participants	650,773	263,482	300,196	499,367	3,971,997
Quantity (oz)[a]					
MMA	144	144–216[b]	0–144[c]	96	128
Mean amount prescribed	130.0	121.3	102.5	89.0	117.1
Mean amount prescribed to those receiving any	140.7	139.9	116.3	93.6	125.9
Percent Prescribed					
Quantity Issued (oz)					
144 or more	81.7	72.8	37.6	1.4	0.3
At least 128 but less than 144	7.5	9.4	2.6	0.6	88.3
At least 96 but less than 128	1.9	3.4	44.7	83.5	2.1
Less than 96	1.3	1.0	3.3	9.6	2.3
None	7.6	13.3	11.9	4.9	7.1

Notes
Analysis included all States (except New Jersey), the District of Columbia, and Puerto Rico.
Percents may not add to 100.0 because of rounding.
oz = ounce(s)
[a] Single-strength juice; concentrated juice was converted to single-strength equivalent
[b] In this table, the fully breastfeeding women category includes women fully breastfeeding one infant up to 1 year postpartum and partially (mostly) breastfeeding multiples with an MMA of 144 ounces and women fully breastfeeding multiples with an MMA of 216 ounces.
[c] In this table, the partially breastfeeding women category includes partially (minimally) breastfeeding women up to 6 months postpartum with an MMA of 96 ounces, partially (mostly) breastfeeding women up to 1 year postpartum with an MMA of 144 ounces, and partially (minimally) breastfeeding women more than 6 months postpartum with an MMA of zero ounces.
Source: PC2018 data

I. Fruits and Vegetables

WIC food packages include cash-value vouchers or cash-value benefits for purchasing fruits and vegetables with an MMA of $8 for children and $11 for women. State agencies must authorize fresh fruits and vegetables but may choose to authorize processed fruits and vegetables (i.e., canned, frozen, and/or dried). Between 81.5 and 93.2 percent of pregnant women, fully breastfeeding women, and postpartum women were prescribed at least $11 (see table 3.14 and appendix table E.14). Fifteen percent of partially breastfeeding women received no fruit and vegetable benefits. Nearly all children (90.3 percent) were prescribed at least $8 but less than $11.

Federal regulations also provide State agencies the option to allow infants aged 9 through 11 months to receive a cash-value voucher or cash-value benefit in place of a portion of infant fruits and vegetables. Partially (mostly) breastfed and fully formula-fed infants may receive $4 and 64 ounces of infant fruits and vegetables; fully breastfeeding infants may receive $8 and 128 ounces of infant fruits and vegetables. Fewer than 5 percent of infants received at least $4 but less than $8.

Most fruit and vegetable benefits allowed for canned or frozen produce in addition to fresh fruits and vegetables (61.4 to 91.3 percent across participant categories), and less than 30 percent of fruit and vegetable benefits across participant categories allowed for dried products.

Table 3.14. Amount and Types of Fruit and Vegetables Prescribed by Participant Category

Fruit and Vegetable Prescriptions	Participant Category					
	Pregnant Women	Fully Breastfeeding Women	Partially Breastfeeding Women	Postpartum Women	Infants	Children
Total Participants	650,773	263,482	300,196	499,367	1,727,249	3,971,958
Amount ($)						
MMA	11	11–16.50[a]	0–11[b]	11	4–8[c]	8
Mean amount prescribed	10.25	9.34	9.41	10.30	0.35	7.30
Mean amount prescribed to those prescribed any	11.04	11.06	11.07	11.02	5.75	8.06
Percent Prescribed						
Quantity Issued ($)						
11 or more	92.2	81.5	85.0	93.2	0.2	0.1
At least 8 but less than 11	0.7	3.0	< 0.1	0.2	1.8	90.3
At least 4 but less than 8	< 0.1	< 0.1	< 0.1	< 0.1	4.1	0.1
Less than 4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
None	7.1	15.6	15.0	6.6	93.8	9.4

Fruit and Vegetable Prescriptions	Participant Category					
	Pregnant Women	Fully Breastfeeding Women	Partially Breastfeeding Women	Postpartum Women	Infants	Children
Type Allowable to Those Prescribed Any[d]						
Fresh	100.0	100.0	100.0	100.0	100.0	100.0
Frozen	85.3	86.2	91.3	81.9	–	85.2
Canned	63.0	61.4	66.4	62.2	–	64.8
Dried	17.9	22.6	14.1	14.9	–	20.4

Notes
Analysis included all States (except New Jersey), the District of Columbia, and Puerto Rico.
Percents may not add to 100.0 because of rounding.
[a] The fully breastfeeding women category includes women fully breastfeeding one infant up to 1 year postpartum and partially (mostly) breastfeeding multiples with an MMA of $11 for fruit and vegetable vouchers, and women fully breastfeeding multiples with an MMA of $16.50 for fruit and vegetable vouchers.
[b] In this table, the partially breastfeeding women category includes partially (minimally) breastfeeding women up to 6 months postpartum with an MMA of $11, partially (mostly) breastfeeding women up to 1 year postpartum with an MMA of $11, and partially (minimally) breastfeeding women more than 6 months postpartum with an MMA of $0 for fruit and vegetable benefits.
[c] The infant category includes partially (mostly) breastfed and fully formula-fed infants with an MMA of $4 and 64 ounces of infant fruits and vegetables, and fully breastfeeding infants with an MMA of $8 and 128 ounces of infant fruits and vegetables.
[d] Responses were not mutually exclusive, so percents may add to more than 100.0.
Source: PC2018 data

J. Infant Foods

Fully breastfed infants aged 6 months and older are issued an MMA of 256 ounces of infant fruits and vegetables and 77.5 ounces of infant food meat. If not fully breastfed, these infants are issued an MMA of 128 ounces of infant fruits and vegetables and zero ounces of infant food meat.

On average, infants aged 6 months and older who were prescribed any infant fruits and vegetables were prescribed 132.6 ounces (see table 3.15 and appendix table E.15). Fewer than 10 percent of infants aged 6 months and older (7.7 percent) were prescribed at least 256 ounces of fruits and vegetables, and an additional 66.6 percent were prescribed at least 128 ounces but less than 256 ounces. Similarly, 8.2 percent of infants aged 6 months and older were prescribed at least 77.5 ounces of infant food meat.

Table 3.15. Quantity of Infant Foods Prescribed for Infants Aged 6 Months and Older

Infant Food Prescriptions	Infants 6+ Months
Total Participants	1,019,454
Fruits and Vegetables	
Quantity (oz)	
MMA	128–256[a]
Mean amount prescribed	113.2
Mean amount prescribed to those prescribed any	132.6
Percent Prescribed	
Quantity Issued (oz)	
256 or more	7.7
At least 128 but less than 256	66.6
Less than 128	11.1
None	14.6
Meat	
Quantity (oz)	
MMA	0–77.5[b]
Mean amount prescribed	7.0
Mean amount prescribed to those prescribed any	75.3
Percent Prescribed	
Quantity Issued (oz)	
77.5 or more	8.2
Less than 77.5	1.1
None	90.7

Notes
Analysis included all States (except New Jersey), the District of Columbia, and Puerto Rico.
Percents may not add to 100.0 because of rounding.
oz = ounce(s)
[a] The MMA for infant fruits and vegetables is 128 ounces for fully formula-fed and partially breastfed infants aged 6 months and older and 256 ounces for fully breastfed infants aged 6 months and older.
[b] The MMA for infant food meat is 77.5 ounces for fully breastfed infants aged 6 months and older and zero ounces for fully formula-fed and partially breastfed infants aged 6 months and older.
Source: PC2018 data

Chapter 4. Estimated WIC Food Package Costs in FY 2018

Total WIC food costs for all 90 State agencies in FY 2018 were $3.4 billion after accounting for $1.7 billion received in rebates from infant formula and infant foods manufacturers (USDA FNS, 2020).[36] These totals come from FY 2018 FNS administrative data, whereas the results discussed in this chapter are estimates. This chapter presents estimated average monthly food package costs by participant category and food package type in section A and estimated costs by WIC-eligible food category in section B. [37] The estimates presented in this chapter were calculated after excluding costs for Food Package III; see appendix D for more detail. Appendix E contains additional tabulations that accompany results presented in this chapter.

A. Estimated Costs by Participant Category and Food Package Type

The FY 2018 average monthly post-rebate food package cost per participant estimated in this report ($35.79; see table 4.1) differs from the average monthly post-rebate food package cost per participant reported in the FY 2018 FNS administrative data ($40.96) for two reasons. First, the cost estimates in this report were calculated with data from 52 State agencies rather than the 90 State agencies included in the FY 2018 FNS administrative data, and second, total Food Package III costs were subtracted. The estimated average monthly post-rebate food package cost per participant was highest for infants ($44.97), followed by costs for breastfeeding women ($37.76), pregnant women ($37.33), children ($31.78), and postpartum women ($30.72). Prior to accounting for rebates, the average monthly food package cost per participant was $57.60. The difference between pre- and post-rebate monthly food package costs was highest for infants; the post-rebate monthly food package cost ($44.97) was one-third of the pre-rebate cost ($138.64).

Table 4.1. Estimated Average Monthly Pre- and Post-Rebate Food Package Costs per Participant by Participant Category

Participant Category	Percent of Participants	Pre-Rebate Food Package Cost	Post-Rebate Food Package Cost
Total Participants	**100.0**	**$57.60**	**$35.79**
Pregnant women	9.4	$37.33	$37.33
Breastfeeding women	8.2	$37.76	$37.76
Postpartum women	7.0	$30.72	$30.72
Infants	23.3	$138.64	$44.97
Children	52.1	$31.78	$31.78

Notes
Analysis included all States, the District of Columbia, and Puerto Rico.
Total Food Package III costs and participants prescribed Food Package III are not included in these estimates (see appendix D for additional detail).
Sources: PC2018 data; FY 2018 FNS administrative data; IRI data; study EBT data; Food Package III data

[36] As reported to FNS in FY 2018, for the 52 study State agencies, pre-rebate food costs totaled $5,057,631,803, and post-rebate food costs totaled $3,337,011,340; for all 90 State agencies, pre-rebate food costs totaled $5,110,872,745, and post-rebate food costs totaled $3,376,578,845.
[37] Due to methodological changes in the estimation of FY 2018 WIC food packages costs, comparisons of these results with those from previous WIC food package cost reports should be made with caution.

Table 4.2 provides the estimated FY 2018 average food package cost per participant for each food package type. The estimated average post-rebate food package cost per participant was highest for fully formula-fed infants aged 6 to 11.9 months (II-FF; $49.64) and women who were fully breastfeeding, partially breastfeeding multiples, pregnant with multiples, or pregnant and breastfeeding (VII; $48.92). Other relatively high estimated post-rebate average food package costs per participant were those for partially breastfed infants aged 6 to 11.9 months (II-BF/FF; $44.45) and fully breastfed infants aged 6 to 11.9 months (II-BF; $43.31). The high costs for these food package types were driven by the relatively high cost of infant foods prescribed to older infants. The estimated average pre-rebate monthly cost per participant by food package type was highest for fully formula-fed infants aged 4 to 5.9 months (I-FF-B; $188.54), followed by those for fully formula-fed infants aged 0 to 3.9 months (I-FF-A; $175.27) and 6 to 11.9 months (II-FF; $157.16).

Table 4.2. Estimated Average Monthly Pre- and Post-Rebate Food Package Costs per Participant by Food Package Type

Food Package Type	Percent of Participants	Pre-Rebate Food Package Costs	Post-Rebate Food Package Costs
Total Participants	**100.0**	**$57.60**	**$35.79**
I-FF-A	3.6	$175.27	$38.86
I-FF-B	2.6	$188.54	$41.80
I-BF/FF-A	0.1	$81.88	$18.15
I-BF/FF-B	1.1	$119.73	$26.55
I-BF/FF-C	0.7	$142.96	$31.70
I-BF-A	1.0	–	–
I-BF-B	0.5	–	–
II-FF	8.9	$157.16	$49.64
II-BF/FF	1.7	$135.79	$44.45
II-BF	1.5	$44.00	$43.31
IV-A	16.7	$33.64	$33.64
IV-B	36.9	$33.65	$33.65
V	11.2	$39.12	$39.12
VI	8.8	$32.27	$32.27
VII	3.4	$48.92	$48.92

Notes
Analysis included all States, the District of Columbia, and Puerto Rico.
Total Food Package III costs and participants prescribed Food Package III are not included in these estimates (see appendix D for additional detail).
Food package types are defined in appendix tables B.3 and B.4.
Fully breastfed infants aged 0 to 5.9 months (I-BF-A and I-BF-B) are not issued food. Food Package Type 28 (N/A), which does not include supplemental foods, was assigned to 1.2 percent of participants; this food package type is not included in this table.
Sources: PC2018 data; FY 2018 FNS administrative data; IRI data; study EBT data; Food Package III data

B. Estimated Costs by WIC-Eligible Food Category

Table 4.3 provides the estimated total annual pre- and post-rebate food costs for the 18 WIC-eligible food categories. After accounting for rebates, the $550.2 million expenditure on fruits and vegetables accounted for one-fifth of annual post-rebate food costs (19.5 percent). Infant formula accounted for 18.2 percent of post-rebate food costs with a total annual estimated contribution of $514.5 million,

followed by cow's milk at 15.3 percent with $432.1 million in costs and breakfast cereal at 8.6 percent with $242.7 million in costs. Juice accounted for 8.3 percent of post-rebate food costs at $234.3 million. The remaining 30 percent of food costs (in order from highest to lowest) were for cheese, infant fruits and vegetables, whole-wheat/whole-grain bread, eggs, yogurt, legumes, peanut butter, infant cereal, soy-based beverage, other whole grains, infant food meat, canned fish, and tofu. The difference between pre- and post-rebate food costs was primarily driven by infant formula, which accounted for 49.1 percent of the food costs before rebates were deducted but 18.2 percent afterward.

Table 4.3. Estimated Annual Contribution to Food Costs by WIC-Eligible Food Category

WIC-Eligible Food Category	Pre-Rebate Contribution (percent)	Pre-Rebate Contribution ($ millions)	Post-Rebate Contribution (percent)	Post-Rebate Contribution ($ millions)
Total Estimated Amount	**100.0**	**$4,544.1**	**100.0**	**$2,823.4**
Fruits and vegetables	12.1	$550.2	19.5	$550.2
Infant formula	49.1	$2,230.5	18.2	$514.5
Cow's milk	9.5	$432.1	15.3	$432.1
Breakfast cereal	5.3	$242.7	8.6	$242.7
Juice	5.2	$234.3	8.3	$234.3
Cheese	4.5	$206.0	7.3	$206.0
Infant fruits and vegetables	3.6	$165.0	5.8	$162.9
Whole-wheat/whole-grain bread	3.1	$139.4	4.9	$139.4
Eggs	2.0	$90.3	3.2	$90.3
Yogurt	1.5	$69.4	2.5	$69.4
Legumes	0.9	$42.8	1.5	$42.8
Peanut butter	0.9	$39.7	1.4	$39.7
Infant cereal	0.8	$38.6	1.3	$36.2
Soy-based beverage	0.5	$24.5	0.9	$24.5
Other whole grains	0.3	$14.3	0.5	$14.3
Infant food meat	0.3	$12.4	0.4	$12.3
Canned fish	0.2	$10.5	0.4	$10.5
Tofu	< 0.1	$1.1	< 0.1	$1.1

Notes
Analysis included all States, the District of Columbia, and Puerto Rico.
Food categories are sorted by post-rebate percentage contribution to total food costs.
Total Food Package III costs and participants prescribed Food Package III are not included in these estimates (see appendix D for additional detail).
Percents may not add to 100.0 because of rounding.
The price for infant formula is based on prices for the contract-brand formulas as estimated in the IRI data.
Sources: PC2018 data; FY 2018 FNS administrative data; IRI data; study EBT data; Food Package III data

Chapter 5. Changes in WIC Food Package Contents and Costs Over Time

This chapter presents changes in WIC food packages over time based on the results from the most recent reports on food package contents and costs. Section A compares food package contents for PC2016 and PC2018 data; section B compares estimated food package costs by food category for FY 2014 and FY 2018.

A. Changes in WIC Food Package Contents Since 2016

Table 5.1 presents the mean amounts of foods prescribed to women and children (among those prescribed any) in PC2016 and PC2018, and table 5.2 presents the mean amounts of foods prescribed to infants (among those prescribed any) in PC2016 and PC2018. Across participant categories and food categories, mean prescription amounts remained consistent between PC2016 and PC2018, with few exceptions:

- Across all women participant categories except fully breastfeeding women, women were prescribed at least 50 percent more tofu in PC2018 than in PC2016. The largest increase was among pregnant women, who were prescribed an average of 3.0 pounds of tofu in PC2018 compared with 1.3 pounds in 2016, a 130.9-percent increase. Though this is a large increase, 3.0 pounds still falls within the MMA for tofu.

  Additionally, average quantities of tofu prescribed to women varied across participant categories in PC2016 (1.3–3.0 pounds), whereas in PC2018 average quantities of tofu prescribed were more consistent across women participant categories (2.9–3.1 pounds).
- Average prescription quantities of milk decreased across all participant categories from PC2016 to PC0218 (3.2 percent difference for children and 4.5–7.7 percent difference across women participant categories).
- Average prescription quantities of legumes decreased for all participant categories from PC2016 to PC2018 (3.8–7.9 percent difference).

Table 5.1. Mean Amounts of Foods Prescribed to Women and Children, 2016 and 2018

Food Category	Units	Mean Amount Prescribed to Those Prescribed Any, PC2016	Mean Amount Prescribed to Those Prescribed Any, PC2018	Difference	Percent Difference
Pregnant Women					
Milk	Quarts	18.6	17.1	-1.4	-7.7
Soy-based beverage	Quarts	N/A	16.6	N/A	N/A
Tofu	Pounds	1.3	3.0	1.7	130.9
Yogurt	Quarts	0.9	1.0	0.1	11.6
Cheese	Pounds	1.0	1.0	< 0.1	-0.5
Eggs	Dozens	1.0	1.0	< 0.1	-0.9
Legumes	Ounces	33.3	31.1	-2.2	-6.7
Breakfast cereal	Ounces	35.9	35.8	-0.1	-0.3
Whole grains	Pounds	1.0	1.0	< 0.1	0.6

Food Category	Units	Mean Amount Prescribed to Those Prescribed Any, PC2016	Mean Amount Prescribed to Those Prescribed Any, PC2018	Difference	Percent Difference
Juice	Fluid ounces	141.8	140.7	-1.1	-0.8
Fruits and vegetables	Dollars	11.2	11.0	-0.2	-1.8
Fully Breastfeeding Women					
Milk	Quarts	20.7	19.2	-1.5	-7.1
Soy-based beverage	Quarts	N/A	17.7	N/A	N/A
Tofu	Pounds	3.0	3.1	0.1	2.2
Yogurt	Quarts	0.9	1.0	0.1	7.8
Cheese	Pounds	1.8	1.7	-0.1	-3.9
Eggs	Dozens	2.0	1.9	-0.1	-3.6
Legumes	Ounces	33.4	31.4	-2.0	-5.9
Canned fish	Ounces	30.0	30.0	-0.1	-0.2
Breakfast cereal	Ounces	36.1	36.0	-0.1	-0.3
Whole grains	Pounds	1.0	1.0	< 0.1	3.2
Juice	Fluid ounces	141.7	139.9	-1.8	-1.3
Fruits and vegetables	Dollars	11.2	11.1	-0.2	-1.4
Partially Breastfeeding Women					
Milk	Quarts	15.8	14.6	-1.2	-7.4
Soy-based beverage	Quarts	N/A	14.2	N/A	N/A
Tofu	Pounds	1.9	2.9	1.1	56.5
Yogurt	Quarts	0.8	1.0	0.2	19.0
Cheese	Pounds	1.0	1.0	< 0.1	-0.6
Eggs	Dozens	1.0	1.0	< 0.1	-0.7
Legumes	Ounces	25.2	23.2	-2.0	-7.9
Breakfast cereal	Ounces	36.1	35.8	-0.3	-0.8
Whole grains	Pounds	1.0	1.0	< 0.1	-0.5
Juice	Fluid ounces	118.3	116.3	-1.9	-1.6
Fruits and vegetables	Dollars	11.1	11.1	< 0.1	-0.1
Postpartum Women					
Milk	Quarts	13.0	12.5	-0.6	-4.5
Soy-based beverage	Quarts	N/A	12.5	N/A	N/A
Tofu	Pounds	1.6	3.0	1.4	86.0
Yogurt	Quarts	0.9	1.0	0.1	10.4
Cheese	Pounds	1.0	1.0	< 0.1	-0.2
Eggs	Dozens	1.0	1.0	< 0.1	-0.2
Legumes	Ounces	17.6	16.8	-0.8	-4.3
Cereal	Ounces	35.9	35.9	-0.1	-0.2
Whole grains	Pounds	1.0	1.1	0.1	8.7
Juice	Fluid ounces	92.2	93.6	1.4	1.5
Fruits and vegetables	Dollars	11.0	11.0	< 0.1	0.2

Food Category	Units	Mean Amount Prescribed to Those Prescribed Any, PC2016	Mean Amount Prescribed to Those Prescribed Any, PC2018	Difference	Percent Difference
Children					
Milk	Quarts	12.9	12.5	-0.4	-3.2
Soy-based beverage	Quarts	N/A	12.4	N/A	N/A
Tofu	Pounds	2.4	2.1	-0.3	-13.2
Yogurt	Quarts	1.0	1.0	< 0.1	< 0.1
Cheese	Pounds	1.0	1.0	< 0.1	< 0.1
Eggs	Dozens	1.0	1.0	< 0.1	< 0.1
Legumes	Ounces	17.1	16.4	-0.6	-3.8
Cereal	Ounces	35.9	35.9	-0.1	-0.1
Whole grains	Pounds	2.0	2.0	< 0.1	0.1
Juice	Fluid ounces	124.6	125.9	1.3	1.0
Fruits and vegetables	Dollars	8.3	8.1	-0.2	-3.0

Notes
Analysis included all States (except New Jersey), the District of Columbia, and Puerto Rico.
N/A = not applicable
Soy-based beverage prescriptions were included in milk prescriptions in the PC2016 data and therefore could not be presented separately.
The legumes category includes dry beans, canned beans, and peanut butter; these foods were grouped for analysis of food package contents. Similarly, the whole-grains category includes whole-wheat/whole-grain bread, tortillas, brown rice, oats, bulgur, barley, and whole-wheat pasta; these foods were grouped for analysis of food package contents (see table 3.12).
Source: PC2016 data; PC2018 data

Table 5.2. Mean Amount of Foods Prescribed to Infants, 2016 and 2018

Food and Category	Units	Mean Amount Prescribed to Those Prescribed Any, PC2016	Mean Amount Prescribed to Those Prescribed Any, PC2018	Difference	Percent Difference
Infant formula[a]	Fluid ounces	682.8	665.5	-17.2	-2.5
Infant cereal	Ounces	24.2	24.0	-0.1	-0.5
Infant fruits and vegetables	Ounces	134.9	132.6	-2.3	-1.7
Infant food meat	Ounces	75.7	75.3	-0.4	-0.5

Note
Analysis included all States (except New Jersey), the District of Columbia, and Puerto Rico.
[a] Methods used for calculating reconstituted ounces of powder infant formula differ differed between PC2016 and PC2018 (see chapter 2 for additional detail). As a result, comparisons of mean prescription amount of infant formula should be made with caution.
Source: PC2016 data; PC2018 data

B. Changes in Estimated WIC Food Package Costs Since FY 2014

The number of participants and total actual food costs decreased from FY 2014 to FY 2018. In all 90 State agencies, there were 8.3 million participants in FY 2014 compared with 6.9 million participants in FY 2018. Total actual post-rebate food costs were $4.3 billion in FY 2014 and $3.4 billion in FY 2018. Total actual post-rebate food costs per participant were $43.64 in FY 2014 compared with $40.96 in FY 2018.

As a result of the methodological differences in the FY 2014 Food Package Costs Report and the current report (described in chapter 2), comparisons of the estimated costs over time by WIC-eligible food category should be made with caution. To more accurately make comparisons, the study team adjusted the estimated FY 2014 average unit prices and overall food costs by WIC-eligible food category for inflation to FY 2018 average unit prices and overall food costs using the CPI inflation data (USDA, n.d.). The team also adjusted the FY 2014 food costs by WIC-eligible food category using the average redemption rates of each food category calculated using the study EBT data.

Table 5.3 provides the average unit prices by WIC-eligible food category in FY 2014 and FY 2018, with FY 2014 prices adjusted as described earlier in this section. Across food categories, the average unit prices in FY 2018 were within $0.03 of average unit prices in FY 2014, except for eggs. The average unit price of eggs decreased from $1.70 in FY 2014 to $1.44 in FY 2018; this is likely the result of fluctuations in the market price of eggs (there were no methodological changes that would cause this change in unit price). The difference in average unit prices between FY 2014 and FY 2018 was less than 20 percent for all food categories except cow's milk. The $0.01 decrease in the average unit price of cow's milk was equivalent to a 31.4-percent change for reduced-fat cow's milk and a 24.3-percent change for whole cow's milk.

Table 5.3. Differences in Average Unit Prices by WIC-Eligible Food Category, With FY 2014 Prices Adjusted for Inflation to FY 2018 Prices

Food Category	Price per Unit, FY 2014	Price per Unit, FY 2018	Difference	Percent Difference
Fat-reduced cow's milk[a]	$0.03	$0.02	-$0.01	-31.4
Whole cow's milk[a]	$0.03	$0.02	-$0.01	-24.3
Soy-based beverage	$0.05	$0.05	< $0.01	1.2
Tofu	$0.13	$0.13	< $0.01	-0.9
Yogurt	N/A	$0.08	N/A	N/A
Cheese	$0.27	$0.25	-$0.02	-8.4
Eggs	$1.70	$1.44	-$0.26	-15.1
Dry beans	$0.11	$0.09	-$0.02	-20.0
Canned beans[b]	$0.24	$0.21	-$0.03	-11.0
Peanut butter	$0.14	$0.13	-$0.01	-4.3
Canned fish	$0.21	$0.19	-$0.02	-8.1
Whole-wheat/whole-grain bread	$0.16	$0.17	$0.01	4.5
Tortillas	$0.12	$0.09	-$0.02	-19.2
Brown rice	$0.10	$0.09	-$0.01	-13.4
Oats	$0.12	$0.13	$0.02	13.1
Whole-wheat pasta	N/A	$0.08	N/A	N/A

Food Category	Price per Unit, FY 2014	Price per Unit, FY 2018	Difference	Percent Difference
Other whole grains	$0.11	$0.09	-$0.02	-17.1
Breakfast cereal	$0.17	$0.16	-$0.01	-3.4
Juice	$0.04	$0.04	< $0.01	-8.9
Fruits and vegetables	$1.00	$1.00	< $0.01	-0.1
Infant formula	$0.19	$0.20	$0.01	4.2
Infant cereal	$0.25	$0.28	$0.03	12.4
Infant fruits and vegetables	$0.16	$0.18	$0.02	13.9
Infant food meat	$0.40	$0.40	< $0.01	-0.1

Notes
Analysis included all States, the District of Columbia, and Puerto Rico.
FY 2014 food prices were inflated to FY 2018 prices using data on food consumed at home; the data were drawn from the CPI inflation data (USDA, n.d.). FY 2014 food costs were also adjusted using average redemption rates of each food category; the redemption rates were calculated using the study EBT data.
N/A = not applicable
[a] Methods for calculating average unit prices for cow's milk differed between FY 2014 and FY2018 (see chapter 2 for additional detail); the effect of this change on estimated unit prices was negligible. The large decrease in average unit prices between FY 2014 and FY 2018 was likely the result of the retail prices of cow's milk retail prices.
[b] The FY 2014 average unit price of canned beans was converted to dry bean ounce equivalents to make a methodologically similar comparison to the FY 2018 average unit price.
Sources: IRI data; CPI inflation data

Table 5.4 provides the estimated annual post-rebate food costs by WIC-eligible food category in FY 2014 and FY 2018, with FY 2014 costs adjusted as described earlier in this section. The five foods with the greatest percentage contributions to annual post-rebate food costs were the same in FY 2014 and FY 2018, but with different ranks. In FY 2014, cow's milk was the top contributor (24 percent), followed by infant formula (17 percent), fruits and vegetables (16 percent), breakfast cereal (10 percent), and juice (9 percent). In FY 2018, fruits and vegetables were the top contributor (20 percent), followed by infant formula (18 percent), cow's milk (15 percent), breakfast cereal (9 percent), and juice (8 percent).

Across food categories, annual post-rebate costs in FY 2018 were similar to those in FY 2014, except for cow's milk, whole grains, and eggs:

- Because of the increase in MMA for fruits and vegetables, the percentage contribution of fruits and vegetables from FY 2014 to FY 2018 increased by 3.5 percentage points.
- Because of the decrease in average unit price, the annual post-rebate cost of cow's milk decreased by $481.0 million from FY 2014 to FY 2018, and the percentage contribution decreased by 8.4 percentage points.
- The annual post-rebate cost of whole-wheat/whole-grain bread increased by $89.3 million from FY 2014 to FY 2018, and the annual post-rebate cost of other whole grains decreased by $97.4 million. The percentage contribution of whole-wheat/whole-grain bread increased by 3.6 percentage points from FY 2014 to FY 2018, while the percentage contribution of other whole grains decreased by 2.4 percentage points. These changes were the result of methodological differences in the calculation of quantities redeemed for these food categories (see appendix table A.4).

- Because of the decrease in average unit price, the annual post-rebate cost of eggs decreased by nearly $50 million from FY 2014 to FY 2018, and the percentage contribution decreased by 0.5 percentage points.

Table 5.4. Annual FY 2014 and FY 2018 Estimated Post-Rebate Food Costs by WIC-Eligible Food Category, With FY 2014 Costs Adjusted for Inflation to FY 2018 Costs

WIC-Eligible Food Category	Post-Rebate Costs, FY 2014 ($ millions)	Post-Rebate Contribution, FY 2014 (percent)	Post-Rebate Costs, FY 2018 ($ millions)	Post-Rebate Contribution, FY 2018 (percent)
Total Estimated Amount	**$3,852.9**	**100.0**	**$2,823.4**	**100.0**
Fruits and vegetables[a]	$616.5	16.0	$550.2	19.5
Infant formula[b]	$635.7	16.5	$514.5	18.2
Cow's milk[c]	$913.1	23.7	$432.1	15.3
Breakfast cereal	$366.0	9.5	$242.7	8.6
Juice	$342.9	8.9	$234.3	8.3
Cheese	$281.3	7.3	$206.0	7.3
Infant fruits and vegetables[b]	$196.5	5.1	$162.9	5.8
Whole-wheat/whole-grain bread[d]	$50.1	1.3	$139.4	4.9
Eggs	$142.6	3.7	$90.3	3.2
Yogurt	N/A	N/A	$69.4	2.5
Legumes	$50.1	1.3	$42.8	1.5
Peanut butter	$34.7	0.9	$39.7	1.4
Infant cereal[b]	$46.2	1.2	$36.2	1.3
Soy-based beverage	$34.7	0.9	$24.5	0.9
Other whole grains[d]	$111.7	2.9	$14.3	0.5
Canned fish	$15.4	0.4	$10.5	0.4
Infant food meat[b]	$15.4	0.4	$12.3	0.4
Tofu	< $0.1	< 0.1	$1.1	< 0.1

Notes

Analysis included all States, the District of Columbia, and Puerto Rico.

Food categories are sorted by FY 2018 post-rebate percentage contribution to total food costs.

Percents may not add to 100.0 because of rounding.

FY 2014 food costs were inflated to FY 2018 costs using data on food consumed at home; the data were drawn from the CPI inflation data (USDA, n.d.). FY 2014 food costs were also adjusted using average redemption rates of each food category; the redemption rates were calculated using the study EBT data.

[a] The increase in post-rebate contribution to total food costs from fruits and vegetables is largely the result of an increase in the MMA between FY 2014 and FY2018. The MMA for fruits and vegetables increased from $10 to $11 for women and from $6 to $8 for children.

[b] Methods for disaggregating cumulative infant formula and infant food rebate amounts differed between FY 2014 and FY 2018 (see chapter 2 for additional detail). As a result, the increase in the post-rebate contribution of infant formula may be understated and the increase in the post-rebate contribution for infant foods (i.e., cereal, fruits, vegetables, and meat) may be overstated.

[c] Methods for calculating average unit prices for cow's milk differed between FY 2014 and FY2018 (see chapter 2 for additional detail); the effect of this change on estimated unit prices, and therefore post-rebate contribution to total food costs, was negligible. The large decrease in post-rebate contribution to total food costs between FY 2014 and FY 2018 was likely the result of the change in retail prices of cow's milk.

[d] Methods for disaggregating undifferentiated whole-grain prescription quantities differed between FY 2014 and FY 2018 (see chapter 2 for additional detail). As a result, the percentage share of whole-wheat/whole-grain bread, and therefore post-rebate contribution to total food costs of whole-wheat/whole-grain bread, is higher in FY 2018 than in FY 2014 (see appendix table A.4).

N/A = not applicable

Sources: PC2018 data; FY 2018 FNS administrative data; IRI data; study EBT data; Food Package III data; CPI inflation data

References

Esposito, M. (2013). *Results from the NWA Fruit and Vegetable CVV Redemption Survey.* Retrieved from http://www.calwic.org/storage/documents/webinars/NWA%20Fruit%20and%20Veg%20CVV%20Survey%20Results.pdf

Gleason, S., & Pooler, J. (2011). *The effects of changes in WIC food packages on redemptions: Final report.* Retrieved from https://altarum.org/sites/default/files/uploaded-publication-files/Effects%20of%20Changes%20to%20the%20WIC%20Food%20Package_December%202011final.pdf

HHS. (2017). *2017 poverty guidelines.* Retrieved from https://aspe.hhs.gov/2017-poverty-guidelines

HHS & USDA (U.S. Department of Health and Human Services & U.S. Department of Agriculture). (2015). *Dietary guidelines for Americans: 2015–2020, eighth edition*. Retrieved from https://health.gov/dietaryguidelines/2015/resources/2015-2020_Dietary_Guidelines.pdf

Institute of Medicine. (2005). *WIC food packages: Time for a change.* Washington, DC: The National Academies Press.

Kline, N., Thorn, B., Bellows, D., Wroblewska, K., & Wilcox-Cook, E. (2020). *WIC participant and program characteristics 2018: Final report.* Alexandria: U.S. Department of Agriculture, Food and Nutrition Service, Office of Policy Support.

Patlan, K. L., & Mendelson, M. (2018). *WIC participant and program characteristics 2016: Food package Report*. Alexandria, VA: U.S. Department of Agriculture, Food and Nutrition Service.

Special Supplemental Nutrition Program for Women, Infants and Children, 7 C.F.R. 246 (1985).

Thorn, B., Huret, N., Bellows, D., Ayo, E., Myers, R., & Wilcox-Cook, E. (2015). *WIC food packages policy options study II: Final report*. Alexandria, VA: U.S. Department of Agriculture, Food and Nutrition Service, Office of Policy Support.

Gleason, S., Wroblewska, K., Trippe, C., Kline, N., Mathieu, K., Breck, A., Bellows, D. (2020). *WIC food cost containment practices: Final report.* Alexandria, VA: U.S. Department of Agriculture, Food and Nutrition Service, Office of Policy Support.

USDA. (n.d.). *Historical CPI data, 1974 through 2018* [Data on food consumed at home from the Consumer Price Index produced by the U.S. Department of Labor's Bureau of Labor Statistics]. Retrieved from https://www.ers.usda.gov/data-products/food-price-outlook/

USDA FNS (Food and Nutrition Service). (n.d.). *Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)* [Web page]. Retrieved from www.fns.usda.gov/wic

USDA FNS. (2015). *Snapshot of the WIC food packages* [Table]. Retrieved from https://www.fns.usda.gov/sites/default/files/wic/SNAPSHOT-of-WIC-Child-Women-Food-Pkgs.pdf

USDA FNS. (2016). *WIC food packages: Regulatory requirements for WIC-eligible foods.* Retrieved from http://www.fns.usda.gov/wic/wic-food-packages-maximum-monthly-allowances

USDA FNS. (2017). *WIC policy memorandum 2017-3: Publication of the 2017-2018 Special Supplemental Nutrition Program for Women, Infants and Children (WIC) income eligibility guidelines.* Retrieved from https://fns-prod.azureedge.net/sites/default/files/wic/WPM-2017-3-IEGs.pdf

USDA FNS. (2018). *Special Supplemental Nutrition Program for Women, Infants and Children (WIC): Food package policy and guidance.* Retrieved from https://fns-prod.azureedge.net/sites/default/files/wic/WIC-Food-Package-Policy-Guidance-2018.pdf

USDA FNS. (2019). *WIC State agency EBT detail status report* [Chart]. Retrieved from https://fns-prod.azureedge.net/sites/default/files/wic/February2019WICEBTDetailStatusReport508.pdf

USDA FNS. (2020). *WIC monthly summary and national level data* (Data as of January 30, 2020). Retrieved from https://www.fns.usda.gov/pd/wic-program

WIC Food Package Cost Reports 2000–2014

USDA FNS. (2000). *Summary: Fiscal year 1999 WIC food package costs.* Retrieved from https://www.fns.usda.gov/sites/default/files/wic/FY1999-food-package-costs.pdf

USDA FNS. (2001). *Summary: Fiscal year 2000 WIC food package costs.* Retrieved from https://www.fns.usda.gov/sites/default/files/wic/FY2000-food-package-costs.pdf

USDA FNS. (2003). *Summary: Fiscal year 2001 WIC food package costs.* Retrieved from https://www.fns.usda.gov/sites/default/files/wic/FY2001-food-package-costs.pdf

USDA FNS. (2004). *Summary: Fiscal year 2002 WIC food package costs.* Retrieved from https://www.fns.usda.gov/sites/default/files/wic/FY2002-food-package-costs.pdf

USDA FNS. (2005). *Summary: Fiscal year 2003 WIC food package costs.* Retrieved from https://www.fns.usda.gov/sites/default/files/wic/FY2003-food-package-costs.pdf

USDA FNS. (2006). *Summary: Fiscal year 2004 WIC food package costs.* Retrieved from https://www.fns.usda.gov/sites/default/files/wic/FY2004-food-package-costs.pdf

USDA FNS. (2007). *WIC food package costs and rebate summary: Fiscal year 2005.* Retrieved from https://www.fns.usda.gov/sites/default/files/wic/FY2005-food-package-costs.pdf

Vericker, T., Zhen, C., & Karns, S. (2013). *Fiscal year 2010 WIC food cost report.* Retrieved from https://fns-prod.azureedge.net/wic/wic-food-package-cost-report-FY2010

Kline, N., Warner-Griffin, C., Wilcox-Cook, E., & Thorn, B. (2018). *Fiscal year 2014 WIC food package costs: Final report.* Alexandria: U.S. Department of Agriculture, Food and Nutrition Service, Office of Policy Support.

Appendix A. Technical Notes

Based on the data used to tabulate food package contents and calculate food package costs (see chapter 2 for more information), the study team made several technical decisions to maintain reliable estimates. Section A describes the universe of participants for this report; section B describes how the partially breastfeeding women participant category was aggregated. Sections C and D provide data cleaning procedures the study team used for handling unreliable and missing food package data, and food package type assignments, respectively. Section E describes several key adjustments the team made to the PC2018 data before estimating food package costs.

While this report describes foods that may be prescribed in Food Package III (see chapter 3), the cost estimates exclude total costs associated with Food Package III (see appendix D for additional detail).

A. Universe of Participants

This report excludes food package prescriptions provided by four U.S. territories (American Samoa, Guam, the Northern Mariana Islands, and the U.S. Virgin Islands) and the 34 Indian Tribal Organizations that administer WIC as State agencies. These State agencies were excluded from this analysis because detailed food package prescription data were collected for only the 50 States, the District of Columbia, and Puerto Rico. The FY 2018 FNS administrative data used in this report was limited to the 50 States, the District of Columbia, and Puerto Rico.

B. Aggregation of Partially Breastfeeding Women Participant Category

For this report, the study team did not distinguish between partially (mostly) breastfeeding women and partially (minimally) breastfeeding women because of limitations in linking breastfeeding women participants with their infants in the PC2018 data. The distinction between these two participant categories is based on the amount of formula that their infant(s) receives; partially (mostly) breastfeeding receive food packages with higher MMAs across food categories. This is important to note when examining the food package contents and costs of the aggregate partially breastfeeding women participant category.[38]

Partially (mostly) breastfeeding women refers to breastfeeding women up to 1 year postpartum whose infant(s) receive some formula after their first month postpartum, but not more than the maximum amount allowed for a partially breastfed infant. These mothers receive Food Package V, which provides extra quantities and varieties of foods—more than mothers who mostly formula-feed their infants.

Partially (minimally) breastfeeding women refers to women whose infant(s) receive more formula than allowed for a partially breastfed infant. Partially (minimally) breastfeeding women up to 6 months postpartum receive the same Food Package VI as nonbreastfeeding postpartum women (up to 6 months postpartum). Partially (minimally) breastfeeding women more than 6 months postpartum do not receive a food package but may receive other benefits such as breastfeeding support, nutrition education, and referrals to health and social services.

[38] Fewer than 1 percent of women receiving Food Package VII were prescribed foods in more than one food category in quantities above the MMA for partially (minimally) breastfeeding women, indicating that the aggregation of partially (mostly) breastfeeding women and partially(minimally) breastfeeding women likely has little effect on mean amounts of foods prescribed.

C. Unreliable and Invalid Food Prescriptions

State agencies prescribe valid food packages that contain no food, known as null food packages, to partially (minimally) breastfeeding women between 6 and 12 months postpartum and fully breastfed infants younger than 6 months. About 490,000 participants (6.3 percent) were prescribed food packages containing no food. State agencies specified the food packages assigned to 296,753 of these participants were null and considered valid; all quantities for these prescriptions were set to zero. The remaining 193,619 participants assigned food packages containing no food could not be reliably categorized as participants who had received no food because they were not eligible to receive a food package or as participants missing food package data for some other reason. The study team considered all such food packages invalid and excluded them from the analysis for this report.

The study team excluded food package prescriptions submitted by State agencies from this report if the food package contents were unreliable. The team considered food packages to be unreliable if they included unexpected food items or nonzero amounts that were unreasonably large or small. The minimum and maximum amounts used to consider food packages reliable are detailed in table A.1. Infant food packages were considered unreliable if they included both nonexempt infant formula and cow's milk or if they included cheese or canned fish. Child food packages were also considered unreliable if they included both nonexempt infant formula and cow's milk. Food packages for pregnant, breastfeeding, and postpartum women were considered unreliable if they included exempt or nonexempt infant formula (see appendix B for MMAs of foods included in each food package).

Table A.1. Minimum and Maximum Food Amounts Allowed for Food Packages Considered Reliable

WIC-Eligible Food Category	Minimum Amount Allowed	Maximum Amount Allowed
Cow's milk	N/A	48 quarts
Soy-based beverage	N/A	48 quarts
Tofu	N/A	32 pounds
Yogurt	0.25 quarts	2 quarts
Cheese	0.5 pounds	6 pounds
Eggs	N/A	4 dozen
Legumes and peanut butter	1 ounce	72 ounces
Canned fish	N/A	60 ounces
Cereal (breakfast cereal and infant cereal)	8 ounces	72 ounces
Whole grains	0.5 pounds	4 pounds
Juice	N/A	288 fluid ounces
Cash-value voucher or cash-value benefit	N/A	$22
Infant formula	2 fluid ounces	1,200 fluid ounces
Infant food fruits and vegetables	3.5 ounces	512 ounces
Infant food meat	2.5 ounces	155 ounces

Note
N/A = not applicable

D. Inconsistent Food Package Type Assignments

State agencies did not report food package types for up to 15.1 percent of participants in each participant category with valid food package data (see table A.2). Virtually all the specific food packages

assigned were appropriate for the participant category, with two minor exceptions. First, some infants received child food packages; 1.7 percent of infants received Food Package IV-A, and 0.4 percent received Food Package III IV-A. This is likely the result of some State agencies reclassifying infants as children without recertifying them or issuing child food packages to infants aged 11 months. Second, some pregnant women were prescribed food packages appropriate for fully breastfeeding women; 0.9 percent of pregnant women were prescribed Food Package V, and 0.2 percent were prescribed Food Package VII. All the other anomalies affected 1 percent or fewer participants in a category.

Food prescriptions were not always consistent with the food package types reported. State agencies do not all record the detailed food package category when prescribing foods for a participant. Parameters for allowable foods and quantities may be programmed in a way that does not allow for clear reporting of the food package type, or it may occur offline. In either case, the State agency must then create the food package type variable based on the participant's characteristics, including age, certification category, and breastfeeding status, often in combination with information on whether the participant was prescribed Food Package III. Some State agencies have difficulty providing accurate snapshots of historical data. For these State agencies, certain PC data items become more difficult to report during the review, resubmission, and finalization of their datasets. Considering how quickly infants age in months and how breastfeeding status can change, even within the reference month of April 2018, there is opportunity for discrepancy between the characteristics used to create the food package type variable for a participant and the food package prescription reported for the same participant in April 2018 (see chapter 2 for more information).

Table A.2. Food Package Types Assigned by Participant Category

Food Package Type	Participant Category (percent)					
	Pregnant Women	Fully Breastfeeding Women[a]	Partially Breastfeeding Women[b]	Postpartum Women	Infants	Children
Total Participants	638,739	258,326	300,196	484,389	1,689,474	3,914,738
Missing	3.3	15.1[c]	–	3.3	4.1	5.3
Infants						
I-FF-A	–	–	–	–	15.3	< 0.1*
I-FF-B	–	–	–	–	10.4	< 0.1*
I-BF/FF-A	–	–	–	–	0.8	< 0.1*
I-BF/FF-B	–	–	–	–	4.2	< 0.1*
I-BF/FF-C	–	–	–	–	2.9	–
I-BF-A	–	–	–	–	2.5	< 0.1*
I-BF-B	–	–	–	–	1.3	–
II-FF	–	–	–	–	35.1	0.1*
II-BF/FF	–	–	–	–	6.2	< 0.1*
II-BF	–	–	–	–	6.0	< 0.1*
Participants with a qualifying condition						
Infants						
III I-FF-A	–	–	–	–	2.1	< 0.1*
III I-FF-B	–	–	–	–	1.4	–
III I-BF/FF-A	–	–	–	–	0.1	–
III I-BF/FF-B	–	–	–	–	0.4	< 0.1*

Food Package Type	Participant Category (percent)					
	Pregnant Women	Fully Breastfeeding Women[a]	Partially Breastfeeding Women[b]	Postpartum Women	Infants	Children
III I-BF/FF-C	–	–	–	–	0.3	–
III II-FF	–	–	–	–	4.4	< 0.1*
III II-BF/FF	–	–	–	–	0.3	< 0.1*
Children						
III IV-A	–	–	–	–	0.4*	0.6
III IV-B	–	–	–	–	< 0.1*	1.2
Women						
III V	0.3	–	0.1	< 0.1	–	–
III VI	< 0.1	–	< 0.1	0.1	–	–
III VII	< 0.1	0.2	–	< 0.1	–	–
Children						
IV-A	–	–	–	–	1.7*	27.9
IV-B	–	–	–	–	< 0.1*	64.9
Women						
V	94.2	–	45.7	0.9	–	–
VI	0.5	–	41.2	94.4	–	–
VII	1.8	84.7	–	0.2	–	–
N/A[d]	< 0.1	–	13.1	1.1	–	–

Notes
Analysis included all States (except Louisiana, New Jersey, and infants in South Dakota), the District of Columbia, and Puerto Rico.
Percents may not add to 100.0 because of rounding.
Food package types are defined in appendix tables B.3 and B.4.
N/A = not applicable
* Indicates a discrepancy between food package type and participant category.
[a] The fully breastfeeding women category includes women fully breastfeeding up to 1 year postpartum and partially (mostly) breastfeeding multiples.
[b] The partially breastfeeding women category includes partially (minimally) breastfeeding women up to 6 months postpartum, partially (mostly) breastfeeding women up to 1 year postpartum, and partially (minimally) breastfeeding women more than 6 months postpartum.
[c] All breastfeeding women participants with missing food package type were classified as fully breastfeeding.
[d] This food package type includes partially (minimally) breastfeeding women more than 6 months postpartum; these participants are not authorized to receive food benefits.
Source: PC2018 data

E. Adjustments to PC2018 Data Prior to Food Package Cost Estimation

The study team made four types of adjustments to the PC2018 data to improve the accuracy of food cost estimation: (1) food package type by age, (2) unreliable food package type assignments, (3) prescription quantities of inappropriate foods, and (4) redemption rates by food category.

1. Adjustments to Food Package Type by Age

Because State agencies assigned food package types in different ways for PC2018, some infant and child participants were assigned food package types that did not correspond to their ages. State agencies

often prescribed 3 months of food packages to participants at one time, but data systems provided only the first or third month of food package information. In response, the study team adjusted the food package types to be consistent with age—holding breastfeeding status constant—if recategorizing the infant or child to the food package type for the next oldest age bracket would result in a food package type assignment consistent with age. The study team reassigned food package types for 8.2 percent of infant participants and 1.5 percent of child participants. The most common adjustments were made for infant participants aged 13 and 14 months and for child participants aged 25 and 26 months who had not been assigned food package types for 1-year-olds and 2-year-olds, respectively. The resulting distribution of food package types and participant categories used in calculation of food costs (see table A.3) is therefore slightly different than the distribution observed in the PC2018 data (see table A.2).

Table A.3. Adjusted Food Package Types Assigned by Participant Category for Food Cost Calculations

Food Package Type	Pregnant Women	Breastfeeding Women[a]	Postpartum Women	Infants	Children
Total Participants	**616,067**	**542,329**	**461,098**	**1,696,382**	**3,485,359**
Infants					
I-FF-A	–	–	–	14.1	< 0.1*
I-FF-B	–	–	–	10.0	< 0.1*
I-BF/FF-A	–	–	–	0.5	–
I-BF/FF-B	–	–	–	4.3	< 0.1*
I-BF/FF-C	–	–	–	2.7	–
I-BF-A	–	–	–	3.8	–
I-BF-B	–	–	–	2.0	–
II-FF	–	–	–	34.6	–
II-BF/FF	–	–	–	6.4	–
II-BF	–	–	–	5.9	–
Participants With a Qualifying Condition					
Infants					
III I-FF-A	–	–	–	1.9	–
III I-FF-B	–	–	–	1.7	–
III I-BF/FF-A	–	–	–	< 0.1	–
III I-BF/FF-B	–	–	–	0.5	< 0.1*
III I-BF/FF-C	–	–	–	0.2	–
III II-FF	–	–	–	4.4	< 0.1*
III II-BF/FF	–	–	–	0.4	< 0.1*
Children					
III IV-A	–	–	–	0.6*	0.6
III IV-B	–	–	–	< 0.1*	1.1
Women					
III V	0.2	< 0.1	< 0.1	–	–
III VI	< 0.1	< 0.1	< 0.1	–	–
III VII	< 0.1	< 0.1	< 0.1	–	–

Food Package Type	Pregnant Women	Breastfeeding Women[a]	Postpartum Women	Infants	Children
Children					
IV-A	–	–	–	5.7*	28.7
IV-B	–	–	–	< 0.1*	69.6
Women					
V	97.2	24.0	1.0	–	–
VI	0.5	23.0	97.8	–	–
VII	2.0	39.1	0.2	–	–
N/A[b]	< 0.1	13.8	1.0	–	–

Notes
Analysis included all States, the District of Columbia, and Puerto Rico.
Food package types were imputed for all participant categories in Louisiana and New Jersey; infants in South Dakota; children in Puerto Rico; and pregnant women, breastfeeding women, and children in Arizona.
Percents may not add to 100.0 because of rounding.
Food package types are defined in appendix tables B.3 and B.4.
N/A = not applicable
* Indicates a discrepancy between food package type and participant category despite cleaning by infant and child age category.
[a] The breastfeeding women category includes fully breastfeeding women and partially (mostly and minimally) breastfeeding women.
[b] This food package type includes partially (minimally) breastfeeding women more than 6 months postpartum; these participants are not authorized to receive food benefits.
Source: PC2018 data

2. Adjustments to Unreliable Food Package Type Assignments

Several State agencies were unable to submit sufficient or reliable food package type assignments for some or all participant categories. Before calculating food package costs, the study team imputed the number of participants assigned each food package type in these State agencies by applying the average distribution of food package type assignments for the State agencies with adequate food package type data to the total number of participants in each participant category. This approach was used for all participant categories in Louisiana and New Jersey; infants in South Dakota; children in Puerto Rico; and pregnant women, breastfeeding women, and children in Arizona.

3. Disaggregation of Prescribed Quantities of Cow's Milk, Legumes, and Whole Grains

Data limitations required additional calculations to determine quantities of undifferentiated prescriptions for cow's milk, legumes, and whole grains. This section describes several strategies employed by the study team to accurately disaggregate these food categories to account for unit price differences by subcategory.

Prescribed quantities of fat-reduced and whole milk were disaggregated from the total quantity and types of cow's milk prescribed in the PC2018 data to account for potential differences in unit prices by fat content. All cow's milk prescriptions for children assigned Food Package IV-A were classified as whole-milk prescriptions, while all cow's milk prescriptions for children assigned other food package types were classified as fat-reduced milk prescriptions. Cow's milk prescriptions for women were classified as whole-milk prescriptions if whole milk was the only type of cow's milk allowed in the food package, and fat-reduced milk prescriptions if at least one fat-reduced type was allowed (and whole milk was not an allowed type). Cow's milk prescriptions for women prescribed food packages that allowed both whole milk and fat-reduced milk or that did not specify types allowed were disaggregated by fat content by multiplying the undifferentiated prescription amount of milk by the relative purchase share

of milk purchases in the study EBT data (see table A.4 for relative purchase shares by food category for cow's milk, legumes, and whole grains).

Many State agencies prescribe legumes and peanut butter in a way that allows participants to choose dry beans, canned beans, or peanut butter at the time of purchase. The quantity prescribed for undifferentiated legume and peanut butter prescriptions varies based on participant food selections. For all such prescriptions in the PC2018 data, the study team estimated the prescription amount for each food option (dry beans, canned beans, and peanut butter) by multiplying the maximum redeemable amount for each option in each food package by the relative share of legume and peanut butter purchases in the study EBT data.

Many State agencies also prescribe whole grains in a way that allows participants to choose whole-wheat/whole-grain bread and other whole grains (soft corn or whole-wheat tortillas, brown rice, oats, whole-wheat pasta, bulgur, and barley) at the time of purchase. The quantity prescribed does not vary based on food selection in undifferentiated whole-grain prescriptions; therefore, no additional considerations were necessary to adjust the amount prescribed based on food selection as was necessary with legume and peanut butter prescriptions. The average quantities prescribed per participant for each whole-grain type were calculated as the quantity of undifferentiated whole grains prescribed multiplied by the relative share of whole-grain purchases in the study EBT data.

For both the FY 2014 Food Package Costs Report and this report, the distribution of purchases was applied to disaggregate undifferentiated prescriptions of cow's milk, legumes, and whole grains. In the FY 2014 Food Package Costs Report, the study team used the purchase distribution for these food categories from the IRI data; in the current report, the team used the purchase distribution for these food categories from the study EBT data. Relative purchase shares derived from these two data sources were similar for cow's milk and legumes, while the percentage share of whole grains differed across nearly all subcategories of whole grains. In particular, the percentage share of whole-wheat/whole-grain bread in the study EBT data was more than double the percentage share in the IRI data (84.3 percent compared with 41.9 percent), and the percentage share of brown rice in the study EBT data was about one-tenth the percentage share in the IRI data (2.6 percent compared with 26.5 percent).

Table A.4. Subcategory Relative Purchase Shares of Cow's Milk, Legumes, and Whole Grains

Food Category	Food Subcategory	Relative Purchase Share in IRI Data	Relative Purchase Share in Study EBT Data
Cow's milk	Fat-reduced cow's milk	62.4	77.9
	Whole cow's milk	37.6	22.1
Legumes	Peanut butter	51.7	57.8
	Dry beans	25.4	26.3
	Canned beans	22.9	15.8
Whole grains	Whole-wheat/whole-grain bread	41.9	84.3
	Tortillas	9.8	9.0
	Brown rice	26.5	2.6
	Oats	8.5	1.3
	Whole-wheat pasta	12.3	2.8
	Other whole grains[a]	1.1	–

Note

[a] The other whole grains category includes bulgur and barley. None of the study EBT State agencies authorized these foods; therefore, their relative purchase share was equal to zero.

Sources: Study EBT data; IRI data

4. Prescription Quantities of Inappropriate Foods

After the data were cleaned for age and imputing food package types, they still included discrepancies (6.5 percent of infants and 0.1 percent of children, accounting for 1.6 percent of all participants) in food package type and participant category, so inappropriate foods were assigned to some participants (e.g., infants assigned child food packages were prescribed juice). In these cases, participants were prescribed foods which conflicted with their food package types but were consistent with their participant categories, or vice versa. Before calculating mean prescription amounts by food package type, quantities of inappropriate foods prescribed by food package type were set to missing. Similarly, before calculating mean prescription amounts by participant category, inappropriate foods prescribed by participant category were set to missing. The study team did not adjust quantities prescribed before calculating mean prescription amounts overall. Calculated total food costs differed when calculated by participant category, food package type, and overall because of this difference in the way data on inappropriately prescribed foods were cleaned.

5. Redemption Rates by Food Category

As discussed in chapter 2, the study team calculated average quantity redeemed for each item by multiplying the average quantity prescribed by the average redemption rate calculated using the WIC EBT data collected from the study EBT data (see table A.5).

Table A.5. Average Redemption Rates by Food Category

Food Category	Average Redemption Rate (percent)
Infant formula[a]	82.8
Fruits and vegetables	74.3
Eggs	71.2
Cheese	68.0
Juice	61.7
Cow's milk	59.4
Breakfast cereal	52.8
Infant fruits and vegetables	52.2
Canned fish	50.1
Yogurt[b]	47.9
Whole grains	46.8
Infant cereal	45.7
Soy-based beverage	45.4
Legumes and peanut butter	43.2
Tofu[c]	35.4
Infant food meat	25.7

Notes
Food categories are sorted by average redemption rate.
State agency-level redemption rates were calculated as the sum of units redeemed divided by the sum of units issued in all months of available data. Average redemption rates are the mean of State agency-level redemption rates weighted by the sum of units issued. Calculations included EBT data from 10 State agencies with reliable issuance and redemption data unless otherwise noted.
[a] The average redemption rate for infant formula was calculated after excluding two State agencies who's issuance and redemption data used different, irreconcilable units.
[b] The average redemption rate for yogurt was calculated using the issuance and redemption data from the seven EBT study State agencies that authorized yogurt as a milk alternative.
[c] The average redemption rate for tofu was calculated using the issuance and redemption data from the five EBT study State agencies that authorized tofu as a milk alternative.
Source: Study EBT data

Appendix B. Overview of WIC Food Packages

This appendix contains detailed information about MMAs and the contents of WIC food packages. Section A provides the MMAs for each WIC-eligible food by participant category, and section B provides the WIC-eligible food that may be prescribed by participant category, food package type, and participant characteristics.

A. Maximum Monthly Allowances

Table B.1. Maximum Monthly Allowances of Supplemental Foods for Children and Women

Foods	Children	Women		
	Food Package IV: Children Aged 1–4 Years	Food Package V: Pregnant and Partially Breastfeeding (up to 1 Year Postpartum)	Food Package VI: Postpartum (up to 6 Months Postpartum)	Food Package VII: Fully Breastfeeding (up to 1 Year Postpartum)
Juice, single strength	128 fluid ounces	144 fluid ounces	96 fluid ounces	144 fluid ounces
Cow's milk[a]	16 quarts	22 quarts	16 quarts	24 quarts
Breakfast cereal[b]	36 ounces	36 ounces	36 ounces	36 ounces
Cheese	–	–	–	1 pound
Eggs	1 dozen	1 dozen	1 dozen	2 dozen
Fruits and vegetables	$8 in cash-value vouchers or cash-value benefit	$11 in cash-value vouchers or cash-value benefit	$11 in cash-value vouchers or cash-value benefit	$11 in cash-value vouchers or cash-value benefit
Whole-wheat/whole-grain bread[c]	2 pounds	1 pound	–	1 pound
Fish (canned)[d]	–	–	–	30 ounces
Legumes, dry or canned, and/or Peanut butter	1 pound (64 ounces, canned) Or 18 ounces	1 pound (64 ounces, canned) and 18 ounces	1 pound (64 ounces, canned) or 18 ounces	1 pound (64 ounces, canned) and 18 ounces

Notes

Refer to USDA FNS (n.d.) for the complete provisions and requirements for WIC foods.

[a] Allowable alternatives for cow's milk are soy-based beverage, tofu, yogurt, and cheese.

[b] At least one-half the total number of breakfast cereals on State agency food lists must be whole grain.

[c] Allowable options for whole-wheat/whole-grain bread are soft corn or whole-wheat tortillas, brown rice, oats, bulgur, barley, and whole-wheat pasta.

[d] Allowable options for canned fish are light tuna, salmon, sardines, and mackerel.

Sources: USDA FNS (2015); USDA FNS (n.d.)

Table B.2. Maximum Monthly Allowances (MMA) of Supplemental Foods for Infants

Package	Fully Formula Fed		Partially Breastfed		Fully Breastfed	
Foods	**Food Packages I-FF and III-FF** **A: 0–3 months** **B: 4–5 months**	**Food Packages II-FF and III-FF** **6–11 months**	**Food Packages I-BF/FF and III-BF/FF** **A: 0 to 1 month** **B: 1–3 months** **C: 4–5 months**	**Food Packages II-BF/FF and III-BF/FF** **6–11 months**	**Food Package I-BF** **0–5 months**	**Food Package II-BF** **6–11 months**
WIC formula	A: FNB = 806 fluid ounces MMA = 870 fluid ounces reconstituted powder or 823 fluid ounces reconstituted liquid concentrate or 832 fluid ounces ready-to-feed B: FNB = 884 fluid ounces MMA = 960 fluid ounces reconstituted powder or 896 fluid ounces reconstituted liquid concentrate or 913 fluid ounces ready-to-feed	FNB = 624 fluid ounces MMA = 696 fluid ounces reconstituted powder or 630 fluid ounces reconstituted liquid concentrate or 643 fluid ounces ready-to-feed	A: 104 fluid ounces reconstituted powder B: FNB = 364 fluid ounces MMA = 388 fluid ounces reconstituted liquid concentrate or 384 fluid ounces ready-to-feed or 435 fluid ounces reconstituted powder C: FNB = 442 fluid ounces MMA = 522 fluid ounces reconstituted powder or 460 fluid ounces reconstituted liquid concentrate or 474 fluid ounces ready-to-feed	FNB = 312 fluid ounces MMA = 384 fluid ounces reconstituted powder or 315 fluid ounces reconstituted liquid concentrate or 338 fluid ounces ready-to-feed	–	–
Infant cereal	–	24 ounces	–	24 ounces	–	24 ounces
Infant fruits and vegetables[a]	–	128 ounces	–	128 ounces	–	256 ounces
Infant food meat	–	–	–	–	–	77.5 ounces

Notes
Refer to USDA FNS (n.d.) for the complete provisions and requirements for WIC foods.
[a] At State agency option, older infants may be issued a cash-value voucher or cash-value benefit for fresh fruits and vegetables in lieu of a portion of jarred infant foods.
Sources: USDA FNS (2015); USDA FNS (n.d.)

B. Participant Categories and Authorized Foods

Table B.3. Infant Food Packages, Food Package Types, Participant Characteristics, and Authorized Foods

Participant Category	Food Package Type	Age	Feeding Category	Infant Formula	Infant Cereal	Infant Fruits and Vegetables	Infant Food Meat	WIC-Eligible Nutritionals
Food Package I								
Infants	I-FF-A	0–3.9 months	Fully formula fed	●				
	I-FF-B	4–5.9 months	Fully formula fed	●				
	I-BF/FF-A	0–0.9 months	Partially breastfed	●				
	I-BF/FF-B	1–3.9 months	Partially breastfed	●				
	I-BF/FF-C	4–5.9 months	Partially breastfed	●				
	I-BF-A	0–3.9 months	Fully breastfed					
	I-BF-B	4–5.9 months	Fully breastfed					
Food Package II								
Infants	II-FF	6–11.9 months	Fully formula fed	●	●	●		
	II-BF/FF	6–11.9 months	Partially breastfed	●	●	●		
	II BF	6–11.9 months	Fully breastfed		●	●	●	
Food Package III								
Infants	III I-FF-A	0–3.9 months	Fully formula fed	●				●
	III I-FF-B	4–5.9 months	Fully formula fed	●				●
	III I-BF/FF-A	0–0.9 months	Partially breastfed	●				●
	III I-BF/FF-B	1–3.9 months	Partially breastfed	●				●
	III I-BF/FF-C	4–5.9 months	Partially breastfed	●				●
	III II-FF	6–11.9 months	Fully formula fed	●	●	●		●
	III II-BF/FF	6–11.9 months	Partially breastfed	●	●	●	●	●

Note
Fully breastfed infants aged 0 to 5.9 months (I-BF-A and I-BF-B) are not issued food.

Table B.4. Women and Children Food Packages, Food Package Types, Participant Characteristics, and Authorized Foods

Participant Category	Food Package Type	Age	Participant Category Description	Juice	Milk	Breakfast Cereal	Eggs	Fruits and Vegetables	Legumes	Whole-Wheat/ Whole-Grain Bread	Canned Fish	Cheese	WIC-Eligible Nutritionals
Food Package III													
Children	III IV-A	1–1.9 years	Children	●	●	●	●	●	●	●			●
	III IV-B	2–4.9 years	Children	●	●	●	●	●	●	●			●
Women	III V	N/A	Pregnant and partially breastfeeding (up to 1 year postpartum)	●	●	●	●	●	●	●			●
	III VI	N/A	Non breastfeeding, postpartum, and partially (minimally) breastfeeding (up to 6 months postpartum)	●	●	●	●	●	●				●
	III VII	N/A	Fully breastfeeding (up to 1 year postpartum)	●	●	●	●	●	●	●	●	●	●
Food Package IV													
Children	IV-A	1–1.9 years	Children	●	●	●	●	●	●	●			
	IV-B	2–4.9 years	Children	●	●	●	●	●	●	●			
Food Package V													
Women	V	N/A	Pregnant and partially (mostly) breastfeeding (up to 1 year postpartum)	●	●	●	●	●	●	●			

Participant Category	Food Package Type	Age	Participant Category Description	Juice	Milk	Breakfast Cereal	Eggs	Fruits and Vegetables	Legumes	Whole-Wheat/ Whole-Grain Bread	Canned Fish	Cheese	WIC-Eligible Nutritionals
Food Package VI													
Women	VI	N/A	Non breastfeeding, postpartum, and partially (minimally) breastfeeding (up to 6 months postpartum)	●	●	●	●	●	●				
Food Package VII													
Women	VII	N/A	Fully breastfeeding; partially (mostly) breastfeeding multiples; pregnant with multiples	●	●	●	●	●	●	●	●	●	
No Food Package													
Women	No food package	N/A	Partially (minimally) breastfeeding (more than 6 months postpartum)										

Note
N/A = not applicable

Appendix C. IRI Price Calculations and WIC-Eligible Food Selection Process

This appendix provides technical details on calculating average prices for WIC-eligible food categories using the IRI data.

The study team drew on FY 2018 IRI Consumer Network Panel data to develop average retail prices. This involved two steps: identifying probable WIC-eligible foods in the IRI data and estimating the average per-unit prices paid for those foods by WIC-similar households.

The study team developed a list of WIC-eligible foods found in the IRI data (see table C.1 for a list of the characteristics used to identify these foods). Some foods might be eligible for WIC according to Federal regulations but not frequently authorized by State agencies. For example, because most State agencies do not allow organic cheese, it was not included in the list of foods used to estimate the average price per unit of cheese. The study team drew on data from the Food Packages Policy Options Study II (Thorn et al., 2015) to determine which foods were typically authorized by State agencies; in general, foods authorized by State agencies representing at least 65 percent of WIC participants were included. The study team also drew on data from the FY 2014 Food Package Costs Report (Kline et al., 2018) to achieve consistency when possible and added new foods (i.e., yogurt and whole-wheat pasta) based on Federal regulations.

The study team estimated the average price for the final list of WIC-eligible foods by using the actual prices paid by low-income households as reported in the IRI data, with low-income households serving as a proxy for WIC participants. To identify low-income households, the study team used income categories as reported in the IRI data (e.g., $20,000 to $25,000) along with the reported number of household members and compared these to WIC income-eligibility thresholds in effect during FY 2018. A household was considered low income if the reported income range was less than 185 percent of the FY 2018 Federal Poverty Guidelines given the number of people in the household (USDA, 2017). In some cases, the 185-percent threshold fell in the middle of an income range. In these cases, the study team included all households in the income range in the low-income group.

Table C.1. Prescribed Foods Included in Food Cost Calculation

WIC-Eligible Food Category	Form	Description	Food-Specific Exclusions	Sizes Used To Calculate WIC Prices
Whole cow's milk	Evaporated	Evaporated whole milk	Organic evaporated milk	5–13 ounces
	Dry/Powdered	Regular powdered milk	Organic powdered milk and powdered buttermilk	1–200 ounces
	Fluid, refrigerated	Refrigerated cow's milk (whole)	Extra-rich milk, goat's milk, raw milk, milk with oil, flavored milk, organic milk, raw milk, unpasteurized milk, and lactose-free or lactose-reduced milk	32, 64, 128 fluid ounces
	Fluid, refrigerated	Refrigerated buttermilk (whole)	Organic buttermilk and buttermilk in pouches	32, 64, 128 fluid ounces
Fat-reduced cow's milk	Evaporated	Evaporated milk (reduced fat, lowfat, nonfat, fat free, skim)	Organic evaporated milk	5–13 ounces
	Fluid, refrigerated	Refrigerated cow's milk (reduced fat, lowfat, nonfat, fat free, skim)	Organic milk, extra-rich milk, goat's milk, raw milk, milk with oil, flavored milk, lactose-reduced or lactose-free milk, and milk in pouches	32, 64, 128 fluid ounces
	Fluid, refrigerated	Refrigerated buttermilk (fat reduced)	Organic buttermilk and buttermilk in pouches	32, 64, 128 fluid ounces
Soy-based beverage	Shelf stable	All flavors of shelf-stable soy-based beverage	Organic soy-based beverages and soy-based drinks	32–64 fluid ounces
	Refrigerated	All flavors of refrigerated soy-based beverage	Organic soy-based beverages and soy-based drinks	32–128 fluid ounces
Tofu	Refrigerated and shelf stable	Refrigerated and shelf-stable plain tofu	Tofu with added flavors and herbs	14 ounces or more
Yogurt	Refrigerated	All flavors of refrigerated yogurt	Organic yogurt, drinkable yogurt, Greek yogurt, artificially sweetened yogurt, yogurt with fruit	32 ounces
Cheese	Chunk, sliced, and cubed	Chunk, sliced, and cubed muenster cheese	Organic cheese and lactose-free cheese	8–16 ounces
	Chunk, sliced, cubed, and string	Chunk, sliced, cubed, and string of mozzarella cheese	Organic cheese; fresh mozzarella, specialty cheese; and cheese with added flavors, herbs, and spices	8–16 ounces
	Chunk and sliced	Chunk and sliced brick cheese	Organic cheese	8–16 ounces
	Chunk, sliced, and cubed	Chunk, sliced, and cubed Colby cheese	Organic cheese	8–16 ounces

WIC-Eligible Food Category	Form	Description	Food-Specific Exclusions	Sizes Used To Calculate WIC Prices
Cheese, continued	Chunk, sliced, and cubed	Chunk, sliced, and cubed products of cheddar cheese	Organic cheese; string cheese and cheese sticks; cheese with added flavors, herbs, and spices; other forms of cheese such as crumbles; and specialty cheese	8–16 ounces
	Sliced and loaf	Sliced and loaf products of processed American cheese	Organic cheese; cheese with added flavors, herbs, and spices; and imitation cheese	8–16 ounces
	Chunk, sliced, and cubed	Chunk, sliced, and cubed products of Swiss cheese	Organic cheese; cheese with added flavors, herbs, and spices; lactose-free cheese; and specialty cheese	8–16 ounces
	Chunk, sliced, and cubed	Chunk, sliced, and cubed products of Monterey Jack cheese	Organic cheese; cheese with added flavors, herbs, and spices; and lactose-free cheese	8–16 ounces
	Chunk, sliced, and cubed	Chunk, sliced, and cubed products of provolone cheese	Organic cheese; cheese with added flavors, herbs, and spices; and lactose-free cheese	8–16 ounces
Eggs	Fresh	Medium and large white eggs	Organic eggs, eggs with additives, sodium-free eggs, reduced-fat eggs, fertile eggs, low-cholesterol eggs, free-range eggs, and vegetarian diet eggs	1 dozen
Legumes	Canned	All varieties of canned beans	Organic canned beans, string beans, bean pastes, crushed beans, creamed beans, and beans with added flavors and seasonings	16 ounces or less Multipacks: 128 ounces or less
	Dry	All varieties of dry beans, dry peas, and dry lentils	Organic beans, peas, and lentils	16–32 ounces
Peanut butter	Shelf stable	Creamy and chunky textures, natural, and regular plain peanut butter	Organic peanut butter; whipped peanut butter; and peanut butter with added honey, jelly, chocolate, fruit, and caramel	16–18 ounces Multipacks: two units
Canned fish	Canned	Mackerel, salmon, sardines, and light tuna canned fish	Organic canned fish, canned fish with added flavorings and seasonings, and canned fish packed in oil	30 ounces or less
Whole-wheat/whole-grain bread	Loaf	Whole-wheat/whole-grain breads, such as wheat and rye grains	Organic bread and bread with added fruit	16 ounces
	Rolls and buns	Whole-grain buns such as hamburger and hot dog buns, and whole-grain rolls such as dinner rolls	Organic buns and rolls	16 ounces

WIC-Eligible Food Category	Form	Description	Food-Specific Exclusions	Sizes Used To Calculate WIC Prices
Other whole grains	Soft	Soft corn tortillas and whole-wheat flour tortillas	Organic tortillas	14–24 ounces
	Instant, quick, and boil-in-bag	Instant, quick, and boil-in-bag brown rice; included regular, basmati, and jasmine	Organic rice	14–32 ounces
	Regular, instant, and quick-cooking	Regular, instant, and quick-cooking whole-grain oatmeal	Organic oats and flavored oats	16–32 ounces
	Dry	Whole-wheat pasta	Organic pasta	16 ounces
	Dry	All varieties of dry bulgur	Organic bulgur	18–28 ounces
	Dry	All varieties of dry barley	Organic barley	16–32 ounces
Breakfast cereal	Hot	Regular and old-fashioned types of hot cereal; included coco wheat, cream of wheat, creamy wheat, farina, oat bran, oat flakes, oatmeal, oats, corn, and wheat cereals		12–36 ounces
	Ready-to-eat cold	Store-brand, private-label, and brand-name ready-to-eat cereals	Cereals with high sugar content and organic cereals	12–36 ounces
Juice	Shelf stable and frozen concentrated	Shelf-stable and frozen concentrated grapefruit juice	Organic grapefruit juice	Shelf stable: 46, 48, 64 fluid ounces Frozen: 12, 16 ounces
	Shelf stable and frozen concentrated	Shelf-stable and frozen concentrated apple juice	Organic apple juice	Shelf stable: 46, 48, 64 fluid ounces Frozen: 12, 16 ounces
	Shelf stable and frozen concentrated	Shelf-stable and frozen concentrated grape juice	Organic grape juice	Shelf stable: 46, 48, 64 fluid ounces Frozen: 12, 16 ounces
	Shelf stable and frozen concentrated	Shelf-stable and frozen concentrated orange juice	Organic orange juice	Shelf stable: 46, 48, 64 fluid ounces Frozen: 12, 16 ounces
	Shelf stable	Shelf-stable pineapple juice	Organic pineapple juice	46, 48, 64 fluid ounces
	Shelf stable	Shelf-stable cranberry juice	Cranberry drinks, blended juices, and organic cranberry juice	46, 48, 64 fluid ounces
	Shelf stable	Shelf-stable tomato juice and vegetable juice	Vegetable drinks, any juice product with label text that did not include the term “vegetable juice,” spicy juice, and organic juice	46, 48, 64 fluid ounces

WIC-Eligible Food Category	Form	Description	Food-Specific Exclusions	Sizes Used To Calculate WIC Prices
Infant formula	Powder, liquid concentrate, and ready-to-feed	Brands of powdered, liquid concentrate, and ready-to-feed infant formula from manufacturers contracted by State agencies	N/A	Powder: 12–13.2 ounces Liquid concentrate: 13 ounces Ready-to-feed: 32 fluid ounces
Infant cereal	Dry	Dry infant cereal; included barley, mixed grain, oatmeal, rice, multigrain, corn, and whole wheat	Wet cereal; cereal with added flavorings, yogurt, and/or fruit; and organic cereal	8 or 16 ounces
Infant fruits and vegetables	Shelf stable (fruits)	Shelf-stable single-ingredient fruit and combinations of single-ingredient fruit infant foods	Organic fruit, and fruit with added cereal, tapioca, yogurt, or sugar	2.5–4 ounces
	Shelf stable (vegetables)	Shelf-stable single-ingredient vegetable and combinations of single-ingredient vegetable infant foods	Organic vegetables; white potatoes; vegetables with added cereal, tapioca, or sugar; creamed vegetables; casseroles; and medleys of unnamed vegetables	2.5–4 ounces
Infant food meat	Shelf stable	Shelf-stable meat and poultry infant foods; included products with gravy and broth if meat was only other ingredient	Organic infant food meat, infant food meat with added fruit and glazes, and any packaging that was not a jar	2.5 ounces

Note
N/A = not applicable

Appendix D. Food Package III Cost Estimates

This appendix provides the study team's methodology and results for the estimated FY 2018 total annual cost of Food Package III. Because State agencies are not required to provide the costs of Food Package III separately in FNS administrative data, the study team estimated these expenditures. To do so, the team collected data pertaining to Food Package III from eight State agencies: California, Colorado, Florida, Idaho, Michigan, New York, Pennsylvania, and Texas.

The requested data from these eight State agencies included the overall cost of Food Package III in FY 2018 and the average monthly number of participants who were assigned Food Package III in FY 2018. The study team calculated the average monthly per-person Food Package III cost (including all WIC-eligible nutritionals) for each of the sample State agencies.[39] These average food package costs per participant were then applied to the number of participants in the remaining State agencies that shared similar characteristics. That is, to determine a total Food Package III cost for each State agency, the study team calculated the total number of participants assigned to food package types in Food Package III in each of the remaining State agencies and multiplied by the average per-person cost of Food Package III for the eight selected State agencies. The study team allowed for variation in the average per-person cost of Food Package III based on key characteristics. These characteristics were used to group State agencies and use a per-person cost that would best reflect State agency regulation. The State agencies were grouped as follows:

- Because Texas, Hawaii, and Virginia employed a similar Medicaid reimbursement plan in FY 2018, the estimated average monthly per-person Food Package III cost in Texas was multiplied by the number of participants assigned Food Package III in Hawaii and Virginia to obtain the estimated average monthly Food Package III cost in Hawaii and Virginia.
- Because Pennsylvania, Delaware, Maryland, New Jersey, and West Virginia used the Pennsylvania Special Formula Distribution Center hub to distribute exempt infant formula and WIC-eligible nutritionals in FY 2018, the estimated average monthly per-person Food Package III cost in Pennsylvania was multiplied by the number of participants assigned Food Package III in Delaware, Maryland, New Jersey, and West Virginia to obtain the estimated average monthly Food Package III cost in these State agencies.
- Because the remaining State agencies did not employ either Medicaid reimbursements or warehouses, the combined estimate of the average monthly per-person Food Package III costs in California, Colorado, Florida, Idaho, Michigan, and New York was multiplied by the number of participants assigned Food Package III in the remaining States, the District of Columbia, and Puerto Rico to obtain the estimated average monthly Food Package III cost in these State agencies.

To estimate the total FY 2018 annual cost of Food Package III, the study team summed the estimated monthly Food Package III cost in each State agency based on the total number of participants assigned to food package types in Food Package III in that State agency and multiplied by 12.

[39] The study team requested data on all costs associated with Food Package III, including nonexempt or exempt infant formulas, WIC-eligible nutritionals, and supplemental foods.

A. Subtraction of Estimated Food Package III Costs and Participants

The estimated total FY 2018 Food Package III costs were subtracted from the total costs in the FY 2018 FNS administrative data reported by the 52 study State agencies. The study team also deducted the participants assigned Food Package III in each participant category to calculate accurate per-participant food package costs for all other food packages. To do so, the study team calculated the average percentage of participants in each participant category who were prescribed food package types in Food Package III. This percentage was multiplied by the total number of participants in each participant category and subtracted from the estimated total number in each category to determine the number in each category who were not prescribed Food Package III.

B. Data Limitations

One of the State agencies submitted Food Package III data that did not conform exactly to the data requests for the study; the study team adjusted the data to estimate costs. This State agency was unable to provide the average number of participants assigned Food Package III for FY 2018 and the overall costs for Food Package III for FY 2018. Instead, the State agency used the reference month of April 2018. These data were considered sufficient to estimate the average monthly Food Package III costs for that State agency.

C. Estimated FY 2018 Food Package III Cost

The overall FY 2018 post-rebate food cost reported to FNS by the 52 study State agencies totaled $3.3 billion; the pre-rebate food cost equaled $5.1 billion.[40] The estimated FY 2018 Food Package III cost was $514 million, resulting in a post-rebate food cost for all other food packages of $2.8 billion. This represented 10.2 percent of the overall pre-rebate food costs and 15.4 percent of the overall post-rebate food costs reported to FNS.

[40] As reported to FNS in FY 2018, for the 52 study State agencies, pre-rebate food costs totaled $5,057,631,803, and post-rebate food costs totaled $3,337,011,340; for all 90 State agencies, pre-rebate food costs totaled $5,110,872,745, and post-rebate food costs totaled $3,376,578,845.

Appendix E. Additional Tabulations

This appendix provides additional tabulations accompanying chapters 3 and 4. Section A presents tabulations of the reported amounts, types, and forms of prescriptions for each of the components of food packages by food package type.[41] Section B presents annual monthly and annual pre- and post-rebate food costs by participant category, food package type, and food category, and average prescribed quantities and price per unit by food category.

A. Food Package Contents by Food Package Type

Table E.1. Quantity and Types of Formula Prescribed for Infants by Food Package Type

Formula Prescriptions	I-FF-A	I-FF-B	I-BF/FF-A	I-BF/FF-B	I-BF/FF-C	I-BF-A	I-BF-B	II-FF	II-BF/FF	II-BF
Total Participants	258,997	175,444	14,249	70,673	49,811	41,423	22,536	595,067	105,270	102,067
FNB–MMA (oz)[a]	806–870	884–960	104	364–435	442–522	0	0	624–696	312–384	0
Quantity[b]										
Mean amount prescribed	750.6	806.2	372.7	522.3	637.3	39.4	74.3	577.9	480.1	2.9
Mean amount prescribed to those prescribed any	769.9	839.1	381.6	531.4	648.6	594.7	707.9	615.6	492.9	383.0
Percent Prescribed										
Quantity Issued (oz)										
At least 800	54.2	84.1	11.8	24.2	50.3	1.4	6.4	2.2	2.1	< 0.1
At least 600 but less than 800	35.6	6.4	15.7	16.9	6.1	2.7	0.2	67.3	36.9	0.1
At least 400 but less than 600	5.8	4.8	13.4	9.9	29.3	0.4	2.8	23.1	17.7	0.1
At least 200 but less than 400	1.3	0.4	15.5	40.0	9.0	1.4	0.8	0.7	37.1	0.4
Less than 200	0.5	0.4	41.1	7.3	3.6	0.8	0.3	0.6	3.6	0.1
None	2.5	3.9	2.3	1.7	1.7	93.4	89.5	6.1	2.6	99.3
Form Allowable to Those Prescribed Any[c]										
Powdered	98.2	98.5	99.0	99.3	99.4	99.2	99.4	98.6	99.5	99.3
Liquid concentrate	20.5	22.7	0.8	27.7	39.1	0.5	0.3	23.0	38.6	0.5
Ready-to-feed	6.9	6.6	0.3	13.8	29.6	0.5	0.3	4.2	26.5	0.3

[41] Food package prescriptions for all participants in Louisiana and infants in South Dakota were excluded from tabulations of food package contents by food package type due to unreported and unreliable food package type assignments, respectively. Though imputed for calculating WIC food package costs, food package type assignments for children in Puerto Rico and pregnant women, breastfeeding women, and children in Arizona were considered sufficient and reliable for food package contents tabulation by food package type and were not excluded.

Formula Prescriptions	I-FF-A	I-FF-B	I-BF/FF-A	I-BF/FF-B	I-BF/FF-C	I-BF-A	I-BF-B	II-FF	II-BF/FF	II-BF
Category Allowable to Those Prescribed Any[c,d]										
Nonexempt infant formula	99.2	98.8	99.7	99.6	99.6	95.4	99.0	99.1	99.6	97.5
Exempt infant formula	0.9	1.3	0.3	0.5	0.5	5.8	1.1	1.0	0.4	2.4
WIC-eligible nutritionals	< 0.1	–	–	–	–	–	–	< 0.1	< 0.1	0.3
Type Allowable to Those Prescribed Any[c]										
Milk based	93.7	92.2	96.5	95.7	95.7	91.0	96.5	92.7	95.6	90.5
Hydrolysate	1.7	2.2	0.6	1.1	1.3	2.9	0.5	1.9	1.4	1.4
Soy based	4.5	5.4	2.9	3.2	3.0	3.2	2.3	5.3	3.0	6.7
Premature infant formula	0.4	0.5	0.2	0.3	0.3	3.6	0.8	0.3	0.2	1.1
Amino acid based	< 0.1	0.1	< 0.1	< 0.1	< 0.1	0.6	0.1	0.1	< 0.1	0.5
Metabolics	< 0.1	< 0.1	–	–	–	–	–	–	–	–
Modulars	–	–	–	–	–	–	0.0	< 0.1	–	–

Notes

Analysis included all States (except Louisiana, New Jersey, and infants in South Dakota), the District of Columbia, and Puerto Rico.

Percents may not add to 100.0 because of rounding.

Food package types are defined in appendix tables B.3 and B.4.

oz = ounce(s)

[a] The smaller number in this range is the FNB, which represents the minimum monthly amount of formula each participant should receive (in the absence of individual tailoring). The larger number in this range is the MMA for infant formula and differs depending on the form: powder, liquid concentrate, or ready-to-feed. The range shown includes the three forms; the MMA is largest for powdered formula and smallest for reconstituted liquid concentrate formula.

[b] In ready-to-feed or reconstituted ounces; reconstituted fluid ounce is the form prepared for consumption as directed by the manufacturer

[c] Responses were not mutually exclusive, so percents may add to more than 100.0.

[d] Formula types are as follows:

- Nonexempt infant formula refers to infant formula as described in the regulations. Infant formula is defined as a food that meets the definition of an infant formula in section 201(z) of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 321(z)) and meets the requirements for an infant formula under section 412 of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 350a) and the regulations at 21 CFR parts 106 and 107. Infant formula meets Food and Drug Administration requirements and also meets WIC requirements for iron (at least 1.5 milligrams of iron per 100 kilocalories and at least 20 kilocalories per fluid ounce at standard dilution).
- Exempt infant formula refers to an infant formula that meets the requirements for an exempt infant formula under section 412(h) of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 350a(h)) and the regulations at 21 CFR parts 106 and 107. Exempt infant formula is infant formula intended for commercial or charitable distribution that is represented and labeled for use by infants with inborn errors of metabolism, low birthweight, or other unusual medical or dietary problems (21 CFR 107.3).
- WIC-eligible nutritionals refers to certain enteral products specifically formulated to provide nutritional support for individuals with a qualifying condition when the use of conventional foods is precluded, restricted, or inadequate. WIC-eligible nutritionals must serve the purpose of a food, meal, or diet (may be nutritionally complete or incomplete) and provide a source of calories and one or more nutrients; be designed for enteral digestion via an oral or tube feeding; and may not be a conventional food, drug, flavoring, or enzyme. WIC-eligible nutritionals include many products that meet the definition of medical foods in section 5(b)(3) of the Orphan Drug Act (21 U.S.C. 360ee(b)(3)).

Source: PC2018 data

Table E.2. Quantity and Types of Formula Prescribed for Recipients of Food Package III

Formula Prescriptions	Infants							Children		Women		
	III I-FF-A	III I-FF-A	III I-BF/FF-A	III I-BF/FF-B	III I-BF/FF-C	III II-FF	III II-BF/FF	III IV-A	III IV-B	III V	III VI	III VII
Total Participants	35,676	23,960	1,335	6,903	4,860	74,980	5,484	30,395	46,086	2,033	448	510
FNB–MMA (oz)[a]	806–870	884–960	104	364–435	442–522	624–696	312–384	910[b]	910[b]	910[b]	910[b]	910[b]
Quantity[a]												
Mean amount prescribed	673.2	813.8	456.7	568.2	705.1	556.1	485.3	527.1	478.8	233.1	93.5	63.8
Mean amount prescribed to those prescribed any	780.8	864.0	516.5	603.3	732.3	659.3	545.0	664.1	620.1	519.6	581.9	613.3
Percent Prescribed												
Quantity Issued (oz)[a]												
At least 800	45.1	83.1	17.4	25.9	62.8	9.8	10.2	32.7	31.8	12.0	6.0	3.7
At least 600 but less than 800	32.1	7.3	18.7	24.2	6.6	63.3	36.4	13.4	9.4	6.1	2.9	1.8
At least 400 but less than 600	5.0	2.5	14.6	13.0	17.0	8.3	9.9	22.4	18.4	11.1	2.5	2.6
At least 200 but less than 400	3.1	0.6	16.7	25.7	7.1	1.8	29.7	4.6	9.3	7.1	1.3	1.0
Less than 200	0.9	0.7	21.0	5.5	2.7	1.1	2.8	6.2	8.4	8.6	3.3	1.4
None	13.8	5.8	11.6	5.8	3.7	15.7	11.0	20.6	22.8	55.1	83.9	89.6
Form Allowable to Those Prescribed Any[c]												
Powdered	96.3	96.6	97.0	97.0	97.2	96.4	96.3	67.6	25.9	3.1	5.6	5.7
Liquid concentrate	6.9	8.2	0.9	14.2	27.0	3.0	3.2	8.8	9.8	1.3	2.8	5.7
Ready-to-feed	7.3	8.3	2.6	13.4	27.6	3.6	5.0	37.0	80.5	98.2	97.2	100.0
Category Allowable to Those Prescribed Any[c,d]												
Nonexempt infant formula[d]	19.0	20.3	37.1	28.4	35.1	17.9	18.1	29.3	1.9	–	–	–
Exempt infant formula[d]	83.1	80.8	70.4	74.9	66.3	82.9	83.2	32.3	15.0	–	–	–
WIC-eligible nutritionals	< 0.1	< 0.1	–	< 0.1	< 0.1	0.1	0.2	38.9	83.4	100.0	100.0	100.0

Formula Prescriptions	Infants							Children		Women		
	III I-FF-A	III I-FF-A	III I-BF/FF-A	III I-BF/FF-B	III I-BF/FF-C	III II-FF	III II-BF/FF	III IV-A	III IV-B	III V	III VI	III VII
Type Allowable to Those Prescribed Any[c]												
Milk based	16.9	18.0	34.1	26.0	34.0	15.7	16.8	54.7	79.5	99.5	98.6	100.0
Hydrolysate	45.6	50.0	21.8	34.2	35.5	55.4	50.2	27.4	16.5	1.3	2.8	5.7
Soy based	0.9	1.0	3.0	1.0	0.7	1.2	2.3	10.7	7.3	1.3	2.8	5.7
Premature infant formula	34.6	26.5	49.2	39.7	27.7	21.8	29.6	5.8	0.3	–	–	–
Amino acid based	4.6	6.1	1.5	3.2	4.5	7.6	8.1	15.5	14.6	1.3	2.8	5.7
Metabolics	0.1	0.1	0.2	0.1	0.2	0.2	1.5	4.9	6.6	1.9	4.2	5.7
Modulars	< 0.1	< 0.1	–	–	–	< 0.1	< 0.1	4.9	6.7	1.3	2.8	5.7

Notes

Analysis included all States (except Louisiana, New Jersey, and infants in South Dakota), the District of Columbia, and Puerto Rico.

Percents may not add to 100.0 because of rounding.

Food package types are defined in appendix tables B.3 and B.4.

oz = ounce(s)

[a] In ready-to-feed or reconstituted ounces; reconstituted fluid ounce is the form prepared for consumption as directed by the manufacturer

[b] The MMA is shown in reconstituted fluid ounces; this is equivalent to 455 ounces of liquid concentrate; powder and ready-to-feed formula may be substituted at rates that provide comparable nutritive value.

[c] Responses were not mutually exclusive, so percents may add to more than 100.0.

[d] Formula types are as follows:

- Nonexempt infant formula refers to infant formula as described in the regulations. Infant formula is defined as a food that meets the definition of an infant formula in section 201(z) of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 321(z)) and meets the requirements for an infant formula under section 412 of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 350a) and the regulations at 21 CFR parts 106 and 107. Infant formula meets Food and Drug Administration requirements and also meets WIC requirements for iron (at least 1.5 milligrams of iron per 100 kilocalories and at least 20 kilocalories per fluid ounce at standard dilution).
- Exempt infant formula refers to an infant formula that meets the requirements for an exempt infant formula under section 412(h) of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 350a(h)) and the regulations at 21 CFR parts 106 and 107. Exempt infant formula is infant formula intended for commercial or charitable distribution that is represented and labeled for use by infants with inborn errors of metabolism, low birthweight, or other unusual medical or dietary problems (21 CFR 107.3).
- WIC-eligible nutritionals refers to certain enteral products specifically formulated to provide nutritional support for individuals with a qualifying condition when the use of conventional foods is precluded, restricted, or inadequate. WIC-eligible nutritionals must serve the purpose of a food, meal, or diet (may be nutritionally complete or incomplete) and provide a source of calories and one or more nutrients; be designed for enteral digestion via an oral or tube feeding; and may not be a conventional food, drug, flavoring, or enzyme. WIC-eligible nutritionals include many products that meet the definition of medical foods in section 5(b)(3) of the Orphan Drug Act (21 U.S.C. 360ee(b)(3)).

[d] Records for women who were assigned food packages with nonexempt or exempt infant formula were considered unreliable and excluded from this table.

Source: PC2018 data

Table E.3. Quantity and Types of Milk Prescribed by Food Package Type

Milk Prescriptions	Food Package III					Children		Women			
	Children		Women								
	III IV-A	III IV-B	III V	III VI	III VII	IV-A	IV-B	V	VI	VII	N/A[a]
Total Participants	30,395	46,086	2033.0	448	510	1,120,782	2,541,015	742,906	583,760	231,296	44,830
Quantity Issued (qt)[b]											
MMA[c]	16	16	22	16	24–36[d]	16	16	22	16	24–36[d]	0
Mean amount prescribed	5.5	10.0	18.1	12.7	14.8	11.8	11.5	15.8	11.8	17.8	7.1
Mean amount prescribed to those prescribed any	13.1	13.0	19.5	14.5	20.3	13.0	12.3	16.9	12.5	19.4	14.5
Percent Prescribed											
Quantity Issued (qt)[b]											
24 or more	0.5	0.6	2.4	0.2	37.1	1.0	0.1	0.3	0.2	11.4	0.3
At least 22 but less than 24	_	_	42.2	2.9	3.1	< 0.1	< 0.1	4.5	0.3	5.4	1.4
At least 16 but less than 22	9.3	20.4	40.9	46.4	18.8	13.1	8.7	76.1	12.7	65.7	17.1
Less than 16	32.1	55.8	7.0	38.0	13.8	77.0	84.9	12.4	81.4	9.1	30.1
None	58.0	23.2	7.6	12.5	27.1	8.8	6.2	6.7	5.4	8.4	51.1
Form Allowable to Those Prescribed Any[e]											
Dry	< 0.1	0.1	2.8	0.3	0.8	< 0.1	0.9	2.4	2.2	0.6	0.2
Fluid	98.7	99.5	97.6	99.5	98.4	98.8	98.7	98.4	98.9	99.1	99.4
Evaporated	2.4	1.5	0.8	0.5	1.1	3.3	2.2	3.5	3.0	2.3	0.9
Percent Fat Allowable to Those Prescribed Any[e]											
Skim or nonfat (0.5 percent or less)	2.8	41.9	66.9	84.4	76.7	1.2	82.6	81.3	82.6	85.6	95.1
Low fat (1 or 1.5 percent)	4.3	49.1	69.7	84.2	82.2	1.3	94.8	95.2	96.8	95.4	95.3
Reduced fat (2 percent)	1.8	9.9	11.4	5.4	6.2	2.4	6.6	7.9	6.4	7.3	4.2
Whole	94.2	42.4	21.1	11.2	12.1	96.9	1.1	0.3	0.1	0.3	< 0.1

Milk Prescriptions	Food Package III					Children		Women			
	Children			Women							
	III IV-A	III IV-B	III V	III VI	III VII	IV-A	IV-B	V	VI	VII	N/A[a]
Type Allowable to Those Prescribed Any[e]											
Cow's milk	92.9	91.4	96.7	98.5	97.5	93.7	85.1	83.7	83.5	85.9	97.3
Lactose-free or lactose-reduced	7.9	8.2	5.6	2.3	3.0	7.2	5.9	6.2	4.3	6.4	2.5
Buttermilk	0.7	1.1	0.7	0.3	0.3	1.6	11.1	15.6	15.2	10.8	0.1
Kosher	2.7	2.3	2.3	–	0.8	3.3	3.8	3.6	2.2	5.1	< 0.1
Acidophilus	1.8	2.7	0.4	–	0.5	2.3	3.9	4.6	3.9	5.1	< 0.1
UHT	1.3	0.6	1.8	0.3	–	3.0	1.1	0.9	0.6	0.5	0.4
Flavored	–	0.9	0.3	0.3	0.3	< 0.1	1.2	1.5	2.0	1.0	0.1
Goat's milk	1.2	0.1	1.5	–	0.8	1.0	0.9	0.9	0.7	0.7	0.1

Notes
Analysis included all States (except Louisiana and New Jersey), the District of Columbia, and Puerto Rico.
Percents may not add to 100.0 because of rounding.
Food package types are defined in appendix tables B.3 and B.4.
N/A = not applicable; qt = quart(s); UHT = ultra-high-temperature pasteurized
[a] This food package type includes partially (minimally) breastfeeding women more than 6 months postpartum; these participants are not authorized to receive food benefits.
[b] Fluid milk; evaporated and dry milk converted to fluid equivalent.
[c] The MMA is for fluid milk. The MMA can be met by combining fluid, dry, and evaporated milk, as well as by substituting cheese, soy-based beverage, tofu, or yogurt for part of the fluid milk allowance. This table does not include prescription data for cheese, soy-based beverage, tofu, or yogurt.
[d] Women fully breastfeeding multiple infants are allowed 36 quarts; other women receiving Food Package VII or Food Package III VII are allowed 24 quarts.
[e] Responses were not mutually exclusive, so percents may add to more than 100.0.
Source: PC2018 data

Table E.4. Quantity of Soy-Based Beverage by Food Package Type

Soy-Based Beverage Prescriptions	Food Package III					Children			Women		
	Children			Women							
	III IV-A	III IV-B	III V	III VI	III VII	IV-A	IV-B	V	VI	VII	N/A[a]
Total Participants	30,395	46,086	2,033	448	510	1,120,782	2,541,015	742,906	583,760	231,296	44,830
Quantity (qt)											
MMA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Maximum substitution allowance	16	16	22	16	24–36[b]	16	16	22	16	24–36[b]	0
Mean amount prescribed	0.4	0.4	0.9	1.3	3.0	0.3	0.4	0.6	0.3	0.7	0.6
Mean amount prescribed to those prescribed any	13.8	13.4	18.0	14.5	19.8	12.0	12.4	16.2	12.3	17.6	17.8
Percent Prescribed											
Quantity Issued (qt)											
24 or more	< 0.1	< 0.1	–	0.2	5.9	< 0.1	< 0.1	0.1	< 0.1	1.2	0.3
At least 22 but less than 24	–	–	2.1	–	2.0	< 0.1	< 0.1	0.3	< 0.1	0.4	< 0.1
At least 16 but less than 22	1.5	1.2	1.6	4.9	4.9	0.6	0.4	1.9	0.2	1.0	2.1
Less than 16	1.1	1.5	1.1	3.6	2.6	1.5	2.5	1.1	2.5	1.5	0.8
None	97.4	97.3	95.1	91.3	84.7	97.9	97.1	96.6	97.2	95.9	96.7

Notes
Analysis included all States (except Louisiana and New Jersey); the District of Columbia; and Puerto Rico.
Percents may not add to 100.0 because of rounding.
Food package types are defined in appendix tables B.3 and B.4.
N/A = not applicable; qt = quart(s)
[a] This food package type includes partially (minimally) breastfeeding women more than 6 months postpartum; these participants are not authorized to receive food benefits.
[b] Women fully breastfeeding multiples are allowed 36 quarts; other women receiving Food Package VII or Food Package III VII are allowed 24 quarts.
Source: PC2018 data

Table E.5. Quantity of Tofu Prescribed by Food Package Type

Tofu Prescriptions	Food Package III					Children		Women			
	Children			Women							
	III IV-A	III IV-B	III V	III VI	III VII	IV-A	IV-B	V	VI	VII	N/A[a]
Total Participants	30,395	46,086	2,033	448	510	1,120,782	2,541,015	742,906	583,760	231,296	44,830
Quantity (lb)											
MMA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Maximum substitution allowance[b]	0	0	4	4	6	0	0	4	4	6	0
Mean amount prescribed	< 0.1	< 0.1	0.2	0.1	0.7	< 0.1	< 0.1	< 0.1	< 0.1	0.1	< 0.1
Mean amount prescribed to those prescribed any	3.0	2.9	4.4	4.6	5.3	2.0	2.1	3.0	3.0	3.0	2.9
Percent Prescribed											
Quantity Issued (lb)											
4 or more	0.2	0.3	1.9	2.0	8.6	0.1	0.1	0.5	0.2	1.1	0.1
Less than 4	0.3	0.4	1.7	0.9	3.7	0.6	0.6	0.4	0.2	1.2	0.3
None	99.6	99.3	96.4	97.1	87.6	99.4	99.4	99.1	99.5	97.7	99.6

Notes

Analysis included all States (except Louisiana and New Jersey); the District of Columbia; and Puerto Rico.

Percents may not add to 100.0 because of rounding.

Food package types are defined in appendix tables B.3 and B.4.

lb = pound(s); N/A = not applicable

[a] This food package type includes partially (minimally) breastfeeding women more than 6 months postpartum; these participants are not authorized to receive food benefits

[b] Tofu can be substituted for milk based on individual nutritional assessment without medical documentation at the rate of 1 pound of tofu for 1 quart of milk up to the maximum substitution allowance shown. If allowed by State agency policy, women may substitute additional tofu up to the maximum allowance of fluid milk (see table B.4 for fluid milk MMA). For children, tofu may be substituted up to a maximum of 16 pounds, if allowed by State agency policy.

Source: PC2018 data

Table E.6. Quantity of Yogurt Prescribed by Food Package Type

Yogurt Prescriptions	Food Package III					Children			Women		
	Children			Women							
	III IV-A	III IV-B	III V	III VI	III VII	IV-A	IV-B	V	VI	VII	N/A[a]
Total Participants	30,395	46,086	2,033	448	510	1,120,782	2,541,015	742,906	583,760	231,296	44,830
Quantity (qt)											
MMA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Maximum substitution allowance[b]	1	1	1	1	1	1	1	1	1	1	1
Mean amount prescribed	0.2	0.3	0.3	0.3	0.3	0.5	0.7	0.7	0.6	0.7	0.4
Mean amount prescribed to those prescribed any	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Percent Prescribed											
Quantity Issued (qt)											
1 or more	17.9	32.8	32.1	27.9	30.6	49.3	68.4	70.9	62.1	70.6	37.8
Less than 1	–	–	–	–	–	< 0.1	< 0.1	< 0.1	–	< 0.1	< 0.1
None	82.1	67.2	67.9	72.1	69.4	50.7	31.6	29.1	37.9	29.4	62.2

Notes
Analysis included all States (except Louisiana and New Jersey); the District of Columbia; and Puerto Rico.
Percents may not add to 100.0 because of rounding.
Food package types are defined in appendix tables B.3 and B.4.
N/A = not applicable; qt = quart(s)
[a] This food package type includes partially (minimally) breastfeeding women more than 6 months postpartum; these participants are not authorized to receive food benefits.
[b] Yogurt can be substituted for milk at the rate of 1 quart of yogurt for 1 quart of milk up to the maximum substitution allowance shown.
Source: PC2018 data

Table E.7. Quantity of Cheese Prescribed by Food Package Type

Cheese Prescriptions	Food Package III					Children		Women			
	Children			Women							
	III IV-A	III IV-B	III V	III VI	III VII	IV-A	IV-B	V	VI	VII	N/A[a]
Total Participants	30,395	46,086	2,033	448	510	1,120,782	2,541,015	742,906	583,760	231,296	44,830
Quantity (lb)											
MMA	N/A	N/A	N/A	N/A	1-1.5[b]	N/A	N/A	N/A	N/A	1-1.5[b]	0
Maximum substitution allowance[c]	1	1	1	1	2	1	1	1	1	2	0
Mean amount prescribed	0.4	0.6	0.5	0.4	1.2	0.8	0.9	0.9	0.8	1.7	0.5
Mean amount prescribed to those prescribed any	1.0	1.0	1.1	1.0	1.5	1.0	1.0	1.0	1.0	1.8	1.0
Percent Prescribed											
Quantity Issued (lb)											
3 or more	–	–	0.9	–	8.2	< 0.1	–	< 0.1	< 0.1	5.0	0.2
At least 2 but less than 3	0.1	0.3	1.2	0.2	22.8	< 0.1	0.1	0.9	0.1	61.8	1.7
At least 1 but less than 2	34.9	57.0	45.4	41.1	53.9	76.6	86.6	87.5	82.3	28.2	45.4
Less than 1	< 0.1	0.1	–	0.2	–	0.1	0.1	0.1	0.4	< 0.1	–
None	65.0	42.6	52.6	58.5	15.1	23.3	13.2	11.5	17.2	5.0	52.8

Notes

Analysis included all States (except Louisiana and New Jersey); the District of Columbia; and Puerto Rico.

Percents may not add to 100.0 because of rounding.

Food package types are defined in appendix tables B.3 and B.4.

lb = pound(s); N/A = not applicable

[a] This food package type includes partially (minimally) breastfeeding women more than 6 months postpartum; these participants are not authorized to receive food benefits.

[b] Women fully breastfeeding multiple infants are allowed 1.5 pounds; other women receiving Food Package VII or Food Package III VII are allowed 1 pound.

[c] Cheese can be substituted for milk at the rate of 1 pound of cheese for 3 quarts of milk up to the maximum substitution allowance shown.

Source: PC2018 data

Table E.8. Quantity of Eggs Prescribed by Food Package Type

Egg Prescriptions	Food Package III					Children			Women		
	Children			Women							
	III IV-A	III IV-B	III V	III VI	III VII	IV-A	IV-B	V	VI	VII	N/A[a]
Total Participants	30,395	46,086	2,033	448	510	1,120,782	2,541,015	742,906	583,760	231,296	44,830
Quantity (doz)											
MMA	1	1	1	1	2–3[c]	1	1	1	1	2–3[c]	0
Mean amount prescribed	0.7	0.9	1.0	1.0	1.8	1.0	1.0	1.0	1.0	1.9	0.6
Mean amount prescribed to those prescribed any	1.0	1.0	1.1	1.0	1.9	1.0	1.0	1.0	1.0	1.9	1.1
Percent Prescribed											
Quantity Issued (doz)											
2 or more	0.1	0.1	3.8	0.7	80.5	< 0.1	0.1	0.8	0.3	91.5	3.1
At least 1 but less than 2	66.9	91.4	92.0	96.7	14.4	96.0	97.1	94.1	97.9	6.6	50.1
Less than 1	–	–	–	–	–	–	–	–	–	–	–
None	33.0	8.6	4.2	2.7	5.1	4.0	2.8	5.1	1.8	1.9	46.9

Notes
Analysis included all States (except Louisiana and New Jersey); the District of Columbia; and Puerto Rico.
Percents may not add to 100.0 because of rounding.
Food package types are defined in appendix tables B.3 and B.4.
doz = dozen(s); N/A = not applicable
[a] This food package type includes partially (minimally) breastfeeding women more than 6 months postpartum; these participants are not authorized to receive food benefits.
[b] Fresh eggs. Dried egg mix converted to fresh equivalent.
[c] Women fully breastfeeding multiples are allowed three dozen; other women receiving Food Package VII or Food Package III VII are allowed two dozen.
Source: PC2018 data

Table E.9. Quantity and Forms of Legumes Prescribed by Food Package Type

Legume Prescriptions	Food Package III					Children		Women			
	Children		Women								
	III IV-A	III IV-B	III V	III VI	III VII	IV-A	IV-B	V	VI	VII	N/A[a]
Total Participants	30,395	46,086	2,033	448	510	1,120,782	2,541,015	742,906	583,760	231,296	44,830
Quantity (oz)											
MMA[b]	16/18	16/18	32/36	16/18	32/36–48/54[c]	16/18	16/18	32/36	16/18	32/36–48/54[c]	0
Mean amount prescribed	10.2	15.4	31.5	17.8	31.0	13.9	16.3	29.1	16.2	29.6	11.9
Mean amount prescribed to those prescribed any	15.8	16.6	32.6	18.3	32.9	15.7	16.6	30.6	16.7	31.4	22.6
Percent Prescribed											
Quantity Issued (oz)											
32/36 or more	0.1	0.2	80.6	5.4	79.9	0.2	0.3	75.2	1.6	78.4	15.4
At least 16/18 but less than 32/36	58.7	87.5	13.3	88.2	12.2	80.1	94.0	18.3	90.0	13.6	36.8
Less than 16/18	6.0	4.7	2.6	4.0	2.2	8.0	3.6	1.6	5.3	2.2	0.7
None	35.1	7.6	3.6	2.5	5.8	11.6	2.0	4.8	3.1	5.8	47.1
Form Allowable to Those Prescribed Any[d]											
Dry beans	75.2	69.7	89.3	82.2	79.6	56.5	52.5	63.6	58.3	57.4	92.9
Peanut butter	43.4	71.4	88.4	90.4	81.2	39.6	63.4	64.6	70.4	65.0	91.7
Canned beans	83.3	79.6	89.5	88.1	94.2	82.1	80.2	86.9	76.8	84.5	95.4

Notes
Analysis included all States (except Louisiana and New Jersey); the District of Columbia; and Puerto Rico.
Percents may not add to 100.0 because of rounding.
Food package types are defined in appendix tables B.3 and B.4.
N/A = not applicable; oz = ounce(s)
[a] This food package type includes partially (minimally) breastfeeding women more than 6 months postpartum; these participants are not authorized to receive food benefits.
[b] MMAs are 16 ounces dry or 64 ounces canned or 18 ounces peanut butter for children and for nonbreastfeeding and partially (minimally) breastfeeding women up to 6 months postpartum. MMAs are 16 ounces dry or 64 ounces canned plus 18 ounces of peanut butter for pregnant women and other breastfeeding women up to 1 year postpartum. Additional combinations allowed are 16 ounces dry beans and 64 ounces canned beans (and no peanut butter), or 32 ounces dry beans, or 128 ounces canned beans (and no peanut butter), or 36 ounces peanut butter (and no beans).
[c] Women fully breastfeeding multiples are allowed 54 ounces of peanut butter or 48 ounces of beans; other women receiving Food Package VII or Food Package III VII are allowed 36 ounces of peanut butter or 32 ounces of beans.
[d] Food packages contain dry beans (or canned beans), peanut butter, or a combination of these types. Responses were not mutually exclusive, so percents may add to more than 100.0. Type allowable percentages include food packages for which that type was included in the prescription; for example, a prescription that is described as providing 18 ounces peanut butter or 16 ounces dry beans would be counted in both the type allowable dry beans category and the type allowable peanut butter category.
Source: PC2018 data

Table E.10. Quantity and Types of Canned Fish Prescribed by Food Package Type

Canned Fish Prescriptions	Food Package III VII	Food Package VII[a]
Total Participants	510	231,296
Quantity (oz)		
MMA	30-45[b]	30–45[b]
Mean amount prescribed	25.5	26.9
Mean amount prescribed to those prescribed any	28.3	30.0
Percent Prescribed		
Quantity Issued (oz)		
30 or more	78.1	89.0
Less than 30	11.9	0.8
None	10.0	10.2
Type Allowable to Those Receiving Any[c]		
Light tuna	96.9	97.8
Salmon	90.0	94.7
Sardines	63.8	53.0
Mackerel	8.3	27.6

Notes
Analysis included all States (except Louisiana and New Jersey); the District of Columbia; and Puerto Rico.
Percents may not add to 100.0 because of rounding.
Food package types are defined in appendix tables B.3 and B.4.
oz = ounce(s)
[a] Food Package VII was assigned to women who are fully breastfeeding, partially (mostly) breastfeeding multiples, or pregnant with multiples.
[b] Women fully breastfeeding multiples are allowed 45 ounces; other women receiving Food Package VII or Food Package III VII are allowed 30 ounces.
[c] Responses were not mutually exclusive, so percents may add to more than 100.0.
Source: PC2018 data

Table E.11. Quantity of Cereal Prescribed by Food Package Type

Cereal Prescriptions	Infants			Food Package III							Children			Women		
				Infants		Children		Women								
	II-FF	II-BF/ FF	II-BF	III II-FF	III II-BF/FF	III IV-A	III IV-B	III V	III VI	III VII	IV-A	IV-B	V	VI	VII	N/A[a]
Total Participants	595,067	105,270	102,067	74,980	5,484	30,395	46,086	2,033	448	510	1,120,782	2,541,015	742,906	583,760	231,296	44,830
Quantity (oz)																
MMA	24	24	24	24	24	36	36	36	36	36–54[b]	36	36	36	36	36–54[c]	0
Mean amount prescribed	21.9	20.1	22.0	19.8	16.2	30.4	32.2	34.5	35.2	33.1	33.1	32.2	31.7	31.9	32.8	18.7
Mean amount prescribed to those prescribed any	23.8	24.0	23.9	23.4	23.7	33.7	35.8	36.2	36.0	34.3	35.7	35.9	35.8	35.8	35.9	36.0
Percent Prescribed																
Quantity Issued (oz)																
36 or more	0.1	0.3	0.1	0.3	0.1	68.8	87.9	94.8	97.5	86.2	90.7	89.0	87.5	88.0	90.5	51.8
At least 24 but less than 36	89.5	82.5	90.7	77.7	65.3	19.9	1.4	–	–	–	1.3	< 0.1	< 0.1	< 0.1	< 0.1	–
Less than 24	2.4	0.8	1.5	6.5	2.8	1.6	0.6	0.5	0.2	10.5	0.6	0.6	1.1	1.0	0.9	< 0.1
None	8.0	16.3	7.6	15.5	31.8	9.7	10.1	4.7	2.2	3.3	7.4	10.4	11.4	11.0	8.6	48.2

Notes
Analysis included all States (except Louisiana, New Jersey, and infants in South Dakota); the District of Columbia; and Puerto Rico.
Percents may not add to 100.0 because of rounding.
Food package types are defined in appendix tables B.3 and B.4.
Infants received infant cereal. All others received adult cereal.
N/A = not applicable; oz = ounce(s)
[a] This food package type includes partially (minimally) breastfeeding women more than 6 months postpartum; these participants are not authorized to receive food benefits.
[b] Women fully breastfeeding multiples are allowed 54 ounces; other women receiving Food Package VII or Food Package III VII are allowed 36 ounces.
Source: PC2018 data

Table E.12. Quantity and Types of Whole Grains Prescribed by Food Package Type

Whole-Grain Prescriptions	Food Package III				Children		Women		
	Children		Women						
	III IV-A	III IV-B	III V	III VII	IV-A	IV-B	V	VII	N/A[a]
Total Participants	30,395	46,086	2,033	510	1,120,782	2,541,015	742,906	231,296	44,830
Quantity (lb)									
MMA	2	2	1	1–1.5[b]	2	2	1	1–1.5[b]	0
Mean amount prescribed	1.4	1.9	1.0	1.0	1.9	1.9	0.9	1.0	0.2
Mean amount prescribed to those prescribed any	2.0	2.0	1.0	1.0	2.0	2.0	1.0	1.0	1.0
Percent Prescribed									
Quantity Issued (lb)									
2 or more	67.8	92.4	0.3	0.4	94.8	95.3	< 0.1	0.2	< 0.1
At least 1 but less than 2	0.7	0.6	96.3	97.1	1.3	1.0	94.9	97.3	17.9
Less than 1	–	–	–	–	< 0.1	< 0.1	< 0.1	< 0.1	–
None	31.5	7.0	3.4	2.6	4.0	3.7	5.1	2.5	82.1
Type Allowable to Those Prescribed Any[c]									
Whole-wheat/whole-grain bread	99.3	99.5	99.8	100.0	98.4	98.3	98.4	98.9	99.9
Soft corn or whole-wheat tortillas	96.1	96.3	96.5	98.4	96.8	96.9	97.2	96.4	96.6
Brown rice	95.9	95.5	95.5	98.2	96.3	96.3	96.7	96.1	96.1
Whole-wheat pasta	88.1	87.1	90.6	97.6	87.5	88.2	86.2	89.1	81.1
Oats	31.0	31.4	18.0	40.2	51.3	54.7	51.0	55.7	36.8
Bulgur	7.9	7.1	1.6	8.3	24.5	26.4	24.4	30.3	0.4
Barley	6.7	4.8	0.5	7.7	20.4	21.7	20.3	23.3	–

Notes

Analysis included all States (except Louisiana, New Jersey, and infants in South Dakota); the District of Columbia; and Puerto Rico.

Percents may not add to 100.0 because of rounding.

Food package types are defined in appendix tables B.3 and B.4.

lb = pound(s); N/A = not applicable

[a] This food package type includes partially (minimally) breastfeeding women more than 6 months postpartum; these participants are not authorized to receive food benefits.

[b] Women fully breastfeeding multiples are allowed 1.5 pounds; other women receiving Food Package VII or Food Package III VII are allowed 1 pound.

[c] Responses were not mutually exclusive, so percents may add to more than 100.0.

Source: PC2018 data

Table E.13. Quantity of Juice Prescribed by Food Package Type

Juice Prescriptions	Food Package III					Children			Women		
	Children			Women							
	III IV-A	III IV-B	III V	III VI	III VII	IV-A	IV-B	V	VI	VII	N/A[a]
Total Participants	30,395	46,086	2,033	448	510	1,120,782	2,541,015	742,906	583,760	231,296	44,830
Quantity (oz)[b]											
MMA	128	128	144	96	144–216[c]	128	128	144	96	144–216[c]	0
Mean amount prescribed	86.8	117.5	130.6	81.0	127.4	119.4	122.1	132.1	90.8	137.1	57.7
Mean amount prescribed to those prescribed any	126.1	126.4	136.3	83.5	131.2	124.4	126.3	139.6	94.0	140.1	108.6
Percent Prescribed											
Quantity Issued (oz)[b]											
144 or more	0.1	0.1	49.4	3.1	39.1	0.2	0.3	82.5	1.8	84.6	16.2
At least 128 but less than 144	66.1	89.5	43.6	3.3	46.5	89.4	92.4	6.3	0.4	8.4	2.3
At least 96 but less than 128	0.8	2.0	2.0	44.2	10.9	2.0	2.4	4.4	85.7	3.2	26.8
Less than 96	1.8	1.4	0.8	46.4	0.6	4.5	1.6	1.4	8.7	1.6	7.8
None	31.1	7.0	4.2	2.9	2.9	4.0	3.3	5.4	3.4	2.2	46.9

Notes
Analysis included all States (except Louisiana and New Jersey); the District of Columbia; and Puerto Rico.
Percents may not add to 100.0 because of rounding.
Food package types are defined in appendix tables B.3 and B.4.
N/A = not applicable; oz = ounce(s)
[a] This food package type includes partially (minimally) breastfeeding women more than 6 months postpartum; these participants are not authorized to receive food benefits.
[b] Single-strength juice; concentrated juice converted to single-strength equivalent
[c] Women fully breastfeeding multiples are allowed 216 ounces; other women receiving Food Package VII or Food Package III VII are allowed 144 ounces.
Source: PC2018 data

Table E.14. Amount and Types of Fruits and Vegetables Prescribed by Food Package Type

Fruit and Vegetable Prescriptions	Infants			Food Package III							Children		Women			
				Infants		Children		Women								
	II-FF	II-BF/ FF	II-BF	III II-FF	III II-BF/FF	III IV-A	III IV-B	III V	III VI	III VII	IV-A	IV-B	V	VI	VII	N/A[a]
Total Participants	595,067	105,270	102,067	74,980	5,484	30,395	46,086	2,033	448	510	1,120,782	2,541,015	742,906	583,760	231,296	44,830
Amount ($)																
MMA	4	4	4	4	4	8	8	11	11	11–16.50[b]	8	8	11	11	11–16.50[b]	0
Mean amount prescribed	0.46	0.33	1.27	0.33	0.72	5.65	7.53	10.85	10.78	10.79	7.53	7.59	10.50	10.34	10.66	5.91
Mean amount prescribed to those prescribed any	4.36	5.50	8.23	5.61	10.45	8.03	8.07	11.08	11.03	11.05	8.04	8.07	11.05	11.04	11.17	11.05
Percent Prescribed																
Quantity Issued ($)																
11 or more	0.3	0.6	0.4	0.7	3.4	0.8	0.1	97.9	97.8	97.4	< 0.1	0.1	95.0	93.6	95.4	53.5
At least 8 but less than 11	0.1	0.2	15.0	0.1	0.1	67.3	93.2	< 0.1	–	0.2	93.2	94.0	< 0.1	< 0.1	< 0.1	< 0.1
At least 4 but less than 8	10.1	5.2	0.1	5.1	3.4	2.4	< 0.1	–	–	–	0.5	< 0.1	< 0.1	< 0.1	< 0.1	–
Less than 4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	–	–	–	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	–
None	89.6	93.9	84.6	94.1	93.1	29.6	6.7	2.0	2.2	2.4	6.3	5.9	5.0	6.3	4.5	46.5

Fruit and Vegetable Prescriptions	Infants			Food Package III							Children		Women			
				Infants		Children		Women								
	II-FF	II-BF/ FF	II-BF	III II-FF	III II-BF/FF	III IV-A	III IV-B	III V	III VI	III VII	IV-A	IV-B	V	VI	VII	N/A[a]
Type Allowable to Those Prescribed Any[c]																
Fresh	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Frozen	–	–	–	–	–	71.3	77.4	89.6	90.2	96.4	85.3	86.4	87.0	86.5	87.6	92.4
Canned	–	–	–	–	–	55.6	61.2	77.9	83.1	88.5	65.6	67.1	65.1	64.5	65.1	62.3
Dried	–	–	–	–	–	4.6	4.1	0.4	0.2	7.6	20.2	21.7	18.8	14.5	23.5	0.1

Notes

Analysis included all States (except Louisiana and New Jersey); the District of Columbia; and Puerto Rico.

Percents may not add to 100.0 because of rounding.

Food package types are defined in appendix tables B.3 and B.4.

[a] Partially (minimally) breastfeeding women more than 6 months postpartum; these participants are not authorized to receive food benefits.

[b] Women fully breastfeeding multiple are allowed $16.50; other women receiving Food Package VII or Food Package III VII are allowed $11

[c] Responses were not mutually exclusive, so percents may add to more than 100.0.

Source: PC2018 data

Table E.15. Quantity of Infant Foods Prescribed for Infants by Food Package Type

Infant Food Prescriptions	II-FF	II-BF/FF	II-BF	III II-FF	III II-BF/FF
Total Participants	595,067	105,270	102,067	74,980	5,484
Fruits and Vegetables					
Quantity (oz)					
MMA	128	128	256	128	128
Mean amount prescribed	112.3	114.3	215.4	105.9	98.9
Mean amount prescribed to those receiving any	118.8	122.6	227.8	122.1	122.2
Percent Prescribed					
Quantity Issued (oz)					
256 or more	0.2	0.3	71.5	0.2	0.1
At least 128 but less than 256	79.4	82.8	19.3	74.3	67.1
Less than 256	14.9	10.1	3.8	12.3	13.6
None	5.5	6.8	5.4	13.3	19.1
Meat					
Quantity (oz)					
MMA	–	–	77.5	–	–
Mean amount prescribed	–	–	67.6	–	–
Mean amount prescribed to those receiving any	–	–	67.6	–	–
Percent Prescribed					
Quantity Issued (oz)					
77.5 or more	–	–	79.6	–	–
Less than 77.5	–	–	10.2	–	–
None	–	–	10.2	–	–

Notes
Analysis included all States (except Louisiana and New Jersey), the District of Columbia, and Puerto Rico.
Percents may not add to 100.0 because of rounding.
Food package types are defined in appendix tables B.3 and B.4.
oz = ounce(s)
Source: PC2018 data

B. Additional Food Package Cost Tabulations

Table E.16. Average Monthly and Annual Pre- and Post-Rebate Food Package Costs by Participant Category and Food Package Type

Participant Category and Food Package Type	Percent of Participants	Average Monthly Food Package Pre-Rebate Costs ($ millions)	Average Monthly Food Package Post-Rebate Costs ($ millions)	Average Annual Food Package Pre-Rebate Costs ($ millions)	Average Annual Food Package Post-Rebate Costs ($ millions)
Total WIC Participants	100.0	$378.7	$235.3	$4,544.1	$2,823.4
Participant Category					
Pregnant women	9.4	$23.0	$23.0	$275.4	$275.4
Breastfeeding women	8.2	$20.5	$20.5	$245.5	$245.5
Postpartum women	7.0	$14.2	$14.2	$169.9	$169.9
Infants	23.3	$212.2	$68.8	$2,546.6	$826.0
Children	52.1	$108.9	$108.9	$1,306.6	$1,306.6
Food Package Type					
I-FF-A	3.6	$42.0	$9.3	$504.4	$111.8
I-FF-B	2.6	$32.0	$7.1	$384.1	$85.2
I-BF/FF-A	0.1	$0.7	$0.2	$8.1	$1.8
I-BF/FF-B	1.1	$8.8	$1.9	$105.3	$23.4
I-BF/FF-C	0.7	$6.6	$1.5	$79.8	$17.7
I-BF-A	1.0	–	–	–	–
I-BF-B	0.5	–	–	–	–
II-FF	8.9	$92.3	$29.2	$1,108.1	$350.0
II-BF/FF	1.7	$14.8	$4.9	$178.0	$58.3
II-BF	1.5	$4.4	$4.3	$53.0	$52.2
IV-A	16.7	$36.9	$36.9	$442.7	$442.7
IV-B	36.9	$81.6	$81.6	$979.7	$979.7
V	11.2	$28.7	$28.7	$344.5	$344.5
VI	8.8	$18.7	$18.7	$224.0	$224.0
VII	3.4	$11.0	$11.0	$132.2	$132.2

Notes

Analysis included all States, the District of Columbia, and Puerto Rico.

Because of conflicting food package type and participant category information for some participants, food costs by participant category and food package type may not sum to total (see appendix A for additional detail).

Total Food Package III costs and participants prescribed Food Package III are not included in these estimates (see appendix D for additional detail).

Fully breastfed infants aged 0 to 5.9 months (I-BF-A and I-BF-B) are not issued food. Food Package Type 28 (N/A), which does not include supplemental foods, was assigned to 1.2 percent of participants; this food package type is not included in this table.

Sources: PC2018 data; FY 2018 FNS administrative data; IRI data; study EBT data; Food Package III data

Table E.17a. Monthly Pre- and Post-Rebate Costs by Participant Category and Food Package Type for Fruits and Vegetables, Infant Formula, Cow's Milk, Breakfast Cereal, Juice, and Cheese

Participant Category and Food Package Type	Fruits and Vegetables Costs (Pre- and Post-Rebate ($ millions)	Infant Formula Costs Pre-Rebate ($ millions)	Infant Formula Costs Post-Rebate ($ millions)	Cow's Milk Costs Pre- and Post-Rebate ($ millions)	Breakfast Cereal Costs Pre- and Post-Rebate ($ millions)	Juice Costs Pre- and Post-Rebate ($ millions)	Cheese Costs Pre- and Post-Rebate ($ millions)
Total WIC Participants	$45.9	$185.9	$42.9	$36.0	$20.2	$19.5	$17.2
Participant Category							
Pregnant women	$6.5	–	–	$5.2	$2.6	$2.5	$2.0
Breastfeeding women	$5.4	–	–	$4.2	$2.3	$1.9	$2.3
Postpartum women	$4.8	–	–	$2.9	$1.9	$1.3	$1.4
Infants	$0.5	$190.4	$47.4	–	–	–	–
Children	$26.0	–	–	$21.7	$14.4	$12.6	$10.5
Food Package Type							
I-FF-A	–	$42.0	$9.3	–	–	–	–
I-FF-B	–	$32.0	$7.1	–	–	–	–
I-BF/FF-A	–	$0.7	$0.2	–	–	–	–
I-BF/FF-B	–	$8.8	$1.9	–	–	–	–
I-BF/FF-C	–	$6.6	$1.5	–	–	–	–
I-BF-A	–	–	–	–	–	–	–
I-BF-B	–	–	–	–	–	–	–
II-FF	$0.2	$80.8	$17.9	–	–	–	–
II-BF/FF	$0.0	$12.8	$2.8	–	–	–	–
II-BF	$0.1	–	–	–	–	–	–

Participant Category and Food Package Type	Fruits and Vegetables Costs (Pre- and Post-Rebate ($ millions)	Infant Formula Costs Pre-Rebate ($ millions)	Infant Formula Costs Post-Rebate ($ millions)	Cow's Milk Costs Pre- and Post-Rebate ($ millions)	Breakfast Cereal Costs Pre- and Post-Rebate ($ millions)	Juice Costs Pre- and Post-Rebate ($ millions)	Cheese Costs Pre- and Post-Rebate ($ millions)
IV-A	$8.8	–	–	$8.0	$4.9	$4.2	$3.3
IV-B	$19.5	–	–	$15.5	$10.8	$9.5	$8.2
V	$8.2	–	–	$6.4	$3.3	$3.1	$2.5
VI	$6.3	–	–	$3.8	$2.6	$1.7	$1.8
VII	$2.5	–	–	$2.2	$1.0	$1.0	$1.4

Notes

Analysis included all States, the District of Columbia, and Puerto Rico.

Food categories are sorted by post-rebate percentage contribution to total food package costs.

Because of conflicting food package type and participant category information for some participants, food costs by participant category and food package type may not sum to total (see appendix A for additional detail).

Total Food Package III costs and participants prescribed Food Package III are not included in these estimates (see appendix D for additional detail).

Fully breastfed infants aged 0 to 5.9 months (I-BF-A and I-BF-B) are not issued food. Food Package Type 28 (N/A), which does not include supplemental foods, was assigned to 1.2 percent of participants; this food package type is not included in this table.

Sources: PC2018 data; FY 2018 FNS administrative data; IRI data; study EBT data; Food Package III data

Table E.17b. Monthly Pre- and Post-Rebate Costs by Participant Category and Food Package Type for Infant Fruits and Vegetables, Whole-Wheat/Whole-Grain Bread, Eggs, Yogurt, Legumes, and Infant Cereal

Participant Category and Food Package Type	Infant Fruits and Vegetables Costs Pre-Rebate ($ millions)	Infant Fruits and Vegetables Costs Post-Rebate ($ millions)	Whole-Wheat/ Whole-Grain Bread Costs Pre- and Post-Rebate ($ millions)	Eggs Costs Pre- and Post-Rebate ($ millions)	Yogurt Costs Pre- and Post-Rebate ($ millions)	Legumes Costs Pre- and Post-Rebate ($ millions)	Infant Cereal Costs Pre-Rebate ($ millions)	Infant Cereal Costs Post-Rebate ($ millions)
Total WIC Participants	$13.7	$13.6	$11.6	$7.5	$5.8	$3.6	$3.2	$3.0
Participant Category								
Pregnant women	–	–	$0.9	$0.8	$0.7	$0.7	–	–
Breastfeeding women	–	–	$0.5	$1.0	$0.6	$0.5	–	–
Postpartum women	–	–	–	$0.6	$0.5	$0.2	–	–
Infants	$13.9	$13.8	–	–	–	–	$6.3	$6.1
Children	–	–	$9.4	$4.6	$3.6	$2.1	–	–
Food Package Type								
I-FF-A	–	–	–	–	–	–	–	–
I-FF-B	–	–	–	–	–	–	–	–
I-BF/FF-A	–	–	–	–	–	–	–	–
I-BF/FF-B	–	–	–	–	–	–	–	–
I-BF/FF-C	–	–	–	–	–	–	–	–
I-BF-A	–	–	–	–	–	–	–	–
I-BF-B	–	–	–	–	–	–	–	–
II-FF	$8.7	$8.6	–	–	–	–	$2.6	$2.4
II-BF/FF	$1.6	$1.5	–	–	–	–	$0.5	$0.5
II-BF	$2.9	$2.9	–	–	–	–	$0.4	$0.4
IV-A	–	–	$3.2	$1.6	$1.0	$0.8	–	–

Participant Category and Food Package Type	Infant Fruits and Vegetables Costs Pre-Rebate ($ millions)	Infant Fruits and Vegetables Costs Post-Rebate ($ millions)	Whole-Wheat/ Whole-Grain Bread Costs Pre- and Post-Rebate ($ millions)	Eggs Costs Pre- and Post-Rebate ($ millions)	Yogurt Costs Pre- and Post-Rebate ($ millions)	Legumes Costs Pre- and Post-Rebate ($ millions)	Infant Cereal Costs Pre-Rebate ($ millions)	Infant Cereal Costs Post-Rebate ($ millions)
IV-B	–	–	$7.0	$3.5	$3.0	$1.4	–	–
V	–	–	$1.0	$1.0	$0.9	$0.9	–	–
VI	–	–	–	$0.8	$0.6	$0.3	–	–
VII	–	–	$0.3	$0.6	$0.3	$0.3	–	–

Notes

Analysis included all States, the District of Columbia, and Puerto Rico.

Food categories are sorted by post-rebate percentage contribution to total food package costs.

Because of conflicting food package type and participant category information for some participants, food costs by participant category and food package type may not sum to total (see appendix A for additional detail).

Total Food Package III costs and participants prescribed Food Package III are not included in these estimates (see appendix D for additional detail).

Fully breastfed infants aged 0 to 5.9 months (I-BF-A and I-BF-B) are not issued food. Food Package Type 28 (N/A), which does not include supplemental foods, was assigned to 1.2 percent of participants; this food package type is not included in this table.

Sources: PC2018 data; FY 2018 FNS administrative data; IRI data; study EBT data; Food Package III data

Table E.17c. Monthly Pre- and Post-Rebate Costs by Participant Category and Food Package Type for Soy-Based Beverage, Peanut Butter, Other Whole Grains, Infant Food Meat, Canned Fish, and Tofu

Participant Category and Food Package Type	Soy-Based Beverage Costs Pre- and Post-Rebate ($ millions)	Peanut Butter Costs Pre- and Post-Rebate ($ millions)	Other Whole Grain Costs Pre- and Post-Rebate ($ millions)	Infant Food Meat Costs Pre-Rebate ($ millions)	Infant Food Meat Costs Post-Rebate ($ millions)	Canned Fish Costs Pre- and Post-Rebate ($ millions)	Tofu Costs Pre- and Post-Rebate ($ millions)
Total WIC Participants	$2.0	$3.3	$1.2	$1.0	$1.0	$0.9	$0.1
Participant Category							
Pregnant women	$0.3	$0.7	$0.1	–	–	< $0.1	< $0.1
Breastfeeding women	$0.3	$0.5	$0.1	–	–	$0.8	< $0.1
Postpartum women	$0.2	$0.3	–	–	–	–	< $0.1
Infants	–	–	–	$1.0	$1.0	–	–
Children	$1.1	$1.9	$1.0	–	–	–	< $0.1
Food Package Type							
I-FF-A	–	–	–	–	–	–	–
I-FF-B	–	–	–	–	–	–	–
I-BF/FF-A	–	–	–	–	–	–	–
I-BF/FF-B	–	–	–	–	–	–	–
I-BF/FF-C	–	–	–	–	–	–	–
I-BF-A	–	–	–	–	–	–	–
I-BF-B	–	–	–	–	–	–	–
II-FF	–	–	–	–	–	–	–
II-BF/FF	–	–	–	–	–	–	–
II-BF	–	–	–	$1.0	$1.0	–	–

Participant Category and Food Package Type	Soy-Based Beverage Costs Pre- and Post-Rebate ($ millions)	Peanut Butter Costs Pre- and Post-Rebate ($ millions)	Other Whole Grain Costs Pre- and Post-Rebate ($ millions)	Infant Food Meat Costs Pre-Rebate ($ millions)	Infant Food Meat Costs Post-Rebate ($ millions)	Canned Fish Costs Pre- and Post-Rebate ($ millions)	Tofu Costs Pre- and Post-Rebate ($ millions)
IV-A	$0.3	$0.4	$0.3	–	–	–	< $0.1
IV-B	$1.0	$1.6	$0.7	–	–	–	< $0.1
V	$0.4	$0.8	$0.1	–	–	–	< $0.1
VI	$0.2	$0.4	–	–	–	–	< $0.1
VII	$0.2	$0.2	< $0.1	–	–	$0.8	< $0.1

Notes

Analysis included all States, the District of Columbia, and Puerto Rico.

Food categories are sorted by post-rebate percentage contribution to total food package costs.

Because of conflicting food package type and participant category information for some participants, food costs by participant category and food package type may not sum to total (see appendix A for additional detail).

Total Food Package III costs and participants prescribed Food Package III are not included in these estimates (see appendix D for additional detail).

Fully breastfed infants aged 0 to 5.9 months (I-BF-A and I-BF-B) are not issued food. Food Package Type 28 (N/A), which does not include supplemental foods, was assigned to 1.2 percent of participants; this food package type is not included in this table.

Sources: PC2018 data; FY 2018 FNS administrative data; IRI data; study EBT data; Food Package III data

Table E.18a. Estimated Average Quantities Redeemed and Price Per Unit by Participant Category and Food Package Type for Infant Formula, Fruits and Vegetables, Cow's Milk, Breakfast Cereal, and Infant Cereal

Participant Category and Food Package Type	Infant Formula (average quantity)	Infant Formula (price per fl. oz)	Fruits and Vegetables (dollars)	Cow's Milk (average quantity)	Whole Cow's Milk (price per fl. oz)	Fat-Reduced Cow's Milk (price per fl. oz)	Breakfast Cereal Average Quantity	Breakfast Cereal (price per oz)	Infant Cereal (average quantity)	Infant Cereal (price per oz)
Total WIC Participants	101.5	$0.20	$4.96	185.4	$0.02	$0.02	13.3	$0.16	1.2	$0.28
Participant Category										
Pregnant women	–	–	$7.82	304.6	$0.02	$0.02	18.9	$0.16	–	–
Breastfeeding women	–	–	$7.39	280.8	$0.02	$0.02	19.0	$0.16	–	–
Postpartum women	–	–	$7.82	224.1	$0.02	$0.02	18.9	$0.16	–	–
Infants	466.2	$0.20	$0.23	–	–	–	–	–	10.9	$0.28
Children	–	–	$5.64	221.2	$0.02	$0.02	19.0	$0.16	–	–
Food Package Type										
I-FF-A	620.0	$0.20	–	–	–	–	–	–	–	–
I-FF-B	667.0	$0.20	–	–	–	–	–	–	–	–
I-BF/FF-A	289.7	$0.20	–	–	–	–	–	–	–	–
I-BF/FF-B	423.6	$0.20	–	–	–	–	–	–	–	–
I-BF/FF-C	505.7	$0.20	–	–	–	–	–	–	–	–
I-BF-A	–	–	–	–	–	–	–	–	–	–
I-BF-B	–	–	–	–	–	–	–	–	–	–
II-FF	486.7	$0.20	$0.29	–	–	–	–	–	10.9	$0.28
II-BF/FF	413.2	$0.20	$0.21	–	–	–	–	–	10.9	$0.28
II-BF	–	–	$0.83	–	–	–	–	–	10.9	$0.28

Participant Category and Food Package Type	Infant Formula (average quantity)	Infant Formula (price per fl. oz)	Fruits and Vegetables (dollars)	Cow's Milk (average quantity)	Whole Cow's Milk (price per fl. oz)	Fat-Reduced Cow's Milk (price per fl. oz)	Breakfast Cereal Average Quantity	Breakfast Cereal (price per oz)	Infant Cereal (average quantity)	Infant Cereal (price per oz)
IV-A	–	–	$5.63	226.2	$0.02	$0.02	18.9	$0.16	–	–
IV-B	–	–	$5.63	217.9	$0.02	$0.02	19.0	$0.16	–	–
V	–	–	$7.80	299.3	$0.02	$0.02	18.9	$0.16	–	–
VI	–	–	$7.68	224.3	$0.02	$0.02	18.9	$0.16	–	–
VII	–	–	$7.91	338.3	$0.02	$0.02	19.0	$0.16	–	–

Notes
Analysis included all States, the District of Columbia, and Puerto Rico.
Food categories are sorted by post-rebate percentage contribution to total food package costs.
Because of conflicting food package type and participant category information for some participants, food costs by participant category and food package type may not sum to total (see appendix A for additional detail).
Total Food Package III costs and participants prescribed Food Package III are not included in these estimates (see appendix D for additional detail).
Fully breastfed infants aged 0 to 5.9 months (I-BF-A and I-BF-B) are not issued food. Food Package Type 28 (N/A), which does not include supplemental foods, was assigned to 1.2 percent of participants; this food package type is not included in this table.
fl. oz = fluid ounce(s); oz = ounce(s)
Sources: PC2018 data; FY 2018 FNS administrative data; IRI data; study EBT data; Food Package III data

Table E.18b. Estimated Average Quantities Redeemed and Price Per Unit by Participant Category and Food Package Type for Cheese, Juice, Infant Fruits and Vegetables, Whole-Wheat/Whole-Grain Bread, and Eggs

Participant Category and Food Package Type	Cheese (average quantity)	Cheese (price per oz)	Juice (average quantity)	Juice (price per fl. oz)	Infant Fruits and Vegetables (average quantity)	Infant Fruits and Vegetables (price per oz)	Whole-Wheat/Whole-Grain Bread (average quantity)	Whole-Wheat/Whole-Grain Bread (price per oz)	Eggs (average quantity)	Eggs (price per doz)
Total WIC Participants	7.5	$0.25	57.9	$0.04	8.2	$0.18	7.5	$0.17	0.6	$1.44
Participant Category										
Pregnant women	9.7	$0.25	82.1	$0.04	–	–	6.2	$0.17	0.7	$1.44
Breastfeeding women	12.9	$0.25	72.4	$0.04	–	–	4.2	$0.17	0.9	$1.44
Postpartum women	9.0	$0.25	56.0	$0.04	–	–	–	–	0.7	$1.44
Infants	–	–	–	–	37.1	$0.18	–	–	–	–
Children	9.2	$0.25	75.1	$0.04	–	–	12.1	$0.17	0.7	$1.44
Food Package Type										
I-FF-A	–	–	–	–	–	–	–	–	–	–
I-FF-B	–	–	–	–	–	–	–	–	–	–
I-BF/FF-A	–	–	–	–	–	–	–	–	–	–
I-BF/FF-B	–	–	–	–	–	–	–	–	–	–
I-BF/FF-C	–	–	–	–	–	–	–	–	–	–
I-BF-A	–	–	–	–	–	–	–	–	–	–
I-BF-B	–	–	–	–	–	–	–	–	–	–
II-FF	–	–	–	–	56.9	$0.18	–	–	–	–
II-BF/FF	–	–	–	–	55.0	$0.18	–	–	–	–
II-BF	–	–	–	–	110.8	$0.18	–	–	–	–

Participant Category and Food Package Type	Cheese (average quantity)	Cheese (price per oz)	Juice (average quantity)	Juice (price per fl. oz)	Infant Fruits and Vegetables (average quantity)	Infant Fruits and Vegetables (price per oz)	Whole-Wheat/Whole-Grain Bread (average quantity)	Whole-Wheat/Whole-Grain Bread (price per oz)	Eggs (average quantity)	Eggs (price per doz)
IV-A	8.5	$0.25	74.3	$0.04	–	–	12.2	$0.17	0.7	$1.44
IV-B	9.6	$0.25	75.2	$0.04	–	–	12.1	$0.17	0.7	$1.44
V	9.7	$0.25	81.5	$0.04	–	–	6.0	$0.17	0.7	$1.44
VI	9.0	$0.25	56.0	$0.04	–	–	–	–	0.7	$1.44
VII	18.0	$0.25	84.6	$0.04	–	–	6.2	$0.17	1.4	$1.44

Notes

Analysis included all States, the District of Columbia, and Puerto Rico.

Food categories are sorted by post-rebate percentage contribution to total food package costs.

Because of conflicting food package type and participant category information for some participants, food costs by participant category and food package type may not sum to total (see appendix A for additional detail).

Total Food Package III costs and participants prescribed Food Package III are not included in these estimates (see appendix D for additional detail).

Fully breastfed infants aged 0 to 5.9 months (I-BF-A and I-BF-B) are not issued food. Food Package Type 28 (N/A), which does not include supplemental foods, was assigned to 1.2 percent of participants; this food package type is not included in this table.

doz = dozen(s); fl. oz = fluid ounce(s); oz = ounce(s)

Sources: PC2018 data; FY 2018 FNS administrative data; IRI data; study EBT data; Food Package III data

Table E.18c. Estimated Average Quantities Redeemed and Price Per Unit by Participant Category and Food Package Type for Yogurt, Peanut Butter, Legumes, Soy-Based Beverage, and Other Whole Grains

Participant Category and Food Package Type	Yogurt (average quantity)	Yogurt (price per oz)	Peanut Butter (average quantity)	Peanut Butter (price per oz)	Legumes (average quantity)	Canned Beans (price per oz)	Dry Beans (price per oz)	Soy-Based Beverage (average quantity)	Soy-Based Beverage (price per fl. oz)	Other Whole Grains (average quantity)	Other Whole Grains (price per oz)
Total WIC Participants	7.7	$0.08	2.7	$0.13	3.3	$0.21	$0.09	4.4	$0.05	1.4	$0.09
Participant Category											
Pregnant women	10.7	$0.08	5.9	$0.13	7.2	$0.21	$0.09	8.1	$0.05	1.2	$0.09
Breastfeeding women	10.2	$0.08	5.0	$0.13	6.3	$0.21	$0.09	7.8	$0.05	0.8	$0.09
Postpartum women	9.7	$0.08	3.7	$0.13	3.3	$0.21	$0.09	5.5	$0.05	–	–
Infants	–	–	–	–	–	–	–	–	–	–	–
Children	9.7	$0.08	3.0	$0.13	3.9	$0.21	$0.09	4.8	$0.05	2.3	$0.09
Food Package Type											
I-FF-A	–	–	–	–	–	–	–	–	–	–	–
I-FF-B	–	–	–	–	–	–	–	–	–	–	–
I-BF/FF-A	–	–	–	–	–	–	–	–	–	–	–
I-BF/FF-B	–	–	–	–	–	–	–	–	–	–	–
I-BF/FF-C	–	–	–	–	–	–	–	–	–	–	–
I-BF-A	–	–	–	–	–	–	–	–	–	–	–
I-BF-B	–	–	–	–	–	–	–	–	–	–	–
II-FF	–	–	–	–	–	–	–	–	–	–	–
II-BF/FF	–	–	–	–	–	–	–	–	–	–	–
II-BF	–	–	–	–	–	–	–	–	–	–	–

Participant Category and Food Package Type	Yogurt (average quantity)	Yogurt (price per oz)	Peanut Butter (average quantity)	Peanut Butter (price per oz)	Legumes (average quantity)	Canned Beans (price per oz)	Dry Beans (price per oz)	Soy-Based Beverage (average quantity)	Soy-Based Beverage (price per fl. oz)	Other Whole Grains (average quantity)	Other Whole Grains (price per oz)
IV-A	7.6	$0.08	2.1	$0.13	4.6	$0.21	$0.09	4.0	$0.05	2.3	$0.09
IV-B	10.6	$0.08	3.4	$0.13	3.6	$0.21	$0.09	5.4	$0.05	2.3	$0.09
V	10.8	$0.08	5.6	$0.13	7.3	$0.21	$0.09	8.1	$0.05	1.1	$0.09
VI	9.5	$0.08	3.7	$0.13	3.3	$0.21	$0.09	5.0	$0.05	–	–
VII	10.8	$0.08	5.8	$0.13	7.5	$0.21	$0.09	10.6	$0.05	1.1	$0.09

Notes
Analysis included all States, the District of Columbia, and Puerto Rico.
Food categories are sorted by post-rebate percentage contribution to total food package costs.
Because of conflicting food package type and participant category information for some participants, food costs by participant category and food package type may not sum to total (see appendix A for additional detail).
Total Food Package III costs and participants prescribed Food Package III are not included in these estimates (see appendix D for additional detail).
Fully breastfed infants aged 0 to 5.9 months (I-BF-A and I-BF-B) are not issued food. Food Package Type 28 (N/A), which does not include supplemental foods, was assigned to 1.2 percent of participants; this food package type is not included in this table.
fl. oz = fluid ounce(s); oz = ounce(s)
Sources: PC2018 data; FY 2018 FNS administrative data; IRI data; study EBT data; Food Package III data

Table E.18d. Estimated Average Quantities Redeemed and Price Per Unit by Participant Category and Food Package Type for Other Whole Grains, Infant Food Meat, Canned Fish, and Tofu

Participant Category and Food Package Type	Tortillas (price per oz)	Brown Rice (price per oz)	Oats (price per oz)	Whole-Wheat Pasta (price per oz)	Infant Food Meat (average quantity)	Infant Food Meat (price per oz)	Canned Fish (average quantity)	Canned Fish (price per oz)	Tofu (average quantity)	Tofu (price per oz)
Total WIC Participants	$0.09	$0.09	$0.13	$0.08	0.3	$0.40	0.5	$0.19	0.1	$0.13
Participant Category										
Pregnant women	$0.09	$0.09	$0.13	$0.08	–	–	0.3	$0.19	0.2	$0.13
Breastfeeding women	$0.09	$0.09	$0.13	$0.08	–	–	5.9	$0.19	0.2	$0.13
Postpartum women	–	–	–	–	–	–	–	–	0.1	$0.13
Infants	–	–	–	–	1.3	$0.40	–	–	–	–
Children	$0.09	$0.09	$0.13	$0.08	–	–	–	–	0.1	$0.13
Food Package Type										
I-FF-A	–	–	–	–	–	–	–	–	–	–
I-FF-B	–	–	–	–	–	–	–	–	–	–
I-BF/FF-A	–	–	–	–	–	–	–	–	–	–
I-BF/FF-B	–	–	–	–	–	–	–	–	–	–
I-BF/FF-C	–	–	–	–	–	–	–	–	–	–
I-BF-A	–	–	–	–	–	–	–	–	–	–
I-BF-B	–	–	–	–	–	–	–	–	–	–
II-FF	–	–	–	–	–	–	–	–	–	–
II-BF/FF	–	–	–	–	–	–	–	–	–	–
II-BF	–	–	–	–	16.9	$0.40	–	–	–	–

Participant Category and Food Package Type	Tortillas (price per oz)	Brown Rice (price per oz)	Oats (price per oz)	Whole-Wheat Pasta (price per oz)	Infant Food Meat (average quantity)	Infant Food Meat (price per oz)	Canned Fish (average quantity)	Canned Fish (price per oz)	Tofu (average quantity)	Tofu (price per oz)
IV-A	$0.09	$0.09	$0.13	$0.08	–	–	–	–	0.1	$0.13
IV-B	$0.09	$0.09	$0.13	$0.08	–	–	–	–	0.1	$0.13
V	$0.09	$0.09	$0.13	$0.08	–	–	–	–	0.2	$0.13
VI	–	–	–	–	–	–	–	–	0.1	$0.13
VII	$0.09	$0.09	$0.13	$0.08	–	–	13.5	$0.19	0.4	$0.13

Notes

Analysis included all States, the District of Columbia, and Puerto Rico.

Food categories are sorted by post-rebate percentage contribution to total food package costs.

Because of conflicting food package type and participant category information for some participants, food costs by participant category and food package type may not sum to total (see appendix A for additional detail).

Total Food Package III costs and participants prescribed Food Package III are not included in these estimates (see appendix D for additional detail).

Fully breastfed infants aged 0 to 5.9 months (I-BF-A and I-BF-B) are not issued food. Food Package Type 28 (N/A), which does not include supplemental foods, was assigned to 1.2 percent of participants; this food package type is not included in this table.

oz = ounce(s)

Sources: PC2018 data; FY 2018 FNS administrative data; IRI data; study EBT data; Food Package III data