



United States Department of Agriculture

# Fiscal Year 2014 WIC Food Package Costs Final Report



USDA is an equal opportunity provider, employer, and lender

# Fiscal Year 2014 WIC Food Package Costs

## Final Report



October 2018

### Authors

Nicole Kline, Catharine Warner-Griffin, Elaine Wilcox-Cook, Betsy Thorn

### Submitted to

Office of Policy Support  
Special Nutrition Analysis Branch  
Food and Nutrition Service, USDA  
3101 Park Center Drive  
Alexandria, VA 22302

### Project Officer

Anna Potter Clifford

### Submitted by

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

### Project Directors

Betsy Thorn and Nicole Kline

This report was conducted by Insight Policy Research, Inc., under Contract No. AG-3198-C-15-0022 from the U.S. Department of Agriculture, Food and Nutrition Service.

**Suggested Citation**

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

## Acknowledgements

---

This report was prepared by Insight Policy Research, Inc. (Insight) under Contract Number AG-3198-C-15-0022 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 Anna Potter Clifford and Grant Lovellette, Project Officers, for their leadership and guidance.

The authors also appreciate the dedicated individuals in each of the nine SAs that contributed data to this report. Their time and effort to provide complete and accurate data files made this research possible.

Finally, we acknowledge individuals from Insight who provided valuable assistance throughout this study. We thank Jason Michaels and Shilpa Khambati, whose work with the data and calculations was invaluable. Also from Insight, we thank Joseph Llobrera, Carole Trippe, Denise Bellows, Dar Haddix, and Kim Kerson for their contributions.

## Contents

---

Executive Summary .....	i
Chapter 1. Introduction .....	1
A. WIC Food Packages .....	1
B. Goals and Organization of the Report .....	4
Chapter 2. Methodology.....	6
A. Number of Participants .....	7
B. Average Retail Price .....	8
C. Quantity .....	10
D. Adjusting Estimates to FY 2014 FNS Administrative Data.....	12
E. Limitations.....	13
Chapter 3. Results .....	14
A. Estimated Costs by Participant Category and Food Package Type .....	14
B. Estimated Costs by WIC-Eligible Food Item .....	15
Chapter 4. Summary Findings .....	17
A. Changes Over Time in Estimated Food Package Costs.....	17
B. FY 2014 Key Findings.....	19
References .....	21
Appendix A. Technical Notes .....	A-1
A. Number of Participants .....	A-1
B. Average Retail Price .....	A-2
C. Quantity .....	A-2
Appendix B. IRI Price Calculations and WIC-Eligible Food Selection Process .....	B-1
Appendix C. Food Package III Cost Estimates .....	C-1
A. Subtraction of Estimated Food Package III Costs and Participants .....	C-2
B. Data Limitations.....	C-2
C. Estimated FY 2014 Food Package III Cost.....	C-2
Appendix D. Participant Categories and Allowed Food Items .....	D-1
Appendix E. Additional Tabulations .....	E-1

## Tables and Figure

---

### Tables

Table 1.1. Food Packages by Participant Category.....	3
Table 2.1. Key Components for WIC Food Package Cost Estimates and Data Sources .....	7
Table 2.2. Estimated Average Price per Unit for WIC-Eligible Food Categories .....	10
Table 2.3. Estimated Average Quantities of WIC-Eligible Foods Prescribed per Month by Participant Category.....	12
Table 3.1. Estimated Average Monthly Pre- and Post-Rebate Food Package Costs per Person by Participant Category .....	14
Table 3.2. Estimated Average Monthly Pre- and Post-Rebate Food Package Costs per Person by Food Package Type.....	15
Table 3.3. Estimated Annual Contribution to Food Costs by WIC-Eligible Food Category .....	16
Table 4.1. Annual FY 2010 and FY 2014 Post-Rebate Estimated Food Costs by WIC-Eligible Food Category, With FY 2010 Costs Adjusted for Inflation to FY 2014 Costs.....	19
Table B.1. Prescribed Foods Included in Food Cost Calculation .....	B-1
Table D.1. Infant Food Packages, Food Package Types, Participant Characteristics, and Allowed Foods .....	D-1
Table D.2. Women and Children Food Packages, Food Package Types, Participant Characteristics, and Allowed Foods .....	D-2

### Figure

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

## Abbreviations and Acronyms

---

CVB	cash-value benefit
CVV	cash-value voucher
FNS	Food and Nutrition Service
FY	fiscal year
IRI	Information Resources, Inc.
PC	WIC participant and program characteristics
SA	State agency
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) safeguards the health of low-income, nutritionally at-risk women, infants, and children up to age 5 by providing supplemental foods, nutrition education that includes breastfeeding promotion and support, and referrals to health and other social services. WIC is administered at the Federal level by the U.S. Department of Agriculture's (USDA) Food and Nutrition Service (FNS). 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.

In fiscal year (FY) 2014, the reference period for this report, total Federal WIC expenditures reported in FNS administrative data were \$6.2 billion, \$4.3 billion of which were post-rebate food costs. Rebate contracts between State agencies (SAs) and manufacturers of infant formula and infant foods saved the program \$1.8 billion. In FY 2014, the average monthly post-rebate food package cost per person was \$43.64.

The purpose of this report is to supplement FY 2014 FNS administrative data with estimates of both pre- and post-rebate average monthly food package costs by participant category and food package type, as well as total food costs by WIC-eligible food category. Although SAs provide monthly administrative data to FNS on total food costs, participation, and total rebates received, these data are reported in aggregate and not by participant category, food package type, or food category. Because formula costs associated with Food Package III for participants with qualifying conditions could not be estimated with available data, the total food costs associated with these food package types were excluded from the analysis.<sup>1</sup>

Highlights from the report include the following findings related to average monthly food package costs:

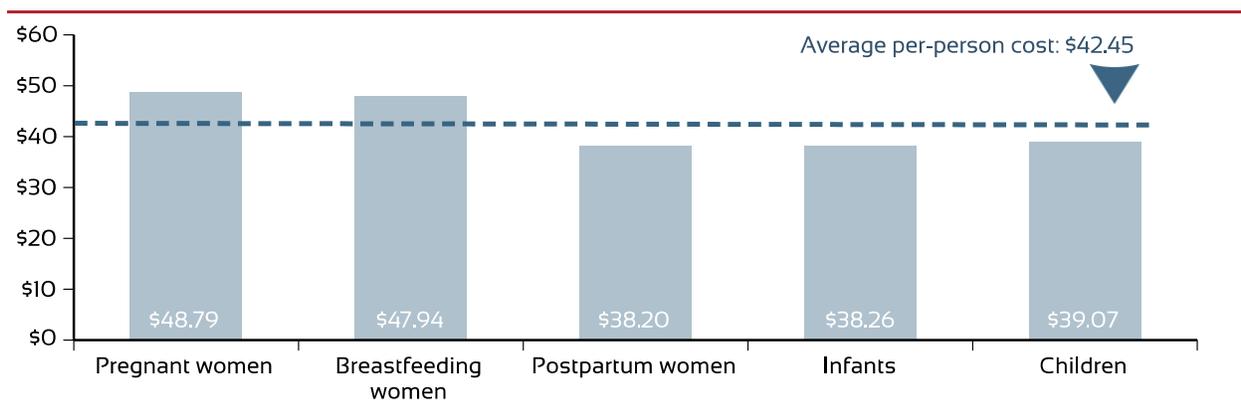
- ▶ In FY 2014, the estimated average monthly post-rebate food package cost across all WIC participant categories, excluding total costs for Food Package III, was \$42.45.<sup>2</sup>
- ▶ Without rebates, the estimated average monthly food package cost (subtracting total food costs associated with Food Package III) would have been \$59.41.
- ▶ The estimated average monthly post-rebate food package cost was the highest in FY 2014 for pregnant women (\$48.79), followed by breastfeeding women (\$47.94), children (\$39.07), infants (\$38.26), and postpartum women (\$38.20). (See figure ES.1.)
- ▶ 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 the highest, at \$123.06.

---

<sup>1</sup> See appendix C for more detail.

<sup>2</sup> Estimated average monthly post-rebate food costs across all participant categories (\$42.45) were lower than the average monthly post-rebate food costs reported in the FY 2014 FNS administrative data (\$43.64) because FNS administrative data includes Food Package III food costs.

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



**Notes**

Total Food Package III costs are not included in these estimates (see appendix C for additional detail on the calculation of total estimated Food Package III costs).

Sources: Patlan & Mendelson, 2016; Thorn et al., 2015a; FY 2014 FNS administrative data; Information Resources, Inc. data

Highlights from the report include the following findings related to costs by food category:

- ▶ Before rebates for infant formula and infant foods were deducted, the three highest contributors to total food costs in FY 2014 were infant formula, which accounted for 40 percent of annual costs, followed by cow’s milk at 17 percent and fruits and vegetables at 9 percent.
- ▶ After accounting for rebates for infant formula and infant foods, the three highest contributors to total food costs were cow’s milk, which accounted for 25 percent of annual costs, followed by fruits and vegetables at 13 percent and infant formula at 12 percent (see table ES.1).

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

WIC-Eligible Food Category	Unit	Pre-Rebate Contribution (percent)	Pre-Rebate Contribution (\$ millions)	Post-Rebate Contribution (percent)	Post-Rebate Contribution (\$ millions)
Cow’s milk	Fluid ounces	17.0	\$959.6	24.9	\$959.6
Fruits and vegetables	CVV/CVB dollar amount	9.2	\$518.0	13.5	\$518.0
Infant formula	Fluid ounces	40.3	\$2,273.2	12.4	\$478.3
Breakfast cereal	Ounces	7.6	\$429.2	11.1	\$429.2
Juice	Fluid ounces	6.1	\$347.0	9.0	\$347.0

**Notes**

CVB = cash-value benefit; CVV = cash-value voucher

Total Food Package III costs are not included in these estimates (see appendix C for additional detail on the calculation of total estimated Food Package III costs).

Estimated annual contributions to food costs for all WIC-eligible food categories are provided in table 3.3.

Sources: Patlan & Mendelson, 2016; Thorn et al., 2015a; FY 2014 FNS administrative data; Information Resources, Inc data

# Chapter 1. Introduction

---

The Special Supplemental Nutrition Program for Women, Infants and Children (WIC) safeguards the health of low-income, nutritionally at-risk women, infants, and children up to age 5 by providing supplemental foods, nutrition education that includes breastfeeding promotion and support, and referrals to health and other social services. WIC is administered at the Federal level by the U.S. Department of Agriculture's (USDA) Food and Nutrition Service (FNS). Congress authorizes a specific amount of funds each year for this Federal grant program. WIC is one of the largest nutrition assistance programs in the United States. In fiscal year (FY) 2014, WIC served 8.3 million women, infants, and children. Total Federal WIC expenditures recorded in the FY 2014 FNS administrative data were \$6.2 billion, \$4.3 billion of which were post-rebate food costs (USDA FNS, 2017). Rebate contracts between State agencies (SAs) and manufacturers of infant formula and infant foods saved the program \$1.8 billion.<sup>3</sup>

The purpose of this report is to supplement FY 2014 FNS administrative data on food costs and participation with estimates of the average per-person food package costs by participant category and food package type and the total food costs by food category. Although SAs provide monthly administrative data to FNS on total food costs, participation, and total rebates received, these data are reported in aggregate and not by participant category, food package type, or WIC-eligible food category. The reference period for the study is FY 2014, the most recent year for which all of the necessary data were available to calculate these estimates. The estimates in this report are based on data from the *WIC Participant and Program Characteristics 2014* report (the PC2014 Report; Thorn et al., 2015a); the *WIC Participant And Program Characteristics 2014: Food Package Report* (PC2014 Food Package Report; Patlan & Mendelson, 2016), which provided food package data for 52 SAs; and Consumer Network Panel data from the market research company Information Resources, Inc. (IRI).<sup>4</sup> Because formula costs associated with Food Package III for participants with qualifying conditions could not be estimated with available data, the total food costs associated with these food package types were excluded from the analysis.<sup>5</sup>

## A. WIC Food Packages

---

WIC food packages, together with nutrition education, are the primary means by which WIC influences the dietary quality and habits of participants. The foods in these packages are selected based on nutrition science and intended to address the supplemental nutritional needs of low-income, nutritionally at-risk, categorically eligible individuals: pregnant women, breastfeeding women up to 1 year postpartum, nonbreastfeeding postpartum women up to 6 months after the end of pregnancy, infants up to age 1 (the first birthday), and children up to age 5 (the fifth birthday). WIC food packages are designed to provide WIC participants with a wide variety of food and provide staff flexibility in prescribing food packages to meet an individual participant's nutrition and cultural needs (USDA FNS, 2018).

---

<sup>3</sup> SAs are required to hold competitively bid infant formula rebate contracts, which reduce the net cost for infant formula. Some SAs also procure rebate contracts for infant foods or infant cereal.

<sup>4</sup> Although 2015 IRI data were available, the study team used FY 2014 prices for consistency.

<sup>5</sup> See appendix C for more detail.

The 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 and the American Academy of Pediatrics feeding practice guidelines for toddlers and infants,<sup>6</sup> 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.<sup>7</sup>

The food packages described in this report meet the requirements set forth in regulations in effect at the time the data were collected.<sup>8</sup> Foods issued through WIC were classified under 17 food categories in this report (see text box).

Food Package III, which is reserved for participants who have a documented qualifying condition that requires the use of a WIC formula (infant formula, exempt formula, or WIC-eligible nutritionals), also provides the foods in the 17 food categories (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 costs for WIC formula in Food Package III could not be 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 C for more detail.

#### Food Categories in This Report

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

WIC offers seven regulatory food packages (I through VII) that provide various types and amounts of foods. 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 that require the use of a WIC formula
- IV. Children aged 1 to 4 years

<sup>6</sup> See Special Supplemental Nutrition Program for Women, Infants and Children (2014) and Institute of Medicine (2005) for more information.

<sup>7</sup> WIC 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 WIC 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 2014 food cost estimates provided in this report. Costs associated with Food Package III are addressed separately in appendix C.

<sup>8</sup> WIC PC data are collected every 2 years. As of the writing of this report, PC2014 Report data were the most recent data available and the PC2014 Report data use April 2014 as the reference month. The regulations in effect in April 2014 were under the Interim Rule on WIC food packages (see Special Supplemental Nutrition Program for Women, Infants and Children, 2007).

- V. Women who are pregnant or partially (mostly) breastfeeding<sup>9</sup> up to 1 year postpartum
- VI. Women who are nonbreastfeeding or partially (minimally) breastfeeding<sup>10</sup> up to 6 months postpartum
- VII. Women who are fully breastfeeding or pregnant with or partially (mostly) breastfeeding multiples

For the purposes of this report, the 7 food packages can be further broken down into 27 food package types as shown in table 1.1.<sup>11</sup> The maximum monthly allowances of foods authorized for a given food package vary among the food package types. For example, fully formula-fed infants who receive Food Package I receive more formula if they are 4 to 5.9 months old (Food Package Type I-FF-B) than if they are 0 to 3.9 months old (Food Package Type I-FF-A). Furthermore, within a given food package, certain foods may be authorized for some but not all the food package types; for example, infants who are assigned Food Package Type II-BF are prescribed infant food meat, but that food cannot be prescribed for infants assigned other food package types under Food Package II. The only difference between food package types IV-A and IV-B is that whole cow’s milk is prescribed to children aged 1 to 2 who receive Food Package Type IV-A, and fat-reduced cow’s milk is prescribed to children aged 2 to 5 who receive Food Package Type IV-B in the absence of medical documentation for cow’s milk with a different fat content. See appendix D for a crosswalk between food packages, food package types, and allowed foods.

**Table 1.1. Food Packages by Participant Category**

Food Package Number	Participant Category	Food Package Type	Age	Participant/Feeding Categories
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
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

<sup>9</sup> Partially (mostly) breastfeeding food packages 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 (see <http://www.fns.usda.gov/wic/breastfeeding-promotion-wic-current-federal-requirements>).

<sup>10</sup> 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 (see <http://www.fns.usda.gov/wic/breastfeeding-promotion-wic-current-federal-requirements>).

<sup>11</sup> The study team did not calculate food package costs by food package type for food package types in Food Package III.

Food Package Number	Participant Category	Food Package Type	Age	Participant/Feeding Categories
III	Infants (with a qualifying condition)	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
	Children (with a qualifying condition)	III IV-A	1–1.9 years	Children
		III IV-B	2–4.9 years	Children
	Women (with a qualifying condition)	III V	N/A	Pregnant; partially breastfeeding (up to 1 year postpartum)
III VI		N/A	Nonbreastfeeding postpartum and partially (minimally) breastfeeding (up to 6 months postpartum)	
III VII		N/A	Fully breastfeeding (up to 1 year postpartum)	
IV	Children	IV-A	1–1.9 years	Children
		IV-B	2–4.9 years	Children
V	Women	V	N/A	Pregnant; partially (mostly) breastfeeding (up to 1 year postpartum)
VI	Women	VI	N/A	Nonbreastfeeding postpartum; partially (minimally) breastfeeding (up to 6 months postpartum)
VII	Women	VII	N/A	Fully breastfeeding; partially (mostly) breastfeeding multiples; pregnant with multiples; pregnant who are also fully or partially (mostly) breastfeeding singleton infants

Note

This list reflects food packages available under the WIC regulations in effect at the time of data collection.

## B. Goals and Organization of the Report

FY 2014 FNS administrative data contains information on total expenditures on food and participation. However, FNS does not collect administrative data on average food package costs by participant category or food package type or the relative contribution of different food categories to the total costs. This report supplements FNS administrative data by providing the following estimates:

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

There are three key components to the methodological approach to providing these findings:

1. Food package costs were estimated based on food package prescription data from 52 SAs.<sup>12</sup> Prescription data refers to foods that have been prescribed to WIC participants, whereas redemption data refers to the prescribed foods purchased by a participant at a WIC-authorized retailer using WIC benefits. The study team used prescription data to estimate food package costs in this report because redemption data were unavailable. See chapter 2 for additional detail on this data limitation.
2. The estimates provided in this report subtracted the participants receiving Food Package III and the total estimated food package costs per participant for those participants.<sup>13</sup>
3. The estimates reflect food package costs both before and after rebates for infant formula and infant foods were subtracted.

The remainder of the report describes the data collection and analytical approach (chapter 2) and the study findings (chapter 3). Chapter 4 compares the findings of this report with those from previous food package costs reports. Appendix A provides detailed technical notes to accompany chapter 2, appendix B presents the list of WIC-eligible food categories in the IRI data that were used in this study, and appendix C 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 D presents a crosswalk of food packages, food package types, and authorized foods, and appendix E presents additional tabulations that accompany chapters 2 and 3.

---

<sup>12</sup> The 52 SAs included the 50 States, the District of Columbia, and Puerto Rico. Indian Tribal Organizations and U.S. territories other than Puerto Rico were excluded because food package prescription data were unavailable for these SAs.

<sup>13</sup> Under WIC regulations in effect at the time of the data collection, Food Package III was reserved for medically fragile participants with medical qualifying conditions that dictated their dietary needs. In FY 2014 (the reference period for this report), medical documentation was required for any contract-brand infant formula that did not meet the requirements of an infant formula as specified in table 4 of 7 C.F.R. 246.10(e)(12), any noncontract-brand infant formula, any exempt infant formula, or any WIC-eligible nutritional. The estimated costs for Food Package III (see appendix C) are the costs for the supplemental foods, formula, and WIC-eligible nutritional in the package. The Final Rule on WIC food packages (published in 2014) allows participants to be issued any type of formula (contract-brand infant formula, noncontract-brand infant formula, exempt infant formula, and WIC-eligible nutritional) and supplemental foods in Food Package III that best meet their special dietary needs.

## Chapter 2. Methodology

---

The total estimated monthly WIC food expenditures per participant category or food package type were calculated by summing the estimated average monthly expenditures for each WIC-eligible food category ( $k$ ) across each participant category or food package type. The following general formula was used to calculate monthly food package costs ( $C_i$ ) for each participant category or food package type:

$$C_i = \sum \bar{P}_k \times Q_{ik} \times N_i$$

In this formula,  $\bar{P}_k$  is the national average retail price of food category  $k$ , and  $Q_{ik}$  is the average per-person quantity of food category  $k$  prescribed to participants in category  $i$ .<sup>14</sup> For example, food costs for breakfast cereal for children up to age 5 were estimated by calculating the national average retail price per ounce of WIC-eligible breakfast cereal multiplied by the average monthly quantity of breakfast cereal prescribed to the average monthly number of child participants.

The data for each of these components—number of participants per participant category or food package type ( $N_i$ ), average retail price ( $\bar{P}_k$ ), and quantity ( $Q_{ik}$ )—are described in sections A through C; section D describes how total food cost estimates ( $C_i$ ) are adjusted to match administrative data. Table 2.1 provides a summary of data sources for each of these components.

Consistent with previous food package costs reports, the estimated costs in this report are based on food package prescription quantity data for April 2014 as provided in the PC2014 Food Package Report data (Patlan & Mendelson, 2016). That report provided data on participants in 52 SAs: the 50 States, the District of Columbia, and Puerto Rico. The same population, which accounts for more than 99 percent of all WIC participants, is used as the universe for this report. Because the PC2014 Food Package Report data is the most recently published data on food package prescriptions, this report uses FY 2014 as the reference period.

The data used for this report contain participant prescription information; prescription data reflect the food package benefits issued to participants rather than the amount of the food benefit redeemed, which is reflected in FNS administrative data. For the calculations in this report, it was assumed that all issued benefits were redeemed.<sup>15</sup> The estimates are not based on redemption data because those data are available for only a selected number of SAs and may not provide the needed level of detail by participant category and food package type. Estimates for redemption rates for fruits and vegetables are based on the cash-value vouchers (CVV) or cash-value benefits (CVB) of \$6 for children and \$10 for women prescribed in the regulations, which are likely higher than the actual rates of redemption (Esposito, 2013); therefore, the contribution of fruits and vegetables to the total estimated food costs may be overstated relative to other food categories. The estimated food package costs also subtracted participants who were issued Food Package III and the total food package costs associated with Food Package III, including infant formulas, WIC-eligible nutritionals, and supplemental foods. See appendix C for additional detail on how those participants and food package costs were excluded.

---

<sup>14</sup> The study team did not include any prices per unit or food package costs associated with the receipt of Food Package III in the total calculations by participant category or food package type. See appendix C for additional detail.

<sup>15</sup> The study team adjusted the estimated costs based on FY 2014 FNS administrative data to better reflect redemptions. However, the use of FY 2014 FNS administrative data also assumed that redemption rates were uniform across food categories and required some assumptions about the foods participants choose when granted some flexibility in selecting foods. See section D in this chapter for additional detail on final adjustments.

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

Component for Estimating Costs	Data Source and Description
Number of participants ( $N_i$ )	<ul style="list-style-type: none"> <li>FY 2014 FNS administrative data on participant counts per participant category</li> <li>PC2014 Report data (Thorn et al., 2015a)</li> </ul> <p>SAs report counts of participants to FNS monthly and annually. FNS makes these data available to the public. SAs do not provide monthly or annual counts of participants 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 SA by food package type. The PC2014 Report data provided the number of participants who were certified to receive benefits by participant category and food package type, whereas the FY 2014 FNS administrative data reported the number of participants who received their food instruments.</p>
Average retail price ( $\bar{P}_k$ )	<ul style="list-style-type: none"> <li>FY 2014 IRI data</li> </ul> <p>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. These data were used to calculate average costs for the 17 WIC-eligible food categories using a sample of low-income households as a proxy for WIC participants; the IRI data did not have an indicator of WIC participation.</p>
Quantity ( $Q_{ik}$ )	<ul style="list-style-type: none"> <li>PC2014 Food Package Report data (Patlan &amp; Mendelson, 2016).</li> <li>FY 2014 IRI data</li> </ul> <p>The PC2014 Food Package Report was the main source of the data used to estimate the average monthly amount prescribed per participant, but the IRI data was used to calculate the quantities for some foods because of data limitations. For foods in some food categories (legumes, peanut butter, whole-grain bread, other whole grains, cow's milk, and soy-based beverage), SAs allow participants some flexibility in which items they purchase; as a result, the quantities prescribed for these foods were not reported in the PC2014 Food Package Report data. For example, participants prescribed a certain quantity of beans could purchase either canned or dry beans. For these participants, the IRI data were used to estimate how frequently low-income households purchased dry beans as opposed to canned beans or peanut butter. See section C in this chapter and appendix A for additional detail.</p>
Food package costs ( $C_i$ )	<ul style="list-style-type: none"> <li>FY 2014 FNS administrative data on total food costs</li> </ul> <p>SAs report food cost data to FNS monthly and annually. FNS makes these data available to the public. SAs do not provide food cost data by food package type or food category. After estimating average retail price for the 17 WIC-eligible food categories, the study team summed across all categories to find estimated total food costs. The study team then scaled these costs to reflect actual FY 2014 total food costs in the FY 2014 FNS administrative data.</p>

## A. Number of Participants

The number of participants included in this report is 8,179,183; this is based on FY 2014 FNS administrative data from 52 SAs: the 50 States, the District of Columbia, and Puerto Rico. Food costs are estimated for 52 SAs because the PC2014 Food Package Report data, which provided the data for the food prescription quantities by food package type (see section C of this chapter), included only these 52 SAs. The average monthly number of participants for all 90 SAs in FY 2014 was 8,258,414; slightly fewer than 1 percent (79,231) of average monthly FY 2014 participants were excluded from the estimates in this report.

Participation was defined differently in the FY 2014 FNS administrative data than in the PC2014 Report. For PC2014, a WIC participant was defined as a person who was certified to receive WIC benefits in April 2014, including individuals who did not receive a food instrument in April. In contrast, in the FY 2014 FNS administrative data, participation was based on the number of certified individuals who received

their food instruments.<sup>16</sup> Among the 52 SAs included in this study, the number of certified enrollees issued benefits according to the PC2014 Report data (8,532,559) was greater than the average monthly number of participants who received their food benefits according to the FY 2014 FNS administrative data (8,179,183). The study team multiplied the *proportion* of participants in each participant category from the PC2014 Report data by the *total* number of participants in the FY 2014 FNS administrative data to estimate the total number of participants in each participant category.

SAs did not report the number of participants by food package type in the FY 2014 FNS administrative data. As a result, the proportion of participants for each food package type in the PC2014 Report data (Thorn et al., 2015a) and the total number of participants in the FY 2014 FNS administrative data were used to estimate the number of participants for each food package type by SA. The study team estimated the number of participants assigned each food package type by multiplying the proportion of an SA's participants assigned each food package type in the PC2014 Report data by the average monthly number of participants as reported for that SA in the FY 2014 FNS administrative data. For example, the PC2014 Report data indicated that 3.9 percent of participants in Indiana were issued Food Package Type I-FF-A (fully formula-fed infants aged 0 to 3.9 months). Therefore, the study team multiplied 3.9 percent (0.039) by the average monthly number of participants in Indiana (155,323).

To estimate the total number of participants in each participant category and food package type, the study team summed the number of participants across all study SAs.

## B. Average Retail Price

---

Average unit prices were estimated for 17 WIC-eligible food categories using IRI data limited to WIC-eligible foods within those categories (see table 2.2).<sup>17</sup> 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 SAs by excluding types of eggs such as brown, cage-free, and organic. Appendix B provides detail on how each food category was created and exclusions that were made so price estimates more accurately reflected WIC-eligible food items under regulations in effect at the time of the data collection. Average unit prices were estimated using household data on purchase transactions supplied by the market research company IRI that occurred between October 1, 2013, and September 30, 2014.<sup>18</sup> The IRI data did not provide an identifier for WIC-eligible households, so to more closely approximate the prices paid by WIC households, average retail price estimates are based on purchases by individuals with WIC-eligible incomes (less than 185 percent of the Federal Poverty Guidelines).<sup>19</sup> The retail 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.<sup>20</sup>

---

<sup>16</sup> In accordance with WIC regulations, this definition included fully breastfeeding infants who were certified for WIC benefits but were not prescribed a food package, as well as partially breastfeeding women who were not prescribed a food package but whose infants were prescribed a food package.

<sup>17</sup> Note that the prices for fruits and vegetables are based on CVVs/CVBs of \$6 for children and \$10 for women. The retail prices of fruits and vegetables charged to WIC in FY 2014 were assumed to be the full value of the CVV/CVB.

<sup>18</sup> 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.

<sup>19</sup> The study team identified the households whose estimated income fell below the income eligibility thresholds in effect during FY 2014 (see Special Supplemental Nutrition Program for Women, Infants and Children, 2013). 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 2014 Federal Poverty Guidelines, taking household size into account.

<sup>20</sup> Each food category identifies the WIC-eligible food items that are part of that category (see appendix B). 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.

A slightly different approach was used to calculate the average prices for non-exempt WIC 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 SA rebate contracts during FY 2014. The study team applied conversion factors to each of these products based on the form (ready to feed, concentrate, and powder) to estimate the number of reconstituted ounces and the WIC-eligible container size specific to each brand of formula.

After average-unit food costs were calculated, additional adjustments were made to those costs for infant formula and infant foods (infant fruits and vegetables, infant cereal, and infant food meat) to account for rebates received from manufacturers. Data on the total amount of rebates, \$1.8 billion, was drawn from the FY 2014 FNS administrative data. Total infant foods rebates were estimated by multiplying the rebate amount per ounce by the average quantity prescribed and then multiplying the product of that calculation by the estimated average number of monthly infant participants per SA with infant foods rebate contracts in place. This accounted for \$2.2 million of the \$1.8 billion in rebates; the remainder was attributed to infant formula.

A different strategy was also used to estimate the average price for cow's milk. Most WIC-eligible foods have size specifications that limit the variation in purchase price associated with purchasing in bulk or single serving sizes. As noted earlier in this chapter, the estimated price per unit was based on total expenditures divided by total quantity among all household purchases in a food category. However, given the price variation in cow's milk associated with volume (e.g., a gallon generally costs less per ounce versus a quart), the amount that a household might pay for cow's milk per ounce would vary based on the size of the container purchased during a single trip to the store. The study team estimated the average price of cow's milk based on the average price paid per ounce per trip.<sup>21</sup> It was not necessary to use this approach for other food categories given size specifications.

---

<sup>21</sup> This approach resulted in minimal differences in the price per ounce. For example, for whole cow's milk, the average price per trip was \$0.004 higher compared with estimates that divided total expenditures on whole cow's milk by the total volume purchased among low-income households.

**Table 2.2. Estimated Average Price per Unit for WIC-Eligible Food Categories**

WIC-Eligible Food Category	Unit	Average Price per Unit
Fruits and vegetables (women)	Dollar amount of CVV/CVB	\$10.00
Fruits and vegetables (children)	Dollar amount of CVV/CVB	\$6.00
Eggs	Dozens	\$1.70
Infant food meat	Ounces	\$0.40
Cheese	Ounces	\$0.27
Infant cereal	Ounces	\$0.25
Canned fish	Ounces	\$0.21
Infant formula <sup>a</sup>	Fluid ounces	\$0.19
Breakfast cereal	Ounces	\$0.17
Infant fruits and vegetables	Ounces	\$0.16
Whole-grain bread	Ounces	\$0.16
Peanut butter	Ounces	\$0.14
Tofu	Ounces	\$0.13
Dry beans	Ounces	\$0.11
Other whole grains	Ounces	\$0.11
Canned beans	Ounces	\$0.06
Soy-based beverage	Fluid ounces	\$0.05
Juice <sup>b</sup>	Fluid ounces	\$0.04
Fat-reduced cow's milk <sup>b,c</sup>	Fluid ounces	\$0.03
Whole cow's milk <sup>b</sup>	Fluid ounces	\$0.03

**Notes**

Food categories are ordered by highest to lowest price per unit.

<sup>a</sup> Infant formula is priced per reconstituted fluid ounce based on reconstitution rates for each contract brand.

<sup>b</sup> Average prices are based on price per reconstituted fluid ounce for any products in the category that require conversion, such as evaporated cow's milk or condensed juice.

<sup>c</sup> Fat-reduced cow's milk includes skim cow's milk (0.5 percent or less), lowfat cow's milk (1 percent), and reduced-fat cow's milk (2 percent). WIC regulations at the time of data collection for this report specified that 2-percent cow's milk was allowed for FP IV-B. Current WIC regulations specify that 2-percent cow's milk is not included in the fat-reduced category.

Sources: Patlan & Mendelson, 2016; IRI data

**C. Quantity**

Estimates for the average monthly quantities of foods prescribed to participants are based on the PC2014 Food Package Report data (Patlan & Mendelson, 2016) and food packages based on regulations in effect at that time. Typically, for each WIC-eligible food category, the average quantity per person was multiplied by the number of participants in the participant category and the average price per unit. For consistency, prescription quantities for all foods except fruits and vegetables were standardized to ounces, fluid ounces, or dozens. Data limitations required additional calculations for legumes, peanut

butter, whole-grain bread, other whole grains, cow's milk, and soy-based beverage. Further detail on how quantities for these food categories were calculated follows:

- ▶ Many SAs prescribe legumes and peanut butter in a way that allows participants to choose canned beans, dry beans, or peanut butter at the time of purchase; therefore, the PC2014 Food Package Report data did not provide an exact breakdown of how many participants were prescribed each of those three food items. The study team used the relative percentages of these foods purchased by households with WIC-eligible incomes in the IRI data as a proxy for exact prescription amounts.
- ▶ As they do with legumes, many SAs prescribe whole-grain bread and other whole-grain alternatives (oats, brown rice, tortillas, bulgur, and barley) in a way that allows participants to choose from these options at the time of purchase; therefore, the PC2014 Food Package Report data did not provide an exact breakdown of how many participants were prescribed the alternative food items. The study team used the relative percentages of whole-grain bread and other whole grains purchased by households with WIC-eligible incomes as reflected in the IRI data as a proxy for exact prescription amounts.
- ▶ Cow's milk and soy-based beverage prescription quantities are reported in a similar way to legumes and whole grains in the PC2014 Food Package Report data. Therefore, the study team used a similar approach to estimate the proportion of cow's milk and soy-based beverage from the prescription data with one additional difference. Because low-income households with no members participating in WIC are more sensitive than high-income households to the higher price of soy-based beverage relative to cow's milk, it is unlikely that the relative percentages of soy-based beverage and cow's milk would accurately reflect WIC household redemptions. This is due to the fact that households with WIC-participants are relatively insensitive to the higher cost of soy-based beverage because they can use WIC benefits to purchase these products. Therefore, the study team used the relative percentages of cow's milk and soy-based beverage purchased by high-income households as a proxy for exact prescription amounts.

Table 2.3 shows the average monthly quantities of foods prescribed by participant category.

**Table 2.3. Estimated Average Quantities of WIC-Eligible Foods Prescribed per Month by Participant Category**

WIC-Eligible Food Category	Unit	Pregnant Women	Breastfeeding Women	Postpartum Women	Infants	Children
Cow's milk	Fluid ounces	590.35	521.56	421.43	–	415.53
Juice	Fluid ounces	140.63	114.40	88.88	–	123.59
Breakfast cereal	Ounces	35.66	32.16	35.76	–	35.79
Canned beans	Ounces	20.88	16.36	11.09	–	10.66
Soy-based beverage	Fluid ounces	17.01	15.02	12.14	–	11.97
Cheese	Ounces	13.71	18.26	12.69	–	12.72
Other whole grains	Ounces	11.98	7.93	0.32	–	23.94
Fruits and vegetables	Dollar amount of CVV/CVB	\$9.64	\$8.68	\$9.60	–	\$5.83
Peanut butter	Ounces	8.28	6.49	4.40	–	4.23
Whole-grain bread	Ounces	3.88	2.57	0.10	–	7.76
Dry beans	Ounces	3.86	3.02	2.05	–	1.97
Eggs	Dozens	1.01	1.32	1.01	–	1.00
Canned fish	Ounces	0.57	12.32	0.16	–	–
Tofu	Ounces	0.42	0.28	0.21	–	0.01
Infant formula	Fluid ounces	–	–	–	585.77	–
Infant fruits and vegetables	Ounces	–	–	–	71.69	–
Infant cereal	Ounces	–	–	–	12.51	–
Infant food meat	Ounces	–	–	–	4.47	–

**Notes**

Average quantities prescribed do not include any foods prescribed in Food Package III.

Food categories are sorted by quantity prescribed.

Average monthly quantities by food package type are provided in appendix tables E.3a, E.3b, and E.3c.

Quantities for legumes, peanut butter, whole-grain bread, other whole grains, cow's milk, and soy-based beverage were calculated using IRI data in addition to PC2014 Food Package Report data because of data limitations.

Sources: Patlan & Mendelson, 2016; IRI data

## D. Adjusting Estimates to FY 2014 FNS Administrative Data

Estimated food costs for each WIC-eligible food category were based on prescribed quantities (instead of redeemed quantities) and low-income households as a proxy for WIC-eligible households. The pre-rebate estimated food costs (excluding Food Package III) calculated using IRI data and prescription data were \$5.9 billion for the 52 SAs. These costs were about 4 percent greater than the actual cumulative food costs of \$5.6 billion as reported for the 52 SAs in the FY 2014 FNS administrative data after subtracting the estimated cost of Food Package III. To account for this difference, the study team scaled down the estimated total food costs to match the actual total food costs by applying the distribution of estimated pre-rebate costs to the total pre-rebate food expenditures reported in the FY 2014 FNS administrative data. For example, cow's milk accounted for 17 percent of the estimated pre-rebate costs (see table 3.1), so the study team calculated the adjusted pre-rebate cow's milk costs as 17 percent of the total actual food costs in FY 2014. This total food cost for cow's milk was then applied across the participant categories and food package types. To obtain the total post-rebate food costs, the study team subtracted the infant foods and infant formula rebate amounts estimated using the FY 2014 FNS administrative data from the adjusted pre-rebate costs.

## E. Limitations

---

There are four data limitations to consider when using the cost estimates presented in this report. First, the estimates are based on prescriptions rather than redemptions, which require the assumption that rates of redemption are the same across participant categories, food package types, and WIC-eligible food categories. The implication of these assumptions and adjustments is that although estimated total food costs reflect actual total food costs, the results may overstate the contributions of some foods and understate the contributions of other foods. For example, previous research indicates beans have a relatively low redemption rate, which means the estimated costs for beans may overestimate the amount spent on beans. However, eggs have been shown to have a high redemption rate in other research, which means this report probably underestimates the amount spent on eggs (Gleason & Pooler, 2011).

Second, average per-unit food costs were estimated at the national level despite variation in allowed foods and food costs across SAs. SAs offer many options regarding the foods they allow (e.g., different brands allowed, different minimum package size requirements, range in allowed forms and types of foods). The study team was not able to account for differences in allowed foods across SAs. Future research could address how variation in allowed foods across SAs might influence the average price or food costs by food category.

Third, the IRI data did not provide sufficient detail to exclude some products based on key ingredients (e.g., allowing only breakfast cereals that meet Federal requirements for iron minimums and sugar limits). However, whether such exclusions would influence price is largely dependent on the items and ingredients in question. For example, in the case of breakfast cereals, supplemental analyses indicated that cereals excluded from the analysis based on specific flavors evident in product names averaged \$0.173 per ounce, whereas included cereals averaged \$0.172 per ounce.

Fourth, the household purchases used to estimate average food category prices were a proxy for WIC-eligible participants. These households were not identifiable as households with WIC participants, and additional variation in WIC household purchasing patterns may not be captured in the average price estimates. It is possible that low-income shoppers not participating in WIC are more price sensitive than WIC participants.

## Chapter 3. Results

Total WIC food costs in FY 2014 were \$4.3 billion after accounting for \$1.8 billion received in rebates from infant formula and infant foods manufacturers (USDA FNS, 2017). These data come from FY 2014 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 provides estimated costs by WIC-eligible food category in section B. The estimates presented in this chapter were calculated after excluding costs for Food Package III; see appendix C 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 2014 average monthly post-rebate food package cost per person estimated in this report (\$42.45; see table 3.1) differs from the average monthly post-rebate food package cost per person reported in the FY 2014 FNS administrative data (\$43.64) for two reasons. The cost estimates in this report were calculated with data from 52 SAs rather than the 90 SAs included in the FY 2014 FNS administrative data, and total Food Package III costs were subtracted. The estimated average monthly post-rebate food package cost per person was highest for pregnant women (\$48.79), followed by costs for breastfeeding women (\$47.94), children (\$39.07), infants (\$38.26), and postpartum women (\$38.20). Prior to accounting for SA rebates, the average monthly food package cost per person was \$59.41. The average post-rebate monthly food package cost per person for infants was \$38.26, which was about one-third of the pre-rebate monthly food package cost per person for infants (\$123.06).

**Table 3.1. Estimated Average Monthly Pre- and Post-Rebate Food Package Costs per Person by Participant Category**

Participant Category	Percent of Participants	Pre-Rebate Food Package Cost	Post-Rebate Food Package Cost
<b>Total Participants</b>	<b>100.0</b>	<b>\$59.41</b>	<b>\$42.45</b>
Pregnant women	10.1	\$48.79	\$48.79
Breastfeeding women	7.4	\$47.94	\$47.94
Postpartum women	7.2	\$38.20	\$38.20
Infants	22.3	\$123.06	\$38.26
Children	53.1	\$39.07	\$39.07

**Notes**

Total Food Package III costs are not included in these estimates (see appendix C for additional detail on the calculation of total estimated Food Package III costs).

Sources: Patlan & Mendelson, 2016; Thorn et al., 2015a; FY 2014 FNS administrative data; IRI data

Table 3.2 provides estimated FY 2014 average food package cost per person for each food package type. The estimated average post-rebate food package cost per person was highest for fully breastfed infants aged 6 to 11.9 months (II-BF; \$70.18). This was driven by the relatively high cost of infant food meat, which was prescribed only to participants who were assigned this food package type. Other relatively high estimated post-rebate average food package costs per person by food package type were those for women who were fully breastfeeding, partially breastfeeding multiples, pregnant with multiples, or pregnant and breastfeeding (VII; \$61.85) and women who were pregnant or partially breastfeeding up to 1 year postpartum (V; \$48.42). The estimated average pre-rebate monthly cost per person by food

package type was highest for fully formula-fed infants aged 4 to 5.9 months (I-FF-B; \$159.90), followed by those for fully formula-fed infants aged 0 to 3.9 months (I-FF-A; \$145.50) and 6 to 11.9 months (II-FF; \$138.71).

**Table 3.2. Estimated Average Monthly Pre- and Post-Rebate Food Package Costs per Person by Food Package Type**

Food Package Type	Percent of Participants	Pre-Rebate Food Package Costs	Post-Rebate Food Package Costs
<b>Total Participants</b>	<b>100.0</b>	<b>\$59.41</b>	<b>\$42.45</b>
I-FF-A	3.9	\$145.50	\$30.61
I-FF-B	2.6	\$159.90	\$33.64
I-BF/FF-A	0.1	\$66.95	\$14.09
I-BF/FF-B	0.9	\$77.46	\$16.30
I-BF/FF-C	0.6	\$91.75	\$19.30
I-BF-A	1.1	–	–
I-BF-B	0.5	–	–
II-FF	8.7	\$138.71	\$47.91
II-BF/FF	1.4	\$96.55	\$39.18
II-BF	1.4	\$70.44	\$70.18
IV-A	16.6	\$38.60	\$38.60
IV-B	37.5	\$39.41	\$39.41
V	11.4	\$48.42	\$48.42
VI	9.0	\$38.23	\$38.23
VII	3.3	\$61.85	\$61.85

**Notes**

Total Food Package III costs are not included in these estimates (see appendix C for additional detail on the calculation of total estimated Food Package III costs).

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

Sources: Patlan & Mendelson, 2016; Thorn et al., 2015a; FY 2014 FNS administrative data; IRI data

## B. Estimated Costs by WIC-Eligible Food Item

Table 3.3 provides estimated total annual pre- and post-rebate food costs for 17 WIC-eligible food categories. After accounting for rebates, the \$959.6 million expenditure on cow’s milk accounted for one-quarter of annual post-rebate food costs. Fruits and vegetables accounted for 13 percent of post-rebate food costs with a total annual estimated contribution of \$518.0 million, followed by infant formula at 12 percent with \$478.3 million in estimated food costs, and breakfast cereal at 11 percent with \$429.2 million in costs. Juice accounted for 9 percent of post-rebate food costs at \$347.0 million. The remaining 29 percent of food costs were for cheese, infant fruits and vegetables, other whole grains, eggs, legumes, whole-grain bread, infant cereal, peanut butter, soy-based beverage, infant food meat, canned fish, and tofu. The difference between pre- and post-rebate food costs was driven by infant formula, which accounted for 40 percent of the food costs before rebates were deducted but 12 percent afterwards.

**Table 3.3. Estimated Annual Contribution to Food Costs by WIC-Eligible Food Category**

WIC-Eligible Food Category	Unit	Pre-Rebate Contribution (percent)	Post-Rebate Contribution (percent)	Pre-Rebate Contribution (\$ millions)	Post-Rebate Contribution (\$ millions)
<b>Total Estimated Amount</b>	–	<b>100.0</b>	<b>100.0</b>	<b>\$5,646.8</b>	<b>\$3,849.7</b>
Cow's milk	Fluid ounces	17.0	24.9	\$959.6	\$959.6
Fruits and vegetables	Dollar amount of CVV/CVB	9.2	13.5	\$518.0	\$518.0
Infant formula	Fluid ounces	40.3	12.4	\$2,273.2	\$478.3
Breakfast cereal	Ounces	7.6	11.1	\$429.2	\$429.2
Juice	Fluid ounces	6.1	9.0	\$347.0	\$347.0
Cheese	Ounces	4.6	6.7	\$257.3	\$257.3
Infant fruits and vegetables	Ounces	4.1	6.1	\$234.3	\$233.7
Other whole grains	Ounces	2.6	3.8	\$146.5	\$146.5
Eggs	Dozens	2.2	3.2	\$124.8	\$124.8
Legumes	Ounces	1.3	1.9	\$71.9	\$71.9
Whole-grain bread	Ounces	1.2	1.8	\$69.0	\$69.0
Infant cereal	Ounces	1.1	1.6	\$63.9	\$62.3
Peanut butter	Ounces	0.9	1.3	\$49.8	\$49.8
Soy-based beverage	Fluid ounces	0.8	1.2	\$46.1	\$46.1
Infant food meat	Ounces	0.6	0.9	\$36.5	\$36.5
Canned fish	Ounces	0.3	0.5	\$18.9	\$18.9
Tofu	Ounces	0.0	0.0	\$1.0	\$1.0

**Notes**

Total Food Package III costs are not included in these estimates (see appendix C for additional detail on the calculation of total estimated Food Package III costs).

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

The price for fruits and vegetables is based on CCVs/CVBs of \$6 for children and \$10 for women. The price for infant formula is based on prices for the contract-brand formulas as estimated in the IRI data.

Sources: Patlan & Mendelson, 2016; Thorn et al., 2015a; FY 2014 FNS administrative data; IRI data

## Chapter 4. Summary Findings

---

This report supplements FY 2014 FNS administrative data on food costs with estimates of the average per-person food package costs by participant category and food package type and total food costs by WIC-eligible food category. Although SAs provide monthly administrative data to FNS on total food costs, participation, and total rebates received, these data are reported in aggregate and not by participant category, food package type, or WIC-eligible food category. The estimated WIC food package costs in this report are indicative of the prices and quantities of WIC-eligible foods prescribed to participants.

This chapter provides two summary components. First is a brief comparison between estimated food costs in FY 2010 and FY 2014, followed by a summary of results for FY 2014 food package costs. The methodology for this report has several similarities to the FY 2010 report and other previous WIC food package costs reports, but there are also several important differences between this report and the prior reports; see text box for additional detail.

### Previous WIC Food Package Costs Reports

This report is the ninth in a series of reports published since 1999 that summarize Federal expenditures on WIC foods. These reports have used various data sources to estimate food costs, building on the administrative data SAs provide to FNS. The last WIC food package costs report was published with FY 2010 data (Vericker, Zhen, & Karns, 2013).

There are several key methodological differences between this report and the prior report. First, the FY 2010 report included the costs associated with Food Package III in the final estimates, distributing the costs for any WIC-eligible nutritionals across all participants (Vericker et al., 2013), whereas this report subtracted the estimated cost of Food Package III from all food cost estimates. The methodology and FY 2014 estimated food costs for Food Package III are discussed in appendix C. Second, this report draws on a different source of household purchase data compared with the FY 2010 report; this report uses household purchase data from IRI, whereas the FY 2010 report used data from Nielsen HomeScan, which did not exist for reference year 2014. The change in source data meant the study team was not able to exactly replicate the WIC-eligible food categories used in the FY 2010 report and outlined in appendix B of that report. Third, the study team made slight adjustments to the methodology used in the FY 2010 report (for example, the study team limited the sample to 52 SAs and used adjustment strategies to improve the quality of the data for participant category and food package type; see appendix A for more detail). Finally, because of data limitations, the FY 2010 report did not provide results by food package type. For these reasons, comparisons of the estimated costs in FY 2010 and FY 2014 should be made with caution. See chapter 4 for more discussion of changes in costs between FY 2010 and FY 2014.

### A. Changes Over Time in Estimated Food Package Costs

---

The number of participants and total actual food costs decreased from FY 2010 to FY 2014. There were 9.2 million participants in FY 2010 compared with 8.3 million participants in FY 2014. Total actual post-rebate food costs were \$4.6 billion in FY 2010 and \$4.3 billion in FY 2014. Total actual post-rebate food costs per person were \$41.44 in FY 2010 compared to \$43.63 in FY 2014.

As a result of the methodological differences in the FY 2010 and FY 2014 Food Package Costs Reports (described in the text box above), 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 2010 food costs by WIC-eligible food category for inflation to FY 2014 using data on food consumed at home; the data were drawn from the Consumer Price Index produced by the U.S. Department of Labor's Bureau of Labor Statistics (USDA, n.d.).

Table 4.1 provides the estimated annual post-rebate food costs by WIC-eligible food category in FY 2010 and FY 2014, with FY 2010 costs adjusted for inflation using the consumer price index cost of food at home to FY 2014 costs (USDA, n.d.).<sup>22</sup> The five foods with the highest percentage contribution to annual post-rebate food costs were the same in FY 2010 and FY 2014, but with different ranks. In FY 2010, infant formula was the top contributor (slightly more than 20 percent), followed by cow's milk (slightly less than 20 percent), fruits and vegetables (13 percent), breakfast cereal (11 percent), and juice (9 percent). In FY 2014, cow's milk was the top contributor (25 percent), followed by fruits and vegetables (13 percent), infant formula (12 percent), breakfast cereal (11 percent), and juice (9 percent).

Pre-rebate food costs for infant formula decreased from \$2.9 billion in FY 2010 to \$2.3 billion in FY 2014. In FY 2010, post-rebate costs for infant formula were \$1.0 billion compared with \$478.3 million in FY 2014. Two factors contributed to this difference. First, the total food costs and participants for Food Package III were subtracted from the estimates for FY 2014. Infants accounted for an estimated 70 percent of Food Package III participants, meaning that subtracting the total costs of Food Package III had a greater effect on the estimated costs of infant formula and infant foods than the costs for WIC-eligible foods not prescribed to infants. Second, the proportion of breastfeeding women (6.2 percent of all participants) was lower than the proportion of nonbreastfeeding postpartum women (6.9 percent) in FY 2010, whereas the proportion of breastfeeding women (7.2 percent) was larger than the proportion of nonbreastfeeding postpartum women (7.0 percent) in FY 2014. Increased breastfeeding across this time period resulted in a higher proportion of infants who were not prescribed formula or who were prescribed small quantities of formula.

Costs for cow's milk decreased from FY 2010 to FY 2014, but not by as large a degree as other food costs decreased (e.g., infant formula). Variations in data and methodologies between the previous report and the current report prevent a detailed comparison of milk costs in the two years, but several factors may have contributed to relatively high costs of milk in FY 2014. First, as discussed above, the proportion of breastfeeding women relative to the proportion of postpartum women increased over that time period, which would lead to more women receiving the larger quantities of milk that are included in food packages for breastfeeding women. Second, milk prices increased at a somewhat higher rate than the overall "food consumed at home" category between FY2010 and FY 2014, which may contribute to the relatively high cost of milk in FY 2014.

---

<sup>22</sup> These estimates compare expenditures by food category, as insufficient data were available to provide price-per-unit comparisons between FY 2010 and FY 2014.

**Table 4.1. Annual FY 2010 and FY 2014 Post-Rebate Estimated Food Costs by WIC-Eligible Food Category, With FY 2010 Costs Adjusted for Inflation to FY 2014 Costs**

WIC-Eligible Food Category	Unit	FY 2010 Post-Rebate Costs <sup>a</sup> (\$ millions)	FY 2010 Post-Rebate Contribution <sup>a</sup> (percent)	FY 2014 Post-Rebate Costs <sup>b</sup> (\$ millions)	FY 2014 Post-Rebate Contribution <sup>b</sup> (percent)
<b>Total Estimated Amount</b>	–	<b>\$5,064.0</b>	<b>100.0</b>	<b>\$3,849.7</b>	<b>100.0</b>
Cow's milk	Fluid ounces	\$997.6	19.7	\$959.6	24.9
Fruits and vegetables	Dollar amount of CVV/CVB	\$681.8	13.5	\$518.0	13.5
Infant formula	Fluid ounces	\$1,028.4	20.3	\$478.3	12.4
Breakfast cereal	Ounces	\$547.3	10.8	\$429.2	11.1
Juice	Fluid ounces	\$470.0	9.3	\$347.0	9.0
Cheese	Ounces	\$323.6	6.4	\$257.3	6.7
Infant fruits and vegetables	Ounces	\$288.3	5.7	\$233.7	6.1
Other whole grains	Ounces	\$97.3	1.9	\$146.5	3.8
Eggs	Dozens	\$121.8	2.4	\$124.8	3.2
Legumes	Ounces	\$55.9	1.1	\$71.9	1.9
Whole-grain bread	Ounces	\$186.1	3.7	\$69.0	1.8
Infant cereal	Ounces	\$76.4	1.5	\$62.3	1.6
Peanut butter	Ounces	\$103.3	2.0	\$49.8	1.3
Soy-based beverage	Fluid ounces	\$31.0	0.6	\$46.1	1.2
Infant food meat	Ounces	\$35.5	0.7	\$36.5	0.9
Canned fish	Ounces	\$17.6	0.3	\$18.9	0.5
Tofu	Ounces	\$2.1	0.0	\$1.0	0.0

**Notes**

Food categories are sorted by FY 2014 post-rebate percentage contribution to total food costs.

<sup>a</sup> FY 2010 food costs were inflated to FY 2014 costs using data on food consumed at home; the data were drawn from the Consumer Price Index produced by the U.S. Department of Labor's Bureau of Labor Statistics (USDA, n.d.).

<sup>b</sup> Total Food Package III costs are not included in FY 2014 estimates but are included in the FY 2010 estimates (see appendix C for additional detail on the calculation of total estimated Food Package III costs).

Sources: Patlan & Mendelson, 2016; Thorn et al., 2015a; USDA, n.d.; Vericker et al., 2013; FY 2014 FNS administrative data; IRI data

## **B. FY 2014 Key Findings**

There are two key findings in this report. First, rebates for infant formula provide significant cost savings. In FY 2014, rebate contracts with infant formula and infant foods manufacturers reduced the estimated average monthly cost per person for infants from \$123.06 (pre rebate), to \$38.26 (post rebate). As a result, the annual contribution of infant formula to total food costs decreased from an estimated 40 percent of total pre-rebate food costs to 12 percent of total post-rebate food costs. After accounting for rebates for infant formula and infant foods, cow's milk and fruits and vegetables were the two largest contributors to annual food costs.

Second, estimated average monthly post-rebate food package costs vary by participant category, ranging from \$38.20 for postpartum women to \$48.79 for pregnant women. Pregnant and breastfeeding women had the highest post-rebate food package costs in FY 2014, with estimated average per-person

costs of \$48.79 and \$47.94, respectively. Food package costs were higher for pregnant and breastfeeding women because they were issued greater quantities of foods than children and postpartum women, based on nutritional recommendations. The estimated average monthly per-person food package cost for children was \$39.07. The resulting estimated average monthly per-person food package cost, after subtracting the total costs for Food Package III, was \$42.45 in FY 2014 for the 52 SAs included in this study.

## 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](https://altarum.org/sites/default/files/uploaded-publication-files/Effects%20of%20Changes%20to%20the%20WIC%20Food%20Package_December%202011final.pdf)
- Institute of Medicine. (2005). *WIC food packages: Time for a change*. Washington, DC: The National Academies Press.
- Patlan, K. L., & Mendelson, M. (2016). *WIC participant and program characteristics 2014: Food package report*. Retrieved from <https://www.fns.usda.gov/sites/default/files/ops/WICPCFoodPackage2014.pdf>
- Special Supplemental Nutrition Program for Women, Infants and Children (WIC): Income Eligibility Guidelines, 78 Fed. Reg. 17631 (March 22, 2013).
- Special Supplemental Nutrition Program for Women, Infants and Children (WIC): Revisions in the WIC Food Packages; Final Rule, 79 Fed. Reg. 12274 (March 4, 2014).
- Special Supplemental Nutrition Program for Women, Infants and Children (WIC): Revisions in the WIC Food Packages; Interim Rule, 72 Fed. Reg. 68966 (December 6, 2007).
- Special Supplemental Nutrition Program for Women, Infants and Children: Vendor Cost Containment; Interim Rule, 70 Fed. Reg. 71708 (November 29, 2006).
- Thorn, B., Tadler, C., Huret, N., Trippe, C., Ayo, E., Mendelson, M., Patlan, K. L., Schwartz, G., & Tran, V. (2015a). *WIC participant and program characteristics 2014*. Alexandria, VA: U.S. Department of Agriculture, Food and Nutrition Service, Office of Policy Support.
- Thorn, B., Huret, N., Bellows, D., Ayo, E., Myers, R., & Wilcox-Cook, E. (2015b). *WIC Food Packages Policy Options Study II*. Alexandria, VA: U.S. Department of Agriculture, Food and Nutrition Service, Office of Policy Support.
- USDA (U.S. Department of Agriculture). (n.d.). *Historical CPI data, 1974 through 2016* [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 (U.S. Department of Agriculture, Food and Nutrition Service). (2017). *WIC monthly summary and national level data* (Data as of October 6, 2017). Retrieved from <https://www.fns.usda.gov/pd/wic-program>

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>

### **WIC Food Package Cost Reports 2000–2010**

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://www.fns.usda.gov/sites/default/files/WICFoodCost2010\\_0.pdf](https://www.fns.usda.gov/sites/default/files/WICFoodCost2010_0.pdf)

## Appendix A. Technical Notes

---

**B**ased on the data used to produce the cost estimates calculated in this study (see chapter 2 for more information), the study team made several technical decisions to maintain quality and robust statistical estimates.

This report excludes costs incurred 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 SAs. These SAs were excluded from this analysis because their data were not included in the PC2014 Food Package Report (Patlan & Mendelson, 2016), which the study team used to calculate average food prescription quantities. Therefore, the FY 2014 FNS administrative data and the PC2014 Report data were limited to the 50 States, the District of Columbia, and Puerto Rico. This sample applies to all estimates in the report.

This report also excludes total costs associated with Food Package III. More detail on the estimation of total costs associated with Food Package III is provided in appendix C.

### A. Number of Participants

---

The study team adjusted the PC2014 Report data to ensure a more accurate count of the number of participants for each participant category and food package type. First, because SAs calculated food package types in different ways in PC2014, the data contained small percentages of food package types for infants and children that did not correspond to their ages. Often, SAs 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 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 most common adjustments were made for children aged 13 and 14 months who had not been assigned children’s food package types as they should have been when they turned 1 year old. In total, the study team adjusted the food package assignments for 2.5 percent of participants. These changes provided a more accurate approximation of the national distribution of food package types used to estimate national food package costs.<sup>23</sup>

Second, data for two SAs (Louisiana and New Mexico) were missing 100 percent of food package type assignments in PC2014. The study team applied the average distribution of food package type assignments for the SAs with adequate food package type data to those without adequate data. This approach was used for Louisiana and New Mexico as well as Georgia, which was missing this data for all women WIC participants. Because of data limitations for food package type reporting in the PC2014 Report data, the study team used the national average distribution of food package types to determine participant counts in Puerto Rico.

---

<sup>23</sup> Because of missing or contradictory data in the PC2014 Report data, the participants by participant category and food package type do not always sum to the same total.

## B. Average Retail Price

---

The estimation of price per unit in the IRI data required the study team to identify WIC-eligible food items in each WIC-eligible food category based on unit size and quantity purchased and unit/brand characteristics. Appendix B provides a list of food items for each food category and additional detail on the approach used to analyze the IRI data for this report.

The study team also estimated costs associated with cow's milk by adjusting the types of cow's milk prescribed to children by age to reflect WIC requirements. Under WIC regulations in effect at the time, children aged 1 year up to 2 years were allowed to receive only whole cow's milk. Therefore, the study team incorporated whole cow's milk prices for the participant category for children and for participants assigned Food Package Type IV-A into their estimated average monthly food package costs. The calculated percentage of 1-year-old children was applied to children issued Food Package Type IV-A. Twenty-nine percent of child participants were younger than 2 years old; therefore, their share of the estimated average monthly expenditure was calculated using whole cow's milk prices, and the remaining 71 percent of participants' share was calculated using fat-reduced cow's milk prices.

The study team included tofu as a food category in the analysis, although in FY 2014, SAs representing 65 percent of WIC participants did not allow tofu. Because of the small sample size, the study team was not able to restrict the types and sizes of tofu used in the analysis in favor of providing a more robust estimate of average price. Given that tofu contributed less than 1 percent to total annual food costs, the effects of this inclusion were minimal.

## C. Quantity

---

A small percentage of discrepancies (less than 2 percent) in food package type and participant category remained in the data after cleaning for age and breastfeeding status, such that inappropriate foods were assigned to some participants (i.e., some infants were prescribed tofu or eggs). The study team eliminated these types of food quantity data that appeared to be incorrect based on regulations for participant categories and food package types.

## Appendix B. 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 first identified the forms, sizes, and flavors of WIC-eligible food items allowed by SAs under the WIC regulations in effect at the time. The study team made any necessary exclusions based on regulations. These general exclusions are identified in table B.1. When possible, the study team adjusted the data to achieve consistency regarding the foods identified in the FY 2010 report (Vericker et al., 2013).

Next, the study team identified low-income households in the IRI data (those with income equal to or less than 185 percent of the Federal Poverty Guidelines for their household size). Household income is a categorical measure as reported in the IRI data. The study team explored the option of imputing a continuous measure of household income based on household demographic characteristics but found that the model did not accurately reflect households' reported income categories. Instead, the study team used income category and household size to identify low-income households. When the poverty threshold fell within an income category, the study team opted to include all households in that category as low-income households.

Finally, the study team used weighted estimates based on projection factors provided in the IRI data.

Table B.1 provides details for how the study team identified WIC-eligible foods in the IRI data, including the food items that were excluded and the package size(s) specified in the analysis for each food item. The study team developed the list of exclusions primarily based on the results from the Food Package Policy Options II study (Thorn et al., 2015b). All food categories were included (e.g., cow's milk, cheese, eggs), and any specifications within these food categories were included only if at least 65 percent of participants nationwide were located in SAs that allowed the specification. The information in this table does not accurately reflect all WIC-eligible food regulations during the reference period for this report.

**Table B.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-reduced or lactose-free milk	32, 64, 128 fluid ounces
	Fluid, refrigerated	Refrigerated buttermilk (whole)	Organic buttermilk and buttermilk in pouches	32, 64, 128 fluid ounces

<b>WIC-Eligible Food Category</b>	<b>Form</b>	<b>Description</b>	<b>Food-Specific Exclusions</b>	<b>Sizes Used To Calculate WIC Prices</b>
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
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
	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

WIC-Eligible Food Category	Form	Description	Food-Specific Exclusions	Sizes Used To Calculate WIC Prices
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-grain bread	Loaf	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
Other whole grains	Dry	All varieties of dry barley	Organic barley	16–32 ounces
	Dry	All varieties of dry bulgur	Organic bulgur	18–28 ounces
	Regular, instant, and quick cooking	Regular, instant, and quick-cooking whole-grain oatmeal	Organic oats and flavored oats	16–32 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
	Soft	Soft corn tortillas and whole-wheat flour tortillas	Organic tortillas	14–24 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

<b>WIC-Eligible Food Category</b>	<b>Form</b>	<b>Description</b>	<b>Food-Specific Exclusions</b>	<b>Sizes Used To Calculate WIC Prices</b>
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 cereals	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 sugars	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 sugars; 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
Infant formula	Powdered, concentrated, and ready to use	Brands of powdered, concentrated, and ready-to-use infant formula from manufacturers contracted by SAs	N/A	Powder: 12–13.2 ounces Concentrate: 13 ounces Ready-to-use: 32 fluid ounces

## Appendix C. Food Package III Cost Estimates

---

This appendix provides the study team’s methodology and results for the estimated FY 2014 total annual cost of Food Package III. Because SAs are not required to provide costs of Food Package III separately in FNS administrative data, the study team estimated these expenditures. To do so, the study team collected data pertaining to Food Package III from nine SAs: California, Colorado, Florida, Idaho, Michigan, New York, Pennsylvania, South Carolina, and Texas.

The requested data from these nine SAs included the overall cost of Food Package III in FY 2014 and the average monthly number of participants who were assigned Food Package III in FY 2014. The study team calculated the average monthly per-person Food Package III cost (including all WIC-eligible nutritionals) for each of the sample SAs.<sup>24</sup> These average food package costs per person were then applied to the number of participants in the remaining SAs that shared similar characteristics. That is, to determine a total Food Package III cost for each SA, the study team calculated the total number of participants assigned to food package types in Food Package III in each of the remaining SAs and multiplied by the average per-person cost of Food Package III for the nine selected SAs. 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 SAs and use a per-person cost that would best reflect SA regulation. The SAs were grouped as follows:

- ▶ Because Texas and Virginia employed a similar Medicaid reimbursement plan in FY 2014, the estimated average monthly per-person Food Package III cost in Texas was multiplied by the number of participants assigned Food Package III in Virginia to obtain the estimated average monthly Food Package III cost in 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 2014, 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 SAs.
- ▶ Because the remaining SAs did not employ either Medicaid reimbursements or warehouses, the combined estimate of the average monthly per-person Food Package III costs in Alabama, 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 SAs.

To estimate the total FY 2014 annual cost of Food Package III, the study team summed the estimated monthly Food Package III costs in each SA based on the total number of participants assigned to food package types in Food Package III in that SA and multiplied by 12.

---

<sup>24</sup> The study team requested all costs associated with Food Package III, including contract- or exempt-brand infant formulas, WIC-eligible nutritionals, and supplemental foods.

## A. Subtraction of Estimated Food Package III Costs and Participants

---

The estimated total FY 2014 Food Package III costs were subtracted from the total costs in the FY 2014 FNS administrative data reported by the 52 study SAs. 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 using the PC2014 Food Package Report data. This percentage was multiplied by the total number of participants in each participant category and subtracted from the estimated total number of participants in each participant category to determine the number of participants who were not prescribed Food Package III in each participant category.

## B. Data Limitations

---

Four of the SAs 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. Two SAs were unable to provide an average number of participants assigned Food Package III for FY 2014. Instead, one SA used the reference month of September 2014, and one SA used the reference month of April 2014. These data were considered sufficient estimates for the number of participants assigned Food Package III in an average month in these SAs. One SA provided the total annual FY 2014 number of participants assigned Food Package III. The study team used the estimated number of participants assigned Food Package III in that SA. One SA provided the number of participants assigned Food Package III for each month in FY 2014 by food package type, as well as the cost per unit for food items and percentage of prescribed food items redeemed by food for each month in FY 2014. The study team used these data elements to calculate the average monthly number of participants assigned to Food Package III and the total FY 2014 cost of Food Package III for this SA.

## C. Estimated FY 2014 Food Package III Cost

---

The overall FY 2014 post-rebate food cost reported to FNS by the 52 study SAs totaled \$4.3 billion; the pre-rebate food cost equaled \$6.1 billion.<sup>25</sup> The estimated FY 2014 Food Package III cost was \$424.9 million, resulting in a total of \$3.8 billion in post-rebate food costs for all other food packages. This represented 7 percent of the overall pre-rebate food costs and 10 percent of the overall post-rebate food costs reported to FNS.

---

<sup>25</sup> As reported to FNS in FY 2014, for the 52 study SAs, pre-rebate food costs totaled \$6,071,718,924 and post-rebate food costs totaled \$4,274,648,377; for all 90 SAs, pre-rebate food costs totaled \$6,136,700,415 and post-rebate food costs totaled \$4,324,381,773.

## Appendix D. Participant Categories and Allowed Food Items

**Table D.1. Infant Food Packages, Food Package Types, Participant Characteristics, and Allowed Foods**

Participant Category	Food Package Type	Age	Feeding Category	Infant Formula	Infant Cereal	Infant Fruits and Vegetables	Infant Food Meat	WIC-Eligible Nutritional
<b>Food Package I</b>								
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					
<b>Food Package II</b>								
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		●	●	●	
<b>Food Package III</b>								
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 D.2. Women and Children Food Packages, Food Package Types, Participant Characteristics, and Allowed Foods**

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

Note

N/A = Not applicable

## Appendix E. Additional Tabulations

**Table E.1. Estimated 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 Pre-Rebate Costs (\$ millions)	Average Monthly Post-Rebate Costs (\$ millions)	Annual Pre-Rebate Costs (\$ millions)	Annual Post-Rebate Costs (\$ millions)
<b>Total Participants</b>	<b>100.0</b>	<b>\$470.6</b>	<b>\$320.8</b>	<b>\$5,646.8</b>	<b>\$3,849.7</b>
<b>Participant Category</b>					
Pregnant women	10.1	\$38.9	\$38.9	\$466.9	\$466.9
Breastfeeding women	7.4	\$28.1	\$28.1	\$337.4	\$337.4
Postpartum women	7.2	\$21.8	\$21.8	\$261.3	\$261.3
Infants	22.3	\$217.3	\$67.6	\$2,607.8	\$810.8
Children	53.1	\$164.4	\$164.4	\$1,973.3	\$1,973.3
<b>Food Package Type</b>					
I-FF-A	3.9	\$45.3	\$9.5	\$544.0	\$114.5
I-FF-B	2.6	\$33.0	\$6.9	\$396.4	\$83.4
I-BF/FF-A	0.1	\$0.7	\$0.1	\$8.4	\$1.8
I-BF/FF-B	0.9	\$5.4	\$1.1	\$65.4	\$13.8
I-BF/FF-C	0.6	\$4.0	\$0.9	\$48.5	\$10.2
I-BF-A	1.1	–	–	–	–
I-BF-B	0.5	–	–	–	–
II-FF	8.7	\$95.5	\$33.0	\$1,146.5	\$396.0
II-BF/FF	1.4	\$10.5	\$4.2	\$125.5	\$50.9
II-BF	1.4	\$7.8	\$7.7	\$93.2	\$92.9
IV-A	16.6	\$50.9	\$50.9	\$610.8	\$610.8
IV-B	37.5	\$117.3	\$117.3	\$1,407.7	\$1,407.7
V	11.4	\$43.9	\$43.9	\$526.2	\$526.2
VI	9.0	\$27.3	\$27.3	\$327.9	\$327.9
VII	3.3	\$16.3	\$16.3	\$195.6	\$195.6

**Notes**

Because of rounding and estimation, participant category and food package type rows may not sum to total.

Total Food Package III costs are not included in these estimates (see appendix C for additional detail on the calculation of total estimated Food Package III costs).

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

Sources: Patlan & Mendelson, 2016; Thorn et al., 2015a; FY 2014 FNS administrative data; IRI data

**Table E.2a. Estimated Annual Pre- and Post-Rebate Food Costs by Participant Category and Food Package Type for Cow's Milk, Fruits and Vegetables, Infant Formula, Breakfast Cereal, Juice, and Cheese**

Participant Category and Food Package Type	Cow's Milk Pre- and Post-Rebate Costs (\$ millions)	Fruits and Vegetables Pre- and Post-Rebate Costs (\$ millions)	Infant Formula Pre-Rebate Costs (\$ millions)	Infant Formula Post-Rebate Costs (\$ millions)	Breakfast Cereal Pre- and Post-Rebate Costs (\$ millions)	Juice Pre- and Post-Rebate Costs (\$ millions)	Cheese Pre- and Post-Rebate Costs (\$ millions)
<b>Total Participants</b>	\$959.6	\$518.0	\$2,273.2	\$478.3	\$429.2	\$347.0	\$257.3
<b>Participant Category</b>							
Pregnant women	\$163.4	\$92.2	–	–	\$55.9	\$51.9	\$34.1
Breastfeeding women	\$106.2	\$67.8	–	–	\$37.1	\$31.0	\$33.4
Postpartum women	\$83.3	\$65.9	–	–	\$40.1	\$23.4	\$22.6
Infants	–	–	\$2,273.2	\$478.3	–	–	–
Children	\$606.7	\$292.0	–	–	\$296.1	\$240.6	\$167.1
<b>Food Package Type</b>							
I-FF-A	–	–	\$544.0	\$114.5	–	–	–
I-FF-B	–	–	\$396.4	\$83.4	–	–	–
I-BF/FF-A	–	–	\$8.4	\$1.8	–	–	–
I-BF/FF-B	–	–	\$65.4	\$13.8	–	–	–
I-BF/FF-C	–	–	\$48.5	\$10.2	–	–	–
I-BF-A	–	–	–	–	–	–	–
I-BF-B	–	–	–	–	–	–	–
II-FF	–	–	\$948.6	\$199.6	–	–	–
II-BF/FF	–	–	\$94.1	\$19.8	–	–	–
II-BF	–	–	–	–	–	–	–
IV-A	\$189.9	\$91.5	–	–	\$92.1	\$73.9	\$48.7
IV-B	\$432.0	\$206.5	–	–	\$210.5	\$171.9	\$122.4
V	\$184.4	\$104.8	–	–	\$63.5	\$58.4	\$38.3
VI	\$105.0	\$82.7	–	–	\$50.1	\$29.7	\$28.4
VII	\$60.5	\$30.5	–	–	\$18.2	\$17.1	\$22.9

**Notes**

Because of rounding and estimation, participant category and food package type rows may not sum to total.

Total Food Package III costs are not included in these estimates (see appendix C for additional detail on the calculation of total estimated Food Package III costs).

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

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

Sources: Patlan & Mendelson, 2016; Thorn et al., 2015a; FY 2014 FNS administrative data; IRI data

**Table E.2b. Estimated Annual Pre- and Post-Rebate Food Costs by Participant Category and Food Package Type for Infant Fruits and Vegetables, Other Whole Grains, Eggs, Legumes, and Whole-Grain Bread**

Participant Category and Food Package Type	Infant Fruits and Vegetables Pre-Rebate Costs (\$ millions)	Infant Fruits and Vegetables Post-Rebate Costs (\$ millions)	Other Whole Grains Pre- and Post-Rebate Costs (\$ millions)	Eggs Pre- and Post-Rebate Costs (\$ millions)	Legumes Pre- and Post-Rebate Costs (\$ millions)	Whole-Grain Bread Pre- and Post-Rebate Costs (\$ millions)
<b>Total Participants</b>	<b>\$234.3</b>	<b>\$233.7</b>	<b>\$146.5</b>	<b>\$124.8</b>	<b>\$71.9</b>	<b>\$69.0</b>
<b>Participant Category</b>						
Pregnant women	–	–	\$12.2	\$15.9	\$15.5	\$5.7
Breastfeeding women	–	–	\$5.9	\$15.2	\$8.9	\$2.8
Postpartum women	–	–	\$0.2	\$11.3	\$5.9	\$0.1
Infants	\$234.3	\$233.7				
Children	–	–	\$128.2	\$82.4	\$41.7	\$60.4
<b>Food Package Type</b>						
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	\$153.4	\$153.0	–	–	–	–
II-BF/FF	\$24.3	\$24.3	–	–	–	–
II-BF	\$48.6	\$48.5	–	–	–	–
IV-A	–	–	\$39.7	\$25.6	\$12.7	\$18.7
IV-B	–	–	\$91.2	\$58.7	\$29.9	\$43.0
V	–	–	\$13.6	\$17.8	\$17.5	\$6.4
VI	–	–	–	\$14.1	\$7.5	–
VII	–	–	\$4.0	\$10.2	\$5.1	\$1.9

**Notes**

Because of rounding and estimation, participant category and food package type rows may not sum to total.

Total Food Package III costs are not included in these estimates (see appendix C for additional detail on the calculation of total estimated Food Package III costs).

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

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

Sources: Patlan & Mendelson, 2016; Thorn et al., 2015a; FY 2014 FNS administrative data; IRI data

**Table E.2c. Estimated Annual Pre- and Post-Rebate Food Costs by Participant Category and Food Package Type for Infant Cereal, Peanut Butter, Soy-Based Beverage, Infant Food Meat, Canned Fish, and Tofu**

Participant Category and Food Package Type	Infant Cereal Pre-Rebate Costs (\$ millions)	Infant Cereal Post-Rebate Costs (\$ millions)	Peanut Butter Pre- and Post-Rebate Costs (\$ millions)	Soy-Based Beverage Pre- and Post-Rebate Costs (\$ millions)	Infant Food Meat Pre-Rebate Costs (\$ millions)	Infant Food Meat Post-Rebate Costs (\$ millions)	Canned Fish Pre- and Post-Rebate Costs (\$ millions)	Tofu Pre- and Post-Rebate Costs (\$ millions)
<b>Total Participants</b>	\$63.9	\$62.3	\$49.8	\$46.1	\$36.5	\$36.5	\$18.9	\$1.0
<b>Participant Category</b>								
Pregnant women	–	–	\$10.7	\$7.8	–	–	\$1.1	\$0.5
Breastfeeding women	–	–	\$6.2	\$5.1	–	–	\$17.6	\$0.2
Postpartum women	–	–	\$4.1	\$4.0	–	–	\$0.2	\$0.2
Infants	\$63.9	\$62.3	–	–	\$36.5	\$36.5	–	–
Children	–	–	\$28.8	\$29.1	–	–	–	\$0.1
<b>Food Package Type</b>								
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	\$44.5	\$43.4	–	–	–	–	–	–
II-BF/FF	\$7.0	\$6.8	–	–	–	–	–	–
II-BF	\$7.3	\$7.1	–	–	\$37.3	\$37.3	–	–
IV-A	–	–	\$8.8	\$9.1	–	–	–	< \$0.1
IV-B	–	–	\$20.7	\$20.7	–	–	–	< \$0.1
V	–	–	\$12.1	\$8.9	–	–	–	\$0.6
VI	–	–	\$5.2	\$5.0	–	–	–	\$0.2
VII	–	–	\$3.5	\$2.9	–	–	\$18.7	\$0.1

**Notes**

Because of rounding and estimation, participant category and food package type rows may not sum to total.

Total Food Package III costs are not included in these estimates (see appendix C for additional detail on the calculation of total estimated Food Package III costs).

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

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

Sources: Patlan & Mendelson, 2016; Thorn et al., 2015a; FY 2014 FNS administrative data; IRI data

**Table E.3a. Estimated Average Quantities and Price per Unit for WIC-Eligible Foods Prescribed per Month by Participant Category and Food Package Type for Milk, Infant Formula, Fruits and Vegetables, Infant Formula, Breakfast Cereal, Juice, and Cheese**

Participant Category and Food Package Type	Milk (fl. oz)	Fat-Reduced Milk (price per fl. oz)	Whole Milk (price per fl. oz)	Infant Formula (fl. oz)	Infant Formula (price per fl. oz)	Fruits and Vegetables (price in \$)	Breakfast Cereal (oz)	Breakfast Cereal (price per oz)	Juice (fl. oz)	Juice (price per fl. oz)	Cheese (oz)	Cheese (price per oz)
<b>Total Participants</b>	<b>487.22</b>	<b>0.03</b>	<b>0.03</b>	<b>585.77</b>	<b>0.19</b>	<b>\$8.44</b>	<b>34.84</b>	<b>0.17</b>	<b>116.88</b>	<b>0.04</b>	<b>14.34</b>	<b>0.27</b>
<b>Participant Category</b>												
Pregnant women	590.35	0.03	0.03	–	–	\$9.64	35.66	0.17	140.63	0.04	13.71	0.27
Breastfeeding women	521.56	0.03	0.03	–	–	\$8.68	32.16	0.17	114.40	0.04	18.26	0.27
Postpartum women	421.43	0.03	0.03	–	–	\$9.60	35.76	0.17	88.88	0.04	12.69	0.27
Infants	–	–	–	585.77	0.19	–	–	–	–	–	–	–
Children	415.53	0.03	0.03	–	–	\$5.83	35.79	0.17	123.59	0.04	12.72	0.27
<b>Food Package Type</b>												
I-FF-A	–	–	–	794.59	0.19	–	–	–	–	–	–	–
I-FF-B	–	–	–	873.19	0.19	–	–	–	–	–	–	–
I-BF/FF-A	–	–	–	365.63	0.19	–	–	–	–	–	–	–
I-BF/FF-B	–	–	–	423.01	0.19	–	–	–	–	–	–	–
I-BF/FF-C	–	–	–	501.04	0.19	–	–	–	–	–	–	–
I-BF-A	–	–	–	–	–	–	–	–	–	–	–	–
I-BF-B	–	–	–	–	–	–	–	–	–	–	–	–
II-FF	–	–	–	626.79	0.19	–	–	–	–	–	–	–
II-BF/FF	–	–	–	395.58	0.19	–	–	–	–	–	–	–
II-BF	–	–	–	–	–	–	–	–	–	–	–	–
IV-A	415.13	0.03	0.03	–	\$5.77	–	35.55	0.17	121.23	0.04	11.83	0.27
IV-B	418.32	0.03	0.03	–	\$5.87	–	35.97	0.17	124.85	0.04	13.17	0.27
V	586.92	0.03	0.03	–	\$9.64	–	35.65	0.17	139.29	0.04	13.56	0.27
VI	423.31	0.03	0.03	–	\$9.54	–	35.68	0.17	89.84	0.04	12.74	0.27
VII	660.99	0.03	0.03	–	\$9.50	–	35.12	0.17	140.36	0.04	27.87	0.27

**Notes**

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

Because of rounding and estimation, participant category and food package type rows may not sum to total.

Total Food Package III costs are not included in these estimates (see appendix C for additional detail on the calculation of total estimated Food Package III costs).

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

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

Sources: Patlan & Mendelson, 2016; Thorn et al., 2015a; FY 2014 FNS administrative data; IRI data

**Table E.3b. Estimated Average Quantities and Price per Unit for WIC-Eligible Foods Prescribed per Month by Participant Category and Food Package Type for Infant Fruits and Vegetables, Other Whole Grains, Eggs, Canned Beans, Dry Beans, and Whole-Grain Bread**

Participant Category and Food Package Type	Infant Fruits and Vegetables (oz)	Infant Fruits and Vegetables (price per oz)	Other Whole Grains (oz)	Other Whole Grains (price per oz)	Eggs (oz)	Eggs (price per doz)	Canned Beans (oz)	Canned Beans (price per oz)	Dry Beans (oz)	Dry Beans (price per oz)	Whole-Grain Bread (oz)	Whole-Grain Bread (price per oz)
<b>Total Participants</b>	<b>71.69</b>	<b>0.16</b>	<b>11.04</b>	<b>0.11</b>	<b>1.08</b>	<b>1.70</b>	<b>14.75</b>	<b>0.06</b>	<b>2.72</b>	<b>0.11</b>	<b>3.58</b>	<b>0.16</b>
<b>Participant Category</b>												
Pregnant women	–	–	11.98	0.11	1.01	1.70	20.88	0.06	3.86	0.11	3.88	0.16
Breastfeeding women	–	–	7.93	0.11	1.32	1.70	16.36	0.06	3.02	0.11	2.57	0.16
Postpartum women	–	–	0.32	0.11	1.01	1.70	11.09	0.06	2.05	0.11	0.10	0.16
Infants	71.69	0.16	–	–	–	–	–	–	–	–	–	–
Children	–	–	23.94	0.11	1.00	1.70	10.66	0.06	1.97	0.11	7.76	0.16
<b>Food Package Type</b>												
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	120.33	0.16	–	–	–	–	–	–	–	–	–	–
II-BF/FF	121.48	0.16	–	–	–	–	–	–	–	–	–	–
II-BF	238.15	0.16	–	–	–	–	–	–	–	–	–	–
IV-A	–	–	23.70	0.11	0.99	1.70	10.33	0.06	1.91	0.11	7.68	0.16
IV-B	–	–	24.09	0.11	1.00	1.70	10.83	0.06	2.00	0.11	7.80	0.16
V	–	–	11.82	0.11	1.00	1.70	20.75	0.06	3.83	0.11	3.83	0.16
VI	–	–	–	–	1.00	1.70	11.25	0.06	2.08	0.11	–	–
VII	–	–	12.04	0.11	1.97	1.70	20.70	0.06	3.82	0.11	3.90	0.16

**Notes**

oz = ounce(s); doz = dozen(s)

Because of rounding and estimation, participant category and food package type rows may not sum to total.

Total Food Package III costs are not included in these estimates (see appendix C for additional detail on the calculation of total estimated Food Package III costs).

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

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

Sources: Patlan & Mendelson, 2016; Thorn et al., 2015a; FY 2014 FNS administrative data; IRI data

**Table E.3c. Estimated Average Quantities and Price per Unit for WIC-Eligible Foods Prescribed per Month by Participant Category and Food Package Type for Infant Cereal, Peanut Butter, Soy-Based Beverage, Infant Food Meat, Canned Fish, and Tofu**

Participant Category and Food Package Type	Infant Cereal (oz)	Infant Cereal (price per oz)	Peanut Butter (oz)	Peanut Butter (price per oz)	Soy-Based Beverage (fl. oz)	Soy-Based Beverage (price per fl. oz)	Infant Food Meat (oz)	Infant Food Meat (price per oz)	Canned Fish (oz)	Canned Fish (price per oz)	Tofu (oz)	Tofu (price per oz)
<b>Total Participants</b>	<b>12.51</b>	<b>0.25</b>	<b>5.85</b>	<b>0.14</b>	<b>14.04</b>	<b>0.05</b>	<b>4.47</b>	<b>0.40</b>	<b>4.35</b>	<b>0.21</b>	<b>0.23</b>	<b>0.13</b>
<b>Participant Category</b>												
Pregnant women	–	–	8.28	0.14	17.01	0.05	–	–	0.57	0.21	0.42	0.13
Breastfeeding women	–	–	6.49	0.14	15.02	0.05	–	–	12.32	0.21	0.28	0.13
Postpartum women	–	–	4.40	0.14	12.14	0.05	–	–	0.16	0.21	0.21	0.13
Infants	12.51	0.25	–	–	–	–	4.47	0.40	–	–	–	–
Children	–	–	4.23	0.14	11.97	0.05	–	–	–	–	0.01	0.13
<b>Food Package Type</b>												
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	22.33	0.25	–	–	–	–	–	–	–	–	–	–
II-BF/FF	22.34	0.25	–	–	–	–	–	–	–	–	–	–
II-BF	22.90	0.25	–	–	–	–	73.16	0.40	–	–	–	–
IV-A	–	–	4.10	0.14	11.96	0.05	–	–	–	–	0.01	0.13
IV-B	–	–	4.30	0.14	12.05	0.05	–	–	–	–	0.01	0.13
V	–	–	8.23	0.14	16.91	0.05	–	–	–	–	0.46	0.13
VI	–	–	4.46	0.14	12.19	0.05	–	–	–	–	0.19	0.13
VII	–	–	8.21	0.14	19.04	0.05	–	–	29.17	0.21	0.34	0.13

Notes

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

Because of rounding and estimation, participant category and food package type rows may not sum to total.

Total Food Package III costs are not included in these estimates (see appendix C for additional detail on the calculation of total estimated Food Package III costs).

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

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

Sources: Patlan & Mendelson, 2016; Thorn et al., 2015a; FY 2014 FNS administrative data; IRI data