



Economic
Research
Report
Number 357

March 2026

A More Detailed Food Dollar: Enhanced Accounting of U.S. Food Costs

Quinton Baker and James Chandler Zachary



Category name	Salary and benefits	Other taxes	U.S. dollars (millions)	
Total	426,026	68,274	340,680	68,740
Agribusiness	16,424	3,115	15,170	963,720
Crops	8,673	(3,387)	29,808	43,820
Livestock	4,540	5,248	31,796	41,870
Forestry, fishing, and agricultural services	6,527	354	2,481	42,260
Food processing	119,829	8,075	82,175	11,210
Transportation and storage	32,489	2,046	22,273	240,000
Food wholesale	55,492	5,895	40,811	2,385
Food retail	140,795	41,092	70,358	59,100
Food services	1,410	213	591	105,910
Energy	7,891	3,422	16,615	54
Finance and insurance	16,508	1,253	15,814	5,193
Legal and accounting	7,398	496	4,783	371
Advertising	8,950	451	8,003	919
				1,068,260



Economic Research Service

www.ers.usda.gov

Recommended citation format for this publication:

Baker, Q., & Zachary, J.C. (2026). *A more detailed Food Dollar: Enhanced accounting of U.S. food costs* (Report No. ERR-357). U.S. Department of Agriculture, Economic Research Service.



Cover photo images from Getty Images.

In accordance with Federal civil rights law and U.S. Department of Agriculture (USDA) civil rights regulations and policies, the USDA, its Agencies, offices, and employees, and institutions participating in or administering USDA programs are prohibited from discriminating based on race, color, national origin, religion, sex, disability, age, marital status, family/parental status, income derived from a public assistance program, political beliefs, or reprisal or retaliation for prior civil rights activity, in any program or activity conducted or funded by USDA (not all bases apply to all programs). Remedies and complaint filing deadlines vary by program or incident.

Persons with disabilities who require alternative means of communication for program information (e.g., Braille, large print, audiotape, American Sign Language, etc.) should contact the State or local Agency that administers the program or contact USDA through the Telecommunications Relay Service at 711 (voice and TTY). Additionally, program information may be made available in languages other than English.

To file a program discrimination complaint, complete the USDA Program Discrimination Complaint Form, AD-3027, found online at [How to File a Program Discrimination Complaint](#) and at any USDA office or write a letter addressed to USDA and provide in the letter all of the information requested in the form. To request a copy of the complaint form, call (866) 632-9992. Submit your completed form or letter to USDA by: (1) mail: U.S. Department of Agriculture, Office of the Assistant Secretary for Civil Rights, 1400 Independence Avenue, SW, Mail Stop 9410, Washington, D.C. 20250-9410; (2) fax: (202) 690-7442; or (3) email: program.intake@usda.gov.

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



A More Detailed Food Dollar: Enhanced Accounting of U.S. Food Costs

Quinton Baker and James Chandler Zachary

Abstract

For decades, the USDA, Economic Research Service's (ERS) Food Dollar has measured the costs of producing and marketing food from the farm to the final point of sale. These measures have come to be known as the farm share and the marketing share of the Food Dollar. In 2011, industry group shares were introduced, which measure the distribution of costs across supply chain industries, also in terms of consumer food expenditures. Methodological and data source quality improvements have led to historical revisions of the Food Dollar. These revisions provide a more detailed accounting of the U.S. food system and variation in farm, marketing, and supply chain costs over time and across products and outlets. This report highlights major differences in the Food Dollar from the change in the underlying model from 2011 to the new model used for 2026 and the impact of these modeling changes on estimated value shares.

Keywords: food dollar, farm share, marketing bill, industry value added, primary factor value added

Acknowledgements

The authors thank current and former USDA, ERS staff Patrick Canning, Sarah Rehkamp, Debbie Rubas, Jessica Todd, Lisa Mancino, Abigail Okrent, Anikka Martin, Winfrey Norton, and Jay Variyam for feedback and support. Special thanks to technical reviewers Becca Jablonski, Dyson School of Applied Economics and Management, Cornell University; and Eliana Zeballos and Erik Scherpf of USDA, ERS. We also thank staff Grant Wall, Eleanore Belanger, Christopher Whitney, and Chris Sanguinett for design and editorial support.

About the Authors

Quinton Baker and James Chandler Zachary are agricultural economists with USDA, Economic Research Service's Food Economics Division.

Contents

- Summary iv**
- Introduction..... 1**
 - Defining the ERS Food Dollar 3
- Key Innovations in Food Dollar 2..... 5**
 - Ag-FEDS and Food Dollar Multipliers..... 6
 - Redirecting Commodity Flows..... 9
 - The Hidden Food Economy..... 11
- Results of the New Food Dollar Model13**
 - The Marketing Bill..... 18
 - The Industry Group Bill 23
 - The Primary Factor Bill..... 29
- Conclusion 34**
- References 35**
- Appendix A: Reconstituting the Food and Beverage Dollar..... 37**
- Appendix B: FD2 Industry Groups and Their Activities and Commodity Codes 38**
- Appendix C: Ag-FEDS Identifiers Used in FD2..... 51**

A report summary from the Economic Research Service

A More Detailed Food Dollar: Enhanced Accounting of U.S. Food Costs

Quinton Baker and James Chandler Zachary



Key Points

- The Food Dollar measures farm shares, marketing shares, and costs of supply chain activities in domestic food production using input-output analysis.
- USDA, Economic Research Service (ERS) updated the Food Dollar (FD1) model due to changes in source data and methodology, revising data from 2007 onward.
- The updated Food Dollar (FD2) contains 47 annual tables detailing the cost distributions of food and alcohol, including food-at-home (FAH) products (e.g. bakery products) and food-away-from-home (FAFH) outlets (e.g. limited-service restaurants). FD1 produced 16 tables but only updated 6 aggregated tables annually.
- Annually, FD2 attributes \$38–50 billion more to farm commodities and food in FAFH (\$67 billion in 2017) and \$13–63 billion less to farm commodities and food in FAH (\$127 billion in 2017) compared with FD1. This increases the FAFH farm share and decreases the FAH farm share in FD2.
- FD2 uses a new method involving matrix algebra that directly removes all of the value of farm-to-farm transactions, which otherwise over-state the returns to farms in the domestic food supply chain. FD1 underestimated farm-to-farm transactions by \$61.9 million out of \$107 billion in 2017.
- The industry group bill has been reorganized, leading to a more detailed account of the value of agriculture activities in the domestic food system. For example, the farm production share is now separated into crops; livestock; and forestry, fishing, and ag-services shares. Wholesale and retail shares, which included all transactions related to food production, are restricted to the sale of food products, whereas in FD1 they included all wholesale and retail activities supporting the domestic food supply chain. As a result, the wholesale share decreased by about 5 cents per food dollar, and the retail share increased marginally for all food and by about 3 cents per FAH dollar.

Why Does This Matter?

USDA, ERS introduced the Food Dollar Series in 2011 to analyze where the dollars consumers spend on food go. However, data constraints limited the amount and level of detail available for analysis. For example, FD1 could only produce farm and

marketing shares for bread and bakery or poultry products in 5-year intervals when data sources release this level of detail. FD1 also grouped all restaurant types together because it could not delineate between full- and limited-service restaurants. FD2 uses the Agri-Food Economic Data System developed by USDA, ERS, which uses U.S.

Department of Commerce, Bureau of Economic Analysis (BEA) data sources and is harmonized with other USDA, ERS data products. FD2 expands the model's level of detail annually and includes adjustments to recover the full market value of farm and food commodities in FAH and FAFH

expenditures. It produces a more comprehensive accounting of the cost of farm commodities and value contributions by supply chain activities per dollar spent on domestically produced food. This report outlines the updates to the Food Dollar model and revisions to the data.

A Few More Details

A key difference between FD1 and FD2 in the marketing bill is the redirection of food by marketing channel, resulting in changes in farm share values. For the industry group bill, the most notable differences are the total number and names of industry groups that have changed. Methodology changes are the most immediate differences for the primary factor bill, resulting in different shares.



Source: USDA, Economic Research Service, Food Dollar.

ERS is a primary source of economic research and analysis from the U.S. Department of Agriculture, providing timely information on economic and policy issues related to agriculture, food, the environment, and rural America.

A More Detailed Food Dollar: Enhanced Accounting of U.S. Food Costs

Introduction

From 2017 to 2023, U.S. consumers spent, on average, \$1.73 trillion annually on domestically produced food, with more than half spent on food away from home (from restaurants and other eating places) and \$780 billion on food-at-home expenditures (such as groceries). Over the same period, U.S. farm establishments produced, on average, \$230 billion in farm commodities and food processors added \$291 billion of value for the domestic food supply chain.

Since 2011, USDA, Economic Research Service (ERS) has published the Food Dollar which uses such information on consumer food expenditures and producer value to answer the question “Where do our food dollars go?” (Canning, 2011). The Food Dollar allocates the market value of consumer spending on food produced in the United States by supply chain segment. These allocations, referred to as bills, divide the food dollars by their bill-specific segmentation of the domestic food supply chain. These bills are the marketing bill, the industry group bill, and the primary factor bill. The marketing bill measures the returns to farm establishments for the sale of raw farm commodities that support the domestic food supply chain. The industry group bill attributes the costs of producing food to stages of production, such as crop production, food processing, and food retailing. Lastly, the primary factor bill shows how the costs of food production are split among people, capital assets, and other factors.

Tracking these measurements can serve many purposes. For instance, the portion of a food dollar received by farms for the sale of farm commodities that support the agri-food value chain (AVC) can be used to inform the extent to which changes in farm commodity prices lead to changes in food prices (MacLachlan et al., 2022) or how changes to food program policies may affect different parts of the AVC.

This report describes changes to the Food Dollar that result from a new underlying model and the introduction of different primary data sources. The new model, called Food Dollar 2.0 (FD2), is an application of the Agri-Food Economic Data System (Ag-FEDS) that is developed and documented by Rehkamp and Canning (2025) and Rehkamp et al. (2026). These changes include revised food dollar values and shares for 2007 onward, new tables for product-specific food-at-home dollars, more detailed food-away-from-home dollars by type of establishment, and compositional changes to the industry group bill that result from breaking out farm production into three different farming-related industry groups and relegating the packaging industry group to a subcontracting industry. Ag-FEDS, and thus FD2, draws on industry and commodity production data from the U.S. Department of Commerce, Bureau of Economic Analysis (BEA) annual summary and benchmark detail Make and Use tables and the Industry Economic Accounts to map commodity flows between industries. Additionally, Ag-FEDS and FD2 use the BEA National Income and Product Accounts and data from USDA, ERS to create a complete picture of food demand. The resulting data set comprehensively describes

economic activity and the role of agriculture and other supply chain activities in domestic food markets. As a result, FD2 can annually measure supply chain costs for more food and beverage products and outlets than the previous model.

A Brief History of the U.S. Food Dollar

The Food Dollar has been used to inform various stakeholders including Congress, researchers and decision makers in agri-food industries, and the public about the distribution of costs along the agri-food supply chain. Over time, richer data availability and new modeling techniques have allowed for refined reporting on these costs.

1946: The United States Congress passed the Agricultural Marketing Act of 1946, directing and authorizing the Secretary of Agriculture to “determine costs of marketing agricultural products in their various forms and through various channels...” [U.S. Code, Title VII, Chapter 38, Section 1622 (b)]. By determining the costs of marketing food, that is, the cost to bring the raw farm commodities to final point of sale, the farm values were also determined as the differences between retail cost and marketing costs.

Early measures of the costs of marketing food were measured by USDA using farm shares of fixed commodity baskets. Cash receipts for commodity groups were divided by estimates for the farm value of a commodity to estimate retail cash receipts. The difference between retail receipts and farm cash receipts was the costs of marketing food, which was estimated for select commodities from 1913 forward. These estimates for fixed baskets only covered food that was sold in food-at-home establishments such as grocery stores and did not reflect the current mix of food being purchased by consumers (Gale, 1967).

1986: Using various Government sources (U.S. Department of Commerce, Bureau of Economic Analysis; U.S. Department of Commerce, Bureau of the Census; U.S. Department of Labor, Bureau of Labor Statistics; Internal Revenue Service; USDA, Economic Research Service (ERS); and USDA, National Agricultural Statistics Service), Harp (1986) describes the USDA, ERS approach to calculating the farm and marketing shares of food-at-home and food-away-from home dollars. The bills included farm and marketing portions, and broke out the marketing shares into energy, labor, and other associated costs. This approach blended the concepts of the industry group bill and the marketing bill, which would later be introduced by Canning (2011), leading to the farm value including costs for energy and other inputs used on farm.

2011: The modern Food Dollar (FD1) was created by Canning (2011). In addition to the marketing bill, this report introduced the industry group bill that attributes costs of food to groups of industries along the agri-food value chain, and the primary factor bill that attributes costs of food to factors of production such as labor and capital. Previously, those three concepts had been comingled and separating them into different bills created three different lenses that each shed light onto the costs of domestic food production. Methodological advancements included removing farm-to-farm transactions, which otherwise overstate the returns to farms for sales of raw food commodities.

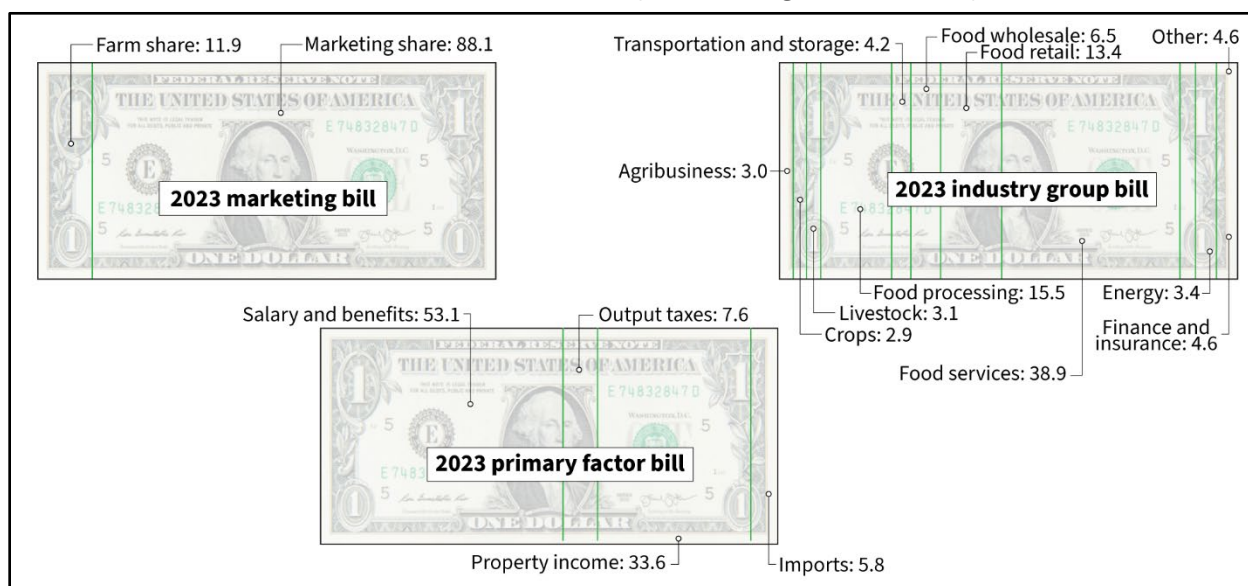
Defining the ERS Food Dollar

Formally, “food dollars” refers to the annual market value of consumer expenditures by people residing in the United States on domestically produced food.¹ Food dollars can be defined by market segment, such as food at home (FAH), which are expenditures at places like grocery stores, wholesale clubs, and other retail food outlets, and food away from home (FAFH), which are expenditures at places like full-service restaurants, fast casual restaurants, and other eating-out venues. Food dollars can also be defined by specific categories of food spending, such as all food, bakery products, or limited-service restaurants. The USDA, ERS Food Dollar data product measures the annual market value of domestic food production and the total consumer food expenditures for specific market segments and spending categories. Further, it attributes food spending to industry and primary factor sources of value along the food supply chain, such as the value contributed by farm producers or by labor.

By dividing production values into the total market value of consumer expenditures, the Food Dollar shows the distribution of production value as percentages of a representative dollar bill spent by consumers (i.e., cents per domestic food dollar). For example, in 2023 when consumers spent \$2.2 trillion on domestically produced food, U.S. crop producers added about \$62 billion in market value to the domestic food supply and livestock producers added about \$67 billion. These amounts were 2.4 percent and 2.6 percent, respectively, of total consumer food expenditures, or 2.9 cents and 3.1 cents per food dollar. There are three bills that each show a different way of dividing the food supply chain into sources of value. These bills are shown in figure 1. Equivalently, these bills can be viewed as cost contributions because the value created by an upstream supply chain stage becomes a cost to downstream producers and, eventually, a cost to the final consumer.

Figure 1

Three bills of the Food Dollar show three different ways of dividing the food supply chain



Note: The values reported here are for all spending on domestically produced food in 2023. The values in each bill are reported as cents per dollar and are for all spending on domestically produced food in 2023.

Source: USDA, Economic Research Service, Food Dollar.

¹ The Food Dollar data product focuses on the domestic food supply chain. For brevity, we refer to “food dollars” as the spending on domestically produced food and beverages. We use the term “total food dollars” when referring to all food spending, which includes imported food dollars and domestic food dollars.

The marketing bill divides the total market value of domestically produced food into the amount contributed by the total sales proceeds of farm commodities linked to food (e.g., wheat from wheat farms or beef cattle from cattle ranches), and the amount contributed by the total costs of marketing food. Marketing costs are the costs of processing, transporting, and selling food at places such as restaurants and grocery stores. The industry group bill divides the same total value into the amount contributed by each industry group. Industry groups are collections of establishments engaging in similar production activities (e.g., crop production, food processing, and energy). The primary factor bill divides the total value into the amounts contributed by the primary factors of production—labor, ownership of capital, and taxes—and by imported materials used in domestic production.

The Food Dollar measures all expenditures in a group, product, or outlet on a per dollar of domestic production basis. This method facilitates comparisons of shares of annual expenditures across segments, over time, and across countries (Barret et al., 2022; Yi et al., 2021). For instance, in 2023, \$2.2 trillion was spent by U.S. consumers on domestically produced food, and another \$273 billion was spent on domestically produced alcohol. The net proceeds to food processors for these expenditures were \$333 billion and \$55 billion, respectively. This allows us to say that 15.1 cents per food dollar went to food processors in 2023 and 20.0 cents per alcohol dollar.

Glossary of Key Food Dollar Terms

Activity: A grouping of establishments that produce one or more commodities using a similar production process, synonymous with “industry.”

Bill: A bill is an itemized list of the contributions to the total market value of food by producers. This can be expressed in total dollar or percent terms (i.e., cents per domestic food dollar). Bills within the Food Dollar include the marketing bill, industry group bill, and the primary factor bill.

Commodity: A semi-finished or finished product (good or service) that is produced by an activity. A collection of same or similar products or services.

Farm share: The farm value expressed as cents per domestic food dollar.

Farm value: The value received by farms for the sale of farm commodities that are linked to annual food expenditures, excluding direct and indirect purchases by other farm operations. Farm operations include establishments producing crops, livestock, forestry, and fishing products.

Food dollar: A representative dollar spent by a person residing in the United States on domestically produced food. This can be for all food or for a specific at-home product or away-from-home outlet. For example, the “Bakery products dollar” is a single dollar bill that represents all U.S. annual expenditures on bakery products made by domestic producers, and the “Food at full-service restaurants dollar” is a single dollar that represents all U.S. annual food expenditures at full-service restaurants.

Imported food dollars: Spending on finished food commodities that are imported from international sources and sold directly to U.S. consumers without further processing. The non-domestically produced portion of total food dollars.

Glossary of Key Food Dollar Terms (continued)

Imported inputs: Food and nonfood commodities imported from international sources and used by U.S. food supply chain industries producing for the U.S. market. Their value contribution to domestic production is measured in the primary factor bill and by the importing industry group in the industry group bill.

Industry group: A collection of establishments engaged in the same or similar activities (or related industries). See also: subcontractor.

Marketing value: The market value of all post-farmgate processes of food supply chain industries that process and distribute food for final purchase. It is measured as the difference between food dollar expenditures and farm value.

Output taxes: The value of excise, sales, property, and severance taxes, less subsidies. Also includes customs duties, and other nontax government fees levied on establishments.

Primary factors of production: Assets such as labor, machinery and equipment, physical structures, land and other natural resources, and intellectual property that are used or operated by an industry group toward fulfilling industry demand.

Property income: The pretax income or capital gain accruing to owners of nonlabor primary factors of production.

Salary and benefits: The total remuneration of employees—including wages, salaries, commissions, tips, bonuses, and certain contributions by the employer—toward health insurance or retirement plans. This remuneration also includes employer contributions to payroll taxes.

Subcontractor: An establishment or group of establishments that do not appear in an industry group. Their costs and value added are attributed to the industry groups that use their services.

Supply chain industry: Any industry dedicating resources and/or processes towards fulfilling the demand for a product.

Total food dollars: Consumer spending on food, including food dollars and imported food dollars.

Value added: The proceeds from the sale of outputs, less the outlays for commodities purchased from other entities

Key Innovations in Food Dollar 2

There are three key innovations in the newly updated Food Dollar model that expand the level of detail and improve the accuracy of food cost accounting along the agri-food value chain. First, the USDA, ERS Agri-Food Economic Data System organizes the full suite of input-output data² published in annual and benchmark releases by BEA into a reduced social accounting matrix (rSAM). The rSAM is fully consistent with the BEA's National Economic Accounts (NEA). Second, we address issues of

² Input-output data show the market values of all commodity production and purchases by industries, and the market values of all commodity purchases, in final demand markets in an economy.

comingling commodity flows along specific food value chains by reorganizing data and reconfiguring the rSAM accounts to disentangle food and beverage commodities “locked” in their foodservice production technologies. Third, we measure “the hidden food economy” that is obscured in the detailed NEA data by integrating and reconciling key USDA, ERS data products covering food expenditures and price spreads in the U.S. agri-food economy (Rehkamp & Canning, 2026; Rehkamp et al., 2026). Together, these three innovations produce a richer, more detailed source of information for computing the distribution of value in the Food Dollar compared to the previous model. The enhanced detail allows for dozens of food and alcohol dollars for narrower definitions of at-home food spending by product and away-from-home food spending by outlet.

Ag-FEDS and Food Dollar Multipliers

The Food Dollar measures value formation across food and beverage commodity groups and marketing channels that constitute the food supply chain. These measurements are reported as total dollars and shares of total consumer spending on different categories of food products at retail outlets. For FD2, the foundation of this analysis is the Agri-Food Economic Data System (Ag-FEDS). Ag-FEDS, which was developed to support this Food Dollar model, reports the market values of the exact commodity composition of consumer food expenditures and, in turn, the costs of assembling those commodities (Rehkamp et al., 2026). Linking Ag-FEDS to the food dollar supply chain analysis (Canning, 2011; Canning et al., 2022) facilitates the study of the economic activity required to satisfy consumer demand and production needs tied to the domestic food system. This section outlines the contents of Ag-FEDS, its data sources, and its connection to the Food Dollar.

Ag-FEDS represents the domestic economy as an rSAM with 45 final demand accounts, more than 350 inter-industry transaction accounts, and 4 accounts for factor inputs and non-domestic assets (i.e., imported inputs) used in domestic production. The Ag-FEDS final demand accounts include four institutional accounts that show spending and investment by consumers, businesses, government, and the rest of the world. The innovation in the Ag-FEDS rSAM is that it further details the agri-food system by extracting food expenditures from domestic demand and creating 41 additional final food demand accounts. The inter-industry transaction accounts detail the flow of commodities between production activities.

Ag-FEDS thus reports the costs of raw and intermediate commodities, factors of production, and imported inputs used to make finished food products. The Food Dollar uses the Ag-FEDS rSAM to observe changes in the input costs of \$1 of consumer food expenditures over time.

The primary source data for Ag-FEDS are the I–O data tables published by BEA. These tables contain different levels of detail about activity costs and product and service flows within the economy. The tables are organized into make³ and use tables (MUTs), a personal consumption expenditures (PCE) bridge table, a gross output table, and a margins⁴ table. Combined, the tables are integral to the accounting structure of the BEA National Income and Product Accounts (NIPA) and Industry

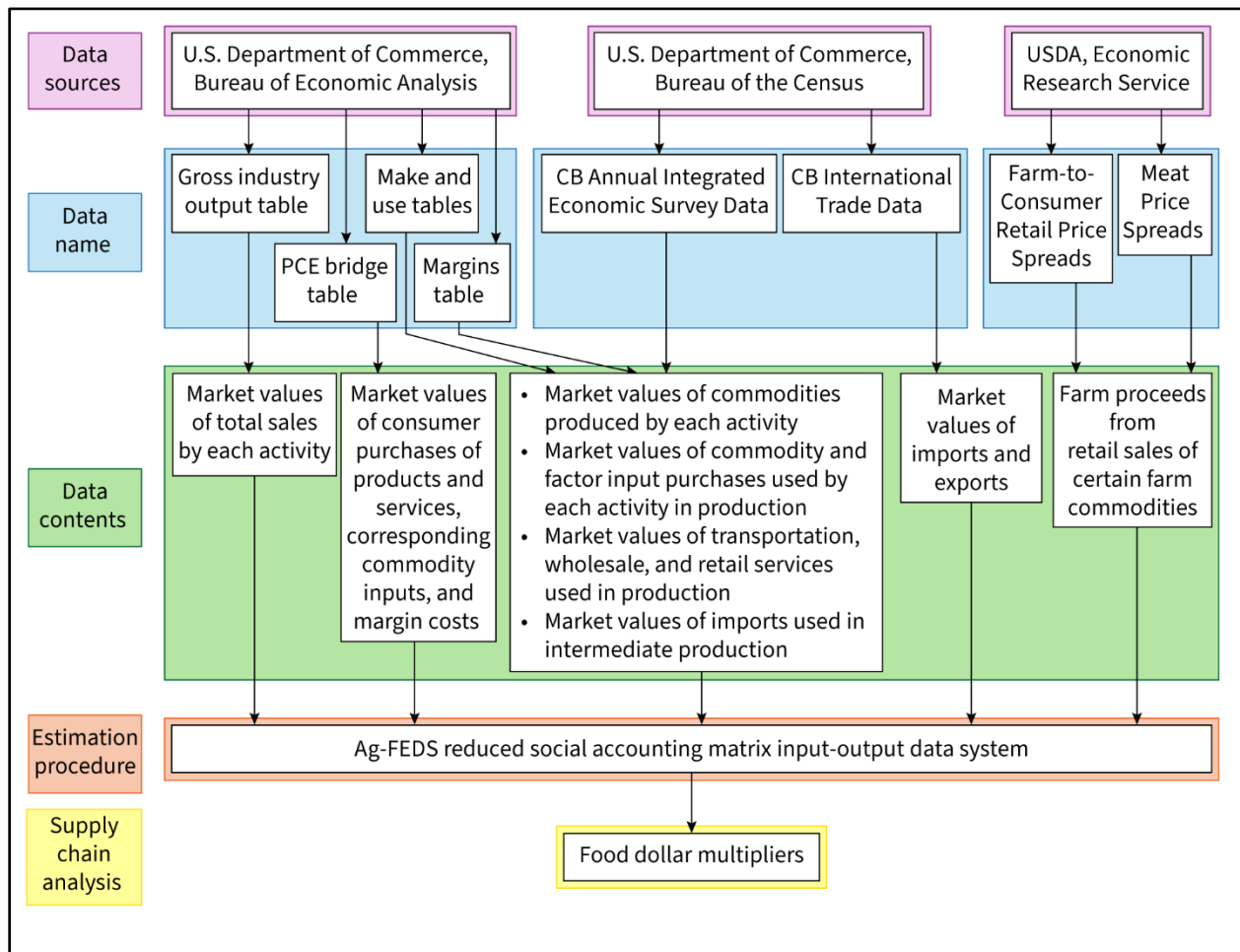
³ BEA releases both supply and make tables. The supply table is the format presented in the United Nations *System of National Accounts, 2008* (UN, 2009). Both tables show the same information, but the make table is the transpose of the supply table (Miller & Blair, 2009). That is, the rows and columns of make and supply are interchanged.

⁴ Margin industries are transportation, wholesale trade, and retail trade. Producers pay a markup, or a margin, over their production costs for these services to deliver to intermediate and final markets.

Economic Accounts (IEA). To generate the rSAM, the activity and commodity accounts in BEA’s MUTs are redefined to correspond to their role in the agri-food value chain and mapped from domestic commodity production to final market sales using the PCE bridge. Data from the U.S. Department of Commerce, Bureau of the Census’ Survey of Manufactures⁵ and International Trade Data and USDA, ERS’s Price Spreads from Farm to Consumer (USDA, ERS, 2024a) and Meat Price Spreads (USDA, ERS, 2024b) provide additional detail to measure the costs of factor inputs and imports in domestic food production. Thus, Ag-FEDS uses and is fully consistent with BEA’s IEA and NIPA and other public data sources. Figure 2 depicts this organization. The complete details of Ag-FEDS are available in Rehkamp and Canning (2025) and Rehkamp et al. (2026).

Figure 2

Data sources of Ag-FEDS and their contents



PCE = Personal consumption expenditures bridge; CB = U.S. Department of Commerce, Bureau of the Census; Ag-FEDS = USDA Agri-Food Economic Data System.

Source: USDA, Economic Research Service, using Rehkamp & Canning (2025).

⁵ Until 2024, the Census Bureau collected manufacturing, wholesale trade, and retail trade data using the Annual Survey of Manufactures, Annual Wholesale Trade Survey, and Annual Retail Trade Survey, respectively. Beginning in 2024, these surveys were combined with four other annual surveys into the Annual Integrated Economic Survey.

Making Use of Make and Use Tables

Make and use tables show the flow of goods and services through the economy, from origination through production and distribution to final markets. A **make** table shows the total market value of goods and services produced by each domestic activity and imported goods and services in an economy for a given period. A **use** table shows the total market value of goods and services purchased by each activity for use as production inputs and final purchases of commodities by households, private businesses, government, and the rest of the world (i.e., exports). The **use** table also shows industry payments to factors of production, such as compensation paid to employees for labor inputs and gross operating surplus to capital inputs, as well as taxes and fees on production less subsidies paid to the government. Two key properties of make and use tables are: (1) total domestic and imported commodity available equals total intermediate and final commodity used (i.e., output equals outlays), and (2) total value added plus imports equals total final uses (i.e., gross domestic income plus imports equals gross domestic product). When these two properties are satisfied, the make and use tables constitute a comprehensive account of the flow of goods and services throughout the economy.

The U.S. Department of Commerce, Bureau of Economic Analysis (BEA) uses data from the Department of Commerce, Bureau of Economic Analysis to construct its benchmark input-output accounts, the primary source of the make and use tables, as well as other tables that make up the National Income and Product Accounts and the Industry Economic Accounts. The Economic Census collects detailed information from business establishments about their revenues, input costs, operating expenses, business activities, capital expenditures, and other industry-specific content. The Economic Census data are the most comprehensive and detailed data for preparing the input-output accounts, but it is conducted only every 5 years and excludes some sectors of the economy, such as agriculture. The BEA supplements the Economic Census with data from other Census Bureau survey programs such as surveys of manufacturing, wholesale trade, and retail trade. Survey data from other Federal agencies (such as the USDA, National Agricultural Statistics Service's Census of Agriculture) also provide data that are unavailable in the Economic Census.

Food dollar shares are derived using multiplier analysis. Multiplier analysis measures the direct and indirect effects throughout the economy of a \$1 purchase of final market goods and services in a specified period. Multipliers serve as a kind of production recipe. Direct effects are the purchases of commodity, factor, and imported inputs by each activity per dollar of its total sales that satisfy the initial \$1 worth of final market purchases. Indirect effects are the additional intermediate transactions between activities per dollar of gross sales by each activity, stimulated by \$1 of final demand purchases and direct effects. The supply chain analysis in the Food Dollar narrows the scope of final market purchases to food and beverage products. The analysis also uses multipliers from Ag-FEDS to express the cumulative value of inputs purchased by groups of activities along the agri-food value chain to satisfy these purchases as cents per dollar spent on domestically produced food. By utilizing data consistent with BEA's IEA and NIPA, Ag-FEDS yields Food Dollar multipliers that reflect a complete accounting of the domestic food economy because they capture the full array of direct and indirect effects tied to consumer expenditures on domestically produced food. This results in a more comprehensive analysis of the cost of farm commodities and value contributions by supply chain

activities per dollar spent on domestically produced food relative to FD1. The Food Dollar multiplier model is derived in technical detail in Rehkamp et al. (2026).

Redirecting Commodity Flows

The data system underlying FD2 has been enhanced to address the comingling of food and beverage commodity flows into activities whose primary and secondary production outputs involve food service. Food service commodities are the primary output of establishments such as restaurants and bars. However, other activities produce food service as a secondary output of their primary activities that are unrelated to food and food production. In 2017, the market value of food service commodities was \$947 billion. About 86 percent of this total value was produced by full-service and limited-service restaurants and other establishments in the food service sector. The remaining 14 percent of the total value came from establishments whose primary outputs were not food service commodities. Commingling food and beverage commodity flows can affect the measurement of the value of food and beverage commodities because not all food and beverage purchases are observed. This, in turn, can affect the cost estimates in the Food Dollar. Ag-FEDS addresses the problems inherent in commingled commodity flows by extending the rSAM to include activity and commodity accounts for food and beverages at food service establishments. The value of food and beverage commodities in food service activities is reallocated to these new accounts to reflect food services buying food and beverages commodities from the activities that assembled them—not by the food service activities themselves. The food service activities are rescaled to reflect this reallocation.

Table 1

Supply of food services by industry (million dollars)

Code	Industry	Full-service	Limited-service	Other	Total
722110	Full-service restaurants	366,166	0	3,964	370,130
722211	Limited-service restaurants	0	335,818	3,875	339,693
722A00	All other food and drinking places	0	0	103,722	103,722
721000	Accommodation	0	1	44,143	44,144
GSLGE	State and local government (educational services)	0	0	17,833	17,833
447000	Gasoline stations	0	14,497	142	14,639
611A00	Junior colleges, colleges, universities, and professional schools	4,508	0	9,643	14,151
445000	Food and beverage stores	0	8,951	991	9,942
452000	General merchandise stores	0	4,283	3,115	7,398
713900	Other amusement and recreation industries	0	4,994	0	4,994
713100	Amusement parks and arcades	0	4,076	0	4,076
813B00	Civic, social, professional, and similar organizations	1,506	1,529	0	3,035
454000	Nonstore retailers	0	2,469	89	2,558
711A00	Promoters of performing arts and sports and agents for public figures	0	1,867	0	1,867
622000	Hospitals	0	1,663	0	1,663

Code	Industry	Full-service	Limited-service	Other	Total
S00102	Other Federal Government enterprises	1,349	0	183	1,532
711200	Spectator sports	0	1,291	0	1,291
GSLGO	State and local government (other services)	35	877	23	935
713200	Gambling industries (except casino hotels)	0	806	0	806
712000	Museums, historical sites, zoos, and parks	0	523	0	523
623B00	Residential mental health, substance abuse, and other residential care facilities	0	336	0	336
711100	Performing arts companies	0	311	0	311
4B0000	All other retail	0	254	0	254
623A00	Nursing and community care facilities	0	251	0	251
611100	Elementary and secondary schools	0	0	240	240
446000	Health and personal care stores	0	134	0	134
48A000	Scenic and sightseeing transportation and support activities	0	0	37	37
621100	Offices of physicians	0	32	0	32
621300	Offices of other health practitioners	0	15	0	15
711500	Independent artists, writers, and performers	0	3	0	3
621400	Outpatient care centers	0	1	0	1
Total:		373,564	384,982	188,000	946,546

Note: Full-service restaurants, limited-service restaurants, and all other food and drinking places are U.S. Department of Commerce, Bureau of Economic Analysis industry codes 722110, 722211, and 722A00 in the 2017 benchmark files, and Ag-FEDS commodities 341, 342, and 342. The supply table is the transpose of the make table that is used in Ag-FEDS, meaning each row shows how much that activity produced each of the three foodservice commodities and the total food services supplied by that activity.

Source: USDA, Economic Research Service using the U.S. Department of Commerce, Bureau of Economic Analysis, 2017 Make Table.

For example, in 2017, consumer spending on food and beverages at ballparks, stadiums, and other sports venues was \$169 million—about 1 percent of total spending on spectator sports (BEA, 2024b). To deliver food and beverages at these sports venues, the spectator sports activity made about \$1.3 billion of the limited-service restaurant commodity (i.e., food service commodity) as a secondary output. In the BEA data, these food, beverage, and food service commodities are “locked” into the same production technologies that produce the primary output—spectator sports—because the food service commodity produced by spectator sports venues was produced by the same technology that produces all spectator sports. This would lead to underestimates of food- and beverage-commodity producer value if the \$169 million in consumer food spending is not measured by the Food Dollar multiplier model.

Further, this simplifies scenario analysis with I–O modeling. Scenario analysis seeks to answer questions such as, “For a 10 percent increase in food demand, what will be the change in total production required to meet this new demand?” By differentiating between primary and secondary production activities, the FD2 multiplier model can quantify how food production will need to change by spectator sports venues independently of changes in its production of the spectator

sports commodity.⁶ FD2 can further quantify the changes in the input requirements for food production independently of the input requirements for spectator sports production because all food and beverage commodity production is modeled as the primary outputs of food and beverage production technologies, and foodservice commodity production is modeled as the primary output of restaurant technology. The Ag-FEDS rSAM includes accounts to record the value of food and beverage commodities as purchases by food service activities from the food and beverage activities that assembled them. The food and beverage commodities are thus decoupled from the food service activity so they can be measured directly in the Food Dollar multiplier model.

A similar food commodity commingling problem occurs with meals furnished by employers, meals purchased as business expenses, and meals furnished by institutions such as schools, colleges, hospitals, and prisons. Spending in these categories includes purchases of food service commodities and food and beverage commodities bundled together as a secondary output. In 2017, consumers spent \$27.7 billion of food service commodity purchases, or about 4 percent of total purchases of the “All other food and drinking places” commodity, as expenditures on elementary and secondary school lunches and higher education school lunches. To satisfy this demand, the elementary and secondary schools activity and the junior colleges, colleges, universities, and professional schools activity together made about \$9.9 billion of food service commodity as secondary output. In addition to the food service commodity and activity accounts mentioned previously, the rSAM includes voucher accounts for the procurement of food and beverage commodities, as well as labor and capital overhead, to facilitate the decoupling procedure for institutional activities that produce food service as a secondary output. A list of the activity and commodity IDs and voucher IDs associated with the voucher subaccounts can be found in appendix C of this report.⁷ Voucher accounting in Ag-FEDS decouples these commodities when they are purchased in conjunction with other products in the national accounts and aligns them with their retail marketing channels. The full details of decoupling and voucher accounting can be found in Rehkamp and Canning (2025).

The Hidden Food Economy

Combined, the decoupling procedure and voucher accounts enable complete passthrough accounting of all food, beverage, and foodservice commodities purchased for domestic consumption, as measured in the Food Dollar. This means we can treat consumer expenditures on these commodities as direct purchases and trace them through their specific marketing channels rather than treat them as purchases of a fixed bundle. For example, we can evaluate the costs of the individual items in a FAFH meal and the food service commodity as distinct purchases, rather than treat them as a single purchase of food and food services. Thus, we can assign values to all individual food and beverage expenditure categories across all food dollars in table 3. This is a substantial

⁶ This would also mean that sports arenas would not need to increase their expenditures on facilities maintenance, for example, in order to produce more food.

⁷ The voucher accounts explicitly integrate price spread measures from the USDA, ERS Price Spreads from Farm to Consumer and Meat Price Spreads data products into Ag-FEDS. These data products measure the farmers' share of retail costs for several baskets of farm commodities. The Food Dollar marketing bill's farm share measures all farm sales (net of farm-to-farm transactions) linked to a retail dollar of consumer food expenditures, not just the farm proceeds from retail sales of food commodities. That is, the Food Dollar's farm share includes, as an example, the farm sales of feedstock used to produce biofuels that help power transportation of food commodities from farms to retail points of purchase, as well as all other farm sales supporting post-farmgate processes that facilitate retail sales.

improvement over FD1, where specific food and beverage commodities were measured only with BEA benchmark releases and all food-away-from-home purchases were consolidated into a single FAFH dollar.

Unlocking food, beverage, and food service commodities as we do in the Ag-FEDS model reveals the hidden food economy.⁸ The Ag-FEDS model reconciles the discrepancies between the national accounts and the USDA, ERS Food Expenditure Series (FES) (USDA, ERS 2024c) which uses retail sales data for food and alcohol collected by the Census Bureau through annual, quarterly, and monthly surveys. For example, the 2017 BEA benchmark use table records more than \$200 billion in meals as business expenses, which the BEA recognizes as contributing to the Gross Domestic Product (GDP) linked to the activity of those businesses. FES measures this as food expenditures. Our updated accounting methodology fully captures this and other discrepancies in food-away-from-home economic activity. Table 2 shows that FD2 now matches the FES dollar-for-dollar in both FAH and FAFH categories of consumer food expenditures. The exact process by which these numbers are reconciled is documented in Rehkamp and Canning (2025).

Table 2
Comparing values of food-at-home and food-away-from-home consumer expenditures across FD2, FES, and FD1

Year	Food-at-home (million dollars)			Food-away-from-home (million dollars)		
	FD2	FES	FD1	FD2	FES	FD1
2012	684,129	684,129	646,277	689,920	689,920	445,973
2013	697,718	697,718	663,469	730,274	730,274	458,691
2014	723,845	723,845	690,107	783,698	783,698	506,084
2015	733,226	733,226	718,587	852,498	852,498	545,643
2016	744,362	744,362	735,471	906,383	906,383	567,160
2017	771,721	771,721	764,832	964,680	964,680	608,605
2018	799,481	799,481	791,193	1,013,760	1,013,760	639,833
2019	824,852	824,852	823,732	1,063,321	1,063,321	678,633
2020	886,883	886,883	895,269	931,666	931,666	626,085
2021	955,478	955,478	975,182	1,161,088	1,161,088	760,078
2022	1,044,179	1,044,179	1,066,585	1,335,715	1,335,715	815,139
2023	1,068,290	1,068,291	1,104,577	1,503,476	1,503,476	901,007

FES = USDA, Economic Research Service Food Expenditure Series; FD1 = Food Dollar 1; FD2 = Food Dollar 2.

Note: For FD2 and FD1, the value compared is the total (import inclusive) dollars for both food-at-home and food-away-from-home expenditures.

Source: USDA, Economic Research Service, Food Dollar and Food Expenditure Series.

⁸ The hidden food economy, as discussed in Rehkamp and Canning (2025), refers to the food and beverage commodities that are obscured in Systems of National Accounts data that lead to food being miscounted and misdirected in those systems.

Results of the New Food Dollar Model

The output from the FD2 model results in 47 tables per year, with each containing 17 rows and 5 columns of data that provide the three FD bills as well as the total expenditure for that table (table 3). The listing includes specific commodities such as the fresh fruits at home dollar and the aggregation of food into broader categories, such as the food-away-from-home dollar. The full listing of rows (called categories) and columns listed in table 5a is discussed below.

Table 3

Food Dollar account codes and descriptions

Account	Parent account	Description	2023 domestic food dollars (Million U.S. dollars)	Percent of parent account
Xf1000	—	Food	2,151,811	100
Xf1100	Food	Food at home	903,766	42.0
Xf1101	FAH	Cereals	59,755	6.6
Xf1102	FAH	Bakery products	90,662	10.0
Xf1103	FAH	Beef	53,495	5.9
Xf1104	FAH	Pork	35,386	3.9
Xf1105	FAH	Other meats	34,739	3.8
Xf1106	FAH	Poultry	65,546	7.3
Xf1107	FAH	Fish and seafood	10,867	1.2
Xf1108	FAH	Fresh milk	26,387	2.9
Xf1109	FAH	Processed dairy products	59,114	6.5
Xf1110	FAH	Fresh eggs	11,428	1.3
Xf1111	FAH	Processed eggs	2,640	0.3
Xf1112	FAH	Fats and oils (including mayonnaise)	22,849	2.5
Xf1113	FAH	Fresh fruits	27,119	3.0
Xf1114	FAH	Fresh vegetables	41,453	4.6
Xf1115	FAH	Canned, frozen, and dried fruits and vegetables	32,830	3.6
Xf1116	FAH	Sugar and sweets	50,498	5.6
Xf1117	FAH	Snack foods	48,125	5.3
Xf1118	FAH	Frozen prepared foods	37,165	4.1
Xf1119	FAH	Processed fruit and vegetable canning and drying (e.g., soups, catsup, pickles)	18,138	2.0
Xf1120	FAH	Seasonings, sauces (except tomato), and dressings (excluding mayonnaise)	19,302	2.1
Xf1121	FAH	Dry, condensed, and evaporated non-dairy products	10,310	1.1
Xf1122	FAH	Tree nuts and peanuts	3,151	0.3

Account	Parent account	Description	2023 domestic food dollars (Million U.S. dollars)	Percent of parent account
Xf1123	FAH	Fresh cut produce plus grab-and-go foods	34,212	3.8
Xf1124	FAH	Miscellaneous foods and ingredients	2,488	0.3
Xf1125	FAH	Fruit and vegetable juices	8,319	0.9
Xf1126	FAH	Food consumed on farms	643	0.1
Xf1127	FAH	Coffee, tea, and beverage materials	15,789	1.7
Xf1128	FAH	Soft drinks and bottled water	81,355	9.0
Xf1200	Food	Food-away-from-home	1,248,045	58.0
Xf1201	FAFH	Food at full-service restaurants	355,707	28.5
Xf1202	FAFH	Food at limited-service restaurants	429,234	34.4
Xf1203	FAFH	Food at other eating and drinking places	128,483	10.3
Xf1204	FAFH	Food at schools and colleges	104,670	8.4
Xf1205	FAFH	Food furnished to employees (including military)	28,417	2.3
Xf1206	FAFH	Institutional and employer furnished meals plus food assistance	51,210	4.1
Xf1207	FAFH	Food-at work (per diem and expensing)	150,324	12.0
Xf2000	—	Alcohol	273,449	100
Xf2100	Alcohol	Alcohol-at-home	140,049	51.2
Xf2101	AAH	Beer	65,976	47.1
Xf2102	AAH	Wine	39,788	28.4
Xf2103	AAH	Spirits	34,285	24.5
Xf2200	Alcohol	Alcohol-away-from-home	133,400	48.8
Xf2201	AAFH	Alcohol at full-service restaurants	84,133	63.1
Xf2202	AAFH	Alcohol at limited-service restaurants	7,241	5.4
Xf2203	AAFH	Alcohol at other food and drinking places	42,027	31.5

FAH = food-away-from-home; FAFH = food-away-from-home; AAH = alcohol-at-home; AAFH = alcohol-away-from-home.

Source: USDA, Economic Research Service.

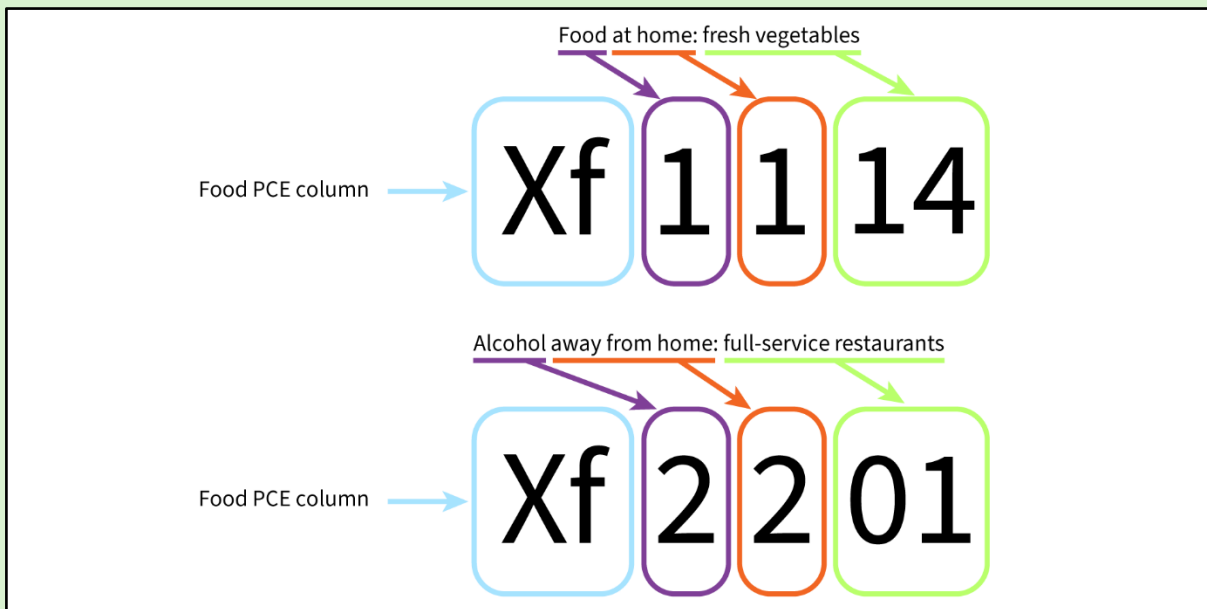
Interpreting Food Dollar Account Codes

The Food Dollar uses the same six-character codes for the accounts as its source data, Ag-FEDS. Each unique combination of characters represents a particular food or alcohol expenditure by product, outlet, or is a grouping of the multiple accounts. A sample breakdown of the nomenclature is presented in the figure below.

- The first two characters are “Xf” which stands for Personal Consumption Expenditures, Food. Both the food- and the alcohol-related accounts use this Xf prefix.
- The first digit, or third character, signifies whether the account is for food, where it takes on the value “1”, or alcohol, where it takes on the value “2”.
- The second digit, or fourth character, takes on the value “1” for food (or alcohol) purchased for off-premise consumption, also referred to as at home. The value “2” in this position is for on-premise, or away-from-home, consumption. A value of “0” in this position denotes that it is the aggregation of all accounts that share the same first three characters. For instance, Xf2000 is the account number for the alcohol dollar.
- The last two digits, which are the last two characters, signify the sequential account number given the first four characters of the code. This is the unique numeric identifier for each account within the group the first four digits are in.
- Accounts ending in “00” are the aggregation of all other accounts that share the same first four digits. For instance, Xf1200 is simply food away from home.

Box figure 1

Food Dollar account code nomenclature



Source: USDA, Economic Research Service.

In contrast, there were six tables produced for FD1: the food dollar, food-at-home dollar, food-away-from-home dollar, food and beverage dollar, food and beverage-at-home dollar, and the food-and-beverage-away from home dollar. With FD2, non-alcoholic beverages are included with food (see table 7) and the food and beverage tables are not published. Instead, the alcohol, alcohol-at-home dollar, and alcohol-away-from-home dollars are produced. However, these tables may be recreated, the process for which is detailed in Appendix A: Reconstituting the Food and Beverage Dollar. Table 4 lists the important differences between FD1 and FD2.

Table 4

Important differences between FD1 and FD2 tables and methods

Item	FD1	FD2
Annual tables	6	47
Food-at-home product tables	16, every 5 years	28
Food-away-from-home tables	2, all FAFH with or without beverages	1 for all FAFH, 7 for FAFH by outlet
Industry group supply chain stages	12	13
Years of coverage	1993–2023	2007–23 (at time of publication, 1997 onward expected)
Farm production detail	1 industry group for all farm production	3 industry groups for: Crops Livestock Forestry, fishing and agricultural services
Food service detail	Food service commodity from primary producers only	Complete accounting of food service activity and commodity from primary and secondary producers through Ag-FEDS redefinitions
Harmonized with USDA, Economic Research Service, Food Expenditure Series	No	Yes
Alcohol	Included with food and other beverages	Separated from food into nine tables
Model type	Commodity-by-commodity input–output Type I multiplier	Reduced social accounting matrix Type I multiplier
Method to net out farm sales	Iterative	Direct
Constant-dollar series	Available	Not yet available

FD1 = Food Dollar 1; FD2 = Food Dollar 2; Ag-FEDS = USDA Agri-Food Economic Data System.

Source: USDA, Economic Research Service.

The food dollar categories appear in table 5a below. This table includes totals by industry group (categories 2–14) and the industry group sum (category 1). The table also distinguishes between total food dollars (category 15), which includes imported food dollars, and domestic food dollars,⁹ which is the amount of domestically produced food that was purchased in the United States (category 16).

⁹ The domestic food dollar and total industry group dollars (category numbers 1 and 15) are conceptually the same. They differ in number due to differences in rounding from the two different approaches by which they are computed.

The farm commodity share (category 17) measures the returns to farmers for raw commodities sold that support the domestic food supply chain.

Categories 1–14 contain payments to primary factors of production, which are salary and benefits, output taxes, and property income, and values of imported inputs as subtotals for their total stage amount.

The share values of account Xf1100: Food-at-home dollar shown in table 5b are computed by dividing the primary factors, imports, and total columns measured in millions of dollars in table 5a by the total for category 16, domestic food dollars.¹⁰ Multiplying this ratio by 100 results in the values being represented as cents per domestic food dollar. For instance, the value 26.6 cents for food processing means that about one-quarter of 2023 food-at-home dollars compensated establishments engaged in food processing activities.

Table 5a

FD2 result for Xf1100: Food-at-home dollar, 2023

Category	Category name	Salary and benefits	Output taxes	Property income	Imported inputs	Total
		U.S. dollars (millions)				
1	Total	426,026	68,274	340,680	68,749	903,729
2	Agribusiness	16,424	3,115	15,170	8,920	43,629
3	Crops	8,673	(3,387)	29,808	6,581	41,675
4	Livestock	4,540	5,248	31,796	676	42,261
5	Forestry, fishing, and agricultural services	6,527	354	2,481	1,949	11,311
6	Food processing	119,829	8,075	82,175	30,630	240,708
7	Transportation and storage	32,489	2,046	22,273	2,385	59,193
8	Food wholesale	55,492	5,895	40,811	3,713	105,911
9	Food retail	140,795	41,092	70,358	5,435	257,681
10	Food services	1,410	213	591	54	2,269
11	Energy	7,891	3,422	16,615	5,193	33,121
12	Finance and insurance	16,508	1,253	15,814	1,924	35,500
13	Legal and accounting	7,398	496	4,783	371	13,049
14	Advertising	8,050	451	8,003	919	17,422
15	Total food dollars	—	—	—	—	1,068,290
16	Domestic food dollars	—	—	—	—	903,766
17	Farm commodity value	—	—	—	—	168,732

FD2 = Food Dollar 2.

Source: USDA, Economic Research Service.

¹⁰ A mathematical statement of the formulation can be found in Rehkamp et al., 2026.

Table 5b

FD2 result for Xf1100: Food-at-home dollar, 2023 share values

Category	Category name	Salary and benefits	Output taxes	Property income	Imported inputs	Total
		Cents per domestic food dollar				
1	Total	47.1	7.6	37.7	7.6	100.0
2	Agribusiness	1.8	0.3	1.7	1.0	4.8
3	Crops	1.0	-0.4	3.3	0.7	4.6
4	Livestock	0.5	0.6	3.5	0.1	4.7
5	Forestry, fishing, and agricultural services	0.7	0.0	0.3	0.2	1.3
6	Food processing	13.3	0.9	9.1	3.4	26.6
7	Transportation and storage	3.6	0.2	2.5	0.3	6.5
8	Food wholesale	6.1	0.7	4.5	0.4	11.7
9	Food retail	15.6	4.5	7.8	0.6	28.5
10	Foodservices	0.2	0.0	0.1	0.0	0.3
11	Energy	0.9	0.4	1.8	0.6	3.7
12	Finance and insurance	1.8	0.1	1.7	0.2	3.9
13	Legal and accounting	0.8	0.1	0.5	0.0	1.4
14	Advertising	0.9	0.0	0.9	0.1	1.9
15	Total food dollar	—	—	—	—	118.2
16	Domestic food dollar	—	—	—	—	100.0
17	Farm commodity share	—	—	—	—	18.7

FD2 = Food Dollar 2.

Source: USDA, Economic Research Service.

The Marketing Bill

The marketing bill divides a food dollar into a farm share, the returns to farms for the sale of farm commodities used in the domestic food supply chain, and a marketing share, the remaining portion that compensates all post-farmgate¹¹ activities that bring the food to its final point of sale. The marketing bill allows us to answer questions such as “how much of our spending on domestic food goes back to the farm?”

The farm share is an average return to farms for the entire category or market segment of food purchases, such as the food-away-from-home dollar. The farm share is an average because it represents all farm establishments that supply food commodities to the domestic food supply chain and all food purchases in that category. Some individual food items may have farm shares that are higher or lower than the average. For example, sweet corn sold in-husk at a grocery store involves less food processing than canned sweet corn. Canning is an example of a post-farmgate activity that

¹¹ The farmgate refers to the point of sale for farm commodities that are then transported to different parts of the supply chain. Post-farmgate activities are all activities involved in processing, transporting, and other marketing activities to bring the food and alcohol to the final point of sale.

would appear in the marketing share of that food dollar, so the farm share for the fresh sweet corn is generally higher than that of canned corn.¹²

Figure 3 displays the marketing bill for the 2023 food dollar using FD2. The farm share of 11.9 cents means that, on average, for each dollar spent on domestically produced food, farms received 11.9 cents for the production of farm commodities that support the domestic food supply chain. This value is primarily from the sale of raw food commodities, but it does include non-food commodities linked to food expenditures, such as cotton used to make towels and uniforms for professional kitchens and corn used in ethanol for transportation for use in food production activities. The farm share also includes farm expenses from nonfarm establishments, such as energy used on the farm and seeds and herbicides from agribusinesses. Lastly, this figure does not include farm value for non-food byproducts from the production of farm commodities, such as leather from cows slaughtered for beef or meat used in the production of animal food.

The remaining 88.1 cents represent the collective value added by post-farmgate marketing activities.

Figure 3
Food dollar marketing bill, 2023



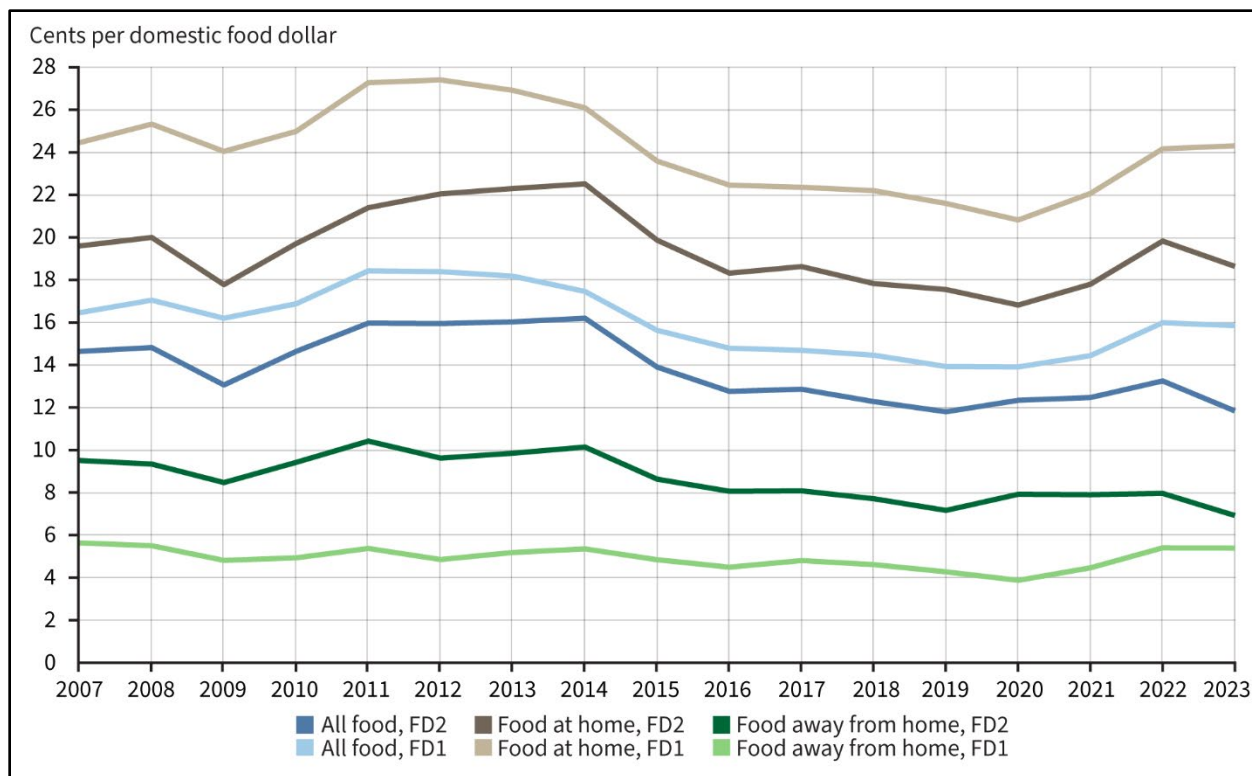
Source: USDA, Economic Research Service.

The numerous changes in our methodology culminate in differences in the farm share values for the food dollar, food-at-home dollar, and food-away-from-home dollar in FD2 compared to FD1. Figure 4 displays the differences in these shares for FD1 and FD2. The main differences arise from the redirection of food by marketing channel and the inclusion of non-alcoholic beverages (such as bottled water and soda) in the food dollar.

¹² The transportation, wholesale, and retail margins for these two products also appear in their marketing shares. The farm share for fresh sweet corn will be higher if those margin costs are less than the margin costs, plus additional food processing. This will depend on the specific final market. The 2023 farm share for Xf1114 (fresh vegetables) is 28.4 cents, with margin costs of 63.7 cents and food processing costs of 0.4 cents per dollar. The farm share for Xf1115 (canned, frozen, and dried fruits and vegetables) is 15.6 cents, with 47.4 cents and food processing costs of 28.4 cents per dollar.

Figure 4

The farm share of the food, food-at-home, and food-away-from-home dollars, FD1 versus FD2



FD1 = Food Dollar 1; FD2 = Food Dollar 2.

Note: FD1 refers to the Food Dollar model introduced by Canning (2011) and FD2 refers to the new FD2 model discussed in this report and detailed in Rehkamp et al. (2026).

Source: USDA, Economic Research Service, Food Dollar.

Redirection of Food and Farm Commodities by Marketing Channel

Rehkamp and Canning (2025) and Rehkamp et al. (2026) document that the Ag-FEDS model underlying FD2 uses the processes of redefining input-output accounts, decoupling food and beverages that are otherwise locked into food services and food-related technologies, and implementing several multiplier fine-tuning techniques to address the comingling of commodity flows used in FD1. The results of these changes move physical food and beverage commodities from the at-home to the away-from-home marketing channels in the data system. For instance, in 2017, changes in data sources and computational methodology recovered \$9 billion in domestic FAH and \$303 billion in domestic FAFH. These changes further led to an increase of \$19 billion in farm commodity value. However, the redefinitions and other methodology changes had the effect of redirecting farm commodity value from FAH to FAFH, leading to a decrease of \$23 billion in FAH and an increase of \$42 billion in FAFH farm commodity values. These value changes contribute to differences in the farm shares as seen in figure 4.

Table 6

Food dollar (domestic production) and farm value by marketing channel and food dollar model (billion U.S. dollars)

Year	Category name	FD1			FD2		
		FD	FAHD	FAFHD	FD	FAHD	FAFHD
2017	Domestic food dollars	1,191	671	520	1,504	680	823
2017	Farm value	175	150	25	194	127	67
2018	Domestic food dollars	1,233	689	547	1,545	697	848
2018	Farm value	179	153	25	190	124	66
2019	Domestic food dollars	1,290	716	580	1,604	717	887
2019	Farm value	180	155	25	190	126	64
2020	Domestic food dollars	1,328	777	536	1,547	768	779
2020	Farm value	185	162	21	191	129	62
2021	Domestic food dollars	1,489	840	649	1,772	817	956
2021	Farm value	215	186	29	221	146	76
2022	Domestic food dollars	1,605	908	694	1,973	878	1,094
2022	Farm value	257	220	38	262	174	87
2023	Domestic food dollars	1,713	951	770	2,152	904	1,248
2023	Farm value	272	232	42	255	169	87

FD = Food Dollar; FAHD = Food-at-home-dollar; FAFHD = Food-away-from-home dollar.

Note: In FD1, FAHD and FAFHD do not sum to the total Food Dollar due to model computations.

Source: USDA, Economic Research Service, Food Dollar.

Comparison of the Marketing Bill With and Without Beverages

Another change in the Food Dollar data product being implemented using the FD2 methodology is the recategorization of non-alcoholic beverages. While both FD1 and FD2 include fruit- and vegetable-based beverages in their respective food dollars, FD2 includes some non-alcoholic beverages as food items that were not included in FD1. These items (Xf1127 and Xf1128) include coffee, tea, soft drinks, and bottled water. These items are all composed of few (domestic) farm commodities and thus have low farm shares relative to food. By including these items as food (Xf1000) and food at home (Xf1100), we expect the farm shares for these tables to be lower under FD2 than they would be had those beverages been included as beverages, as they were in FD1. Food away from home (Xf1200) is unaffected by these changes. The food dollar tables and descriptions (table 3) reflect the structure of the BEA PCE data, which is the primary source for consumer food expenditures in Ag-FEDS, and thus the Food Dollar. These data are split up by FAFH outlet as opposed to by product.

The primary reason for this change is to have the Food Dollar total expenditure statistics harmonize with the USDA, ERS Food Expenditure Series, which is ERS's primary source for food expenditure statistics. Table 7 shows the difference in share values for the food dollar as well as the food-at-home dollar for 2017. The overall change in the farm share of the food dollar is about a 0.50-cent decrease, meaning the farm share (as measured in FD2) would be about a half-cent higher if beverages were treated in the same way as FD1.

For food at home, the farm share measures 1.5–2.0 cents lower for these select years when beverages are included from the FD2 measure of farm share. Food-away-from-home farm shares are unaffected by this change, as the two non-alcoholic beverage commodities are only measured for food at home.

Table 7
FD2 marketing bill with and without non-alcoholic beverages

Year	Food dollar farm share values			Food-at-home dollar farm share values		
	FD2	FD2 without beverages	Difference	FD2	FD2 without beverages	Difference
2017	12.9	13.4	-0.5	18.7	20.5	-1.8
2018	12.3	12.8	-0.5	17.9	19.6	-1.7
2019	11.8	12.3	-0.5	17.6	19.3	-1.7
2020	12.4	12.9	-0.5	16.9	18.4	-1.5
2021	12.5	13.0	-0.5	17.8	19.6	-1.8
2022	13.3	13.8	-0.5	19.9	21.9	-2.0
2023	11.9	12.3	-0.4	18.7	20.6	-1.9

FD2 = Food Dollar 2.

Note: Beverages include FD2 tables Xf1127 (coffee, tea, and beverage materials at home) and Xf1128 (soft drinks and bottled water at home).

Source: USDA, Economic Research Service.

A Different Computational Method for Netting Out Farm-to-Farm Transactions

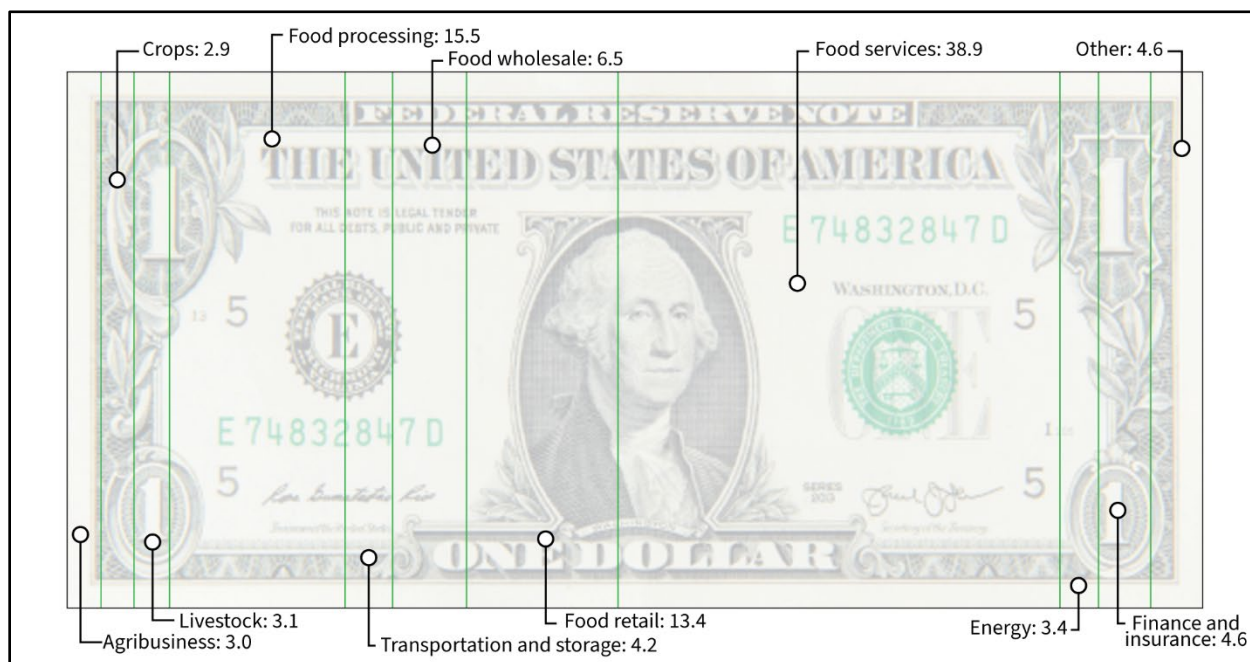
In the computation of farm value, the Food Dollar nets out transactions between farms in the production of agricultural commodities. This avoids double counting of farm commodities when they are used as inputs to farm production. The value of agricultural commodities at the farm gate already cumulates the transactions that led to the sale of commodities. For example, the sale of cattle from feedlots to slaughterhouses for beef production compensates feedlot operators for their purchases of calves from cow-calf operations and of feed from a manufacturer who purchased grain from a farm. Counting the value of the feedlot’s farm commodity purchases and the sale of the cattle would count the same transactions twice. The FD1 model iteratively deducted the value of farm-to-farm transactions (Canning, 2011) whereas FD2 directly removes the value using matrix algebra¹³ (Rehkamp et al., 2026). We use the FD2 method for removing farm-to-farm transactions in the FD1 model and find that the iterative reduction removed 99.94 percent of farm-to-farm transaction values. This means, relative to the FD2 matrix method, the FD1 iterative method underestimated intra-industry farm transactions by \$61.9 million out of \$107 billion in 2017. The farm value was overstated more for FAH in FD1 relative to FD2 as farm commodities make up a larger share of total food-at-home value.

¹³ See equation 36 in Rehkamp et al. (2026) for the specific matrix equation.

The Industry Group Bill

The industry group bill measures the value added by each industry group in the domestic food supply chain. This value added figure is the difference between sales by that industry group to different industry groups minus the costs of their purchases from other industry groups. This approach differs slightly from the farm share of the marketing bill, which contains nonfarm expenses that farm establishments pay to other industry groups. Figure 5 depicts the industry group bill for 2023.

Figure 5
Food dollar industry group bill, 2023



Note: Other includes forestry, fishing, and agricultural services; legal and accounting; and advertising.

Source: USDA, Economic Research Service.

Perhaps the most immediate difference between the industry group bill in FD2 and FD1 is that the total number and names of the industry groups have changed. In FD2, the farm production industry group from FD1 has been split into three different agricultural production industry groups: crops; livestock; and forestry, fishing, and agricultural services. Crops include Ag-FEDS commodities and activities 001–006¹⁴ which correspond to the 6 accounts starting with 111 in the BEA industry/commodity IDs. A complete mapping of BEA IDs to Ag-FEDS activities and commodities to industry groups is included in the appendix. These crops include wheat, corn, and other crops. Livestock includes activities and commodities under Ag-FEDS codes 007–010, animal production. These codes include beef cattle ranching, hog and pig farming, and poultry production. Products from livestock, such as dairy milk, chicken eggs, and honey, are also included in this category. Forestry, fishing, and agricultural services include the remaining farm production Ag-FEDS codes—011, 012, and 013 as well as the aquaculture reclassified from 010 (other animal production, except cattle, poultry, and eggs).

¹⁴ These numbers are prefixed with an “A” to refer to the activities and a “C” to refer to commodities.

Comparison of FAH and FAFH Industry Group Share Values

Table 8
The 2023 Industry Group Bills for the food, food-at-home, and food-away-from-home dollars

FD2					FD1				
Cents per domestic food dollar					Cents per domestic food dollar				
#	Industry group	FD	FAHD	FAFHD	#	Industry group	FD	FAHD	FAFHD
2	Agribusiness	3.0	4.8	1.6	2	Agribusiness	1.6	2.5	0.5
3	Crops	2.9	4.6	1.6	3	Farm production	9.1	13.9	3.2
4	Livestock	3.1	4.7	2.0					
5	Forestry, fishing, and agricultural services	0.9	1.3	0.6					
6	Food processing	15.5	26.6	7.4	4	Food processing	13.2	20.3	4.3
					5	Packaging	2.5	3.0	1.9
7	Transportation and storage	4.2	6.5	2.5	6	Transportation	3.5	4.9	1.7
8	Food wholesale	6.5	11.7	2.7	7	Wholesale trade	11.4	16.4	5.3
9	Food retail	13.4	28.5	2.4	8	Retail trade	14.7	25.9	0.8
10	Food services	38.9	0.3	67.0	9	Food services	31.5	0.6	69.5
11	Energy	3.4	3.7	3.2	10	Energy	4.3	4.5	4.2
12	Finance and insurance	4.6	3.9	5.0	11	Finance and insurance	4.2	4.1	4.5
13	Legal and accounting	1.4	1.4	1.4	13	Legal and accounting	1.4	1.5	1.4
14	Advertising	2.3	1.9	2.5	12	Advertising	2.6	2.5	2.7

Note: FD = Food Dollar; FAHD = Food-at-home dollar; FAFHD = Food-away-from-home dollar.

Source: USDA, Economic Research Service, Food Dollar.

Industry Group Share Values With and Without Non-Alcoholic Beverages

The industry group share values in FD2 are also affected by the inclusion of non-alcoholic beverages in the food dollar, as opposed to being in the food and beverage dollar in FD1 (for more information on the details of the change, see Comparison of the Marketing Bill With and Without Beverages).

Table 9 shows the 2023 share values for the industry group bill for the food dollar and food-at-home dollar. Generally, the inclusion of these non-alcoholic beverages decreases the shares for agribusiness, crops, and livestock, while increasing shares for food processing.

Table 9

2023 Food Dollar shares with and without the inclusion of non-alcoholic beverages

#	Industry group	Food Dollar 2023 share values		Food at Home Dollar 2023 share values	
		FD2	FD2 without beverages	FD2	FD2 without beverages
2	Agribusiness	3.0	3.1	4.8	5.3
3	Crops	2.9	2.9	4.6	5.0
4	Livestock	3.1	3.3	4.7	5.2
5	Forestry, fishing, and agricultural services	0.9	0.9	1.3	1.4
6	Food processing	15.5	14.3	26.6	25.1
7	Transportation and storage	4.2	4.2	6.5	6.8
8	Food wholesale	6.5	6.2	11.7	11.5
9	Food retail	13.4	12.7	28.5	28.6
10	Food services	38.9	40.8	0.3	0.3
11	Energy	3.4	3.4	3.7	3.7
12	Finance and insurance	4.6	4.6	3.9	4.0
13	Legal and accounting	1.4	1.4	1.4	1.4
14	Advertising	2.3	2.3	1.9	1.8

FD2 = Food Dollar 2.

Note: Beverages include FD2 tables Xf1127 (coffee, tea, and beverage materials at home) and Xf1128 (soft drinks and water at home).

Source: USDA, Economic Research Service Food Dollar.

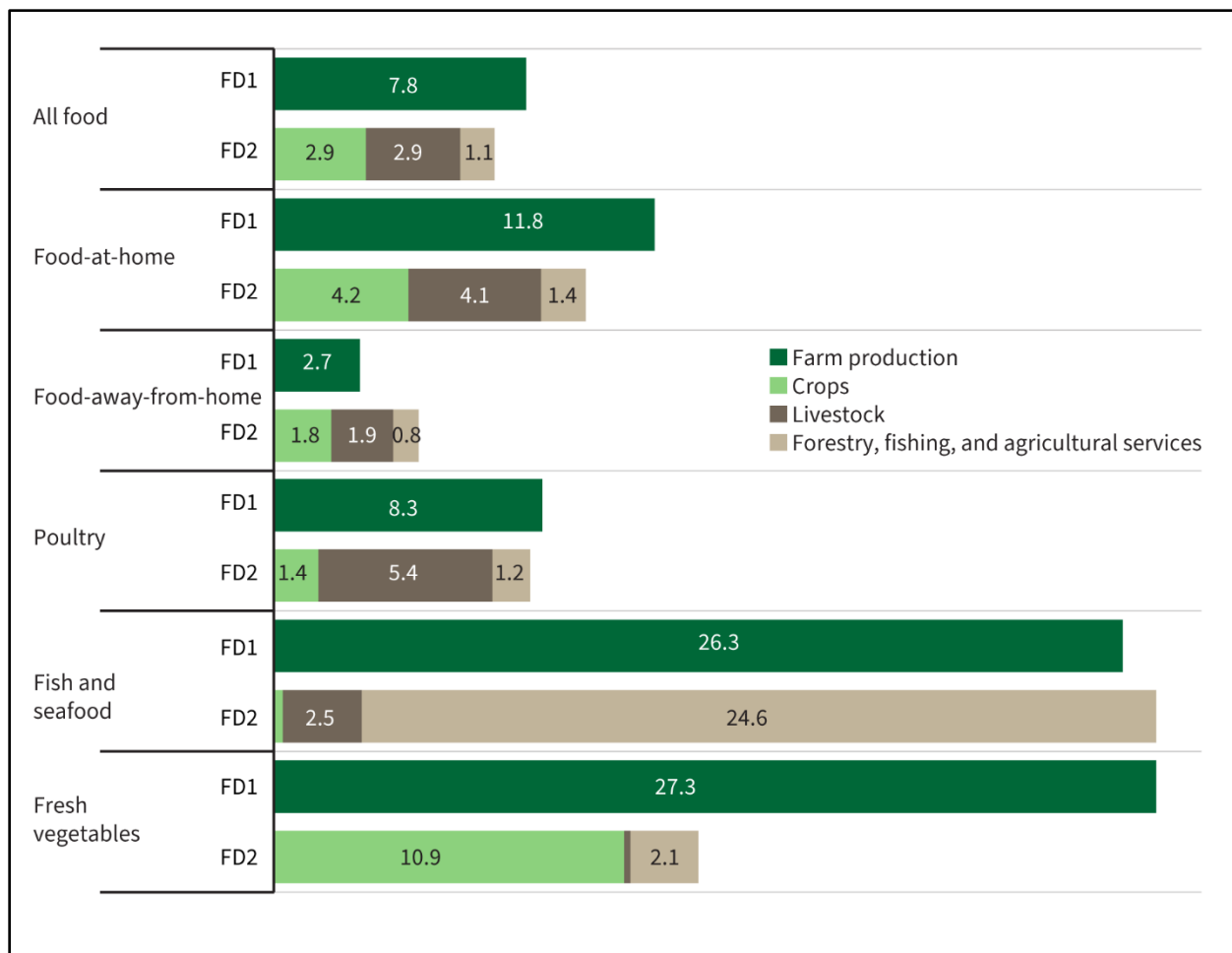
Disaggregation of Farm Production

In FD1, farm production was the singular industry group that captured all the value added by establishments engaged in farming, ranching, forestry, and other farming related activities. FD2 disaggregates farm production into three categories: crops; livestock; and forestry, fishing, and agricultural services. As the industry group bill measures value added, we can add the three farm production categories to compare them to the FD1 farm production category.

Figure 6 shows how farm production values compare across FD1 and FD2. Note the relative shares between the three farm production categories of FD2 vary across different food dollars, especially the food-at-home commodity dollars.

Figure 6

Comparison of farm production value added across models, 2017



FD 1 = Food Dollar 1; FD2 = Food Dollar 2.

Source: USDA, Economic Research Service.

Food Wholesale and Food Retail

The FD2 model also restricts retail services and wholesale services to strictly food related, whereas the FD1 model included all retail services and wholesale services that support the domestic food supply chain. An example of a retail service that was included in FD1, but not FD2, would be general office supplies such as stationery and writing implements that are used by food processors in the operation of their business. Retail trade margins at places such as grocery stores for the sale of food items are included as food retail in FD2.

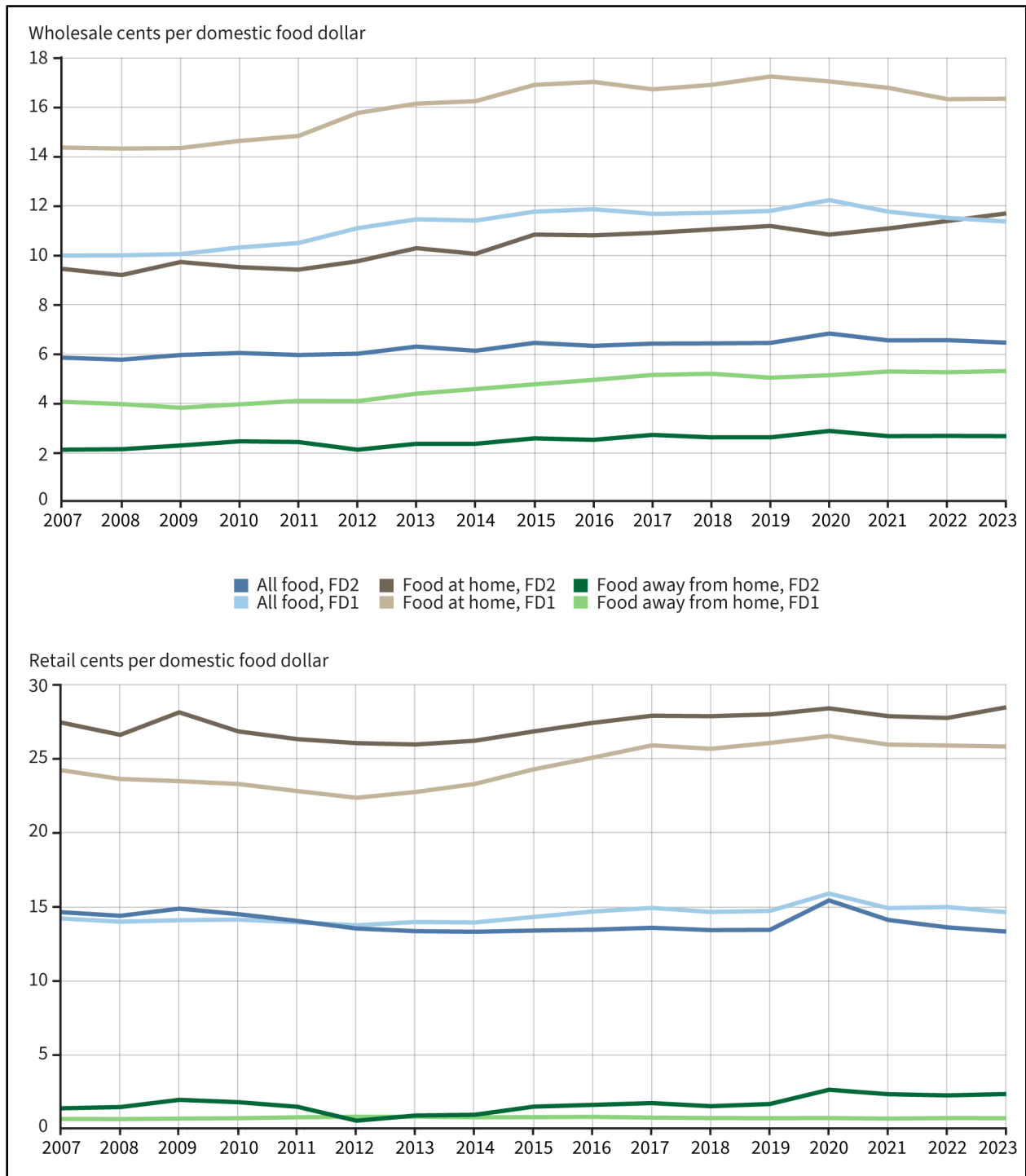
For wholesale, the wholesale trade margins from the sale of farming equipment are not included in food wholesale in FD2 but were included in wholesale services in FD1. Wholesale trade margins for the sale of food from food distributors, for instance, are included in FD1 and FD2 measures of wholesale services.

Figure 7 shows the comparison between wholesale and retail services between FD2 and FD1. Generally, the food wholesale industry group has a lower share in FD2, by roughly 5 cents per food dollar. The food retail industry group share in FD2 is marginally higher than the retail services share

in FD1 for the food and food-away-from home dollars, and roughly a 3-cent increase for food-at-home.

Figure 7

Wholesale and retail services are limited to food-related activities in FD2



FD1 = Food Dollar 1; FD2 = Food Dollar 2.

Note: In FD2, the wholesale and retail services industry groups are limited to food-only activities, whereas in FD1 includes all wholesale and retail activities used to support the domestic food supply chain.

Source: USDA, Economic Research Service, Food Dollar.

Packaging Designated as a FD2 Subcontractor

Another change for the industry group bill is changing packaging from an industry group to a subcontractor. With the subcontractor status, the value added by packaging is still measured in the Food Dollar, but in FD2 the value added is now attributed to the industry groups that subcontract packaging by the amount they subcontract those materials. Reasons for removing packaging as an industry group vary from certain packaging commodities perhaps being over-inclusive of things that are not used for food packaging (such as 071 veneer, plywood, and engineered wood product manufacturing). Another reason is that some packaging along the supply chain may be inconsistent with perceptions of packaging within the food system.

Table 8 shows that packaging activity accounted for 2.5 cents of the cost of producing a food dollar, 3.0 cents for food at home, and 1.9 cents for food away from home. These values are distributed along the supply chain based on where these packaging materials are used. For example, the value added from the packaging materials for canning tomatoes would be captured by the food processing industry group as they purchased the inputs from non-food processing establishments and the value added by packaging meat at a grocery store deli counter would be captured by food retail.

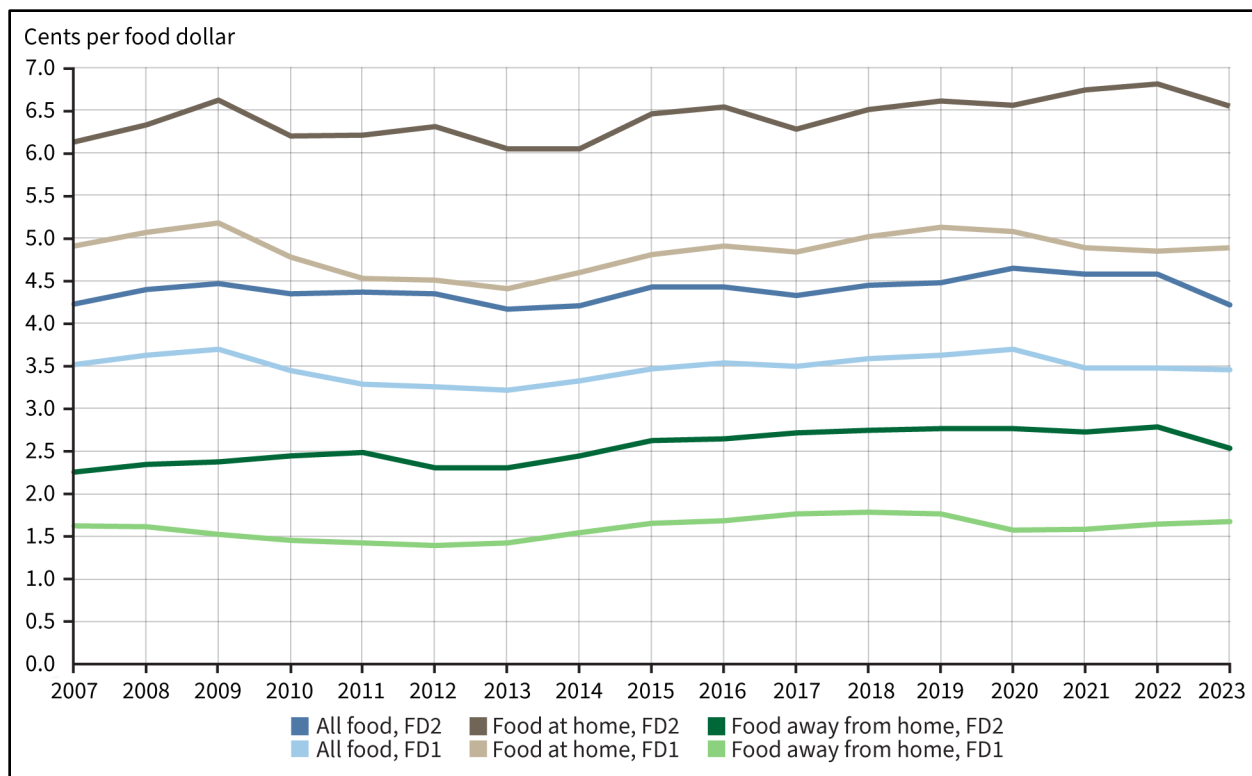
Transportation Includes Storage

The transportation industry group consists of six Ag-FEDS activities/commodities. Five of them are for transportation (288 air transportation, 289 rail transportation, 290 water transportation 291 truck transportation, and 293 pipeline transportation), and the sixth is for Ag-FEDS code 296 that corresponds to warehousing and storage. This commodity code was a subcontractor in FD1 but is included in this industry group. The effect of this inclusion is to decrease the industry group shares that utilize warehousing and storage and increase the transportation and storage industry group share relative to FD1.

Figure 8 shows the difference between the industry group shares for transportation (FD1) and transportation and storage (FD2). The measure is higher in FD2, consistent with it including 100 percent of a previously subcontracted industry. However, the differences are not completely due to this change alone, as other factors explained in this paper also adjusted the industry group shares, such as the removal of packaging in FD2 and the refinement of trade services industry groups to be for food-related trade services only.

Figure 8

Transportation industry group share, FD2 versus FD1



FD1 = Food dollar 1; FD2=Food dollar 2.

Note: In FD2, transportation includes warehousing and storage commodities. The differences between the shares between the models depend on factors other than the change in the transportation industry group.

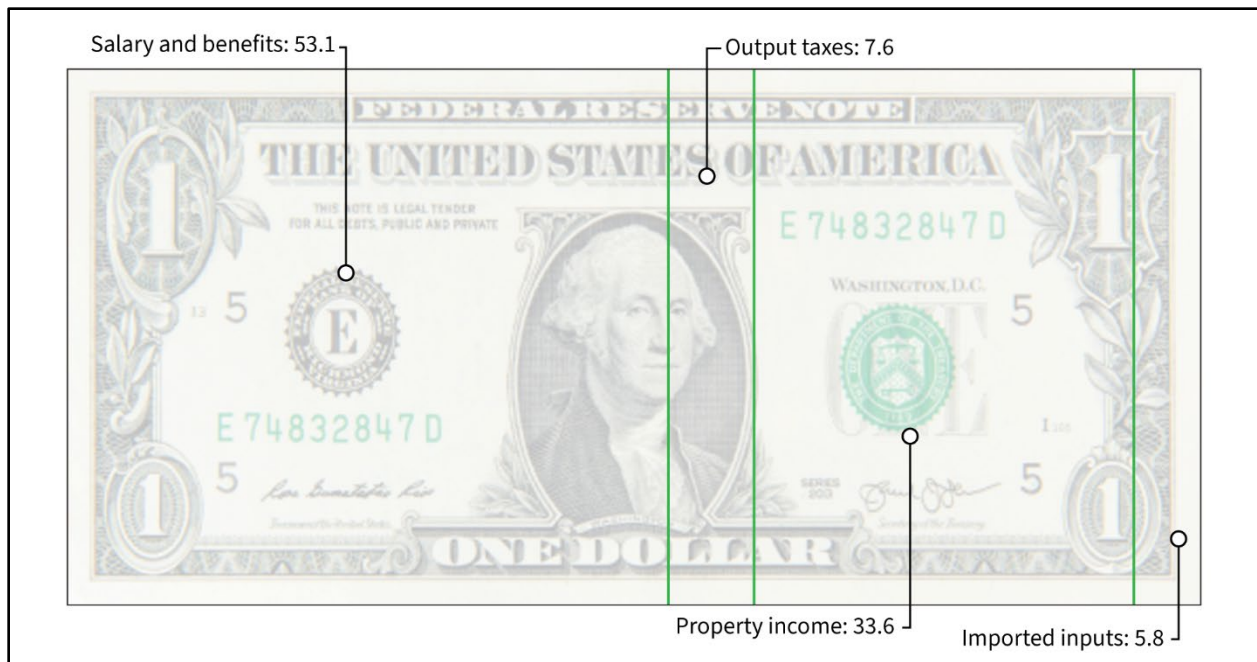
Source: USDA, Economic Research Service, Food Dollar.

The Primary Factor Bill

The primary factor bill attributes a food dollar in proportion to labor and capital inputs measured by salary and benefits and property income, respectively. It further attributes a proportion to the government in the form of output taxes. The remaining portion is attributed to imports used in domestic production. Collectively, the first three of these are called value added by the BEA, as reported in the use table. This apportionment is unchanged from FD1. However, due to other changes in methodology, such as some food being redirected from food at home to food away from home, the shares are generally different. Figure 9 depicts the primary factor bill for the food dollar.

Figure 9

Food dollar primary factor bill, 2023



Source: USDA, Economic Research Service, Food Dollar.

Salary and benefits are the total remuneration of employees, including wages, salaries, commissions, tips, bonuses, and certain contributions by the employer toward health insurance or retirement plans. This also includes employer contributions to payroll taxes.

Property income is the pre-tax income or capital gain accruing to owners of non-labor primary factors of production. Also known as gross operating surplus, this is the returns to owning land, buildings, and businesses, as well as intangible assets.

Output taxes are the value of excise, sales, property, and severance taxes, less subsidies. The value also includes customs duties, and other nontax government fees levied on establishments. As these are taxes net of subsidies, it is possible for negative values to appear for an industry group. This would mean that the industry group received more in subsidies than it collectively paid in sales taxes for that year. Note that output taxes do not include payroll taxes, as those taxes are included in salaries.

The imports measured by industry group are imported inputs as opposed to imports of finished food.¹⁵ Imported inputs are food ingredients and non-food inputs that are imported and used throughout the U.S. food system (Rehkamp & Canning, 2015).¹⁶ These include things like Canadian grown wheat that is imported to be made into flour by a miller in the food processing industry group.

¹⁵ Imported food dollars can be calculated by subtracting the domestic food dollars (category 16) from total food dollars (category 15), meaning the difference between those two lines is spending on imported food.

¹⁶ Rehkamp and Canning (2015) refers to imported inputs as “embedded imports” whereas this report uses “imported inputs” these refer to the same items.

A comparison of the primary factor and import share values of the FAFH dollar for 2017–23 is presented in table 10. Compared to FD1, the salary and benefits share of the food dollar in FD2 is lower and the property income share is higher. The output taxes share is generally lower in FD2 than FD1, and the imported inputs share is generally higher.

Table 10

Primary factor bill of Xf1200: Food-away-from-home dollar

Year	Salary and benefits		Property income		Output taxes		Imported inputs	
	FD2	FD1	FD2	FD1	FD2	FD1	FD2	FD1
2017	58.0	66.5	28.7	26.8	8.2	3.4	5.1	3.3
2018	58.2	66.4	28.4	26.9	8.2	3.3	5.2	3.4
2019	58.7	67.0	28.5	26.5	7.9	3.4	5.0	3.1
2020	58.8	68.5	33.7	29.5	2.5	-0.9	4.9	2.9
2021	57.2	66.4	36.7	29.5	0.8	0.9	5.3	3.3
2022	57.2	65.1	29.3	28.1	7.9	3.3	5.5	3.5
2023	57.4	64.2	30.6	29.4	7.6	3.2	4.5	3.2

FD1 = Food dollar 1; FD2 = Food dollar 2.

Source: USDA, Economic Research Service, Food Dollar.

In the data section of this report, we described the level of detail in the food-away-from-home economy revealed by the application of decoupling and correcting discrepancies between the NEA accounting practices and USDA, ERS data aggregation practices. From these “found” data, we are able to show the distribution of value along the agri-food supply chains of these seven new outlet-specific FAFH spending accounts. The 2023 share values are presented in table 11.

Table 11

Factor payments to FAFH outlets, 2023

Food-away outlet	Account	Salary and benefits	Property income	Output taxes	Imported inputs
Food away from home	Xf1200	57.4	30.6	7.6	4.5
Food at full-service restaurants	Xf1201	54.0	32.3	9.4	4.3
Food at limited-service restaurants	Xf1202	52.2	34.6	8.1	5.1
Food at other eating and drinking places	Xf1203	58.4	30.1	7.1	4.4
Food at schools and colleges	Xf1204	78.7	15.7	2.5	3.0
Food furnished to employees (including military)	Xf1205	43.0	42.8	4.2	10.0
Institutional and employer furnished food plus food assistance	Xf1206	82.6	13.0	1.4	3.0
Food at work (per diem and expensing)	Xf1207	59.0	29.1	8.3	3.6

Note: Numbers in the tables column refer to the cents-per-food dollar of the respective table. Factor payments by outlet may not sum to 100 cents per dollar, due to rounding.

Source: USDA, Economic Research Service, Food Dollar.

Industry Group by Primary Factors Crosstab

Like FD1, the FD2 model also produces a crosstabulation of the industry group bill and the primary factor bill, showing how the uses of primary factors and imported inputs vary across industry groups within a food dollar table. For instance, in table 5b, the food processing share of the food-at-home dollar is 26.6 cents. Within that industry group share, 13.3 cents compensated labor, half of the food processing group's share of value added. For crops, the largest of the three farm production industry groups, one cent of the 4.6 cent share compensated labor. The largest portion compensated owners of capital assets in the form of property income at 3.3 cents, roughly 72 percent of the value added by crops for that food dollar.

Imports in the Food Dollar

The Food Dollar differentiates between two types of imported goods and services in the food value chain, as described previously. Due to limitations of the imports data utilized for FD1 which FD2 corrects, it was impossible to differentiate between imported commodities meant for use in domestic production and imported commodities destined for export markets. To compensate for this limitation, some portion of commodity imports was directed to meeting export demand, irrespective of whether it was meant for domestic use.

Figure 10

Imported inputs and imported food dollars, FD2 versus FD1, 2007-23



FD1 = Food Dollar 1; FD2 = Food Dollar 2.

Source: USDA, Economic Research Service, Food Dollar.

The FD2 series corrects this by reallocating all commodity exports to activity outputs, which means imported commodities can no longer be used to meet export demand, which is consistent with input-output accounting practices (Rehkamp et al., 2026). Consequently, the multiplier model underlying the FD1 series underestimated imported commodities embedded in domestic food value chains. Figure 10 shows the increase in imported inputs in the food-at-home and food-away dollars resulting from the change in methodology.

Conclusion

This report outlines the differences in methodology for the new USDA, ERS Food Dollar model, called FD2, from the first model (FD1) introduced by Canning (2011). The FD2 model relies on more detailed underlying data from the BEA Input-Output Accounts and National Economic Accounts and from USDA, ERS sources. The changes in the model allow for more detail in the Food Dollar data product, producing dozens of additional annual food dollar tables, including food dollars for commodities such as fresh fruits at home, as well as away-from-home establishments type such as full-service restaurants. The model also corrects the commodity flows for food between the food-at-home and food-away-from-home marketing channels.

The FD2 model continues using the three bills that separate food dollars into share values based on different ways of conceptualizing the agri-food value chain—the marketing bill, the industry group bill, and the primary factor bill. This report highlights the differences in these values under the FD2 model. First, in the marketing bill, the farm share is generally lower in FD2 compared to FD1 because non-alcoholic beverages have been classified as food as opposed to beverage (about 0.5-cents per domestic food dollar for 2017–23). This change makes the Food Dollar definition of food consistent with the USDA, ERS Food Expenditure Series. Second, the farm share for food at home is generally lower and the share for food away from home is generally higher as FD2 has redirected food from FAH to FAFH after redefinitions of the source I–O accounts. These redefinitions utilize USDA, ERS data products on farm to consumer price spreads and food expenditures to more accurately allocate food and beverage commodities across supply chains.

The industry group bill shares are generally different in FD2, as the industry groups themselves have been redefined. For instance, farm production in FD1 has been separated into crops; livestock; and forestry, fishing, and agricultural services. In FD2, packaging is a subcontractor to the supply chain, rather than a distinct industry group, and wholesale and retail services are limited only to food-related activities.

While in many aspects the FD2 model features many improvements over FD1, there are a few limitations that FD2 introduces and some that remain from FD1. First, FD2 will only cover the years 1997 onward, whereas FD1 covered 1993 until it was phased out after producing the 2023 food dollar. The FD1 predecessor, the marketing bill, had farm shares available back to 1929. Second, at the time of publication FD2 does not include a real food dollar, which was included in FD1 that held prices of commodities constant so the real food dollar could be interpreted more as changes of quantity in food production by industry group as opposed to nominal market value. Lastly, the Food Dollar still uses highly aggregated national data and therefore is not able to be as specific in terms of farm commodities in the supply chain, or by subregions in the United States.

References

- Barrett, C. B., Reardon, T., Swinnen, J., & Zilberman, D. (2022). Agri-food value chain revolutions in low- and middle-income countries. *Journal of Economic Literature*, 60(4), 1316–1377.
- Canning, P. (2011). *A revised and expanded food dollar series: A better understanding of our food costs* (Report No. ERR-144). U.S. Department of Agriculture, Economic Research Service.
- Canning, P., Rehkamp, S., & Yi, J. (2022). Environmental input-output (EIO) models for food systems research: Applications and extensions. In C. Peters and D. Thilmany (Eds.), *Food Systems Modelling* (pp. 179–212). Academic Press.
- Canning, P., & Stacy, B. (2019). *The Supplemental Nutrition Assistance Program (SNAP) and the economy: New estimates of the SNAP multiplier* (Report No. ERR-265). U.S. Department of Agriculture, Economic Research Service.
- Gale, H. F. (1967). *The farm food marketing bill and its components* (Report No. AER-105). U.S. Department of Agriculture, Economic Research Service.
- Harp, H. (1987). *Major statistical series of the U.S. Department of Agriculture, Volume 4: Agricultural marketing costs and charges* (Agricultural handbook No. 671). U.S. Department of Agriculture, Economic Research Service.
- MacLachlan, M., Chelius, C., & Short, G. (2022). *Time-series methods for forecasting and modeling uncertainty in the Food Price Outlook* (Report No. TB-1957). U.S. Department of Agriculture, Economic Research Service.
- Miller, R. E., & Blair, P. D. (2009). *Input-output analysis: Foundations and extensions*. Cambridge University press.
- Okrent, A., Elitzak, H., Park, T., & Rehkamp, S. (2018). *Measuring the value of the U.S. food system: Revisions to the Food Expenditure Series* (Report No. TB-1948). U.S. Department of Agriculture, Economic Research Service.
- Rehkamp, S., & Canning, P. (2015, July 6). Accounting for direct and indirect imports in the U.S. Food and Beverage Dollar. *Amber Waves*, U.S. Department of Agriculture, Economic Research Service.
- Rehkamp, S., & Canning, P. (2018). Measuring embodied blue water in American diets: An EIO supply chain approach. *Ecological Economics*, 147, 179–188.
- Rehkamp, S., & Canning, P. (2025). *Documentation for the Agri-Food Economic Data System (Ag-FEDS): A more complete accounting of our agri-food economy* (TB-1973). U.S. Department of Agriculture, Economic Research Service.
- Rehkamp, S., Zachary, J. C., Baker, Q., & Canning, P. (2026). *Documentation for the Agri-Food Economic Data System (Ag-FEDS): Multiplier model applications* (Report No. TB-1974). U.S. Department of Agriculture, Economic Research Service.

- Thorbecke, E. (1998). Social accounting matrices and social accounting analysis. In W. Isard et al. (Eds.), *Methods of interregional and regional analysis*. Ashgate Publishing Company, Brookfield, VT.
- United Nations. (2008). *System of annual accounts*.
- U.S. Department of Commerce, Bureau of Economic Analysis. (2023). *Annual input-output accounts, use tables*.
- U.S. Department of Commerce, Bureau of Economic Analysis. (2024a). *The make of commodities by industries, before redefinitions—detail, 2017*.
- U.S. Department of Commerce, Bureau of the Census. (2023). *Annual Survey of Manufactures*.
- Yi, J., Meemken, E. M., Mazariegos-Anastassiou, V., Liu, J., Kim, E., Gómez, M. I., Canning, P., & Barrett, C. B. (2021). Post-farmgate food value chains make up most of consumer food expenditures globally. *Nature Food*, 2(6), 417–425.
- Zeballos, E., Sinclair, W., and Park, T. (2021). *Understanding the components of U.S. food expenditures during recessionary and non-recessionary periods* (Report No. ERR-301). U.S. Department of Agriculture, Economic Research Service.

Appendix A: Reconstituting the Food and Beverage Dollar

The FD1 model introduced by Canning (2011) produced six annual tables. Food Dollar, food-at-home dollar, food-away-from-home dollar, and the analogous versions for food and beverage. In FD1, beverages included both non-alcoholic and alcoholic beverages. In FD2, non-alcoholic beverages such as coffee, tea, soft drinks, and bottles water are included as food (see table 7). Appendix A outlines how to recreate shares of the food and beverage dollar so users may continue analysis that examines the distribution of costs or value added for all domestically produced food and beverages. This process works for combining arbitrary combinations of food dollar tables.

The most important consideration is that researchers should add tables Xf1000 (food dollar) and Xf2000 (alcohol dollar) when they are expressed in (millions) of dollars, and not when they are expressed as cents per domestic food (or alcohol) dollar. From there, share values may be computed by dividing the table through by the total domestic food and alcohol dollars. The resulting figures will recreate table 4 from FD1, the food and beverage dollar, in share forms. For FD1 table 5, food and beverage at home dollar, use tables Xf1100 and Xf2100. For FD1 table 6, use Xf1200 and Xf2200.

Appendix B: FD2 Industry Groups and Their Activities and Commodity Codes

Table B.1 shows the mapping of U.S. Department of Commerce, Bureau of Economic Analysis (BEA) activities and commodities into Ag-FEDS activities and commodities and Food Dollar industry groups for 12 of the 13 industry groups. The individual activities and commodities assigned to these 12 groups are exclusive to the industry to which it is assigned. For example, all of C002 grain farming commodities are assigned to the crops industry group. The code for industry group 19 represents subcontractors and other activities and commodities that do not map exclusively to one industry group.

Not listed in this table is industry group 2, agribusiness. The agribusiness industry group is defined as subcontractors to farming establishments (crops; livestock; and forestry, fishing, and agricultural services). That is, these are nonfarm establishments that supply goods and services to farm establishments. Among the largest farm subcontractors are 034 (other animal food manufacturing), 095 and 096 (fertilizer and pesticide manufacturing), 277 (other durable goods merchant wholesalers), 350 and 352 (State and local government). As these subcontractors generally provide goods or services to other industry groups, they are not indicated as agribusiness in the table, as doing so would overstate the amount of activities and commodities going into the industry group.

The BEA provides a concordance into their I-O accounts from the NAICS codes on their website.

Table B.1

Ag-FEDS activities and commodities to Food Dollar industry groups

BEA 2017 benchmark ID	FD2 activity/commodity†	Description	Industry group number	Industry group description
1111A0	001	Oilseed farming	3	Crops
1111B0	002	Grain farming	3	Crops
111200	003	Vegetable and melon farming	3	Crops
111300	004	Fruit and tree nut farming	3	Crops
111400	005	Greenhouse, nursery, and floriculture production	3	Crops
111900	006	Other crop farming	3	Crops
112120	007	Dairy cattle and milk production	4	Livestock
1121A0	008	Beef cattle ranching and farming, including feedlots and dual-purpose ranching and farming	4	Livestock
112300	009	Poultry and egg production	4	Livestock
112A00	010	Animal production, except cattle and poultry and eggs	4	Livestock
113000	011	Forestry and logging	5	Forestry, fishing, and agricultural services
114000	012	Fishing, hunting and trapping	5	Forestry, fishing, and agricultural services

BEA 2017 benchmark ID	FD2 activity/ commodity†	Description	Industry group number	Industry group description
115000	013	Support activities for agriculture and forestry	5	Forestry, fishing, and agricultural services
311210	035	Flour milling and malt manufacturing	6	Food processing
311221	036	Wet corn milling	6	Food processing
311224	037	Soybean and other oilseed processing	6	Food processing
311225	038	Fats and oils refining and blending	6	Food processing
311230	039	Breakfast cereal manufacturing	6	Food processing
311300	040	Sugar and confectionery product manufacturing	6	Food processing
311410	041	Frozen food manufacturing	6	Food processing
311420	042	Fruit and vegetable canning, pickling, and drying	6	Food processing
311513	043	Cheese manufacturing	6	Food processing
311514	044	Dry, condensed, and evaporated dairy product manufacturing	6	Food processing
31151A	045	Fluid milk and butter manufacturing	6	Food processing
311520	046	Ice cream and frozen dessert manufacturing	6	Food processing
311615	047	Poultry processing	6	Food processing
31161A	048	Animal (except poultry) slaughtering, rendering, and processing	6	Food processing
311700	049	Seafood product preparation and packaging	6	Food processing
311810	050	Bread and bakery product manufacturing	6	Food processing
3118A0	051	Cookie, cracker, pasta, and tortilla manufacturing	6	Food processing
311910	052	Snack food manufacturing	6	Food processing
311920	053	Coffee and tea manufacturing	6	Food processing
311930	054	Flavoring syrup and concentrate manufacturing	6	Food processing
311940	055	Seasoning and dressing manufacturing	6	Food processing
311990	056	All other food manufacturing	6	Food processing
312110	057	Soft drink and ice manufacturing	6	Food processing
312120	058	Breweries	6	Food processing
312130	059	Wineries	6	Food processing
312140	060	Distilleries	6	Food processing
481000	288	Air transportation	7	Transportation and storage
482000	289	Rail transportation	7	Transportation and storage
483000	290	Water transportation	7	Transportation and storage
484000	291	Truck transportation	7	Transportation and storage

BEA 2017 benchmark ID	FD2 activity/ commodity†	Description	Industry group number	Industry group description
486000	293	Pipeline transportation	7	Transportation and storage
493000	296	Warehousing and storage	7	Transportation and storage
424400	275	Grocery and related product wholesalers	8	Food wholesale
445000	281	Food and beverage stores	9	Food retail
722110	341	Full-service restaurants	10	Foodservices
722211	342	Limited-service restaurants	10	Foodservices
722A00	343	All other food and drinking places	10	Foodservices
211000	014	Oil and gas extraction	11	Energy
212100	015	Coal mining	11	Energy
221100	022	Electric power generation, transmission, and distribution	11	Energy
221200	023	Natural gas distribution	11	Energy
324110	084	Petroleum refineries	11	Energy
521CI	306	Federal Reserve banks, credit intermediation, and related activities	12	Finance and insurance
523	307	Securities, commodity contracts, and investments	12	Finance and insurance
524113	308	Direct life insurance carriers	12	Finance and insurance
5241X	309	Insurance carriers, except direct life	12	Finance and insurance
5242	310	Agencies, brokerages, and other insurance related activities	12	Finance and insurance
525	311	Funds, trusts, and other financial vehicles	12	Finance and insurance
5411	316	Legal services	13	Legal and accounting
5412	317	Accounting, tax preparation, bookkeeping, and payroll services	13	Legal and accounting
5418	323	Advertising, public relations, and related services	14	Advertising
212230	016	Copper, nickel, lead, and zinc mining	19	Other
212310	017	Stone mining and quarrying	19	Other
2122A0	018	Iron, gold, silver, and other metal ore mining	19	Other
2123A0	019	Other nonmetallic mineral mining and quarrying	19	Other
213111	020	Drilling oil and gas wells	19	Other
21311A	021	Other support activities for mining	19	Other
221300	024	Water, sewage and other systems	19	Other
23MR	025	Maintenance and repair construction	19	Other
23EH	026	Education, hospital, and health structures	19	Other

BEA 2017 benchmark ID	FD2 activity/ commodity†	Description	Industry group number	Industry group description
23OT	027	Other nonresidential structures	19	Other
23PC	028	Power and communication structures	19	Other
23OC	029	Office and commercial structures	19	Other
23TH	030	Transportation structures and highways and streets	19	Other
23SF	031	Single-family residential structures	19	Other
23OR	032	Other residential construction	19	Other
311111	033	Dog and cat food manufacturing	19	Other
311119	034	Other animal food manufacturing	19	Other
312200	061	Tobacco product manufacturing	19	Other
313100	062	Fiber, yarn, and thread mills	19	Other
313200	063	Fabric mills	19	Other
313300	064	Textile and fabric finishing and fabric coating mills	19	Other
314110	065	Carpet and rug mills	19	Other
314120	066	Curtain and linen mills	19	Other
314900	067	Other textile product mills	19	Other
315000	068	Apparel manufacturing	19	Other
316000	069	Leather and allied product manufacturing	19	Other
321100	070	Sawmills and wood preservation	19	Other
321200	071	Veneer, plywood, and engineered wood product manufacturing	19	Other
321910	072	Millwork	19	Other
3219A0	073	All other wood product manufacturing	19	Other
322110	074	Pulp mills	19	Other
322120	075	Paper mills	19	Other
322130	076	Paperboard mills	19	Other
322210	077	Paperboard container manufacturing	19	Other
322220	078	Paper bag and coated and treated paper manufacturing	19	Other
322230	079	Stationery product manufacturing	19	Other
322291	080	Sanitary paper product manufacturing	19	Other
322299	081	All other converted paper product manufacturing	19	Other
323110	082	Printing	19	Other
323120	083	Support activities for printing	19	Other
324121	085	Asphalt paving mixture and block manufacturing	19	Other
324122	086	Asphalt shingle and coating materials manufacturing	19	Other

BEA 2017 benchmark ID	FD2 activity/ commodity†	Description	Industry group number	Industry group description
324190	087	Other petroleum and coal products manufacturing	19	Other
325110	088	Petrochemical manufacturing	19	Other
325120	089	Industrial gas manufacturing	19	Other
325130	090	Synthetic dye and pigment manufacturing	19	Other
325180	091	Other basic inorganic chemical manufacturing	19	Other
325190	092	Other basic organic chemical manufacturing	19	Other
325211	093	Plastics material and resin manufacturing	19	Other
3252A0	094	Synthetic rubber and artificial and synthetic fibers and filaments manufacturing	19	Other
325310	095	Fertilizer manufacturing	19	Other
325320	096	Pesticide and other agricultural chemical manufacturing	19	Other
325411	097	Medicinal and botanical manufacturing	19	Other
325412	098	Pharmaceutical preparation manufacturing	19	Other
325413	099	In-vitro diagnostic substance manufacturing	19	Other
325414	100	Biological product (except diagnostic) manufacturing	19	Other
325510	101	Paint and coating manufacturing	19	Other
325520	102	Adhesive manufacturing	19	Other
325610	103	Soap and cleaning compound manufacturing	19	Other
325620	104	Toilet preparation manufacturing	19	Other
325910	105	Printing ink manufacturing	19	Other
3259A0	106	All other chemical product and preparation manufacturing	19	Other
326110	107	Plastics packaging materials and unlaminated film and sheet manufacturing	19	Other
326120	108	Plastics pipe, pipe fitting, and unlaminated profile shape manufacturing	19	Other
326130	109	Laminated plastics plate, sheet (except packaging), and shape manufacturing	19	Other
326140	110	Polystyrene foam product manufacturing	19	Other
326150	111	Urethane and other foam product (except polystyrene) manufacturing	19	Other
326160	112	Plastics bottle manufacturing	19	Other
326190	113	Other plastics product manufacturing	19	Other
326210	114	Tire manufacturing	19	Other
326220	115	Rubber and plastics hoses and belting manufacturing	19	Other
326290	116	Other rubber product manufacturing	19	Other
327100	117	Clay product and refractory manufacturing	19	Other

BEA 2017 benchmark ID	FD2 activity/ commodity†	Description	Industry group number	Industry group description
327200	118	Glass and glass product manufacturing	19	Other
327310	119	Cement manufacturing	19	Other
327320	120	Ready-mix concrete manufacturing	19	Other
327330	121	Concrete pipe, brick, and block manufacturing	19	Other
327390	122	Other concrete product manufacturing	19	Other
327400	123	Lime and gypsum product manufacturing	19	Other
327910	124	Abrasive product manufacturing	19	Other
327991	125	Cut stone and stone product manufacturing	19	Other
327992	126	Ground or treated mineral and earth manufacturing	19	Other
327993	127	Mineral wool manufacturing	19	Other
327999	128	Miscellaneous nonmetallic mineral products	19	Other
331110	129	Iron and steel mills and ferroalloy manufacturing	19	Other
331200	130	Steel product manufacturing from purchased steel	19	Other
331313	131	Alumina refining and primary aluminum production	19	Other
331314	132	Secondary smelting and alloying of aluminum	19	Other
33131B	133	Aluminum product manufacturing from purchased aluminum	19	Other
331410	134	Nonferrous metal (except aluminum) smelting and refining	19	Other
331420	135	Copper rolling, drawing, extruding and alloying	19	Other
331490	136	Nonferrous metal (except copper and aluminum) rolling, drawing, extruding and alloying	19	Other
331510	137	Ferrous metal foundries	19	Other
331520	138	Nonferrous metal foundries	19	Other
332114	139	Custom roll forming	19	Other
332119	140	Metal crown, closure, and other metal stamping (except automotive)	19	Other
33211A	141	All other forging, stamping, and sintering	19	Other
332200	142	Cutlery and handtool manufacturing	19	Other
332310	143	Plate work and fabricated structural product manufacturing	19	Other
332320	144	Ornamental and architectural metal products manufacturing	19	Other
332410	145	Power boiler and heat exchanger manufacturing	19	Other
332420	146	Metal tank (heavy gauge) manufacturing	19	Other
332430	147	Metal can, box, and other metal container (light gauge) manufacturing	19	Other

BEA 2017 benchmark ID	FD2 activity/ commodity†	Description	Industry group number	Industry group description
332500	148	Hardware manufacturing	19	Other
332600	149	Spring and wire product manufacturing	19	Other
332710	150	Machine shops	19	Other
332720	151	Turned product and screw, nut, and bolt manufacturing	19	Other
332800	152	Coating, engraving, heat treating and allied activities	19	Other
332913	153	Plumbing fixture fitting and trim manufacturing	19	Other
33291A	154	Valve and fittings other than plumbing	19	Other
332991	155	Ball and roller bearing manufacturing	19	Other
332996	156	Fabricated pipe and pipe fitting manufacturing	19	Other
332999	157	Other fabricated metal manufacturing	19	Other
33299A	158	Ammunition, arms, ordnance, and accessories manufacturing	19	Other
333111	159	Farm machinery and equipment manufacturing	19	Other
333112	160	Lawn and garden equipment manufacturing	19	Other
333120	161	Construction machinery manufacturing	19	Other
333130	162	Mining and oil and gas field machinery manufacturing	19	Other
333242	163	Semiconductor machinery manufacturing	19	Other
33329A	164	Other industrial machinery manufacturing	19	Other
333314	165	Optical instrument and lens manufacturing	19	Other
333316	166	Photographic and photocopying equipment manufacturing	19	Other
333318	167	Other commercial and service industry machinery manufacturing	19	Other
333413	168	Industrial and commercial fan and blower and air purification equipment manufacturing	19	Other
333414	169	Heating equipment (except warm air furnaces) manufacturing	19	Other
333415	170	Air conditioning, refrigeration, and warm air heating equipment manufacturing	19	Other
333511	171	Industrial mold manufacturing	19	Other
333514	172	Special tool, die, jig, and fixture manufacturing	19	Other
333517	173	Machine tool manufacturing	19	Other
33351B	174	Cutting and machine tool accessory, rolling mill, and other metalworking machinery manufacturing	19	Other
333611	175	Turbine and turbine generator set units manufacturing	19	Other
333612	176	Speed changer, industrial high-speed drive, and gear manufacturing	19	Other

BEA 2017 benchmark ID	FD2 activity/ commodity†	Description	Industry group number	Industry group description
333613	177	Mechanical power transmission equipment manufacturing	19	Other
333618	178	Other engine equipment manufacturing	19	Other
333912	179	Air and gas compressor manufacturing	19	Other
333914	180	Measuring dispensing and other pumping equipment manufacturing	19	Other
333920	181	Material handling equipment manufacturing	19	Other
333991	182	Power-driven handtool manufacturing	19	Other
333993	183	Packaging machinery manufacturing	19	Other
333994	184	Industrial process furnace and oven manufacturing	19	Other
33399A	185	Other general purpose machinery manufacturing	19	Other
33399B	186	Fluid power process machinery	19	Other
334111	187	Electronic computer manufacturing	19	Other
334112	188	Computer storage device manufacturing	19	Other
334118	189	Computer terminals and other computer peripheral equipment manufacturing	19	Other
334210	190	Telephone apparatus manufacturing	19	Other
334220	191	Broadcast and wireless communications equipment	19	Other
334290	192	Other communications equipment manufacturing	19	Other
334300	193	Audio and video equipment manufacturing	19	Other
334413	194	Semiconductor and related device manufacturing	19	Other
334418	195	Printed circuit assembly (electronic assembly) manufacturing	19	Other
33441A	196	Other electronic component manufacturing	19	Other
334510	197	Electromedical and electrotherapeutic apparatus manufacturing	19	Other
334511	198	Search, detection, and navigation instruments manufacturing	19	Other
334512	199	Automatic environmental control manufacturing	19	Other
334513	200	Industrial process variable instruments manufacturing	19	Other
334514	201	Totalizing fluid meter and counting device manufacturing	19	Other
334515	202	Electricity and signal testing instruments manufacturing	19	Other
334516	203	Analytical laboratory instrument manufacturing	19	Other

BEA 2017 benchmark ID	FD2 activity/ commodity†	Description	Industry group number	Industry group description
334517	204	Irradiation apparatus manufacturing	19	Other
33451A	205	Watch, clock, and other measuring and controlling device manufacturing	19	Other
334610	206	Manufacturing and reproducing magnetic and optical media	19	Other
335110	207	Electric lamp bulb and part manufacturing	19	Other
335120	208	Lighting fixture manufacturing	19	Other
335210	209	Small electrical appliance manufacturing	19	Other
335220	210	Major household appliance manufacturing	19	Other
335311	214	Power, distribution, and specialty transformer manufacturing	19	Other
335312	215	Motor and generator manufacturing	19	Other
335313	216	Switchgear and switchboard apparatus manufacturing	19	Other
335314	217	Relay and industrial control manufacturing	19	Other
335911	218	Storage battery manufacturing	19	Other
335912	219	Primary battery manufacturing	19	Other
335920	220	Communication and energy wire and cable manufacturing	19	Other
335930	221	Wiring device manufacturing	19	Other
335991	222	Carbon and graphite product manufacturing	19	Other
335999	223	All other miscellaneous electrical equipment and component manufacturing	19	Other
336111	224	Automobile manufacturing	19	Other
336112	225	Light truck and utility vehicle manufacturing	19	Other
336120	226	Heavy duty truck manufacturing	19	Other
336211	227	Motor vehicle body manufacturing	19	Other
336212	228	Truck trailer manufacturing	19	Other
336213	229	Motor home manufacturing	19	Other
336214	230	Travel trailer and camper manufacturing	19	Other
336310	231	Motor vehicle gasoline engine and engine parts manufacturing	19	Other
336320	232	Motor vehicle electrical and electronic equipment manufacturing	19	Other
336350	233	Motor vehicle transmission and power train parts manufacturing	19	Other
336360	234	Motor vehicle seating and interior trim manufacturing	19	Other
336370	235	Motor vehicle metal stamping	19	Other
336390	236	Other motor vehicle parts manufacturing	19	Other

BEA 2017 benchmark ID	FD2 activity/ commodity†	Description	Industry group number	Industry group description
3363A0	237	Motor vehicle steering, suspension component (except spring), and brake systems manufacturing	19	Other
336411	238	Aircraft manufacturing	19	Other
336412	239	Aircraft engine and engine parts manufacturing	19	Other
336413	240	Other aircraft parts and auxiliary equipment manufacturing	19	Other
336414	241	Guided missile and space vehicle manufacturing	19	Other
33641A	242	Propulsion units and parts for space vehicles and guided missiles	19	Other
336500	243	Railroad rolling stock manufacturing	19	Other
336611	244	Ship building and repairing	19	Other
336612	245	Boat building	19	Other
336991	246	Motorcycle, bicycle, and parts manufacturing	19	Other
336992	247	Military armored vehicle, tank, and tank component manufacturing	19	Other
336999	248	All other transportation equipment manufacturing	19	Other
337110	249	Wood kitchen cabinet and countertop manufacturing	19	Other
337121	250	Upholstered household furniture manufacturing	19	Other
337122	251	Nonupholstered wood household furniture manufacturing	19	Other
337127	252	Institutional furniture manufacturing	19	Other
33712N	253	Other household nonupholstered furniture	19	Other
337215	254	Showcase, partition, shelving, and locker manufacturing	19	Other
33721A	255	Office furniture and custom architectural woodwork and millwork manufacturing	19	Other
337900	256	Other furniture related product manufacturing	19	Other
339112	257	Surgical and medical instrument manufacturing	19	Other
339113	258	Surgical appliance and supplies manufacturing	19	Other
339114	259	Dental equipment and supplies manufacturing	19	Other
339115	260	Ophthalmic goods manufacturing	19	Other
339116	261	Dental laboratories	19	Other
339910	262	Jewelry and silverware manufacturing	19	Other
339920	263	Sporting and athletic goods manufacturing	19	Other
339930	264	Doll, toy, and game manufacturing	19	Other
339940	265	Office supplies (except paper) manufacturing	19	Other
339950	266	Sign manufacturing	19	Other
339990	267	All other miscellaneous manufacturing	19	Other

BEA 2017 benchmark ID	FD2 activity/ commodity†	Description	Industry group number	Industry group description
4200ID	268	Customs duties	19	Other
423100	269	Motor vehicle and motor vehicle parts and supplies	19	Other
423400	270	Professional and commercial equipment and supplies	19	Other
423600	271	Household appliances and electrical and electronic goods	19	Other
423800	272	Machinery, equipment, and supplies	19	Other
423A00	273	Other durable goods merchant wholesalers	19	Other
424200	274	Drugs and druggists' sundries	19	Other
424700	276	Petroleum and petroleum products	19	Other
424A00	277	Other nondurable goods merchant wholesalers	19	Other
425000	278	Wholesale electronic markets and agents and brokers	19	Other
441000	279	Motor vehicle and parts dealers	19	Other
444000	280	Building material and garden equipment and supplies dealers	19	Other
446000	282	Health and personal care stores	19	Other
447000	283	Gasoline stations	19	Other
448000	284	Clothing and clothing accessories stores	19	Other
452000	285	General merchandise stores	19	Other
454000	286	Nonstore retailers	19	Other
4B0000	287	All other retail	19	Other
485000	292	Transit and ground passenger transportation	19	Other
48A000	294	Scenic and sightseeing transportation, and support activities for transportation	19	Other
492000	295	Couriers and messengers	19	Other
5111	297	Newspaper, periodical, book, and directory publishers	19	Other
5112	298	Software publishers	19	Other
512	299	Motion picture and sound recording industries	19	Other
515	300	Broadcasting (except internet)	19	Other
5171	301	Wired telecommunications carriers	19	Other
5172	302	Wireless telecommunications carriers (except satellite)	19	Other
5174OT	303	Other telecommunications, including satellite	19	Other
518	304	Data processing, hosting, and related services	19	Other
519	305	Other information services	19	Other
H50	312	Owner-occupied housing	19	Other
H51	313	Tenant-occupied housing	19	Other
ORE	314	Other real estate	19	Other

BEA 2017 benchmark ID	FD2 activity/ commodity†	Description	Industry group number	Industry group description
532RL	315	Rental and leasing services and lessors of intangible assets	19	Other
5413	318	Architectural, engineering, and related services	19	Other
541X	319	Specialized design services and other professional, scientific, and technical services	19	Other
5415	320	Computer systems design and related services	19	Other
5416	321	Management, scientific, and technical consulting services	19	Other
5417	322	Scientific research and development services	19	Other
55	324	Management of companies and enterprises	19	Other
561X	325	Other administrative and support services	19	Other
5613	326	Employment services	19	Other
5617	327	Services to buildings and dwellings	19	Other
562	328	Waste management and remediation services	19	Other
61	329	Educational services	19	Other
6211	330	Offices of physicians	19	Other
6212	331	Offices of dentists	19	Other
6213	332	Offices of other health practitioners	19	Other
6214	333	Outpatient care centers	19	Other
6215OH	334	Other ambulatory health care services	19	Other
622	335	Hospitals	19	Other
623	336	Nursing and residential care facilities	19	Other
624	337	Social assistance	19	Other
711AS	338	Performing arts, spectator sports, museums, and related activities	19	Other
713	339	Amusements, gambling, and recreation industries	19	Other
721000	340	Accommodation	19	Other
811	344	Repair and maintenance	19	Other
812	345	Personal and laundry services	19	Other
813	346	Religious, grantmaking, civic, professional, and similar organizations	19	Other
814	347	Private households	19	Other
GSLGE	348	State and local government (educational services)	19	Other
GSLGH	349	State and local government (hospitals and health services)	19	Other
GSLGO	350	State and local government (other services)	19	Other
GFE	351	Federal Government enterprises	19	Other
GSLE	352	State and local government enterprises	19	Other
GFGD	353	Federal general Government (defense)	19	Other

BEA 2017 benchmark ID	FD2 activity/ commodity [†]	Description	Industry group number	Industry group description
GFGN	354	Federal general Government (nondefense)	19	Other
NULL*	358	Food and softdrinks at full-service restaurants	19	Other
NULL*	359	Food and softdrinks at limited-service restaurants	19	Other
NULL*	360	Food and softdrinks at all other food and drinking places	19	Other
NULL*	361	Alcoholic beverages at full-service restaurants	19	Other
NULL*	362	Alcoholic beverages at limited-service restaurants	19	Other
NULL*	363	Alcoholic beverages at all other food and drinking places	19	Other
NULL*	364	Mineral procurement for table salt	19	Other
NULL*	365	Organic and other chemical procurement for food ingredients	19	Other

FD2 = Food Dollar 2.

Note: Other means the activity and commodity may serve as subcontractor to the other industry groups. They may subcontract portions of the total value to multiple industry groups. The portions subcontracted to industry groups 3, 4, and 5 (crops; livestock; and forestry, fishing, and agricultural services) are assigned to industry group 2, agribusiness, in the industry group bill.

* denotes the activity/commodity was decoupled.

† These codes should be preceded by an A for an activity or a C for a commodity. For instance, C003 refers to the vegetable and melon farming commodity.

Source: USDA, Economic Research Service.

Appendix C: Ag-FEDS Identifiers Used in FD2

Appendix C presents a list of the activity, commodity, and voucher identifies used in Ag-FEDS to extend the data matrix and enable decoupling of food commodities, food service activities, and food service commodities in FD2 as described in the sections “Redirecting Commodity Flows” and “The Hidden Food Economy.”

Table C.12

Ag-FEDS activity, commodity, and voucher identifiers used in FD2

Decoupled caloric activities, commodities, and vouchers of the expanded rSAM accounts		
Activity	Commodity	Description
A358	C358	Food and nonalcoholic beverages at full-service restaurants
A359	C359	Food and nonalcoholic beverages at limited-service restaurants
A360	C360	Food and nonalcoholic beverages at all other food and drinking places
A361	C361	Alcohol at full-service restaurants
A362	C362	Alcohol at limited-service restaurants
A363	C363	Alcohol at all other food and drinking places
A364	C364	Mineral procurement for table salt
A365	C365	Organic and other chemical procurement for food ingredients
Voucher ID	Description	
V01	Vouchers for meals at work	
V02	Vouchers for employer-furnished food and beverages	
V03	Vouchers for institutional-furnished meals and food assistance	
V04	Vouchers for school-furnished meals	
V05	Vouchers for food and beverage R&D	
V06	Beef cattle procurement for retail	
V07	Pork animal procurement for retail	
V08	Other meat animal procurement for slaughter	
V09	Raw milk procurement for fresh milk retail	
V10	Raw milk procurement for dairy products except milk retail	
V11	Fresh fruit procurement for retail supply	
V12	Fresh vegetable procurement for retail supply	
V13	Aquaculture procurement for packaging and for final market sales	
VO1	Overhead labor cost for voucher redemptions	
VO2	Overhead capital cost for voucher redemptions	

FD2 = Food Dollar 2.

Source: USDA, Economic Research Service.