

WIC Participant Access to Authorized Vendors Study: Part 1

Final Report

December 2025



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Definitions

A-50 stores	Above-50-percent stores are establishments that derive more than 50 percent of their annual food sales revenue from WIC food instruments.
Convenient access	The availability of a WIC retailer within a one-mile driving distance in urban areas and a 10-mile driving distance in rural areas from the population-weighted centroid of a census tract.
Convenience stores	Self-service establishments that provide a limited selection of convenience items and are usually open for extended hours. These establishments primarily sell a variety of canned goods, dairy products, pre-packaged meats, and other grocery items in limited amounts.
Combination grocery store	Food establishments whose primary business is the sale of general merchandise but also sell a range of food products. This includes dollar stores, general stores, and independent drug stores.
Commissaries	Food establishments that are operated by the military.
Farmer	An individual authorized by the WIC State agency to sell eligible fruits and vegetables to participants at a farmers' market or roadside stands.
Farmers' market	An association of local farmers who assemble at a defined location for the purpose of selling their produce directly to consumers.
Food delivery entity	Any entity that has been authorized to provide supplemental foods to participants regardless of food distribution method.
Large grocery stores	Food establishments that carry a wide selection of all staple food categories, including breads and grains; dairy; fruits and vegetables; and meat, poultry, and fish, and primarily stock food items.
Large retailer	A retailer that is either a super center, supermarket, or large grocery store.
Limiting criteria	Criteria established by the State agency to determine the maximum number and distribution of vendors it authorizes.
LILA	Low-income, low-access is a binary measure developed by the USDA, ERS that indicates whether a census tract is low-income and has low-access to large food stores, including supermarkets, super centers, or large grocery stores. Low-income (LI) census tracts are defined as those with a poverty rate of at least 20 percent or a median family income at or below 80 percent of the metropolitan area or State median income level. Low-access (LA) tracts are defined as those where a significant number or share of residents is more than 1 mile (urban) or 10 miles (rural) from the nearest large food store. LILA tracts are those that meet both the income and food access criteria.
Medium grocery stores	Food establishments that carry a moderate selection of all staple food categories, including breads and grains; dairy; fruits and vegetables; and meat, poultry, and fish, and primarily stock food items.

Definitions

Optional selection criteria	Additional criteria established by the State agency to select individual vendors for authorization consistent with the requirements in § 246.12(g)(3) and (g)(4).
Other (smaller) retailer	Any retailer that is not a super center, supermarket, or large grocery store.
Other stores	Specialty stores, such as bakeries, seafood markets, and meat and poultry markets; farmers' markets; delivery routes; farmers; and nonprofit food buying cooperatives.
Pharmacies	Establishments that are only authorized to provide infant formula or other WIC-eligible medical foods.
Retailer	Any establishment classified as using a "retail" food delivery distribution method in administrative WIC data. This includes retail food stores, such as super stores, supermarkets, grocery stores, and convenient stores, as well as other retailers, such as farmers, farmers' markets, and commissaries.
Small grocery stores	Food establishments that carry a small selection of all staple food categories, including breads and grains; dairy; fruits and vegetables; and meat, poultry, and fish, and primarily stock food items.
SVI	Census tracts considered to have high social vulnerability are those that have demographic and economic factors, such as poverty, lack of access to transportation, crowded housing, or limited English proficiency, which make them particularly vulnerable to hazards like hurricanes, floods, wildfire, and disease outbreaks. Using 16 variables from the 5-year ACS, CDC created an index of social vulnerability at the census tract level. This study used the social vulnerability index (SVI) index categorized into quartiles to define the social vulnerability of a census tract as low, low-medium, medium-high, or high.
Supermarkets	Food establishments that typically have 10 or more checkout lanes equipped with cash registers, bar code scanners, and conveyor belts.
Super stores	"Big box" stores, very large supermarkets, and food warehouses that sell a wide range of groceries and other merchandise. This includes membership retail and wholesale stores that offer a limited selection of products in a warehouse-style setting.
Urbanicity	Urban and rural indicators were obtained from the ERS Food Atlas and are based on the Census Bureau's urban-rural classification. According to the Census Bureau, urbanized areas represent densely developed territory and encompass residential, commercial, and other nonresidential urban land uses. To qualify as an urban census tract, the geographic centroid of the tract must be located in an area with more than 2,500 people; all other tracts are classified as rural.

Definitions

Vendor	A sole proprietorship, partnership, cooperative association, corporation, or other business entity operating one or more stores authorized by the WIC State agency to provide authorized supplemental foods to participants under a retail food delivery system. Each store operated by a business entity constitutes a separate vendor and must be authorized separately from other stores operated by the business entity. Each store must have a single, fixed location, except when the authorization of mobile stores is necessary to meet the special needs described in the State agency's State Plan in accordance with § 246.4(a)(14)(xiv).
WIC-eligible family	The number of families with children younger than 5 years and incomes below 185 percent of the Federal poverty level.

Executive Summary

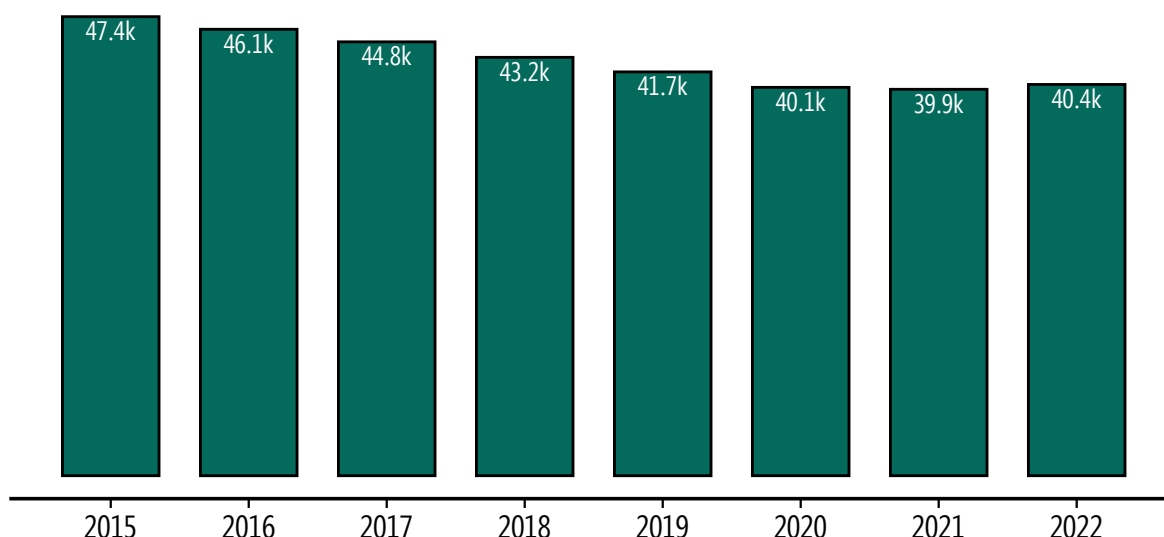
The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) is designed to safeguard the health of low-income pregnant, postpartum, and breastfeeding women, infants, and children up to the age of 5 who are at nutritional risk. WIC is a Federal grant program, and in Fiscal Year (FY) 2022, it was administered by 89 State agencies, including 50 States, the District of Columbia, five territories, and 33 Indian Tribal Organizations (ITOs).

Monthly food benefits are a core component of WIC. Most State agencies use a retail food delivery system, which requires WIC participants to transact their benefits at authorized vendors or retailers. These retailers include supermarkets, grocery stores of all sizes, and convenience stores, as well as commissaries and pharmacies among other store types.

State agencies are responsible for authorizing retailers to accept WIC food benefits. As part of this process, State agencies must establish selection criteria to authorize eligible retailers. The selection criteria include those Federally mandated—for example, competitive pricing, minimum variety and quantity of supplemental foods, and business integrity—and additional selection criteria determined by the State agency. Implementing additional selection criteria is a strategy that State agencies can use to authorize retailers that have competitive prices, which helps State agencies control program costs. States agencies may also impose limiting criteria that restrict the number of WIC retailers based on the size of the WIC population, WIC State agency staff numbers, and other factors. This practice can help States conserve resources related to retailer authorization, training, monitoring, and investigations.

Since 2015, WIC has observed a 15 percent decline in the number of authorized retailers and other food delivery entities, including any entity that has been authorized to provide WIC foods to participants regardless of method (e.g., commissaries, farmers, and farmers' markets). This decline suggests that WIC participants may have fewer options for where they can conduct their WIC shopping (Exhibit ES.1).

Exhibit ES.1. Number of WIC-authorized retailers and other food delivery entities (in thousands), FY 2015–2022



Sources: TIP and FDP

In response to this decline, FNS issued a policy memo in October 2022 to encourage State agencies to assess their vendor populations and ensure the appropriate number and distribution of vendors are authorized. Federal regulations require State agencies to authorize a sufficient number and distribution of vendors to ensure adequate participant access to supplemental foods, however the definition of “adequate participant access” is left to each State agency to determine.

To understand how WIC-authorized retailers are geographically distributed across State agencies and whether there are disparities in geographic access to these retailers, the Food and Nutrition Service (FNS) contracted with Mathematica to conduct the WIC Participant Access to Authorized Vendors Study, Part 1. This study provides novel insights into the current geographic coverage and density of WIC retailers across the United States, and how State policies and changes in the composition of retailers over time might have contributed to or perpetuated disparities.

Data and methods

This study used several data sources to analyze the geographic distribution of WIC retailers within and across State agencies. The study team obtained administrative data that described retailer locations, store types, and WIC State agency retailer authorization policies from FNS from the following data sources: The Integrity Profile (TIP), Food Delivery Portal (FDP), Store Tracking and Redemption System (STARS), and WIC State Plans. To supplement the FNS-provided administrative data sources, The study team obtained community characteristics from the Centers for Disease Control (CDC), Economic Research Service (ERS), and the American Community Survey (ACS) to capture variation in urbanicity, food access, and social vulnerability. The study team also collected publicly available information on State-level WIC and SNAP participation published annually by FNS.

This study presents two measures of food access. First, the study used a proximity-based measure that identifies places with convenient access to WIC retailers. Convenient access is defined here as the availability of at least one WIC retailer within a one-mile driving distance in urban areas and a 10-mile driving distance in rural areas from the population-weighted centroid of a census tract. Second, the study used the average number of WIC retailers within convenient access of a census tract to differentiate between different levels of access to WIC-authorized retailers.

The study examined these measures overall and by a variety of census tract-level characteristics, including by urbanicity; low-income, low-access (LILA) status; and social vulnerability status. Consistent with ERS’s approach for measuring food access in urban and rural areas, this study uses a binary measure of urbanicity based on the Census Bureau’s urban-rural classification, whereby census tracts with a population of less than 2,500 are considered rural and all others are considered urban. Similarly, the study uses ERS’s LILA measure to identify census tracts where a substantial number or share of the population is far from a large grocery store, supermarket, or super center. Finally, the study uses the CDC’s Social Vulnerability Index (SVI) to examine access among areas that may be vulnerable to public health emergencies and other natural and environmental hazards and stressors due to their demographic and socioeconomic composition. In particular, the study compared census tracts with high social vulnerability (high SVI) to those considered to have low social vulnerability (low SVI).

Key findings

- In FY 2022, there were 40,347 WIC-authorized retailers. Nearly three out of four authorized retailers (73 percent) were classified as large retailers, which includes super stores, supermarkets, and large grocery stores (Tiehen and Frazão 2016). Smaller retailers, such as small grocery stores, A-50 stores¹, and convenience stores, were less common.
- There were approximately 7,000 fewer WIC-authorized retailers in FY 2022 compared to FY 2015, representing a 15 percent decline (Exhibit ES.2). Large retailers declined by 4 percent and smaller retailers declined by 36 percent. Most of these declines occurred in the years prior to FY 2020 (Exhibit ES.1).

Exhibit ES.2. Study highlights



15% Decline in WIC retailers
between FYs 2015 and 2022



2.3 Average number of WIC
retailers within convenient access



40% WIC-eligible families without
convenient access to a WIC retailer

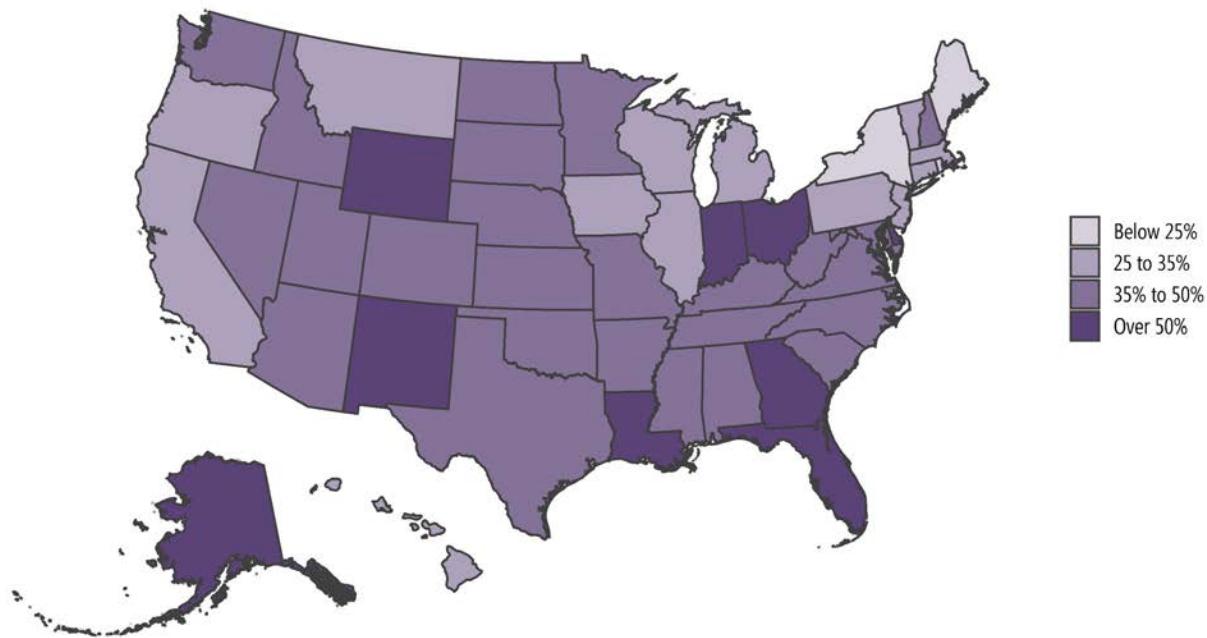
Geographic distribution of WIC retailers within and across State agencies in FY 2022

- Based on the driving distance definition applied, 45 percent of census tracts lacked convenient access to a WIC retailer in FY 2022. Conversely, 55 percent of census tracts had convenient access to at least one WIC retailer. On average, census tracts had convenient access to 2.3 WIC retailers.
- Geographic differences in the availability of WIC retailers contributed to large variation in access. Across the State agencies, the proportion of census tracts within convenient access to at least one WIC retailer ranged from a low of 22 percent to a high of 81 percent.

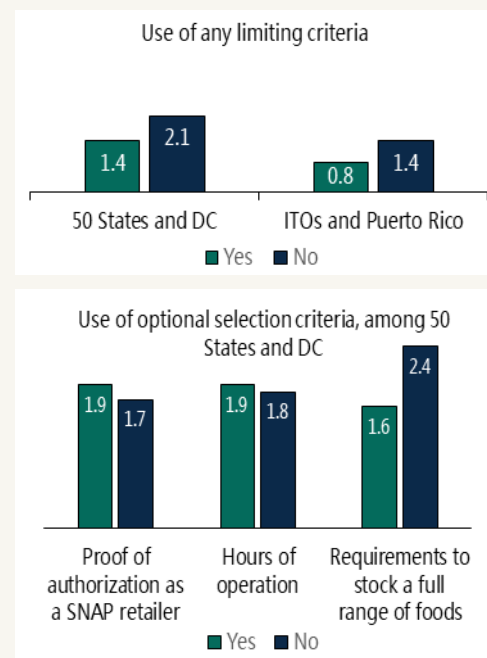
Disparities in access to WIC retailers based on area demographics and other factors in FY 2022

- In 8 State agencies (9 percent), more than half of WIC-eligible families lacked convenient access to a WIC-authorized retailer (Exhibit ES.3).
- Among the 50 States and D.C., forty percent of WIC-eligible families did not have convenient access to a WIC retailer.
- Convenient access to WIC retailers was higher in rural areas than in urban areas. Rural areas had, on average, convenient access to 4.0 WIC retailers, while urban areas had access to about half as many (1.7 WIC retailers, on average).
- Convenient access was lower in LILA census tracts than in non-LILA tracts (32 compared to 67 percent of WIC-eligible families had convenient access to WIC). LILA tracts, on average, had access to fewer than one WIC retailer within convenient access.
- Convenient access was higher in census tracts with high social vulnerability compared to those with low social vulnerability (67 compared to 41 percent of WIC-eligible families had convenient access to WIC). High SVI tracts, on average, had access to 3.3 WIC retailers compared to 1.6 WIC retailers in low SVI tracts.

¹ A-50 (above-50-percent) stores are those with more than 50 percent of their food sales from WIC. A-50 stores are specifically authorized as such and must follow additional pricing regulations, (For more information, see McLaughlin and Martinez, 2021.)

Exhibit ES.3. WIC-eligible families without convenient access to a WIC retailer**Disparities in access to WIC retailers based on State agency policies in FY 2022**

- Thirty-four State agencies (38 percent) imposed limiting criteria when authorizing retailers.
- The average number of WIC retailers within convenient access was consistently lower in areas with limiting criteria. On average there were 1.4 WIC retailers within convenient access within the 50 States and DC that used any limiting criteria compared with 2.1 retailers in States with no limiting criteria (Exhibit ES.4).
- Nearly all State agencies (98 percent) used optional selection criteria when determining which retailers to authorize in FY 2022.
- In most circumstances, State agencies that used optional selection criteria had slightly higher average numbers of retailers within convenient access than States without these criteria. State added stocking standards was the only exception among the 50 States and DC; States that used this additional criterion had fewer retailers within convenient access to a census tract, on average, than States that did not (1.6 compared to 2.4 retailers).

Exhibit ES.4. Average number of WIC retailers within convenient access

Conclusions

The WIC Participant Access Study provides important insights into the current geographic coverage and density of WIC retailers across the United States, ITOs, and territories. The study revealed a decline in WIC-authorized retailers between FY 2015 and FY 2022 and identified disparities in geographic access to WIC retailers. However, more research is needed to understand WIC access within the complexity of actual participants' shopping choices and retailer participation in WIC. FNS is currently undertaking a new study (WIC Participant Access Study Part 2) to create an operational definition of "adequate participant access" for State agencies to use in selecting and managing WIC vendors. Results of this study will be used to create a toolkit, resource guide, or other materials to assist States in applying this definition to their vendor selection, authorization, and termination policies and practices.

I. Introduction

A. Study motivation and policy context

Through Federal grants, the Food and Nutrition Service (FNS) of the U.S. Department of Agriculture (USDA) administers the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), which is designed to safeguard the health of pregnant, postpartum, and breastfeeding women, infants, and children up to age 5 years who are at nutritional risk and meet program income qualifications. In fiscal year (FY) 2022, WIC was administered by 89 State agencies, including 50 States, the District of Columbia (DC), five territories (American Samoa, Guam, Commonwealth of the Northern Mariana Islands, Puerto Rico, and the Virgin Islands), and 33 Indian Tribal Organizations (ITOs). In FY 2022, WIC served 6.3 million participants, representing approximately half of the population eligible for the program (USDA FNS, 2024b; Kessler et al., 2023) and nearly 40 percent of infants in the United States (USDA FNS, n.d.).

WIC provides free healthy foods, nutrition education, breastfeeding support, and referrals to healthcare, social services, and other community resources. Monthly food benefits, provided in the form of WIC food packages, are a core component of the WIC program. There are seven science-based food packages designed to meet the specific nutritional needs of participants based on their life stage (USDA FNS, 2024a). WIC food packages are designed to be supplemental; while the packages do not provide all the foods a participant needs, they include foods with nutrients of public health concern to participants' diets. The foods prescribed to women and children include juice, milk, breakfast cereal, eggs, whole wheat bread, canned fish, legumes and/or peanut butter, and a fruit and vegetable cash-value benefit (CVB). The CVB is a specific dollar amount used to purchase fruits and vegetables. In FY 2022, the CVB for children was \$24, and for women was \$43 to \$47, depending on their pregnancy and breastfeeding status. Infant food packages include iron fortified formula, for infants not exclusively breastfeeding, as well as iron fortified infant cereal, baby food fruits and vegetables, and baby food meat. WIC participants' prescribed food package benefits are loaded onto an Electronic Benefits Transfer (EBT) card, which is used to transact the benefits at authorized retailers (USDA FNS, 2022a).

Although State agencies may use up to three delivery methods to distribute supplemental foods to participants (see "WIC food delivery systems" box), most primarily rely on a retail food delivery system (Tiehan & Frazão, 2016; USDA FNS, 2022). As a result, the number and geographic distribution of WIC-authorized retailers within State agencies is essential to program operations and supporting nutrition security, as these retailers are where participants shop to redeem their food benefits.²

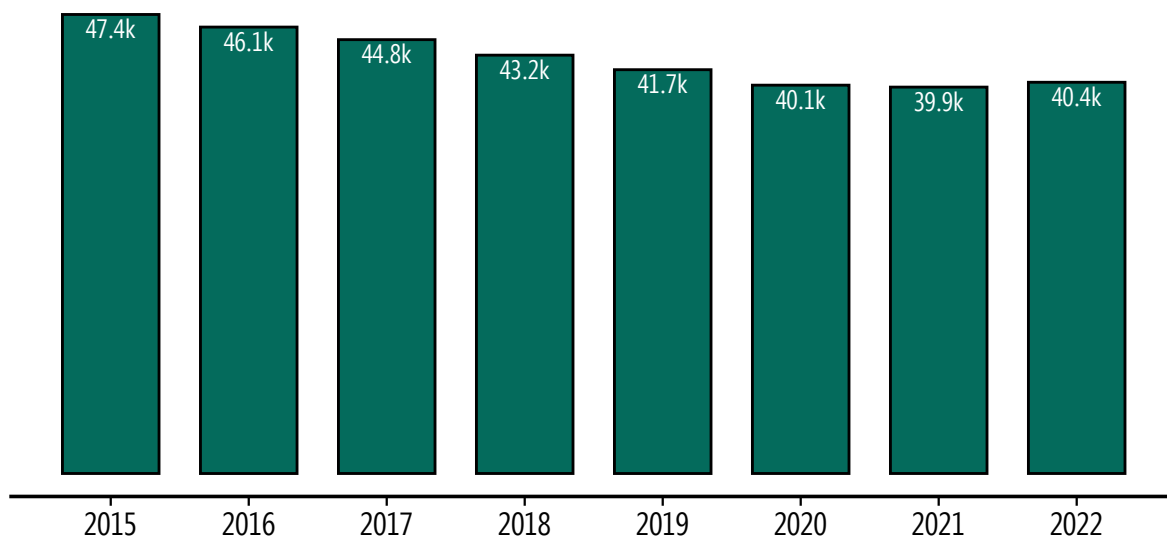
WIC food delivery systems

1. **Retail.** Participants obtain authorized supplemental foods by using their food instrument (i.e., Electronic Benefits Transfer (EBT) card) at authorized retailers.
2. **Home delivery.** Supplemental foods are delivered directly to the participant's home.
3. **Direct distribution.** Participants pick up authorized supplemental foods from storage facilities operated by the State agency or its local agencies. ▲

² Throughout this report, we use the term "retailer" to refer to any establishment classified as using a "retail" food delivery system in the WIC administrative data in FY 2022. This includes not only supermarkets and grocery stores but also farmers, commissaries, pharmacies, and Above-50-percent stores.

Since 2015, WIC has observed a 15 percent decline in the number of authorized retailers and other food delivery entities (Exhibit I.1). The sharpest decline in WIC-authorized retailers occurred between FY 2015 and FY 2019. However, since FY 2020, the total number of authorized retailers has remained relatively constant. This trend may be related to the requirement for States to implement EBT by 2020. One study estimated that the move to WIC EBT reduced the number of independent WIC retailers by 10.7 percent (Meckel, 2020). In addition, Gittelsohn et al. (2012) found that the revisions to the WIC food packages in 2009 made it harder for small stores to remain in compliance with stocking requirements and this effect may have continued to be felt after 2015. Lastly, a decline in participation could also have contributed to the decline in the WIC retailer population as fewer WIC shoppers means less demand for WIC foods. This is supported by evidence from a recent FNS study where former WIC households (i.e., those who left WIC while they were still eligible) reported lacking a convenient place to shop for WIC foods (Gleason et al., 2021). To remedy the decline, FNS issued a policy memo in October 2022 to encourage State agencies to assess their vendor populations and ensure the appropriate number and distribution of vendors are authorized (USDA FNS, 2022 b).

Exhibit I.1. Number of WIC-authorized retailers and other food delivery entities (in thousands), FY 2015–2022



Source: TIP and FDP

Note: The number of WIC retailers in FY 2021 is slightly lower than expected due to incomplete authorization data in one State (Indiana).

To ensure adequate WIC participant access to authorized retailers, WIC program regulations indicate that State agencies operating retail food delivery systems “must authorize an appropriate number and distribution of vendors in order to ensure the lowest practicable food prices consistent with adequate participant access to supplement foods and to ensure effective State agency management, oversight, and review” (7 CFR §246.12). As part of this process, State agencies must establish selection criteria to use when authorizing retailers. They must also develop criteria by which to determine whether a retailer is needed to ensure “adequate participant access” to supplemental foods. However, Federal regulations do not define adequate participant access for States, and, as a result, State definitions of access vary.

Selection criteria include those Federally mandated—for example, competitive pricing, minimum variety and quantity of supplemental foods, and business integrity—and additional selection criteria determined by the State agency. Examples of additional selection criteria include store hours of operation, store days of operation, minimum number of registers, minimum square footage, and state-specific stocking requirements on top of the federal minimum. Together the required and optional selection criteria implemented by State agencies largely dictate which types of retailers may be authorized to accept WIC foods in their State.

When a State agency determines, based on its participant access criteria, that a retailer is necessary to ensure adequate participant access to supplemental foods, some federally-mandated selection criteria must or may be waived and all State agency selection criteria must be waived. (see the “Federally mandated selection criteria” box).

In addition to selection criteria, State agencies may choose to impose limiting criteria to restrict the number of WIC retailers based on the size of the WIC population, WIC State agency staff numbers, and other factors. Together selection and limiting criteria can help States conserve resources related to food costs and retailer authorization, training, monitoring, and investigating (USDA, 2017). However, the use of these State policies may unintentionally create or perpetuate barriers to access WIC foods for participants.

An estimated 13 percent of the U.S. population lives in low-income census tracts with limited access to food stores, defined as being more than 1 mile from a supermarket, supercenter, or large grocery store in an urban setting and more than 10 miles in a rural setting (USDA ERS, n.d.). In addition, about 21 percent of WIC participants report using a means of transportation other than a personal car to travel to a retailer to use their WIC benefits (Magness et al., 2021). These estimates further elevate the need for WIC-authorized retailers in low-income communities that may otherwise be far from large grocery stores.

B. Study purpose and research objectives

The USDA FNS contracted with Mathematica to conduct the WIC Participant Access to Authorized Vendors Study to provide insight into the current geographic coverage and density of WIC retailers across the United States, ITOs, and territories. In addition, the study sought to examine whether and where there

Federally mandated selection criteria

Minimum variety and quantity of supplemental foods. Specifies minimum stocking standards for fruits, vegetables, and whole grains offered by retailers.

Business integrity. Disallows retailers that have been convicted of crimes that show a lack of business integrity or had a civil judgment against them within the last six years; allows State agencies to verify business integrity with appropriate Federal and State authorities.

Current SNAP disqualification or civil money penalty for hardship. Disallows State agencies from authorizing any retailer that is currently disqualified from SNAP or that has been assessed a SNAP civil money penalty for hardship.

Competitive price. Prices charged by a prospective retailer must be compared to other applicants and qualified retailers to ensure best prices to the program while ensuring participant access.

Incentive items management. Disallows State agencies from authorizing A50 retailers that provide prohibited incentive items to participants.

Electronic Benefits Transfer (EBT) capability. Once EBT has been implemented statewide, a State agency may not authorize a retailer that cannot successfully demonstrate EBT capability.

Source: USDA FNS (2017).

Notes: An A-50 retailer derives more than 50 percent of its total annual food sales revenue from WIC food instruments (USDA FNS 2024c). ▲

might be disparities in geographic access to retailers, and how changes in the composition of retailers over time might have contributed to or perpetuated disparities. The study findings are intended to support FNS in developing updated guidance to States regarding the definition of adequate participant access with respect to WIC retailers. In a first-of-its-kind assessment, this study used a combination of spatial and descriptive analyses to address three research objectives:

1. Determine the number and geographic distribution of WIC retailers within and across State agencies.
2. Assess whether there are disparities in access to WIC retailers based on area demographics of U.S. census tracts and other factors.
3. Assess whether there are disparities in access to WIC retailers based on retailer selection or limiting criteria.

C. Organization of the report

This report is divided into seven chapters. Chapter II provides an overview of the methods employed in this study. Chapters III through VI discuss the results of the analyses and are organized by study objective. Chapter VII offers study conclusions with a discussion of key takeaways, study limitations, and areas for future research. Supplemental findings from the analyses along with additional methodological details and results from an exploratory spatial analysis are provided in Appendices A-C.

II. Measuring Geographic Access

This chapter describes the key data sources and analytic methods used to address the study objectives. Section A provides details regarding the administrative and publicly available data that were obtained for the study, along with information on how key community-level characteristics were defined. Section B describes how geographic access was defined and operationalized for this study and concludes with important caveats to the analysis. Further details regarding key outcomes, data, and methods are provided in subsequent chapters in the context of discussing analytic results as well as in Appendices B and C.

A. Data sources, analysis file construction, and key variables

This study used several data sources to analyze the geographic distribution of WIC retailers within and across State agencies. FNS provided administrative data from the following data sources: The Integrity Profile (TIP), Food Delivery Portal (FDP), Store Tracking and Redemption System (STARS), and WIC State Plans. The study also included information on a set of community-level variables to capture variation in social vulnerability, food access, and urbanicity, as well as publicly available information on State-level WIC and SNAP participation. Exhibit II.1 describes the set of data elements from each data source that were used to address the study's research objectives.

Exhibit II.1. Description of data sources and data elements

Data source	Data elements	Time frame
FNS administrative data		
The Integrity Profile (TIP)	• Address corresponding to each WIC retailer • Store name • Store type • Year of data	• Annual data for 2015—2020
Food Delivery Portal (FDP)	• Address corresponding to each WIC retailer • Store name • Retail category • Status • WIC Only retailer • Year of data	• Annual data for 2021 and 2022
Store Tracking and Redemption System (STARS)	• Address corresponding to each SNAP-authorized retailer • Store name • Store type • Year of data	• Annual data for 2015–2022
WIC State Plans	• Retailer selection and authorization criteria	• FY 2022
WIC Program: Total Participation	• Total number of participants within each State agency	• Annual data for 2019–2022
SNAP: Number of Persons Participating	• Total number of participants within each State	• Annual data for 2019–2022

Data source	Data elements	Time frame
Extant data		
2015–2019 American Community Survey 5-Year Estimates	- Number of families with incomes below poverty and children under the age of 5 at the census-tract level (proxy for WIC eligibility) - Number of families with cash public assistance income or households receiving Food Stamps/SNAP benefits in the past 12 months at the census-tract level (proxy for SNAP participants)	Pooled 5-Year Estimates for 2015–2019
ERS Food Atlas	- Low-income and low-access census tract status - Rural-urban commuting code for each census tract	2019
CDC Social Vulnerability Index	Social vulnerability index of each census tract	2020

Retailer-level analysis file. To understand the authorized retailer landscape across State agencies, the study used administrative TIP, FDP, and STARS data to construct a retailer-level analysis file comprising the full population of retailers that were either SNAP or WIC authorized between FY 2015 and FY 2022.³ This analysis file included information on retailer name, location, and retailer type (for instance, large supermarket versus convenience store). The address information was geocoded to correspond to each authorized retailer using ESRI's ArcGIS StreetMap Premium software (ESRI, 2024) to obtain geographic coordinates (latitude and longitude) for each retailer, which were subsequently used to determine whether the retailer was located in an urban or rural census tract. Given the importance of accurately determining each retailer's location for this study, the geocoded results were reviewed for match quality, and any geocodes that were deemed to be low quality were subsequently manually reviewed and updated based on location information obtained from Google Maps.⁴

Census tract-level analysis file. In addition to the retailer-level analysis file, a census tract-level analysis file that included key community-level characteristics was constructed. These characteristics included measures of each census tract's WIC-eligible population, WIC State agency retailer policies, urbanicity, social vulnerability, and food access.

- **WIC-eligible population.** The study used information from the 2015–2019 American Community Survey (ACS) to estimate the number of WIC-eligible families in each census tract in the United States. Specifically, the WIC-eligible population was defined as the number of families with children younger than 5 years and incomes below 185 percent of the Federal poverty level.
- **WIC State agency retailer policies.** WIC State Plan 2022 data was compiled by FNS, which provided information on State agency policies related to optional selection and limiting criteria used by States

³ Although the primary focus of this study was to examine the distribution of WIC access, the universe of SNAP-but-not-WIC retailers provides an important point of comparison when exploring how WIC authorization practices might influence geographic accessibility to the program.

⁴ Lower-quality geocodes included those that were georeferenced based solely on 5-digit zip code, city and state, or other less precise geographic information. In total, about 1,000 retailer locations were manually reviewed by the study team.

when authorizing retailers. Binary variables were defined to indicate which State agencies implemented any limiting or selection criteria. Indicator variables for each specific type of limiting or selection criteria were also created.

- **Community characteristics.** The study obtained publicly available data from the 2019 ERS Food Atlas (USDA ERS 2024), which was used to identify low-income, low-access census (LILA) tracts and to classify the urbanicity of census tracts.⁵ The study also obtained data from the CDC Social Vulnerability Index (SVI) 2018 Database to measure the social vulnerability of census tracts (CDC 2018).

Community characteristics: Key definitions

Low-income, low-access (LILA). LILA is a binary measure developed by the USDA, ERS that indicates whether a census tract is low-income and has low-access to large food stores, including supermarkets, super centers, or large grocery stores.^a Low-income (LI) census tracts are defined as those with a poverty rate of at least 20 percent or a median family income at or below 80 percent of the metropolitan area or State median income level. Low-access (LA) tracts are defined as those where a significant number or share of residents is more than 1 mile (urban) or 10 miles (rural) from the nearest large food store. LILA tracts are those that meet both the income and food access criteria.

Urbanicity. Urban and rural indicators were obtained from the ERS Food Atlas and are based on the Census Bureau's urban-rural classification.^b According to the Census Bureau, urbanized areas represent densely developed territory and encompass residential, commercial, and other nonresidential urban land uses.^c To qualify as an urban census tract, the geographic centroid of the tract must be located in an area with more than 2,500 people; all other tracts are classified as rural.

Social vulnerability. Census tracts considered to have high social vulnerability are those that have demographic and economic factors, such as poverty, lack of access to transportation, crowded housing, or limited English proficiency, that make them particularly vulnerable to hazards like hurricanes, floods, wildfire, and disease outbreaks.^d Using 16 variables from the 5-year ACS, CDC created an index of social vulnerability at the census tract level. This study used the social vulnerability index (SVI) index categorized into quartiles to define the social vulnerability of a census tract as low, low-medium, medium-high, or high.

^a Rhone, A., Williams, R., & Dicken, C. (2022). Low-income and low-foodstore-access census tracts, 2015–19 (EIB-236). U.S. Department of Agriculture, Economic Research Service. <https://www.ers.usda.gov/publications/pub-details/?pubid=104157>

^b U.S. Department of Agriculture, Economic Research Service. (n.d.). Food environment atlas: Documentation. <https://www.ers.usda.gov/data-products/food-environment-atlas/documentation/>

^c U.S. Census Bureau. (n.d.). Urban and rural. <https://www.census.gov/programs-surveys/geography/guidance/geo-areas/urban-rural.html>

^d Flanagan, B. E., Gregory, E. W., Hallisey, E. J., Heitgerd, J. L., & Lewis, B. (2011). A social vulnerability index for disaster management. *Journal of Homeland Security and Emergency Management*, 8(1). <https://doi.org/10.2202/1547-7355.1792>

B. Spatial analytic approach

1. Measures of WIC access

This study presents two measures of access to WIC retailers. First, the study used a binary measure indicating whether a census tract is within convenient access to at least one WIC retailer. Convenient access was determined based on the availability of an authorized retailer within one mile (urban areas) or 10 miles (rural areas) of the population-weighted center of a census tract. These distance markers (1 and

⁵ Because low-income, low-access status was a key subgroup of interest for this study and these metrics were based on 2010 census tract boundary definitions, the study uses 2010 boundaries as the basis for all analyses.

10 miles) were selected based on those used in the ERS Food Access Research Atlas.⁶ Distance between a census tract and nearby authorized retailers was measured using driving distance as opposed to Euclidean or “as the crow flies” distances to better reflect the lived experience of WIC participants, who travel to authorized retailers using the established road network. Second, the study used a count of retailers within convenient access to each census tract to differentiate between varying levels of access to WIC. In general, census tracts with convenient access to a larger number of authorized retailers are assumed to have greater access to WIC foods, as participants who reside in these places have more options from which to choose when redeeming their benefits. WIC participants may only redeem benefits at retailers authorized by their own State agency, but a single retailer can be authorized by two or more WIC State agencies. Because ITOs coincide with State boundaries, tract-level access indicators were constructed separately for States and ITOs. For an ITO WIC participant, a retailer authorized by their geographic State may be the most proximate, but it is only considered accessible if authorized by the ITO agency. More information regarding how ITO boundaries and access indicators were constructed is provided in Appendix B.

In addition to these two measures, an exploratory analysis using a novel two-step floating catchment area (2SFCA) analysis was conducted to construct a continuous access measure. Unlike the primary access measures that examine access solely from a demand-side perspective (the number of retailers within convenient access to a given census tract), the 2SFCA analysis incorporates both a supply-side measure (the number of WIC-eligible families potentially served by a given retailer) and a demand-side measure. Appendix C provides more information regarding the 2SFCA analysis and corresponding findings.

Convenient access is defined for this study as the availability of a WIC retailer within a one-mile driving distance in urban areas and a 10-mile driving distance in rural areas from the population-weighted centroid of a census tract. ▲

2. Analyses

To address the study objectives and research questions (Exhibit II.2), descriptive analysis techniques were used, including univariate and bivariate tabulations and present means, proportions, and distributions of key outcomes. Findings are presented overall within each State agency and among key subgroups of interest, including LILA status, SVI status, and urbanicity. When calculating access to WIC retailers, the unit of analysis is the census tract and convenient access is a characteristic of the tract. Discussions of the number of WIC-eligible families with or without convenient access are sums of the number of WIC-eligible families residing in census tracts with those characteristics. Throughout the report, simple averages of census tracts are used as opposed to population-weighted averages. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences between groups and are not influenced by sampling variability. To facilitate comparisons

⁶ The ERS Food Access Research Atlas also includes two other definitions of access that use 0.5-mile (urban) and 10-mile (rural) distance markers and 1-mile (urban) and 20-mile (rural) distance markers. To assess the sensitivity of the findings from this report, the study team also conducted additional analyses using these two alternative definitions. Findings from these sensitivity analyses indicated that the level of convenient access, as reflected by the number of retailers within convenient access to a census tract, was sensitive to the definition of access applied. However, the relative ordering of State agencies by level of convenient access was generally robust to the definition of access used.

across State agencies, findings are summarized visually using maps and bar charts within the main report. Appendix A provides full analysis results, including all point estimates underlying visualizations.

Exhibit II.2. Study objectives and research questions

Objective 1. Determine the number and geographic distribution of WIC retailers within and across State agencies

1. How many WIC retailers are authorized per State agency? How many WIC retailers are authorized per participant in each State agency? How do these numbers compare to SNAP?
2. How has the number of WIC retailers per State agency changed since 2015?
3. What is the geographic distribution of WIC retailers in each WIC State agency? How does this distribution vary by store type and urbanicity?
4. What is the geographic distribution of WIC retailers across low-income and low-access (LILA) census tracts in each State agency? How does this distribution vary by store type and urbanicity?
5. What is the geographic distribution of WIC retailers across socially vulnerable census tracts? How does this distribution vary by store type and urbanicity?

Objective 2. Assess whether there are disparities in access to WIC retailers based on area demographics of U.S. census tracts and other factors

1. What are the differences in the geographic distribution of WIC retailers compared to SNAP retailers in the same State agencies?
2. What are the differences in the geographic distribution of WIC retailers compared to unauthorized, but eligible retailers in the same State agencies?
3. Are there gaps in the geographic distribution of WIC retailers across LILA census tracts?
4. Are there gaps in the geographic distribution of WIC retailers across socially vulnerable census tracts?

Objective 3. Assess whether there are disparities in access to WIC retailers based on retailer selection or limiting criteria

1. Do the number and distribution of WIC retailers per State agency vary based on certain WIC retailer selection and/or limiting criteria?
2. Do retailer selection and/or limiting criteria seem to have an influence on any observed gaps in the geographic distribution of WIC retailers, including across LILA and socially vulnerable census tracts?

3. Caveats to the analysis

There are three caveats to this analysis. First, a small number of retailers (N=16), representing less than 1 percent of all retailers, were excluded from the analysis because their geographic coordinates placed the retailer far from any nearby road network. Second, it was not feasible to conduct geographic access analyses in four of the five territories (all but Puerto Rico) due to a combination of low-quality geocoding results for the retailer address information and a lack of ACS tract-level data. Finally, it was not possible to conduct the geographic access analyses in five of the 33 ITOs. Two ITOs, Pueblo of San Felipe and Santo Domingo Tribe, did not use a retail food delivery system to provide WIC foods in the years that data were analyzed for this report. The other three ITOs, Passamaquoddy Tribe at Indian Township, Passamaquoddy Tribe at Pleasant Point, and Santee Sioux, had geographic boundaries comprising only a small portion of a single census tract, which did not coincide with the population-weighted centroid of the tract. As a result, it was not possible to generate accurate distance measures within these ITOs.

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III. Characteristics of WIC Retailers and Changes Over Time

This chapter describes the findings of the first two Objective 1 research questions (see callout box). Specifically, the chapter examines how the number and type of WIC retailers varies across State agencies, and how the number of WIC retailers has changed over time.

Key findings

- The State agency with the most WIC retailers in FY 2022 was California (N=3,999), followed by New York (N=3,184) and Texas (N=2,245).
- There were about 7,000 fewer authorized WIC retailers in FY 2022 compared to FY 2015. Three States (New York, Pennsylvania, and California) accounted for over 40 percent of this decline. ▲

A. Characteristics of WIC retailers in 2022

To understand the types of food retailers available to WIC participants, FDP data was merged with the SNAP STARS database. The STARS database contains more detailed store type classifications for retailers that are SNAP authorized. As most WIC retailers are also SNAP authorized, merging these two data sources enabled us to include store type classifications for more than 97 percent of WIC retailers in the FY 2022 FDP data. After merging these two sources, the same procedures were used as by ERS to classify each WIC retailer into one of 11 store type categories, which were then used to further group retailers into broader categories based on retailer size (Tiehen & Frazão, 2016). Exhibit III.1 defines each of the 11 store type classifications. “Large stores” include super stores, supermarkets, and large grocery stores, and “smaller stores” include all other store types, including medium and small grocery stores, convenience stores, dollar stores, among others. WIC-authorized retailers that were categorized in the FDP data as “regular retail” that could not be matched to STARS were classified as “missing.”

Objective 1 research questions

1. How many WIC retailers are authorized per State agency? How many WIC retailers are authorized per participant in each State agency? How do these numbers compare to SNAP?
2. How has the number of WIC retailers per State agency changed since 2015? ▲

Exhibit III.1. Retail store types

Store type	Description
Super stores	“Big box” stores, very large supermarkets, and food warehouses that sell a wide range of groceries and other merchandise. This includes membership retail and wholesale stores that offer a limited selection of products in a warehouse-style setting.
Supermarkets	Establishments that typically have 10 or more checkout lanes equipped with cash registers, bar code scanners, and conveyor belts.
Large grocery stores	Establishments that carry a wide selection of all staple food categories, including breads and grains; dairy; fruits and vegetables; and meat, poultry, and fish, and primarily stock food items.
Medium grocery stores	Establishments that carry a moderate selection of all staple food categories, including breads and grains; dairy; fruits and vegetables; and meat, poultry, and fish, and primarily stock food items.

Store type	Description
Small grocery stores	Establishments that carry a small selection of all staple food categories, including breads and grains; dairy; fruits and vegetables; and meat, poultry, and fish, and primarily stock food items.
A-50 stores	Establishments that derive at least 50 percent of their annual food sales revenue from WIC regardless of store size or variety of products offered.
Convenience stores	Self-service establishments that provide a limited selection of convenience items and are usually open for extended hours. These establishments primarily sell a variety of canned goods, dairy products, pre-packaged meats, and other grocery items in limited amounts.
Combination grocery stores	Establishments whose primary business is the sale of general merchandise but also sell a range of food products. This includes dollar stores, general stores, and independent drug stores.
Commissaries	Establishments that are operated by the military.
Pharmacies	Establishments that are only authorized to provide infant formula or other WIC-eligible medical foods.
Other	Specialty stores, such as bakeries, seafood markets, and meat and poultry markets; farmers' markets; delivery routes; farmers; and nonprofit food buying cooperatives.

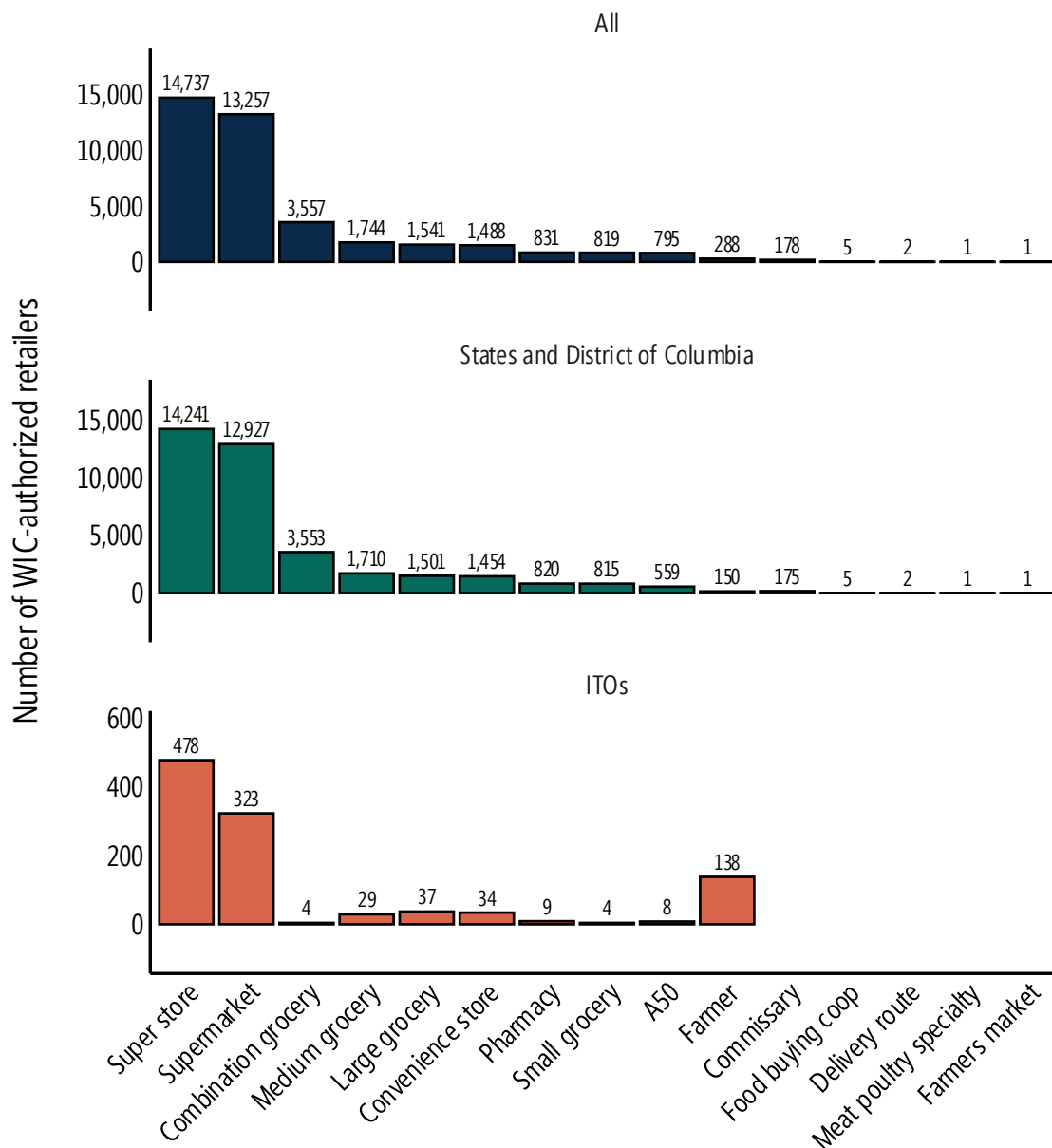
Source: Tiehen and Frazão (2016)

In FY 2022, there were 40,347 WIC-authorized retailers; nearly all (98.8 percent) of which were WIC vendors, including super stores, supermarkets, grocery stores of any kind, pharmacies, convenience stores, and A-50 stores. Other types of retailers, such as farmers, commissaries, and farmers' markets, were less prevalent (see Exhibit III.2). Over two-thirds (69 percent) of WIC retailers in FY 2022 were either super stores or supermarkets. Roughly ten percent were grocery stores of any size, including small, medium and large grocers, and nine percent were combination grocery stores. All other store types represented fewer than five percent of WIC retailers. The distribution of retailer types was similar between States and ITOs, though the proportion of WIC-authorized super stores was higher in ITOs (43 percent) than in States (37 percent). As shown in Exhibit III.3, the majority of store types were unknown in the territories (68 percent) because STARS data do not include territories, except for the Virgin Islands and Guam, making comparisons difficult (American Samoa, the Northern Mariana Islands, and Puerto Rico do not participate in SNAP). However, A-50 stores were far more common in the territories, primarily due to the high number of A-50 stores in Puerto Rico.

Exhibit III.3 also shows how the number and proportion of retailers overall and by State agency type vary based on urbanicity, LILA status, and social vulnerability (for State agency findings see Appendix Table A.1). Overall, 80 percent of WIC-authorized retailers in FY 2022 were located in urban census tracts. Among the three types of State agencies, the proportion of urban retailers varied from a low of 65 percent in ITOs to a high of 81 percent among the 50 States and DC. About 86 percent of all WIC-authorized retailers were located in places that were not designated as LILA, with a slightly higher proportion among the 50 States and DC compared to ITOs (88 to 82 percent, respectively). Because LILA tracts are by definition places where a high proportion of the population has low access to large retailers, it is to be expected that few WIC-authorized retailers would be located within these communities. Nonetheless, roughly 12 percent of WIC-authorized retailers were located in LILA census tracts in FY 2022. These retailers include smaller retailers (e.g., retailers that were not super centers, supermarkets, or large

grocery stores) as well as those that were WIC-but-not-SNAP authorized. Finally, roughly one-third of authorized retailers were located in high socially vulnerable communities. This proportion was even greater among ITOs, where 45 percent of all authorized retailers were located in a high SVI census tract. Across both types of State agencies, as social vulnerability decreased so too did the number of authorized retailers.

Exhibit III.2. WIC retailers by retail store type



Source: FDP and STARS (2022 data)

Note: When defining store type, information provided in the STARS data was privileged over retailer information available in FDP. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization

Exhibit III.3. Characteristics of WIC retailers by State agency type

Characteristic	Total		States		ITOs		Territories	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Food delivery method								
Retail	40,347	99.9%	38,409	99.9%	1,103	99.3%	835	100.0%
Home delivery	3	0.0%	2	0.0%	1	0.1%	0	0.0%
Direct distribution	27	0.1%	20	0.1%	7	0.6%	0	0.0%
Total	40,377	-	38,431	-	1,111	-	835	-
Store type^a								
Super store	14,737	36.5%	14,241	37.1%	478	43.3%	18	2.2%
Supermarket	13,257	32.9%	12,927	33.7%	323	29.3%	7	0.8%
Large grocery store	1,541	3.8%	1,501	3.9%	37	3.4%	3	0.4%
Total large retailers	29,535	73.2%	28,669	74.6%	838	76.0%	28	3.4%
Medium grocery store	1,744	4.3%	1,710	4.5%	29	2.6%	5	0.6%
Small grocery store	819	2.0%	815	2.1%	4	0.4%	0	0.0%
Above-50-percent store	795	2.0%	559	1.5%	8	0.7%	228	27.3%
Convenience store	1,488	3.7%	1,454	3.8%	34	3.1%	0	0.0%
Combination grocery store	3,556	8.8%	3,552	9.2%	4	0.4%	0	0.0%
Commissary	178	0.4%	175	0.5%	0	0.0%	3	0.4%
Pharmacy	831	2.1%	820	2.1%	9	0.8%	2	0.2%
Other store type	301	0.7%	163	0.4%	138	12.5%	0	0.0%
Total other retailers	9,712	24.1%	9,248	24.1%	226	20.5%	238	28.5%
Missing	1,100	2.7%	492	1.3%	39	3.5%	569	68.1%
Urbanicity^{a,b}								
Urban	32,341	80.2%	31,041	80.8%	716	65.0%	584	70.2%
Rural	7,893	19.6%	7,347	19.1%	386	35.0%	160	19.2%
Missing	97	0.2%	9	0.0%	0	0.0%	88	10.6%
Low-income and low access (LILA)^{a,b}								
LILA	4,684	11.6%	4,483	11.7%	201	18.2%	N/A	N/A
Not LILA	34,805	86.3%	33,904	88.3%	901	81.8%	N/A	N/A
Missing	842	2.1%	10	0.0%	0	0.0%	N/A	N/A
Social vulnerability								
Low	6,657	16.5%	6,559	17.1%	98	8.9%	N/A	N/A
Low-medium	8,895	22.1%	8,724	22.7%	171	15.5%	N/A	N/A
Medium-high	10,681	26.5%	10,347	26.9%	334	30.3%	N/A	N/A
High	13,230	32.8%	12,732	33.2%	498	45.2%	N/A	N/A
Missing	868	2.2%	35	0.1%	1	0.1%	N/A	N/A

Source: ERS Food Atlas, CDC SVI, FDP and STARS (2022 data)

Note: Missing store type includes WIC retailers that are classified as "regular retail" in the FDP data but could not be classified using STARS data, either because they were not SNAP authorized or because the store type information was missing. Other store types include specialty food stores and farmers' markets. When defining store type, information provided in the STARS data was privileged over retailer information available in FDP. The large share of missing store type in the territories

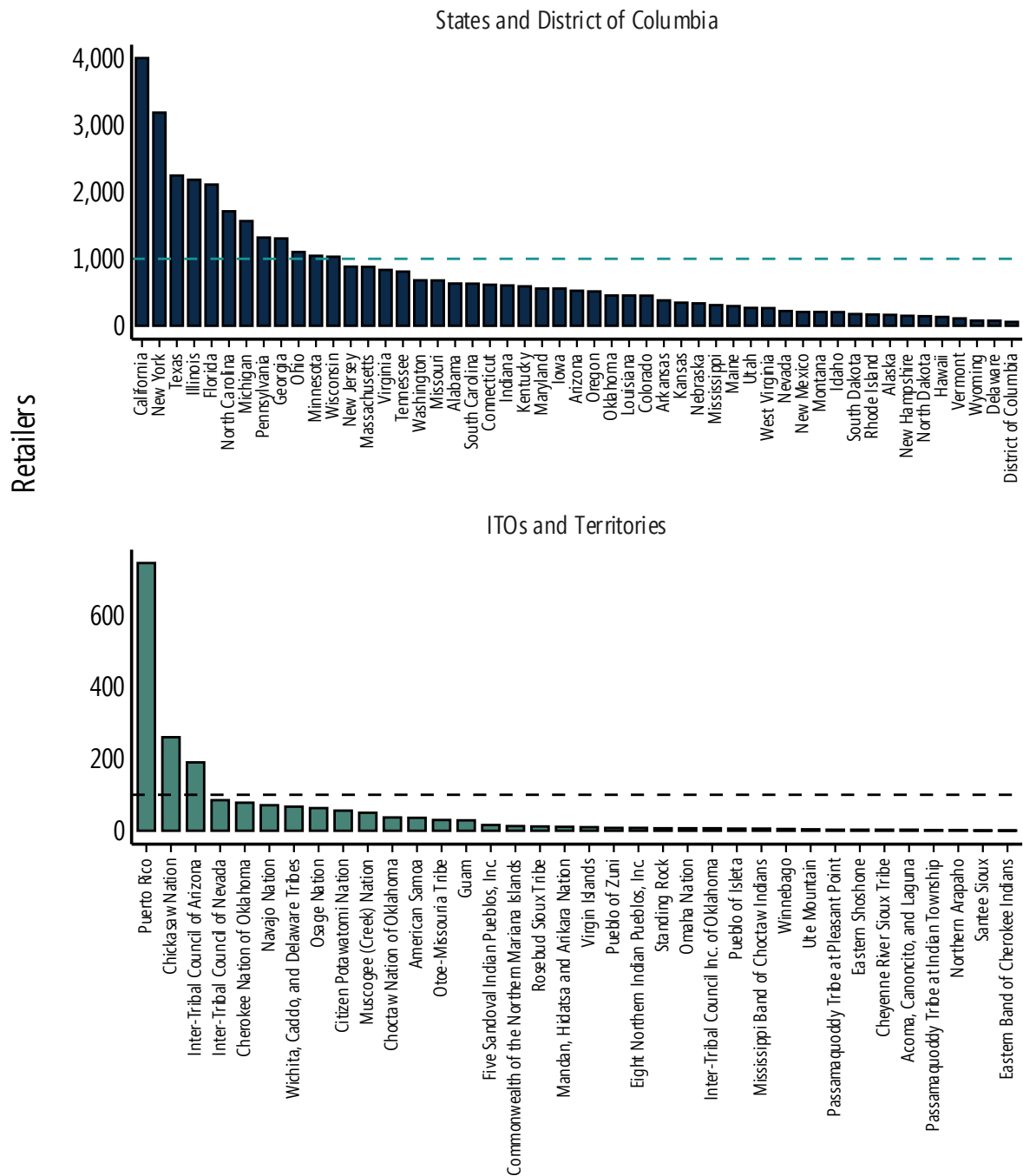
is due to three territories (Puerto Rico, American Samoa, and the Northern Mariana Islands) not participating in SNAP, so their WIC store data could not be matched to STARS. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

^a Results are restricted to retailers only.

^b Results exclude 16 retailers whose geographic coordinates placed the retailer far from any nearby road network.

There were pronounced differences in the number of WIC retailers across State agencies (see Exhibit III.4 and Appendix Table A.2). In general, State agencies with larger populations tended to have more WIC retailers. In FY 2022, among the 50 States and DC, California had the most WIC retailers (N=3,999), followed by New York (N=3,184) and Texas (N=2,245). Among ITOs and territories, Puerto Rico had the most WIC retailers (N=744) followed by the Chickasaw Nation (N=260) and the Inter-Tribal Council of Arizona (N=190). Twelve ITOs authorized five or fewer retailers in FY 2022.

Exhibit III.4. Number of WIC retailers by State agency in 2022



Source: ERS Food Atlas and FDP (2022 data)

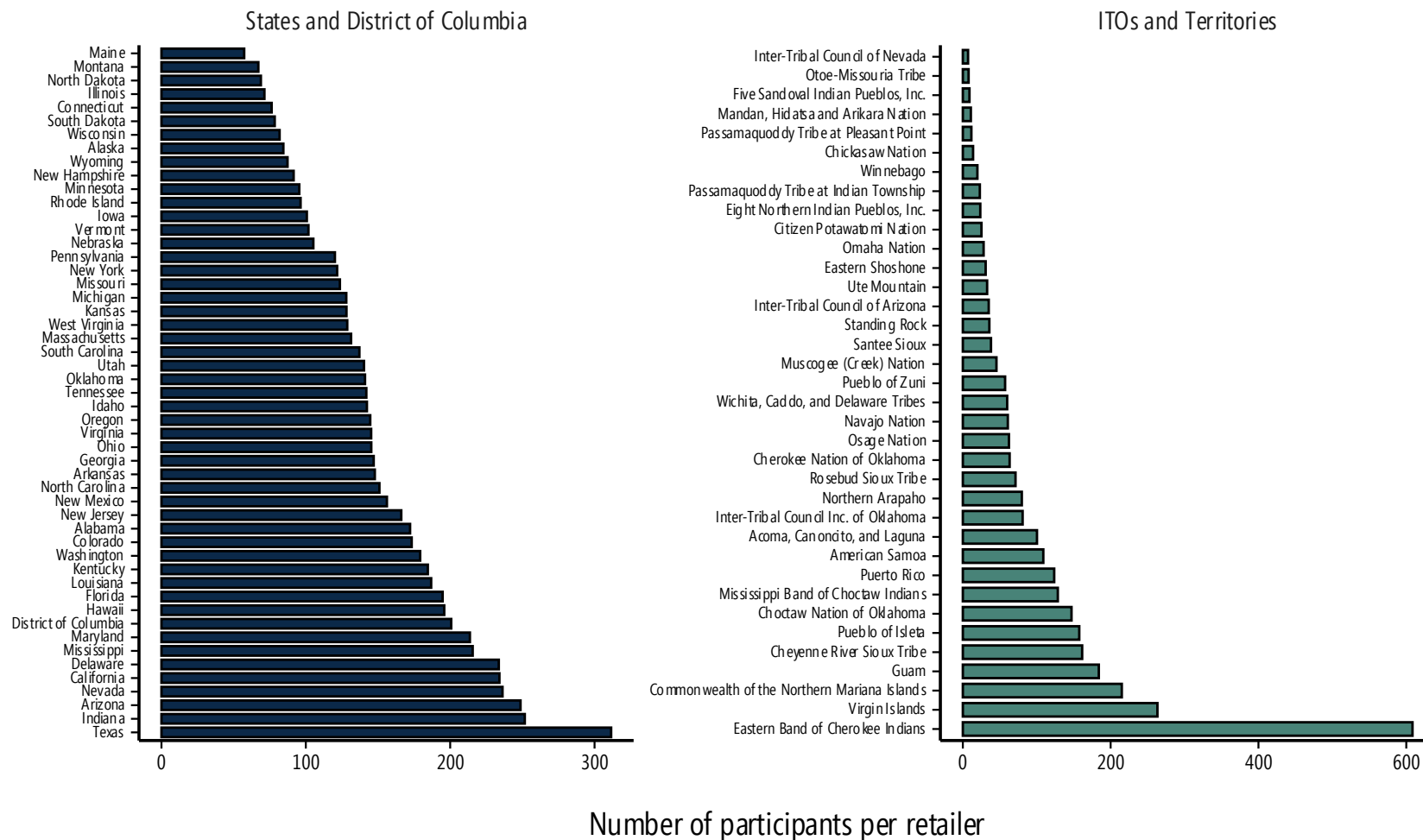
Note: Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability. On the top panel (States and District of Columbia), the dashed line indicates 1,000 retailers. On the bottom panel (ITOs and Territories), the dashed line indicates 100 retailers.

ITO = Indian Tribal Organization

To account for differences in the number of WIC participants in each State agency, Exhibit III.5 displays the number of WIC participants per retailer in each State agency. This value is also referred to as the WIC-participant-to-retailer ratio and is a measure of retailer availability. Because WIC-authorized retailers are the only retailers that are allowed to accept WIC benefits, having sufficient availability of authorized retailers in each State agency is critical to ensuring WIC participants can purchase their WIC foods. In general, smaller ratios imply greater retailer availability on a per-participant basis, whereas larger ratios imply lower retailer availability. Among the 50 States and DC, the WIC participant-to-retailer ratios varied substantially across agencies, ranging from a low of 57 participants per retailer (Maine) to a high of 311 participants per retailer (Texas). These findings indicate that there was a greater density of WIC retailers available to participants in Maine compared to Texas. Across ITOs and territories, WIC participant-to-retailer ratios varied even more greatly, ranging from a low of 7 participants per retailer (Inter-Tribal Council of Nevada) to a high of 608 participants per retailer (Eastern Band of Cherokee Indians).

Exhibit III.6 compares WIC-participant-to-retailer ratios to SNAP-participant-to-retailer ratios in the 50 States and DC. For over half (N=28) of these State agencies, WIC ratios were higher than the SNAP-participant-to-retailer ratios, suggesting greater access to SNAP retailers compared to WIC retailers. In Texas and Indiana, WIC-participant-to-retailer ratios were more than double those for SNAP. In Indiana, the participant-to-retailer ratios for WIC and SNAP were 252 and 106, respectively, and in Texas, these ratios were 311 and 149. In contrast, the participant-to-retailer ratios were substantially lower for WIC than for SNAP in New Mexico (N=156 and N=302, respectively), DC (N=201 and N=302, respectively) and Illinois (N=71 and N=199, respectively).

Exhibit III.5. Number of WIC participants per retailer

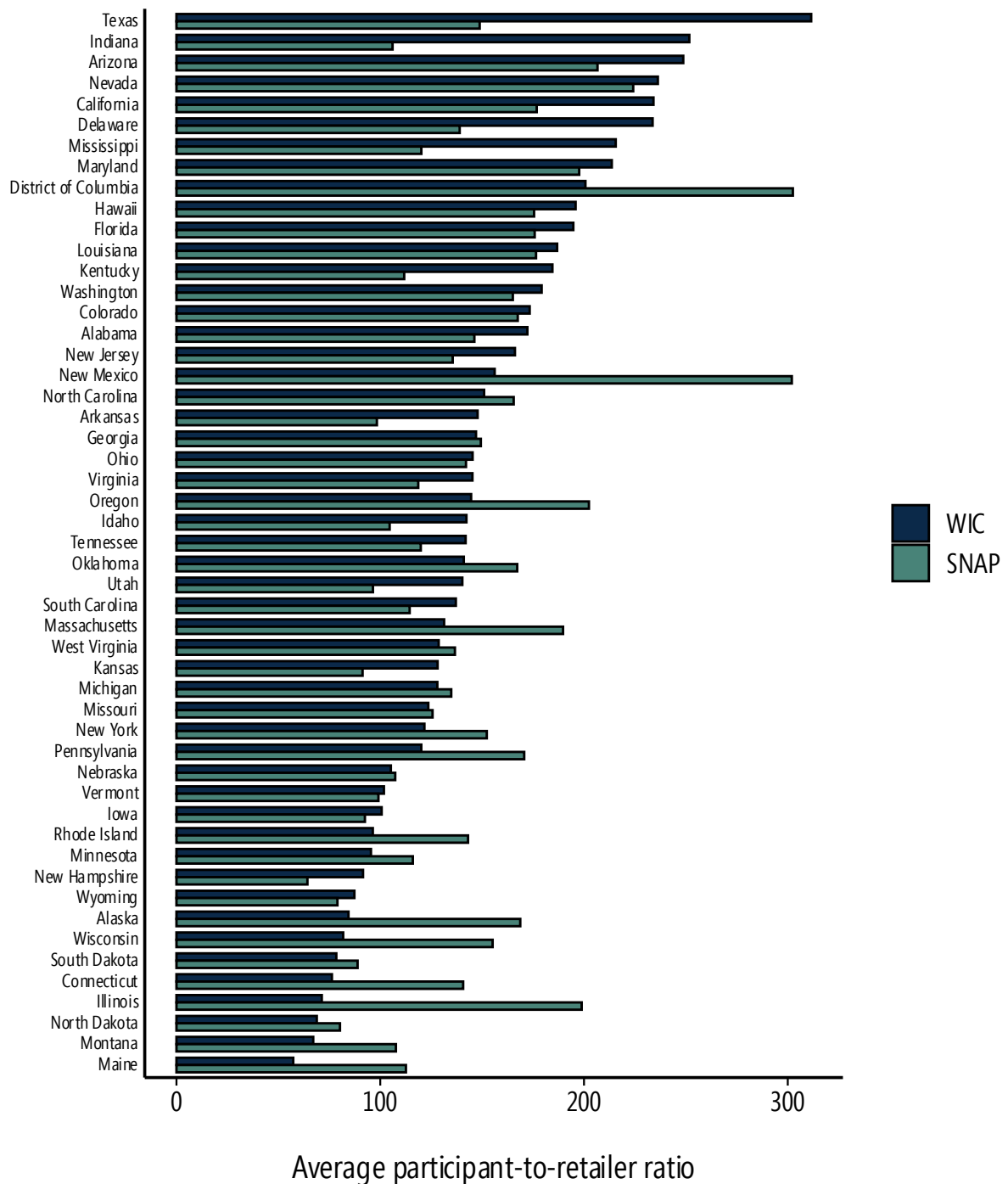


Source: ERS Food Atlas, FNS WIC Data Tables, FDP (2022 data)

Note: The participant-to-retailer ratio represents the number of WIC participants per authorized retailer in each state. Lower ratios indicate higher retailer availability, suggesting better access to retailers for participants. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization

Exhibit III.6. Number of participants per retailer by program type



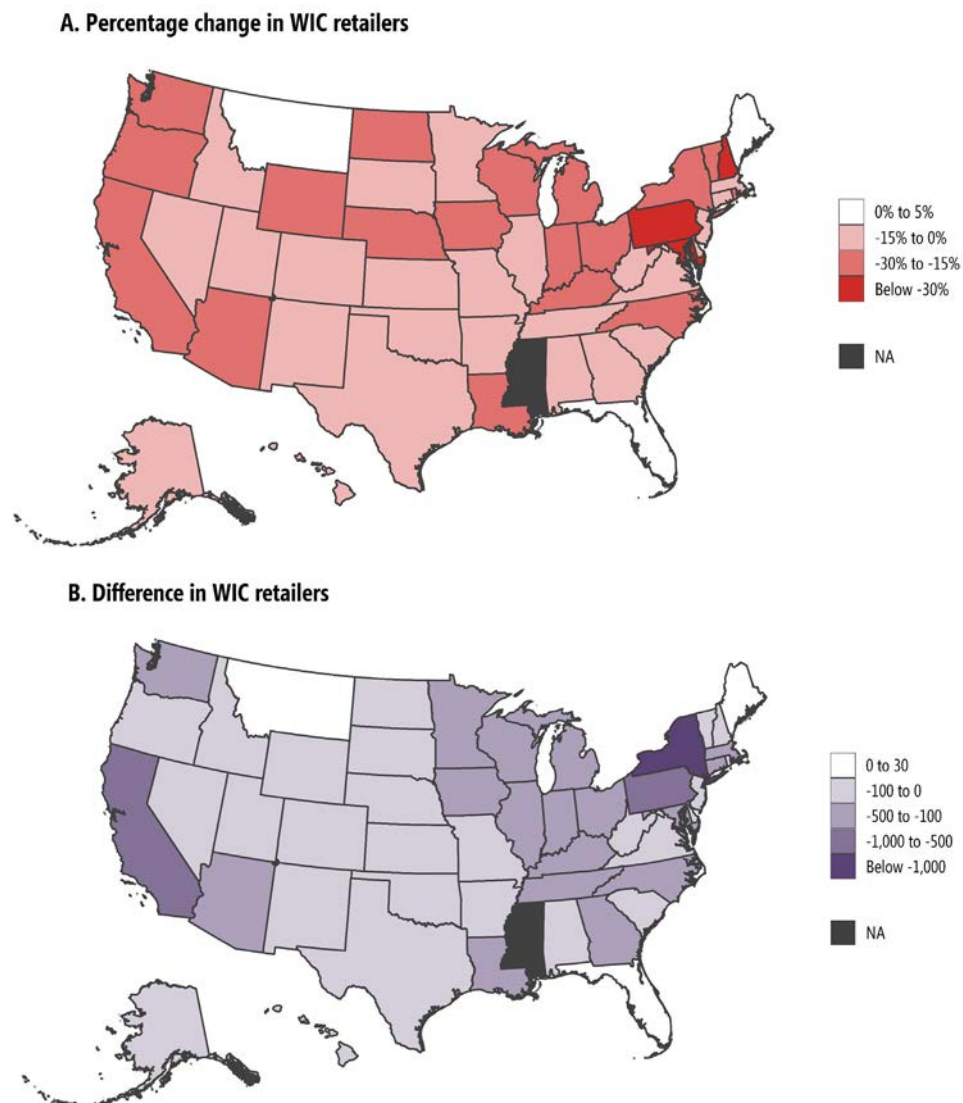
Source: ERS Food Atlas, FNS WIC Data Tables, FDP and STARS (2022 data)

Note: The SNAP participant-to-retailer ratio counts the ratio of WIC-eligible participants to SNAP retailers. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

B. Changes in WIC retailers over time

Nationwide, the number of WIC retailers declined from 47,363 in FY 2015 to 40,347 in FY 2022—a decrease of roughly 15 percent nationwide. Three States (New York, Pennsylvania, and California) account for over 40 percent of this decline. In each of these States, there were nearly 1,000 fewer WIC-authorized retailers in FY 2022 compared to FY 2015 (Exhibit III.6 and Appendix Table A.4). Across State agencies, there was considerable variation in the percentage change in WIC retailers between FY 2015 and 2022. For instance, Maryland and Pennsylvania both experienced 43 percent declines in the number of WIC-authorized retailers. Seven other States had declines in WIC retailers of at least 25 percent over the same period. Among the ITOs and territories, six experienced declines of at least 25 percent (Exhibit III.7).

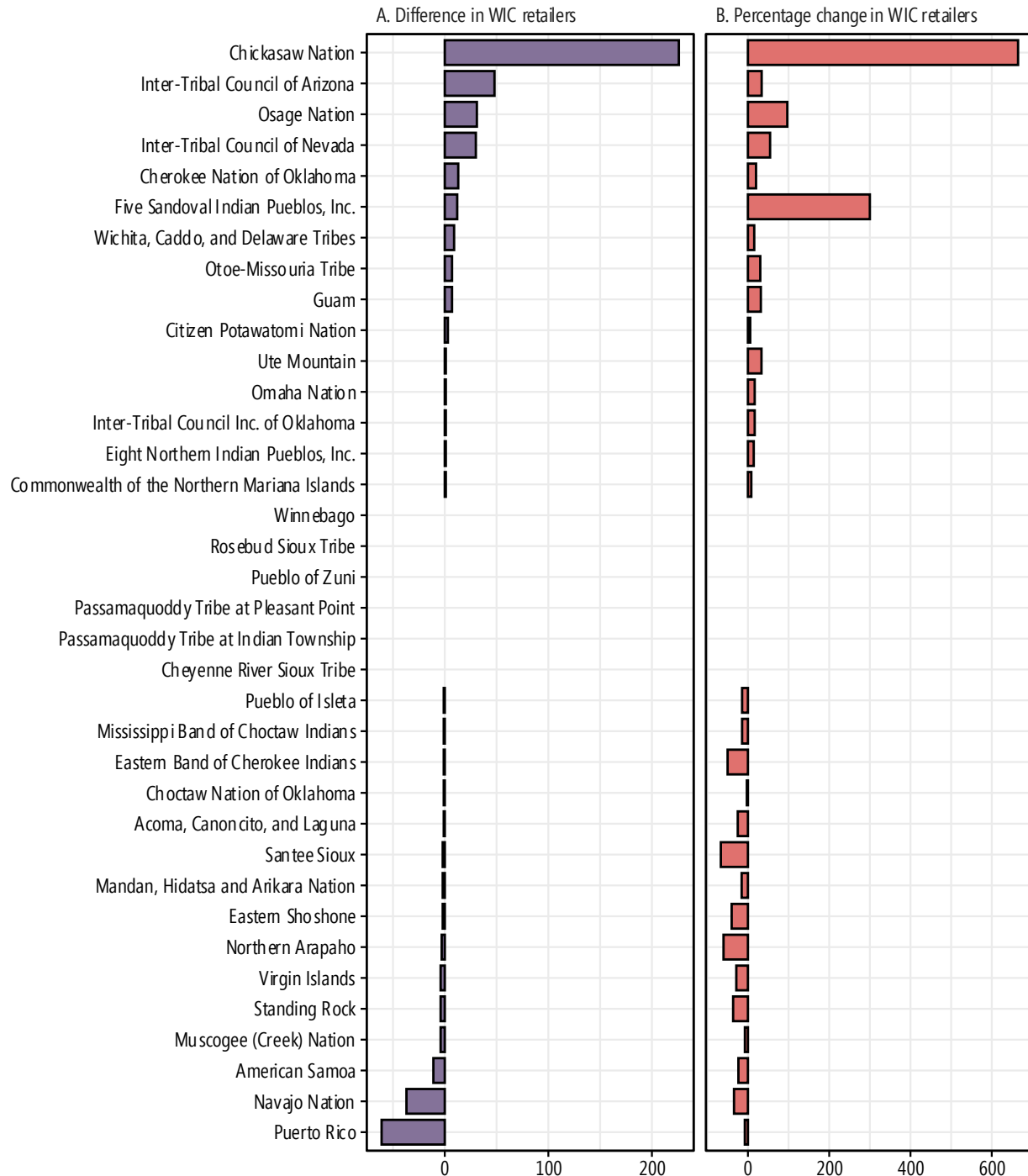
Exhibit III.7. Change in WIC retailers between FY 2015 and FY 2022 among the 50 States and DC



Source: TIP and FDP (2022 data)

Note: Mississippi did not use a retail food delivery method in 2015 and has been excluded from the analysis. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

Exhibit III.8. Change in WIC retailers between FY 2015 and FY 2022 among ITOs and territories



Source: TIP and FDP (2022 data)

Note: Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

Changes in the number of authorized retailers between FY 2015 and FY 2022 also varied substantially by store type. Of the roughly 7,000 retailers that either left or were not reauthorized by the WIC program

over this time, 18 percent were large stores, such as super centers, supermarkets, or large grocery stores and 79 percent were other smaller stores, such as convenience stores and small grocers. Exhibit III.8 shows the change in number of authorized WIC retailers by store category between FYs 2015 and 2022.

Exhibit III.9. Change in number and proportion of WIC retailers by retailer type between FY 2015 and FY 2022

Store type	FY 2015	FY 2022	Difference (%)	Percent change
Large retailer	30,768	29,535	-1,233 (17.6%)	-4.0%
Other retailers	15,263	9,712	-5,551 (79.1%)	-36.4%
Missing	1,332	1,100	-232 (3.3%)	-17.4%
Total	47,363	40,347	-7,016 (100%)	-14.8%

Source: TIP, FDP and STARS (2022 data)

Note: Large retailers include super stores, supermarkets, and large grocery stores. Other retailers include medium and small grocery stores and Above-50-percent stores, as well as smaller retailers, such as convenience stores, combination grocery stores, specialty food stores, commissaries, pharmacies, and farmers' markets. When defining store type, information provided in the STARS data was privileged over retailer information available in FDP. Missing store type includes WIC retailers that are classified as "regular retail retailer" in the FDP data but could not be classified using STARS data, either because they were not SNAP authorized or because the store type information was missing.

Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

Although the overall number of WIC retailers declined between FYs 2015 and 2022, the most dramatic decreases in retailer participation in WIC occurred before FY 2020 (Exhibit III.9 and Appendix Table A.3). Annually between FYs 2015 and 2020, there were between 1,329 to 1,571 fewer WIC-authorized retailers, representing an average three to four percent decline year-over-year. Most of this decline was attributable to fewer authorized retailers in the 50 States and DC. Among the States and DC, the largest year-over-year percentage decline in retailers (4 percent) occurred between FY 2019 and 2020, which might have been driven by the added costs and technology burdens placed on retailers to implement and maintain WIC EBT during this time. Since FY 2020, however, the number of WIC retailers across all State agencies has remained relatively constant. Between FYs 2020 and 2021, there were 212 fewer WIC retailers (a 0.5 percent decline) and between FYs 2021 and 2022, 444 additional retailers participated in the WIC program (a 1.1 percent increase).

Exhibit III.10. Change in number and percentage of WIC retailers between FY 2015 and FY 2022

WIC State Agency	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2015-2022
Total								
Change in number of retailers	-1,329	-1,312	-1,524	-1,571	-1,520	-205	445	-7,016
Percent change	-2.8%	-2.9%	-3.4%	-3.6%	-3.7%	-0.5%	1.1%	-14.8%
States and DC								
Change in number of retailers	-1,308	-1,268	-1,630	-1,527	-1,583	-220	263	-7,273
Percent change	-2.9%	-2.9%	-3.8%	-3.7%	-4.0%	-0.6%	0.7%	-15.9%
Indian Tribal Organizations								
Change in number of retailers	25	18	36	-6	0	51	201	325
Percent change	3.2%	2.2%	4.4%	-0.7%	0.0%	6.0%	22.3%	41.8%

WIC State Agency	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2015-2022
Territories								
Change in number of retailers	-46	-62	70	-38	63	-36	-19	-68
Percent change	-5.1%	-7.2%	8.8%	-4.4%	7.6%	-4.0%	-2.2%	-7.5%

Source: TIP and FDP

Note: Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

Despite overall declines in the number of WIC retailers, 28 State agencies (31 percent) had retailer populations that either increased or remained stable between FYs 2015 and 2022. This included six agencies among the 50 States and DC and 23 ITOs and territories. Mississippi and the Chickasaw Nation had the largest increases in the number of WIC retailers (N=308 and N=226, respectively). These changes may have been driven by transitions from one food delivery system to another or changes in retailer selection and authorization criteria. For example, Mississippi recently began using a food retail delivery model; the State agency went from no retailers in FY 2015 to 308 retailers in FY 2022. Chickasaw Nation gradually added retailers between 2015 and 2022. Several State agencies also maintained nearly identical numbers of authorized retailers over this period (e.g., Ute Mountain and Montana each added one retailer).

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IV. Geographic Distribution of WIC Retailers Within and Across State Agencies

This chapter provides the results of analyses that respond to the remaining Objective 1 research questions (see callout box). Specifically, the chapter examines the geographic distribution of WIC retailers in each State WIC agency and how the distribution varies by store type, urbanicity, LILA status, and social vulnerability status.

Key findings

- 55 percent of census tracts had convenient access to at least one WIC retailer.
- Convenient access was on average higher among rural census tracts than urban census tracts, despite 80 percent of WIC retailers being located in urban areas.
- Among the States and DC, there were nearly twice as many non-LILA census tracts with convenient access to at least one WIC retailer compared to LILA census tracts (59 versus 30 percent, respectively).
- Overall, high SVI census tracts were more likely to have convenient access to WIC compared to low SVI census tracts. ▲

A. Geographic distribution of WIC retailers in each State agency

As noted in Chapter III, there were large differences in the proportion of WIC-authorized retailers by urbanicity, LILA status, and level of social vulnerability. Exhibit IV.1 shows how the average number of authorized retailers differs across these characteristics by State agency type (see Appendix Table A.6 for results by State agency). Among each type of State agency, there was fewer than one WIC-authorized retailer per census tract overall. This finding is to be expected given that there were roughly twice as many census tracts as WIC-authorized retailers in FY 2022. Nevertheless, there were pronounced differences in the distribution of retailers by key community-level characteristics. For instance, within urban census tracts, the average number of authorized retailers was consistently higher than the average among rural census tracts across the 50 States and DC, ITOs, and Puerto Rico. For the most part, there was a positive trend between the average number of authorized retailers and the level of social vulnerability of census tracts with those designated as having higher degrees of social vulnerability also having a higher average number of authorized retailers. This was true in all instances except for low socially vulnerable census tracts within ITOs, which had comparable numbers of WIC-authorized retailers on average to census tracts that were designated as having medium high levels of social vulnerability.

Objective 1 research questions

1. What is the geographic distribution of WIC retailers in each WIC State agency? How does this distribution vary by store type and urbanicity?
2. What is the geographic distribution of WIC retailers across low-income and low-access (LILA) census tracts in each State agency? How does this distribution vary by store type and urbanicity?
3. What is the geographic distribution of WIC retailers across socially vulnerable census tracts? How does this distribution vary by store type and urbanicity? ▲

Exhibit IV.1. Average number of WIC-authorized retailers per census tract by State agency type

State agency type	Overall	Urbanicity		LILA		SVI			
		Urban	Rural	LILA	Non-LILA	Low	Low-Med	Med-High	High
50 States and DC	0.58	0.62	0.49	0.53	0.58	0.38	0.52	0.64	0.76
ITOs	0.49	0.99	0.71	0.60	0.92	0.68	0.44	0.65	0.91
Puerto Rico	0.85	0.91	0.69	N/A	N/A	N/A	N/A	N/A	N/A

Source: FDP (2022 data), ERS Food Atlas, CDC SVI, and 2015–2019 ACS 5-Year Estimates

Note: Analysis was restricted to census tracts with a positive WIC-eligible population. Information on LILA status and SVI status were not available in Puerto Rico. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

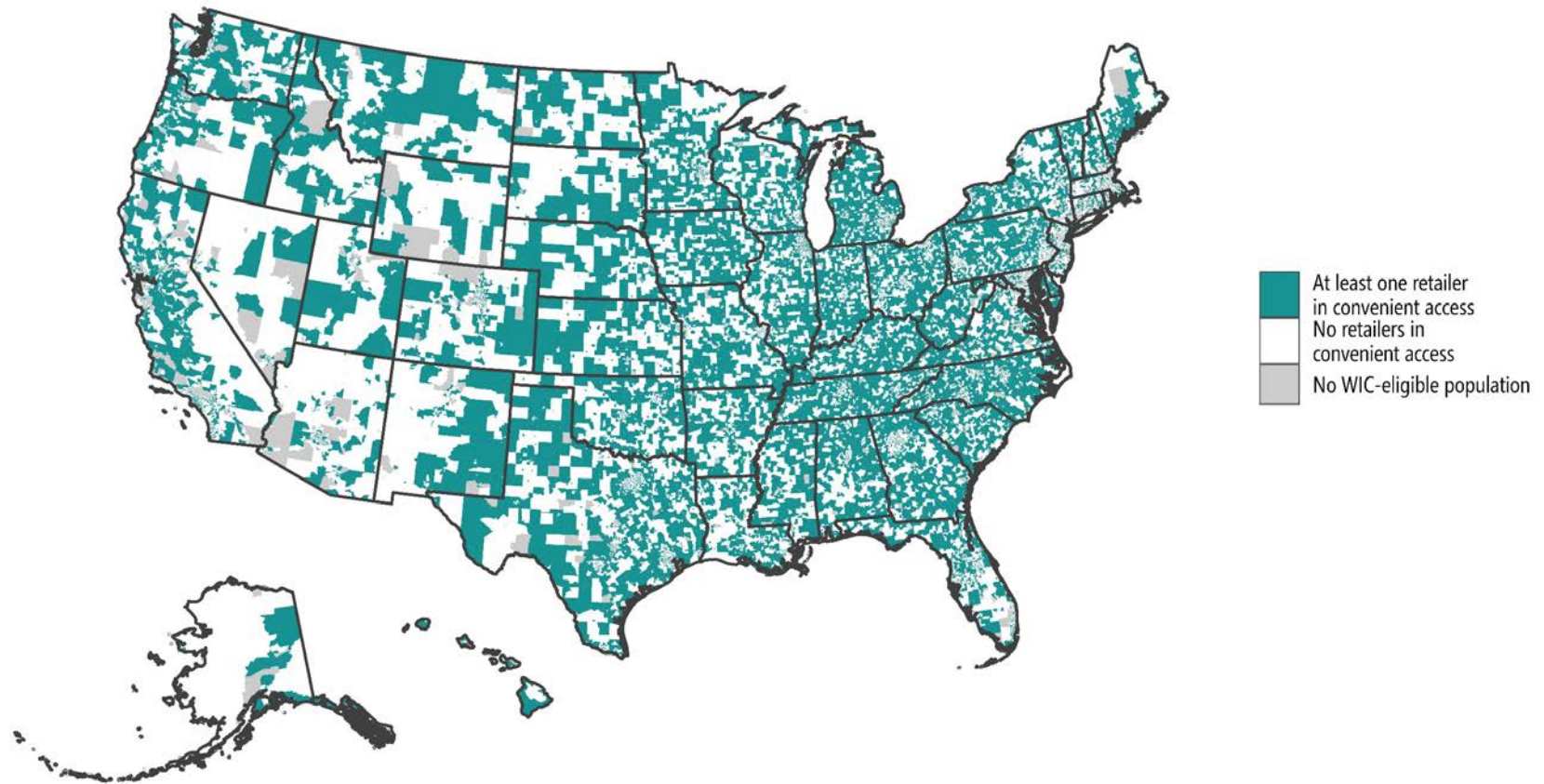
LILA = low-income, low-access; N/A = not applicable; SVI = Social Vulnerability Index

These geographic differences in the availability of WIC retailers contributed to large variation in access to WIC retailers within and across State agencies. As noted in Chapter II, this study quantifies geographic access in two ways: (1) using a binary measure that indicates the availability of a WIC retailer within a certain distance and (2) using a continuous measure that calculates the number of WIC retailers within a certain distance. The binary measure identifies census tracts with convenient access to WIC, where “convenient access” is defined as the availability of at least one WIC retailer with a one-mile driving distance in urban areas and a 10-mile driving distance in rural areas. The continuous measure sums the total number of WIC-authorized retailers within convenient access to a census tract to differentiate between varying levels of access.

Exhibit IV.2 shows the census tracts with convenient access to WIC retailers in FY 2022. Census tracts without any WIC-eligible families were excluded from all analyses.⁷ Across all State agencies, 55 percent of census tracts had convenient access to at least one WIC retailer. Similarly, 55 percent of census tracts in the 50 States and DC had convenient access to WIC, ranging from 42 percent of tracts in New Mexico to 81 percent in DC (see Exhibit IV.3 and Appendix Table A.7). Among ITOs and Puerto Rico, a slightly lower proportion (45 percent) of census tracts had convenient access to WIC. In four ITOs, every census tract was within convenient access to at least one WIC-authorized retailer, and four others lacked convenient access to any WIC retailers. Among agencies that had at least some census tracts within convenient access to a WIC retailer, the proportion of tracts with convenient access ranged from a low of 20 percent (Navajo Nation) to a high of 100 percent.

⁷ The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family. Urban census tracts with no retailers within one mile of the census tract’s population-weighted centroid and rural census tracts with no retailers within 10 miles of the census tract’s population-weighted centroid were considered to have no convenient access to a WIC retailer.

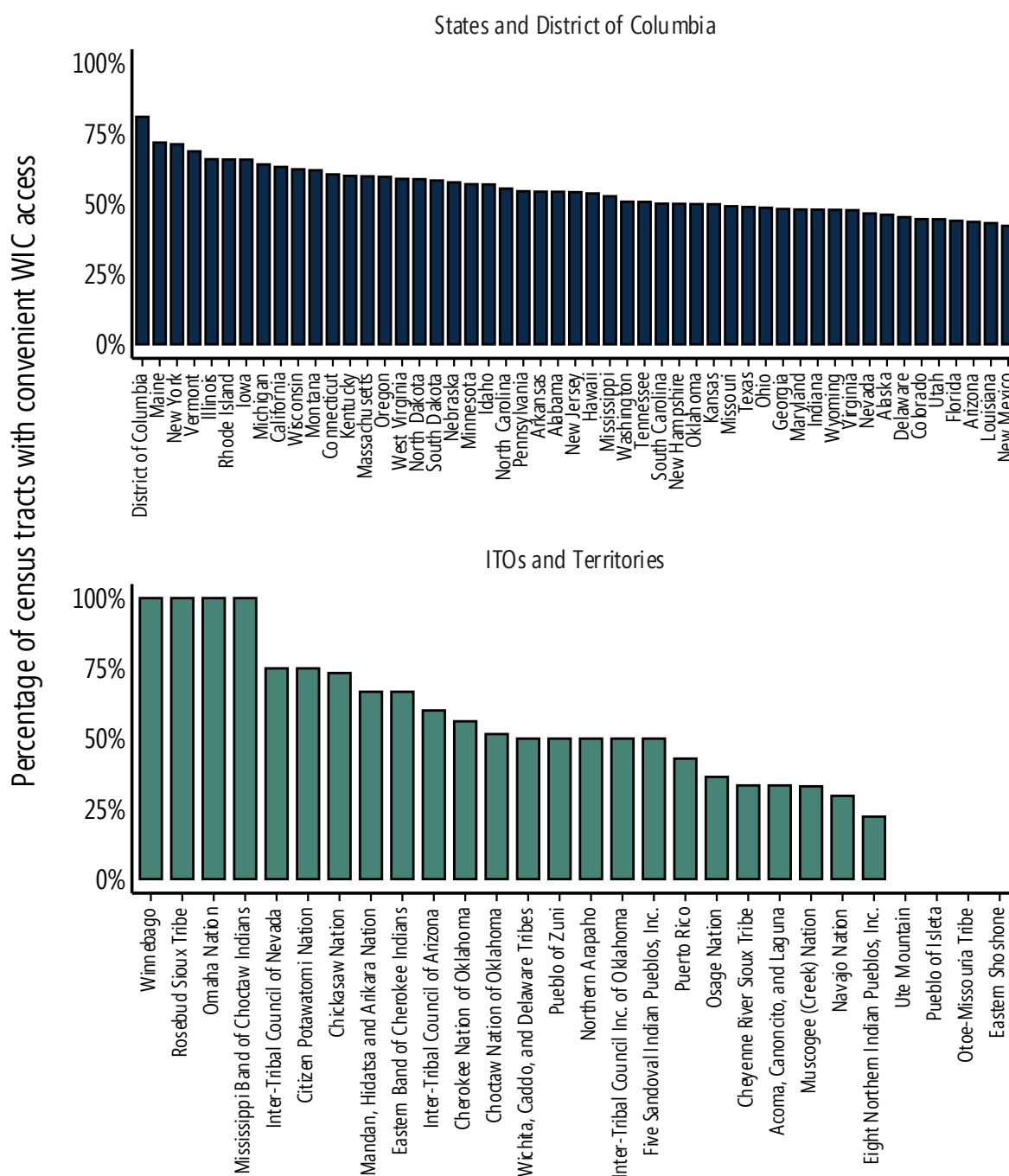
Exhibit IV.2. Convenient access to WIC retailers, among 50 States and the District of Columbia



Source: FDP (2022 data), ERS Food Atlas, and 2015–2019 ACS 5-Year Estimates

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family.

Exhibit IV.3. Percentage of census tracts with convenient access to WIC retailers among those with WIC-eligible families



Source: FDP (2022 data), ERS Food Atlas., and 2015-2019 ACS 5-Year Estimates

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family.

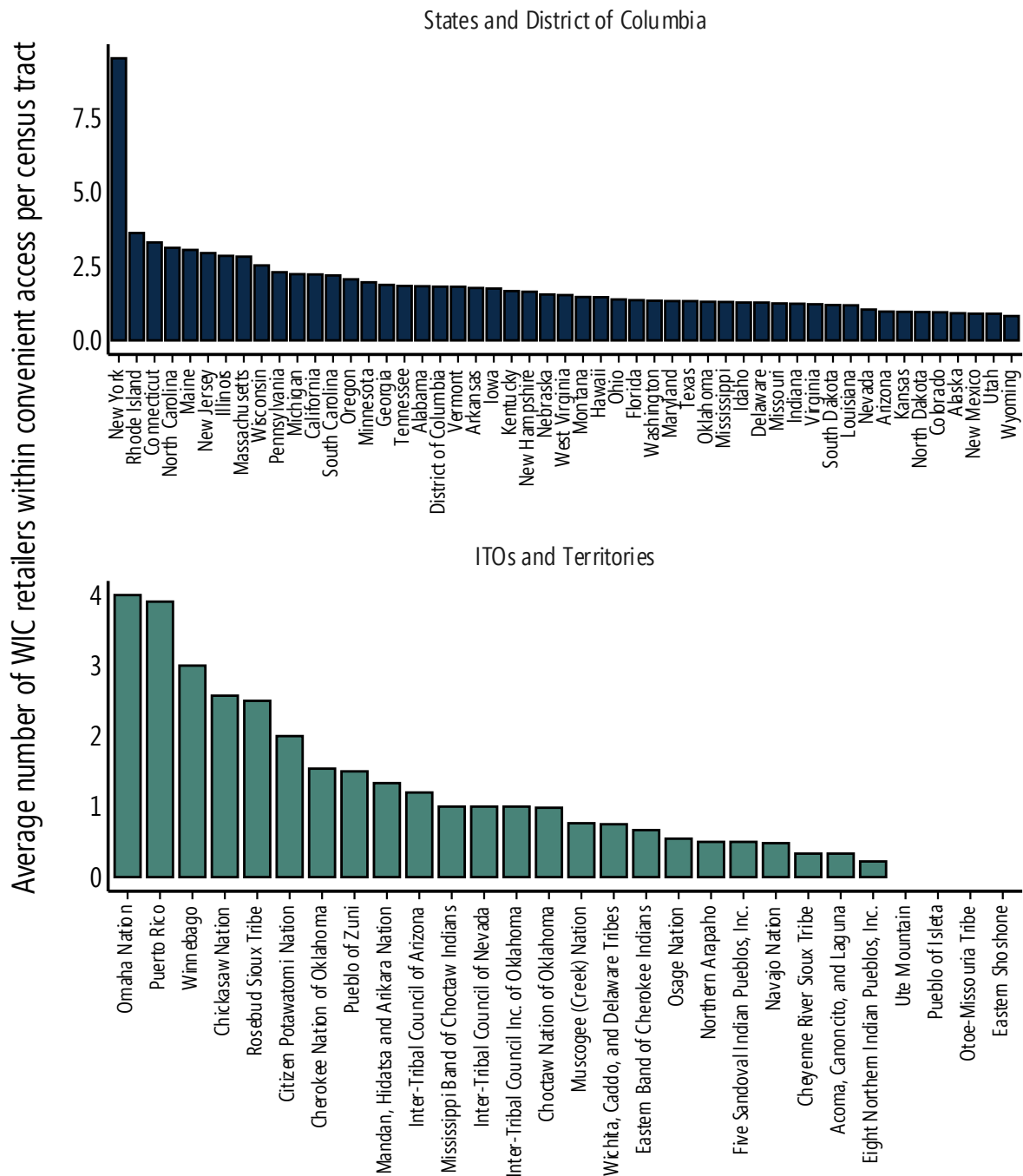
ITO = Indian Tribal Organization

Across all State agencies, there was an average of 2.3 WIC retailers within convenient access of each census tract. This was also true among the 50 States and DC (see Exhibit IV.4 and Appendix Table A.8). However, there was considerable variation in the number of retailers within convenient access by WIC State agency, ranging from a low of 0.8 WIC retailers per census tract in Wyoming to a high of 9.5 retailers per census tract in New York. As shown in the figure, New York had, on average, more than two times as many WIC retailers within convenient access compared to the next highest State, Rhode Island, which had 3.6 retailers. Among the ITOs and Puerto Rico, on average, there were 2.8 retailers within convenient access per census tract, with State agency-specific levels of access ranging from an average of 0.2 WIC retailers in Eight Northern Indian Pueblos, Inc. to 4.0 in Puerto Rico.

Overall, rural census tracts across State agencies had access to an average of 4.0 WIC retailers compared to 1.7 retailers in urban census tracts. Exhibit IV.5 and Appendix Table A.9 show the average number of WIC retailers in urban and rural census tracts in each State agency. Among the 50 States and DC, on average, urban census tracts had 1.8 WIC retailers within convenient access, and rural census tracts had 3.9 retailers. A similar pattern is held in the ITOs and Puerto Rico, with an average of 1.1 WIC retailers within convenient access in urban areas and 5.4 retailers within access in rural areas. These results suggest that WIC access is higher in rural areas compared to urban areas. However, this finding is likely driven by two factors. First, the distance threshold for convenient access in rural areas was ten times larger than in urban areas. Second, many census tracts surrounding large urban areas, such as those located in suburbs of major cities, were classified as rural due to having fewer than 2,500 residents. The combination of these two factors led to several rural census tracts having access to a large number of WIC-authorized retailers, contributing to higher average access to WIC. Research has shown that supermarkets, which account for one-third of all WIC retailers, are more prevalent in suburban areas (Kantor, 2001; Powell et al., 2007; Shannon, 2018). One study (Powell et al., 2007) estimated that suburban areas, on average, have as many as two times the number of available food stores compared to urban areas. As such, this study's definition of rural may have resulted in both suburban and rural communities being classified into the same group, which could have masked important variation in access between very rural and less rural census tracts.

The study also examined the types of WIC retailers accessible to WIC-eligible families. Exhibit IV.6 and Appendix Table A.10 display the average number of large stores and other smaller stores accessible to each census tract by State agency. Among the States and DC, there were, on average, 1.5 large retailers within convenient access and 0.7 other smaller retailers within convenient access. On average, Mississippi had the fewest retailers within convenient access (0.4 large retailers and 0.0 other smaller retailers), and New York had the most (4.3 large retailers and 3.5 other smaller retailers, respectively). Among ITOs, the opposite pattern emerged with convenient access to large retailers being lower than access to other smaller retailers, on average (0.4 large retailers versus 0.7 other smaller retailers, respectively). Five ITOs had no large retailers within convenient access, and 18 had no other smaller retailers within convenient access.

Exhibit IV.4. Average number of WIC retailers within convenient access per census tract

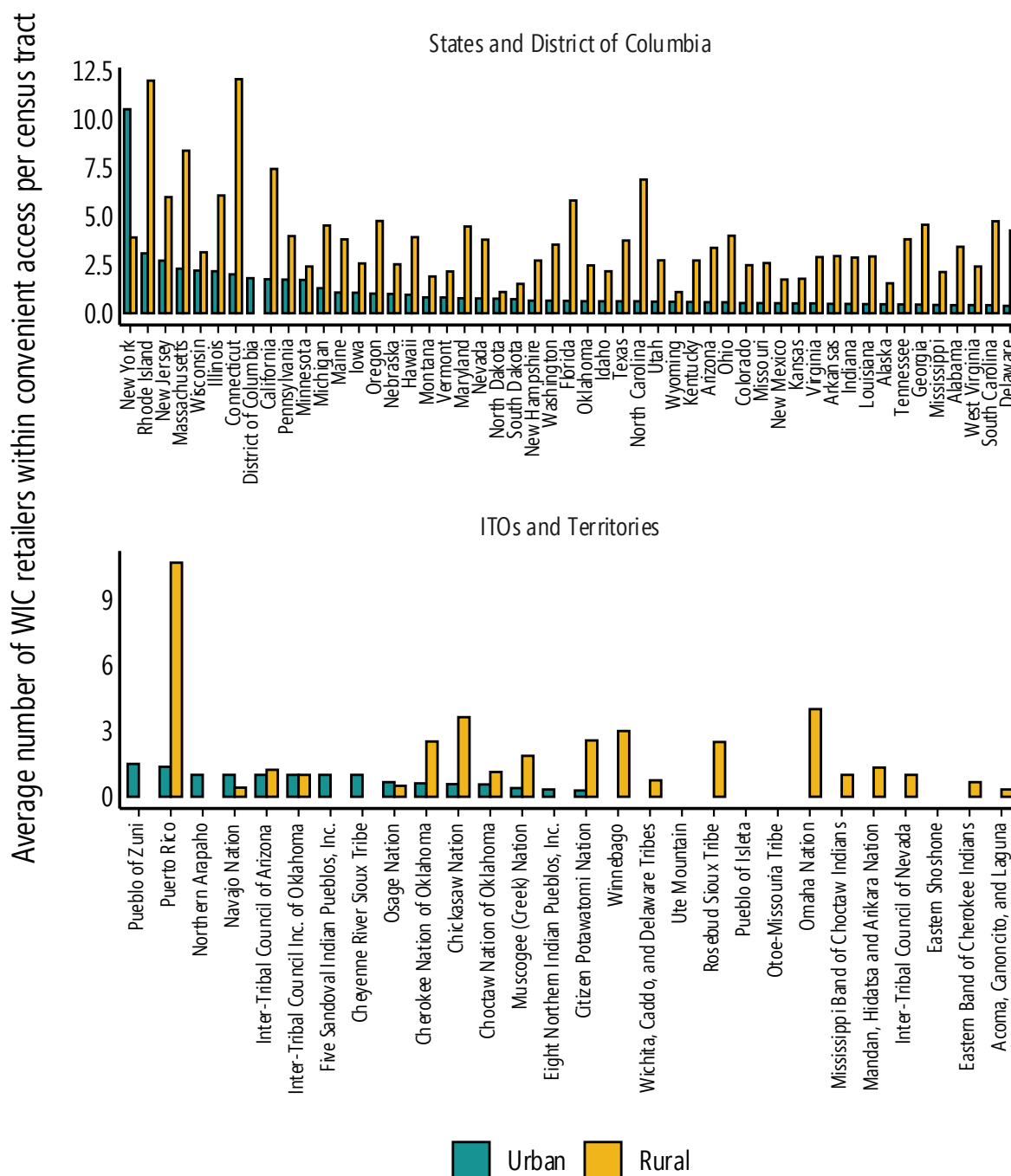


Source: FDP (2022 data), ERS Food Atlas, and 2015–2019 ACS 5-Year Estimates.

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family.

ITO = Indian Tribal Organization

Exhibit IV.5. Average number of WIC retailers within convenient access per census tract, by urbanicity



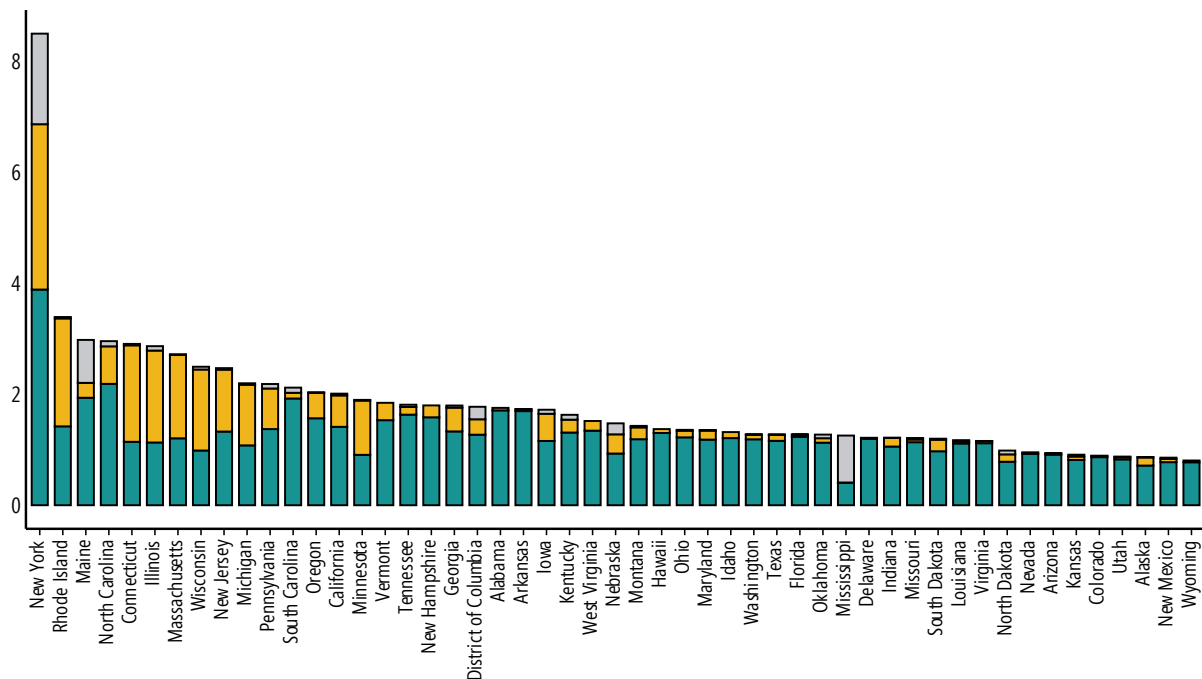
Source: FDP (2022 data), ERS Food Atlas, and 2015–2019 ACS 5-Year Estimates

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

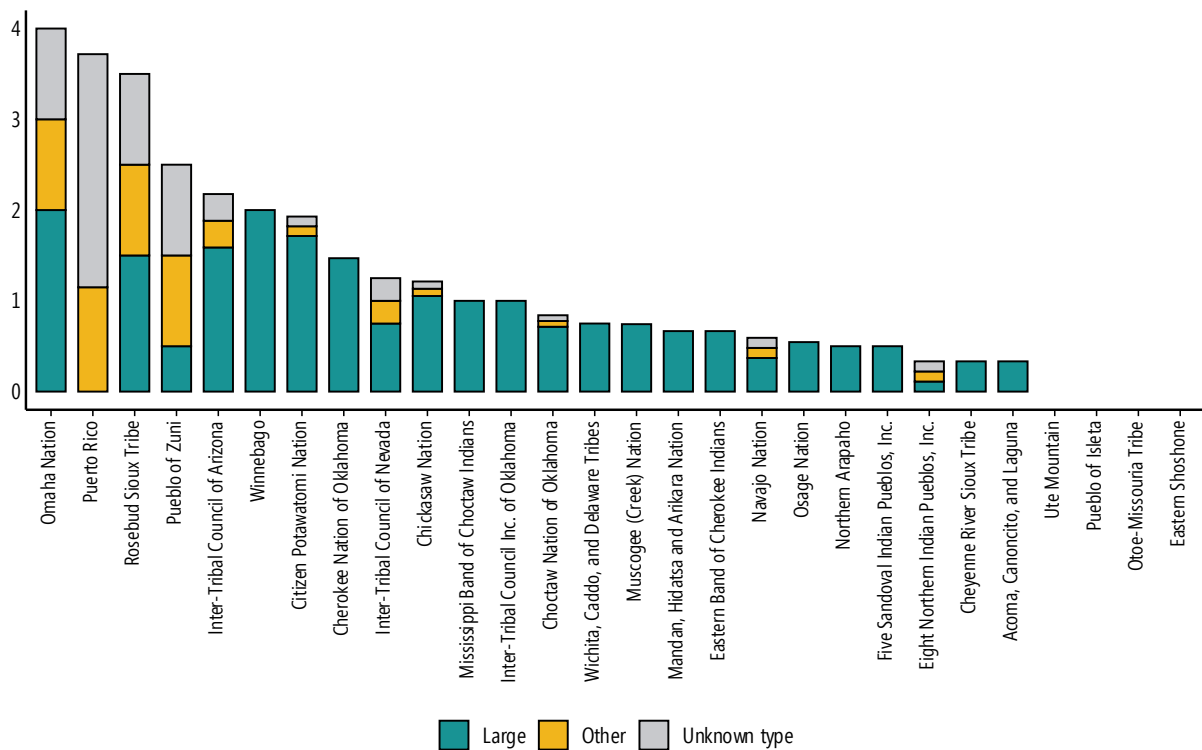
ITO = Indian Tribal Organization

Exhibit IV.6. Average number of WIC retailers within convenient access per census tract, by store type

A. States and District of Columbia



B. ITOs and Territories



Source: FDP (2022 data), ERS Food Atlas, and 2015–2019 ACS 5-Year Estimates

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization

B. Accessibility of WIC retailers by low-income and low-access status

Low-income, low-access (LILA) status is a binary measure that indicates whether a significant number or share of residents in a census tract is more than 1 mile (urban) or 10 miles (rural) from the nearest large food retailer. Because large food retailers comprise the majority of all food retailers in the U.S., lower convenient access to WIC retailers of any store type is expected in LILA census tracts compared to non-LILA census tracts—a finding that is confirmed by this study. Overall, convenient access to WIC retailers was much lower in LILA census tracts compared with non-LILA tracts (see Exhibit IV.7 and Appendix Table A.11). Among the States and DC, there were nearly twice as many non-LILA census tracts with convenient access to at least one WIC retailer compared to LILA census tracts (59 versus 30 percent, respectively). The disparity in access between LILA and non-LILA census tracts was largest for Maine, where 76 percent of non-LILA tracts were within convenient access compared to only 27 percent of LILA tracts, and Vermont, where 72 percent of non-LILA tracts were within convenient access compared to only 33 percent of LILA tracts. Connecticut and Minnesota had the smallest differences in access between LILA and non-LILA tracts. For instance, in Connecticut, 55 percent of LILA tracts were within convenient access to WIC retailers compared to 61 percent of non-LILA tracts.

Looking at the average number of WIC retailers within convenient access in LILA and non-LILA census tracts reveals a similar pattern. Across all State agencies, non-LILA tracts had more WIC retailers within convenient access than LILA tracts (2.5 retailers versus 0.4 retailers, respectively). A nearly identical distribution was observed among the 50 States and DC, where there was an average of 2.6 retailers within convenient access among non-LILA census tracts compared to 0.4 retailers among LILA census tracts. New York had the largest difference in the average number of WIC retailers within convenient access, with an average of 9.9 retailers in convenient access among non-LILA tracts and 0.6 among LILA tracts (see Exhibit IV.8 and Appendix Table A.12). In Wyoming, there were few retailers within convenient access among LILA or non-LILA census tracts (0.3 retailers and 0.9 retailers, respectively). Although it is noteworthy that LILA tracts, on average, had convenient access to fewer than one WIC retailer, the fact that roughly one-third of all LILA census tracts had at least one retailer in convenient access demonstrates the important role that smaller retailers have in filling access gaps created by large retailers. Even among LILA census tracts that by definition experience low-access to large retailers, the presence of these smaller WIC-authorized retailers located within convenient access to these areas offer potentially important opportunities for WIC participants to redeem their benefits.

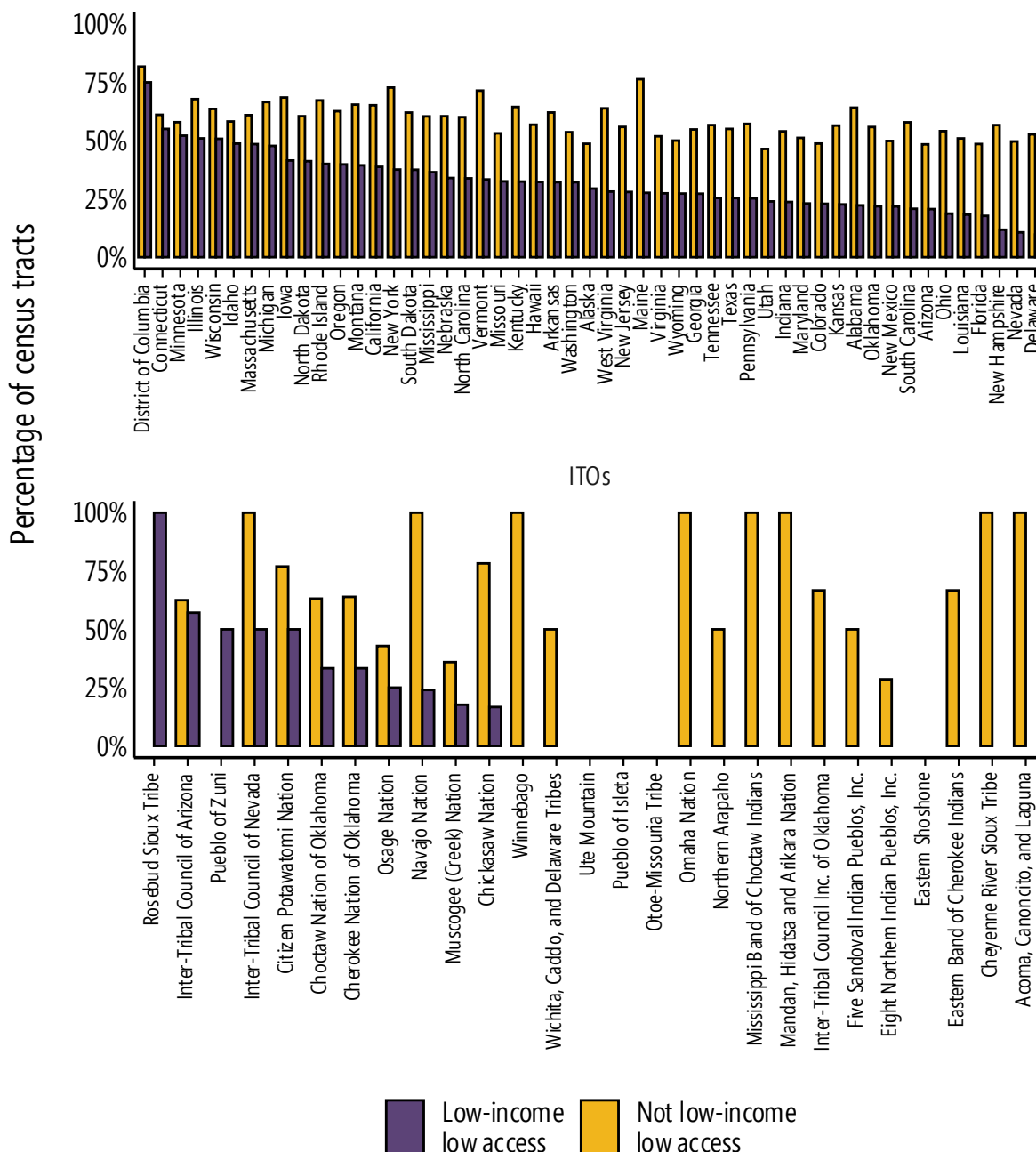
The overall pattern for ITOs was similar to the States and DC, with lower access in LILA census tracts. Only 25 percent of LILA census tracts were within convenient access to WIC retailers, compared with 55 percent in non-LILA tracts. On average, there were also more WIC retailers within convenience access among non-LILA tracts than among LILA tracts (1.5 retailers versus 0.4 retailers, respectively). However, it is important

to note that not all ITOs had census tracts in LILA or non-LILA areas; among those included in our analyses, 9 ITOs had no LILA census tracts and three had no census tracts that were not LILA.

The study also examined access by urbanicity of LILA census tracts. Exhibit IV.9 and Appendix Table A.13 display the average number of accessible WIC retailers for LILA tracts, broken out by urban and rural tracts. Among the States and DC, on average, there were more retailers within access in rural LILA tracts than in urban LILA tracts (0.6 retailers versus 0.4 retailers, respectively). However, some State agencies had more access in urban LILA areas than rural LILA areas. For example, Wisconsin had, on average, 1.2 retailers within access in urban LILA tracts and 0.5 retailers within access in rural LILA tracts. Notably, there were two States (Maryland and Massachusetts) with LILA census tracts in rural areas that had no access to WIC retailers.

Among the ITOs, differences in convenient access to WIC retailers between urban and rural LILA tracts were small (0.39 retailers versus 0.41 retailers, respectively). Of note, among the 12 ITOs with census tracts in urban LILA areas, five did not have convenient access to any WIC retailers. Furthermore, among the 16 ITOs with census tracts in rural LILA areas, eight did not have convenient access to any WIC retailers.

Exhibit IV.7. Percentage of census tracts with convenient access to WIC retailers, by LILA status
States and District of Columbia

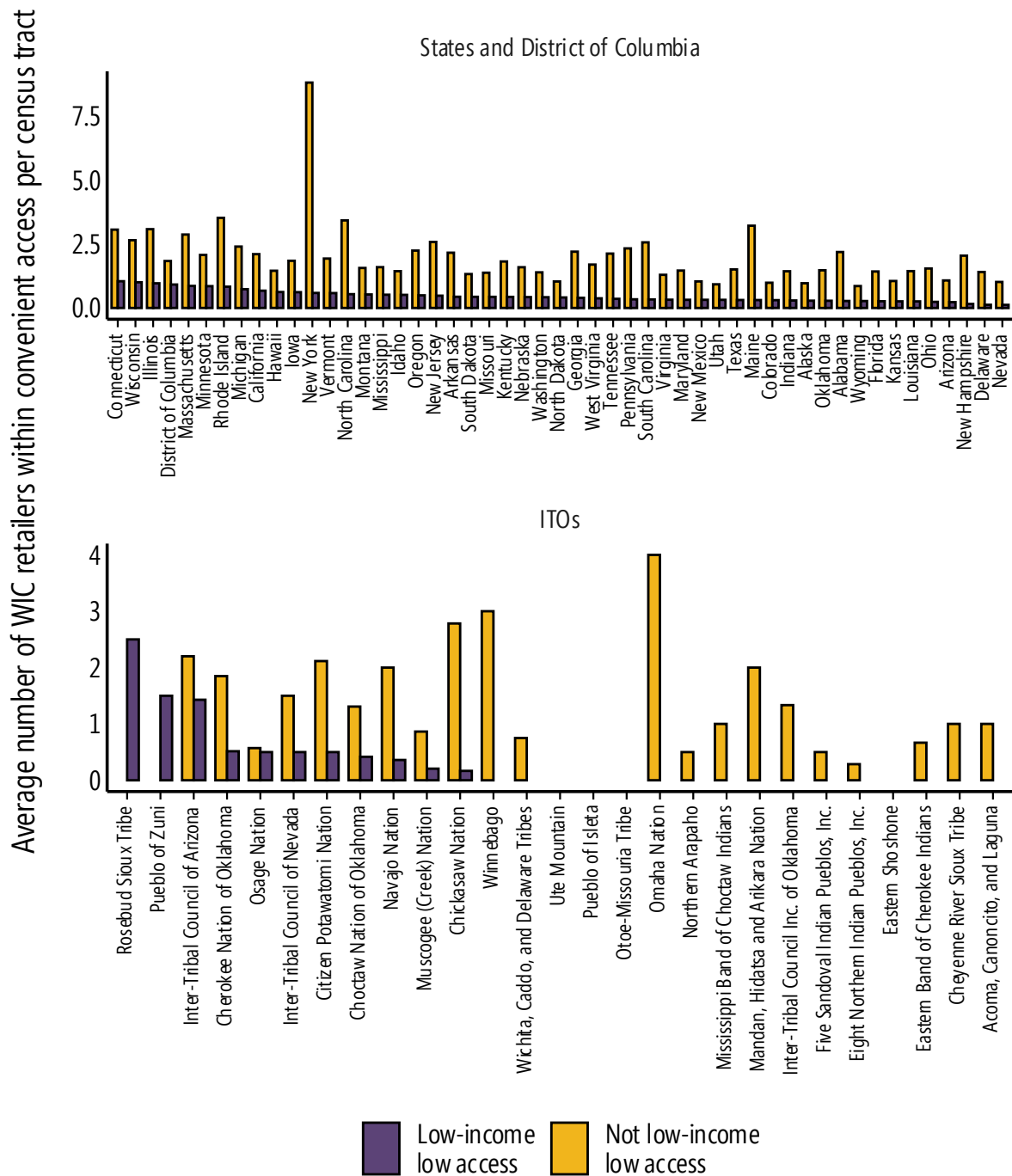


Source: FDP (2022 data), ERS Food Atlas, and 2015–2019 ACS 5-Year Estimates.

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization; LILA = low-income, low-access

Exhibit IV.8. Average number of WIC retailers within convenient access, by LILA status

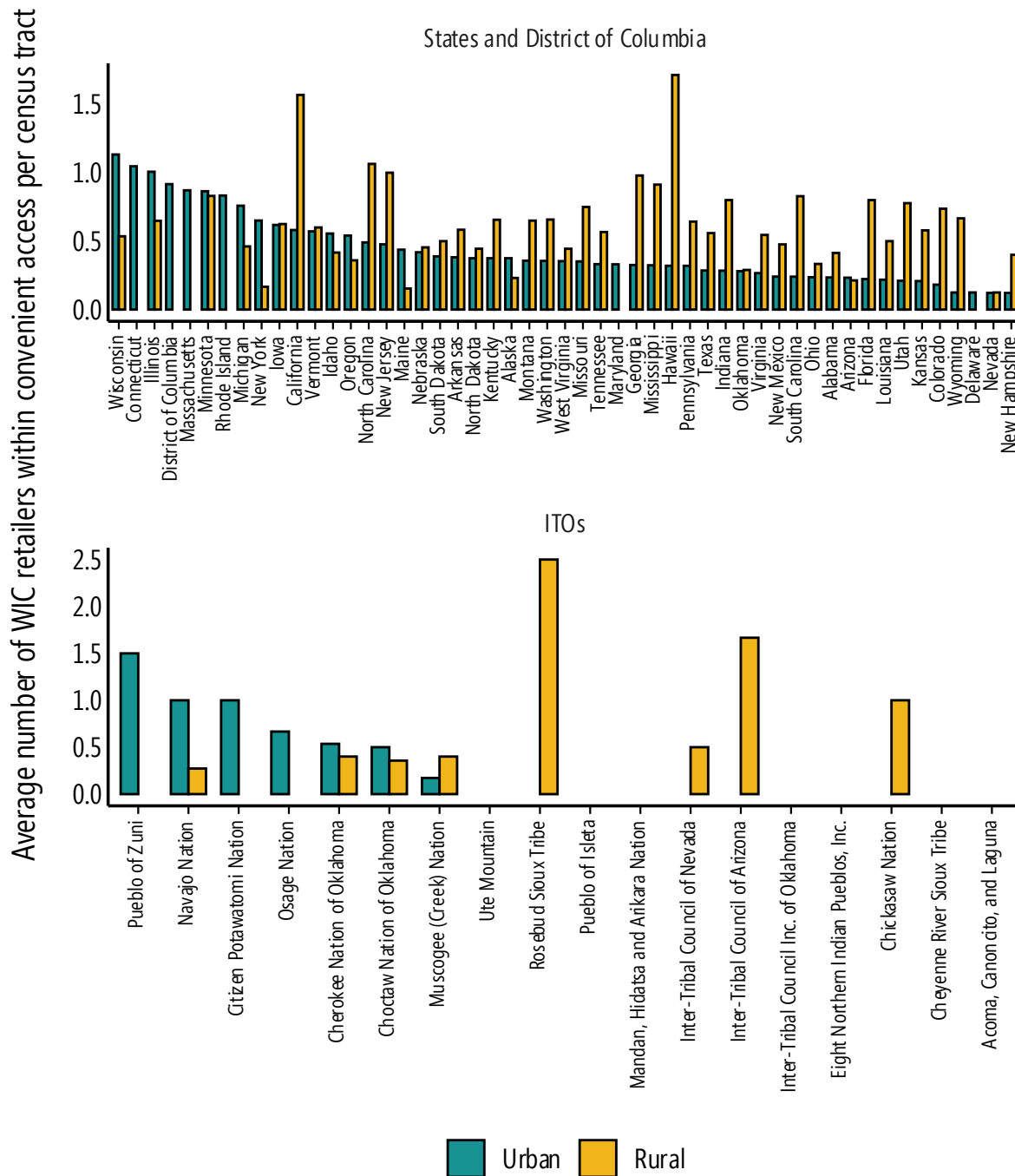


Source: FDP (2022 data), ERS Food Atlas, and 2015–2019 ACS 5-Year Estimates

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization; LILA = low-income, low-access

Exhibit IV.9. Average number of WIC retailers within convenient access, by urbanicity, among LILA tracts



Source: FDP (2022 data), ERS Food Atlas, and 2015–2019 ACS 5-Year Estimates

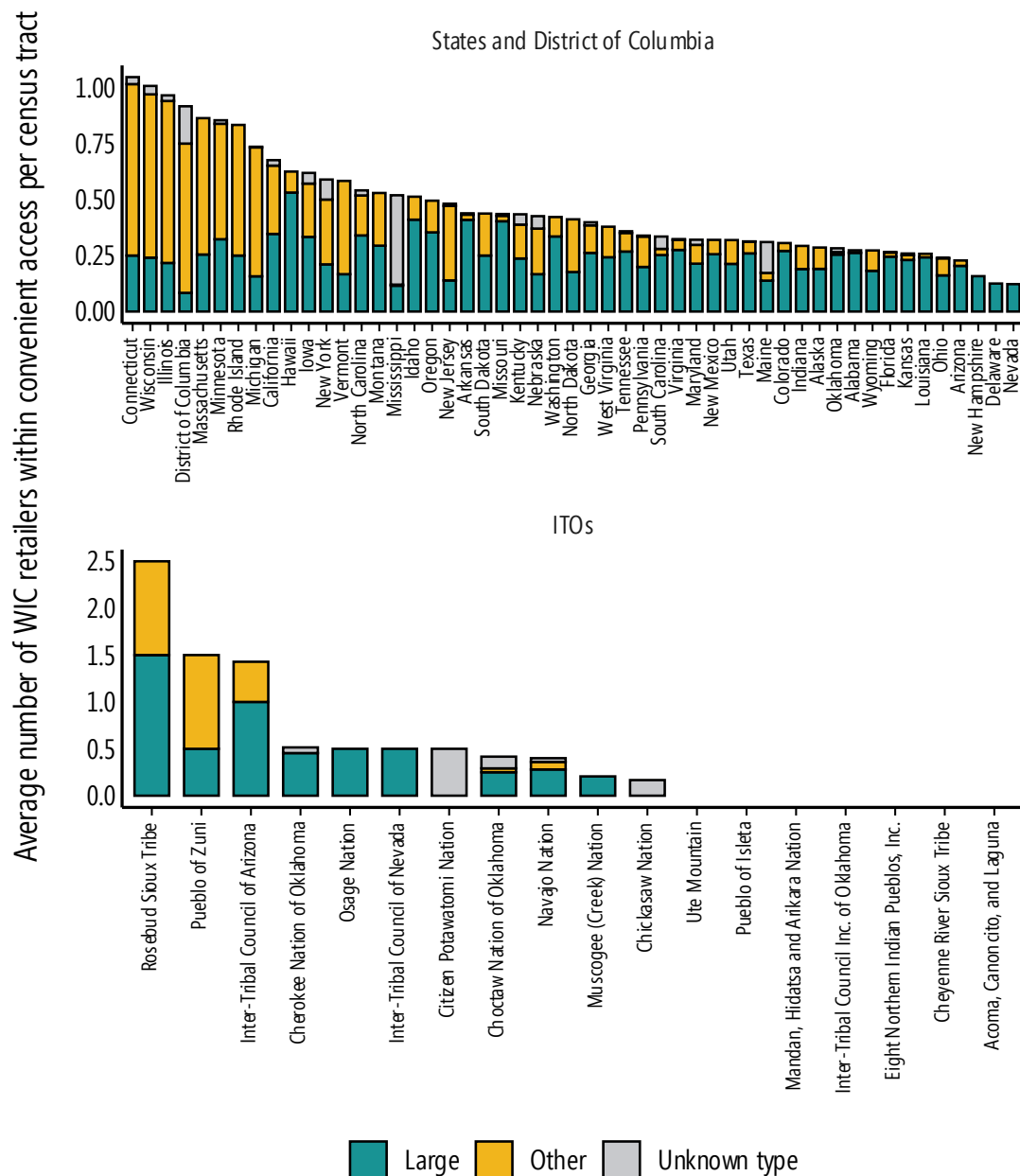
Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization; LILA = low-income, low-access

The study also examined convenient access to WIC retailers by retailer type among LILA census tracts. Exhibit IV.10 and Appendix Table A.14 show the average number of accessible WIC retailers per LILA census tract for large retailers, other retailer types, and retailers with missing retailer type. Overall, among the States and DC, LILA census tracts had greater access to large retailers compared to other smaller retailers (0.3 large retailers versus 0.2 other smaller retailers, respectively); however, an important caveat is that access was generally low, reflecting access to fewer than one store per LILA census tract. Within the States and DC, we found substantial variation in convenient access by retailer type among LILA tracts. Specifically, LILA tracts in Hawaii had levels of convenient access to large retailers that was roughly five times that of DC (access to 0.6 large retailers, on average, compared to 0.1 large retailers).

The study found a similar pattern for LILA census tracts across ITOs. On average, LILA census tracts had access to 0.3 large retailers compared to 0.1 other smaller retailers. LILA tracts in the Rosebud Sioux Tribe had the greatest access to large retailers, with access to 1.5 large retailers on average, whereas 10 ITOs (of the 19 ITOs with LILA census tracts) had no convenient access to large retailers. Of note, 9 of the 28 ITOs included in our analysis did not have any LILA census tracts.

Exhibit IV.10. Average number of WIC retailers within convenient access, by retailer type, among LILA tracts



Source: FDP (2022 data), ERS Food Atlas, and 2015–2019 ACS 5-Year Estimates

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family. Other smaller retailers include medium and small grocery stores and A-50 stores, as well as smaller retailers, such as convenience stores, combination grocery stores, specialty food stores, commissaries, pharmacies, and farmers' markets. When defining store type, information provided in the STARS data was privileged over retailer information available in FDP. Unknown type includes WIC retailers that are classified as "regular retail retailer" in the FDP data but could not be classified using STARS data, either because they were not SNAP authorized or because the store type information was missing. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization; LILA = low-income, low-access

C. Accessibility of WIC retailers by social vulnerability status

The Social Vulnerability Index (SVI) is a census tract-level measure developed by the CDC that combines 16 indicators (including socioeconomic status, household characteristics, and housing type) into a continuous score. Higher scores indicate greater social vulnerability. In addition to the continuous measure, the CDC classifies census tracts into mutually exclusive categories from low to high social vulnerability based on the quartile in which the census tract's score falls. Exhibit IV.11 and Appendix Table A.15 show the percentage of census tracts with convenient access to WIC retailers by high and low social vulnerability status, which reflect the highest and lowest quartile scores, respectively (medium-low and medium-high tracts are shown in Appendix Table A.15). For simplicity, this report refers to these groups as high SVI and low SVI census tracts, where high SVI represent the most socially vulnerable communities and low SVI represent the least socially vulnerable.

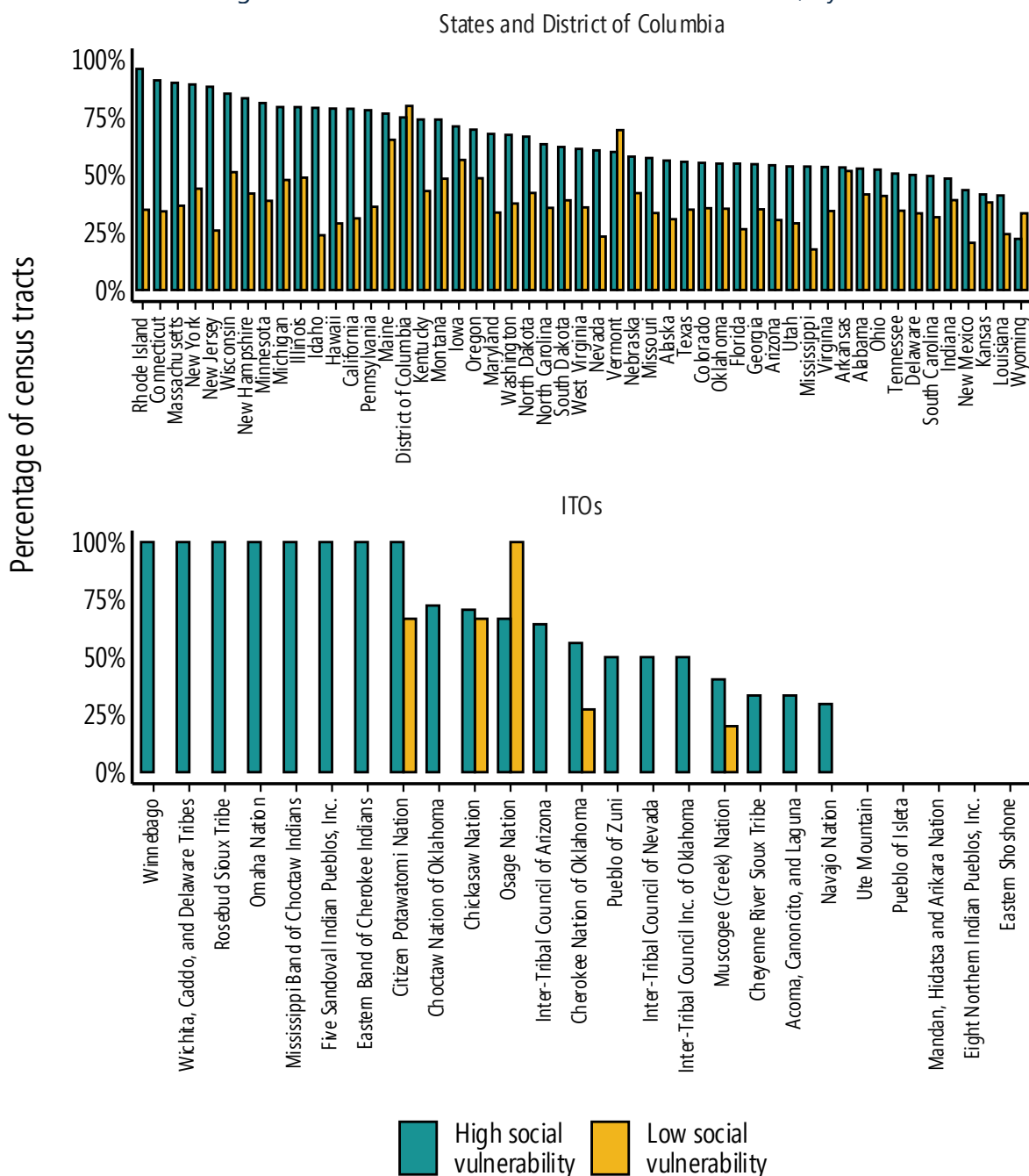
Overall, high SVI census tracts were more likely to have convenient access to WIC compared to low SVI census tracts. Among the States and DC, two-thirds (66 percent) of high SVI census tracts had convenient access to WIC, compared with 38 percent of low SVI census tracts. This pattern is held for ITOs, with 49 percent of high SVI census tracts having convenient access to WIC retailers compared with 29 percent of low SVI census tracts. However, only five of the 28 ITOs included in our analysis had any low SVI census tracts. These results may be due to a couple of factors. First, as mentioned in Chapter 2 of this report, the CDC SVI measure reflects community vulnerability to natural and environmental disasters. It is therefore possible that the factors which make a community more susceptible to those types of disasters do not influence the availability or accessibility of food retailers in the same way. In addition, because many low SVI census tracts are concentrated in suburban communities in the outskirts of urban areas, it is possible that these findings are driven primarily by differences in the urbanicity of low and high SVI census tracts.

Exhibit IV.12 and Appendix Table A.16 display the average number of retailers within convenient access in census tracts by SVI status. On average, high SVI census tracts had access to more retailers (3.3 retailers) than low SVI census tracts (1.7 retailers). Among ITOs, the average number of retailers in high and low SVI census tracts was the same (0.9 retailers).

The study further explored access in high and low SVI census tracts by urbanicity. Exhibit IV.13 and Appendix Table A.17 display the average number of accessible WIC retailers for high and low SVI census tracts by urban and rural status. Among the States and DC, within high SVI census tracts, those in rural areas had, on average, more retailers (3.9 retailers) within convenient access than those in urban areas (3.2 retailers). The same pattern held for low SVI census tracts. Those in rural areas had convenient access to substantially more retailers (4.8 retailers) compared with those in urban areas (0.5 retailers). This pattern was true in most States, except for a handful. For instance, in New York, high SVI census tracts in urban areas had convenient access, on average, to 19.0 retailers, whereas those in rural areas had access to 3.3 retailers.

Among ITOs, the same pattern was observed. High SVI census tracts in urban areas had convenient access to an average of 0.6 retailers, and those in rural areas had convenient access to an average of 1.3 retailers. However, it is important to note that many ITOs did not have census tracts in urban and rural areas that met the high or low SVI criteria. For example, half (14 out of 28) of the ITOs included in our analysis had at least one urban high SVI census tract, and only four had at least one urban low SVI census tract.

Exhibit IV.11. Percentage of census tracts with convenient access to WIC, by SVI status

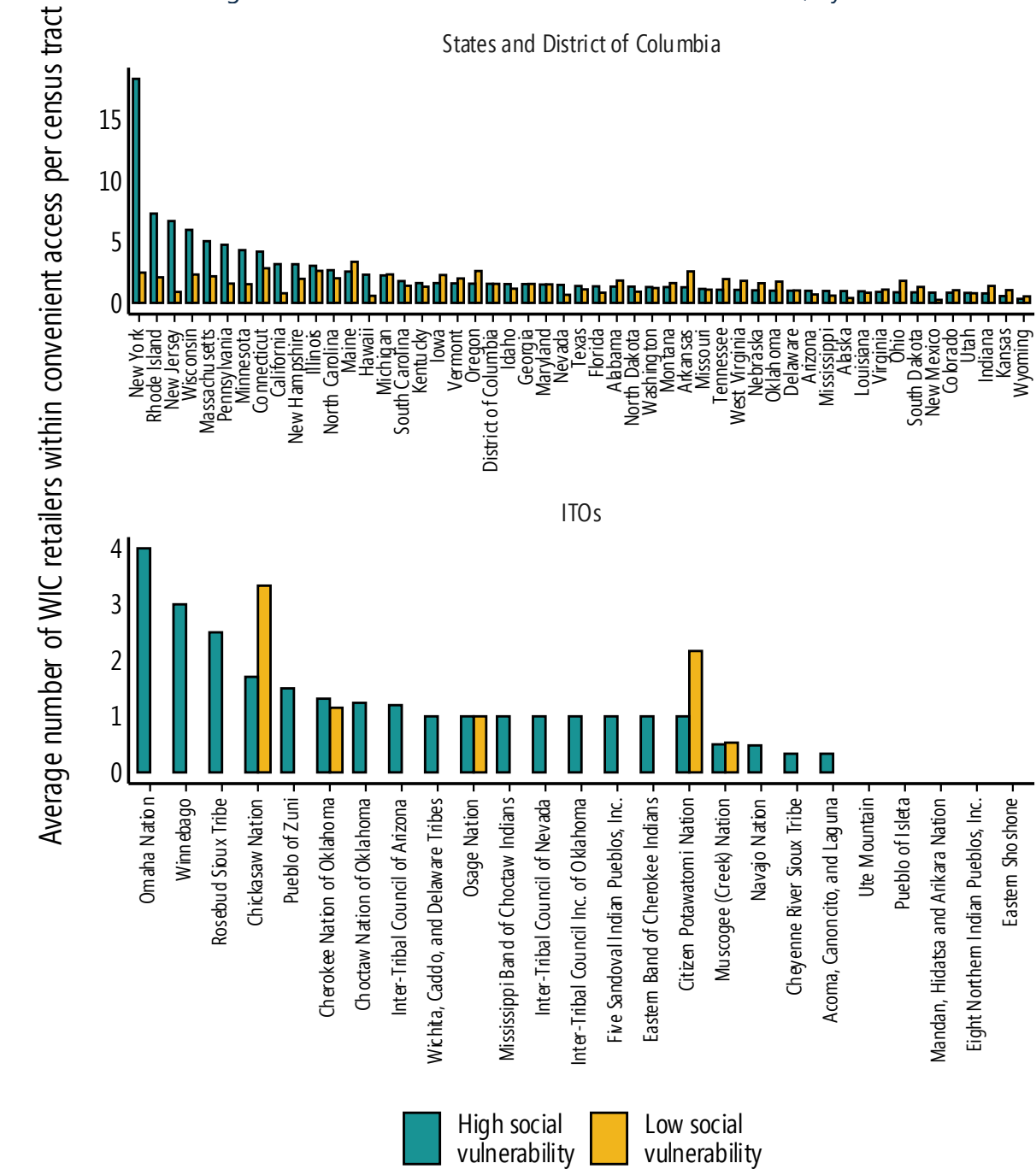


Source: FDP (2022 data), ERS Food Atlas, 2015-2019 ACS 5-Year Estimates, and CDC SVI

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family. Social vulnerability scores are categorized as low, low-medium, medium-high, and high. Only low and high are shown; SVI scores were not available for all ITOs, and some ITOs did not have any census tracts with low SVI scores. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization; SVI = Social Vulnerability Index

Exhibit IV.12. Average number of WIC retailers within convenient access, by SVI status

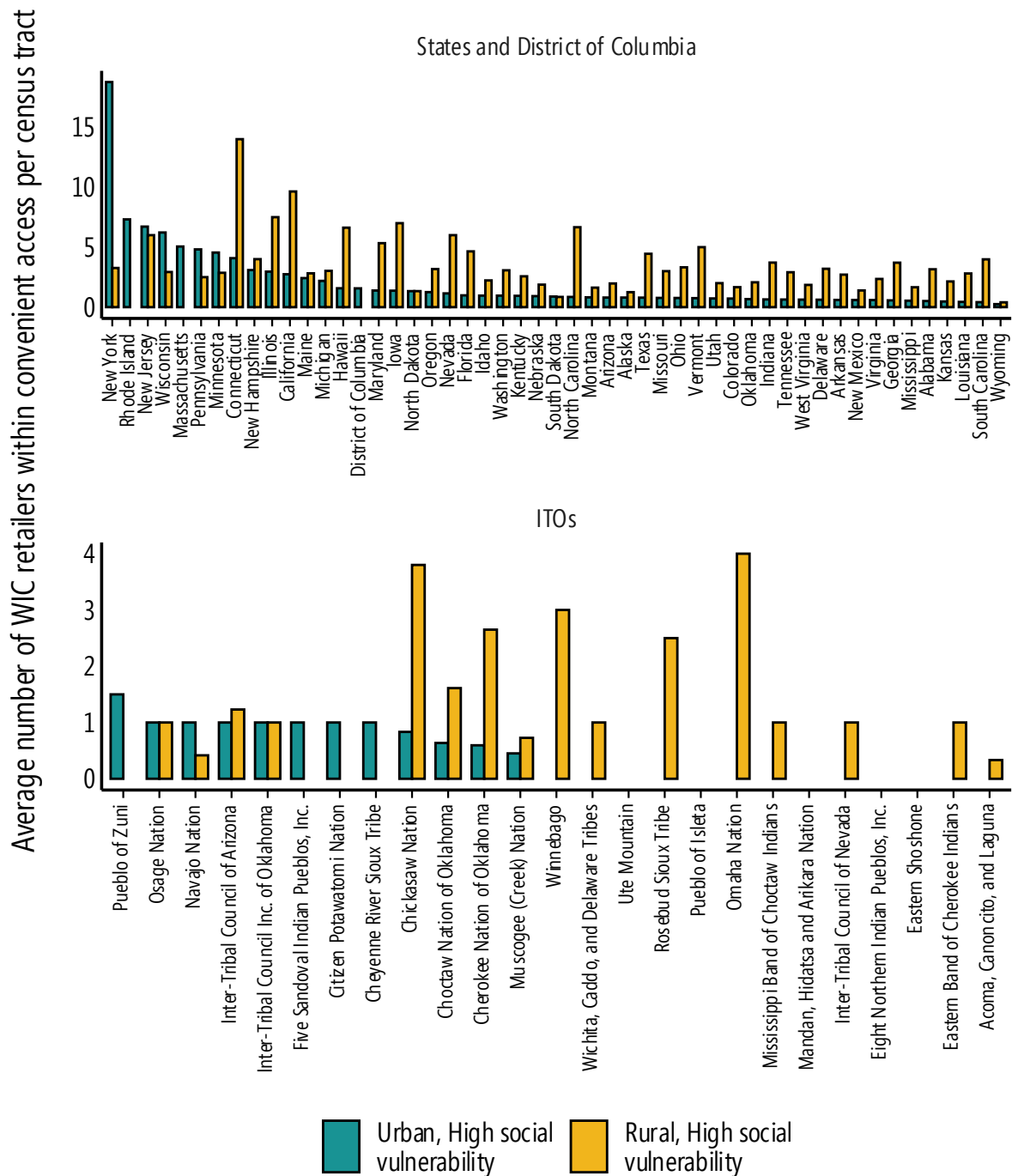


Source: FDP (2022 data), ERS Food Atlas, 2015-2019 ACS 5-Year Estimates, and CDC SVI

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family. Social vulnerability scores are categorized as low, low-medium, medium-high, and high. Only low and high are shown. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization; SVI = Social Vulnerability Index

Exhibit IV.13. Average number of WIC retailers within convenient access in high SVI census tracts, by urbanicity



Source: FDP (2022 data), ERS Food Atlas, 2015-2019 ACS 5-Year Estimates, and CDC SVI

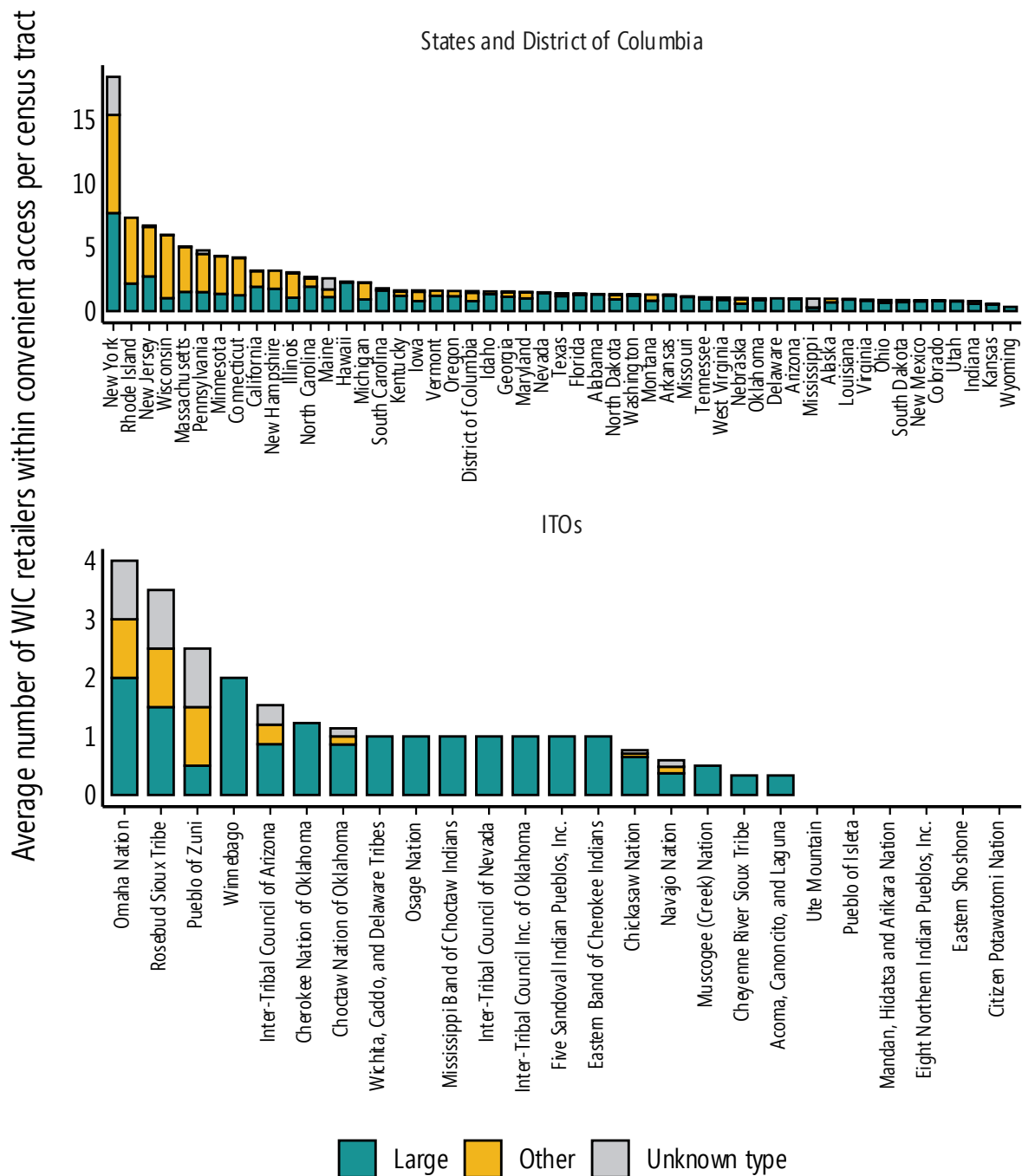
Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family. Social vulnerability scores are categorized as low, low-medium, medium-high, and high. Only high is shown. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization; SVI = Social Vulnerability Index

The study also examined the types of stores that were within convenient access for high and low SVI census tracts (Exhibit IV.14 and Appendix Table A.18). Among the States and DC, high SVI census tracts had greater access to large retailers compared to low SVI census tracts (1.7 versus 1.3 large retailers, respectively). There was considerable variability among States. New York had the greatest access to large retailers in high SVI census tracts, with an average of 7.8 retailers within convenient access. Mississippi had the lowest access to large retailers, with an average of 0.3 large retailers within access among high SVI census tracts. Census tracts with high SVI scores also had greater access to other types of retailers compared to low SVI census tracts (1.3 versus 0.4 other smaller retailers, respectively). Among the States and DC, New York again had the greatest access to other smaller retailers in high SVI areas, whereas Mississippi had the least access to other smaller retailers. Wyoming did not have any other smaller retailers within convenient access in high SVI areas.

Among ITOs, access to large retailers and other smaller retailers was low for those with both high and low SVI census tracts. High SVI census tracts had access to an average of 0.7 large retailers and 0.1 for other smaller retailer types, and those with low SVI had access to 0.8 large stores. Low SVI areas did not have access to any other smaller retailer types. Among the 25 ITOs with high SVI census tracts, six did not have convenient access to any large retailers or any other smaller retailers.

Exhibit IV.14. Average number of WIC retailers within convenient access in high SVI census tracts, by retailer type



Source: FDP (2022 data), ERS Food Atlas, 2015-2019 ACS 5-Year Estimates, and CDC SVI

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family. Social vulnerability scores are categorized as low, low-medium, medium-high, and high. Only high is shown. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization; SVI = Social Vulnerability Index

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V. Disparities in Access to WIC Retailers Based on Area Demographics and Other Factors

Chapters III and IV discussed the number and geographic distribution of WIC retailers within and across State WIC agencies. This chapter describes the results of analyses that address research questions under Objective 2 of the study (see callout box). Specifically, the chapter assesses potential disparities in access to WIC retailers based on area demographics of U.S. census tracts, LILA status, and social vulnerability status.

Key findings

- In FY 2022, 55 percent of census tracts had convenient access to at least one WIC retailer compared to 80 percent that had convenient access to at least one SNAP retailer.
- An estimated 2.2 million WIC-eligible families did not have convenient access to a WIC retailer.
- Roughly two-thirds of WIC-eligible families living in LILA census tracts lacked convenient access to a WIC retailer compared to about one-third of WIC-eligible families living in non-LILA census tracts.
- Across the 50 States and DC, one-third of WIC-eligible families residing in high SVI census tracts lacked convenient access to WIC retailers compared to nearly 60 percent of WIC-eligible families residing in low SVI census tracts. ▲

A. Disparities in WIC retailer access by area and nutrition assistance program

SNAP retailers far outnumber WIC retailers by a factor of nearly 7 to 1. In FY 2022, there were nearly 270,000 SNAP-authorized retailers compared to approximately 40,000 WIC-authorized retail retailers. This translates to more geographic reach for SNAP. In the 50 States and DC, 80 percent of census tracts with a WIC-eligible population had convenient access to at least one SNAP-authorized retailer (see Exhibits V.1 and V.2 and Appendix Table A.19) compared with just over 55 percent of census tracts with convenient access to at least one WIC retailer.

The analyses in this chapter exclude census tracts without a WIC-eligible population. This section compares access to WIC retailers and SNAP retailers for the same population of WIC-eligible individuals. These comparisons allow us to observe how convenient access to WIC retailers would improve if current SNAP-by-not-WIC authorized retailers were to become WIC-authorized, assuming the existing universe of WIC-authorized retailers would continue to be authorized by States.

Among the States and DC, there was considerable variation in access to WIC versus SNAP. DC had the highest percentage of census tracts with convenient access to WIC (81 percent) and the second highest percentage of census tracts with convenient access to SNAP (89 percent). New Mexico, on the other hand, had the lowest access to WIC, with 42 percent of census tracts within convenient access to at least one WIC retailer, but moderately high access to SNAP with 75 percent of tracts within convenient access to at least one SNAP

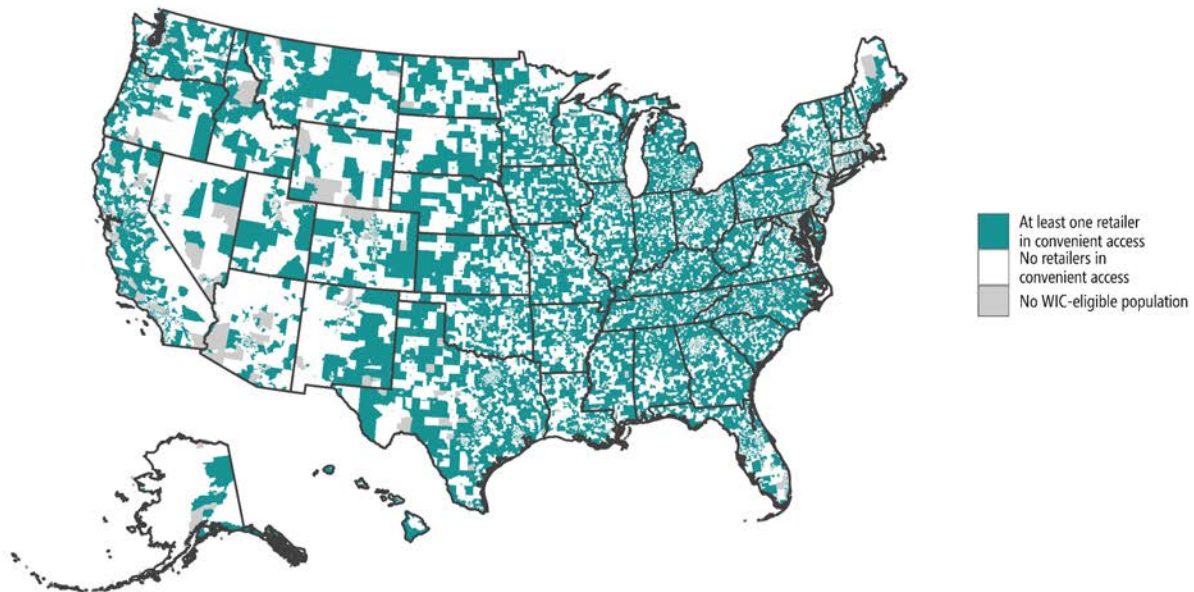
Objective 2 research questions

1. What are the differences in the geographic distribution of WIC retailers compared to SNAP retailers in the same State agencies?
2. Are there gaps in the geographic distribution of WIC retailers across LILA census tracts?
3. Are there gaps in the geographic distribution of WIC retailers across socially vulnerable census tracts? ▲

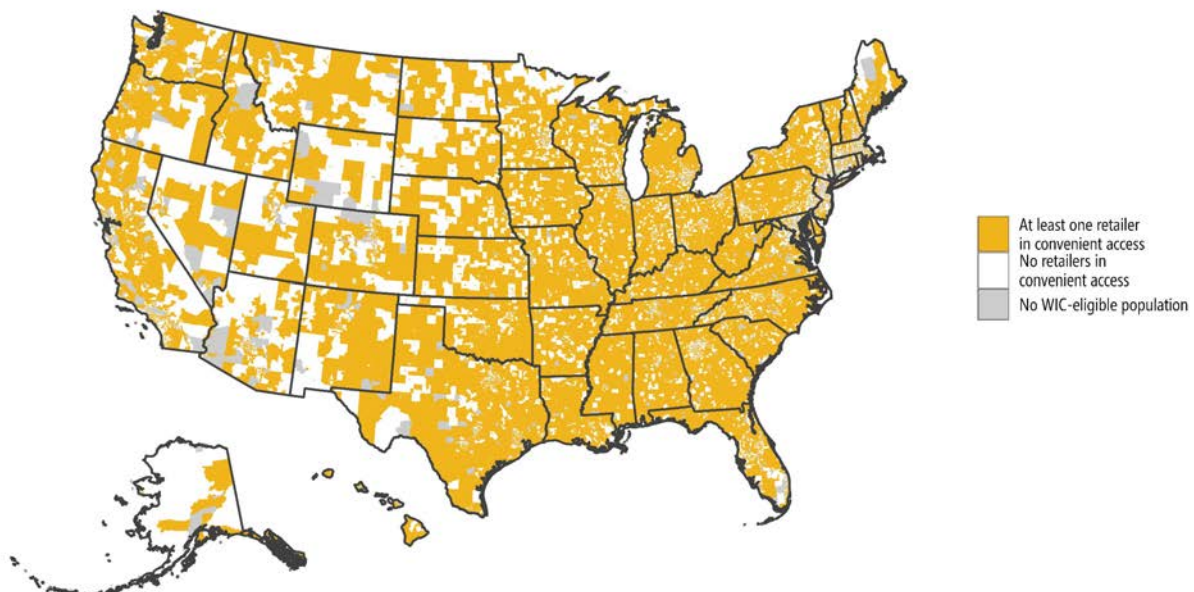
retailer. Mississippi had the largest difference in access between the two programs, with 91 percent of census tracts having convenient access to SNAP compared to only 52 percent with convenient access to WIC.

Exhibit V.1. Comparison of convenient access to WIC retailers versus SNAP retailers

A. Convenient WIC access



B. Convenient SNAP access

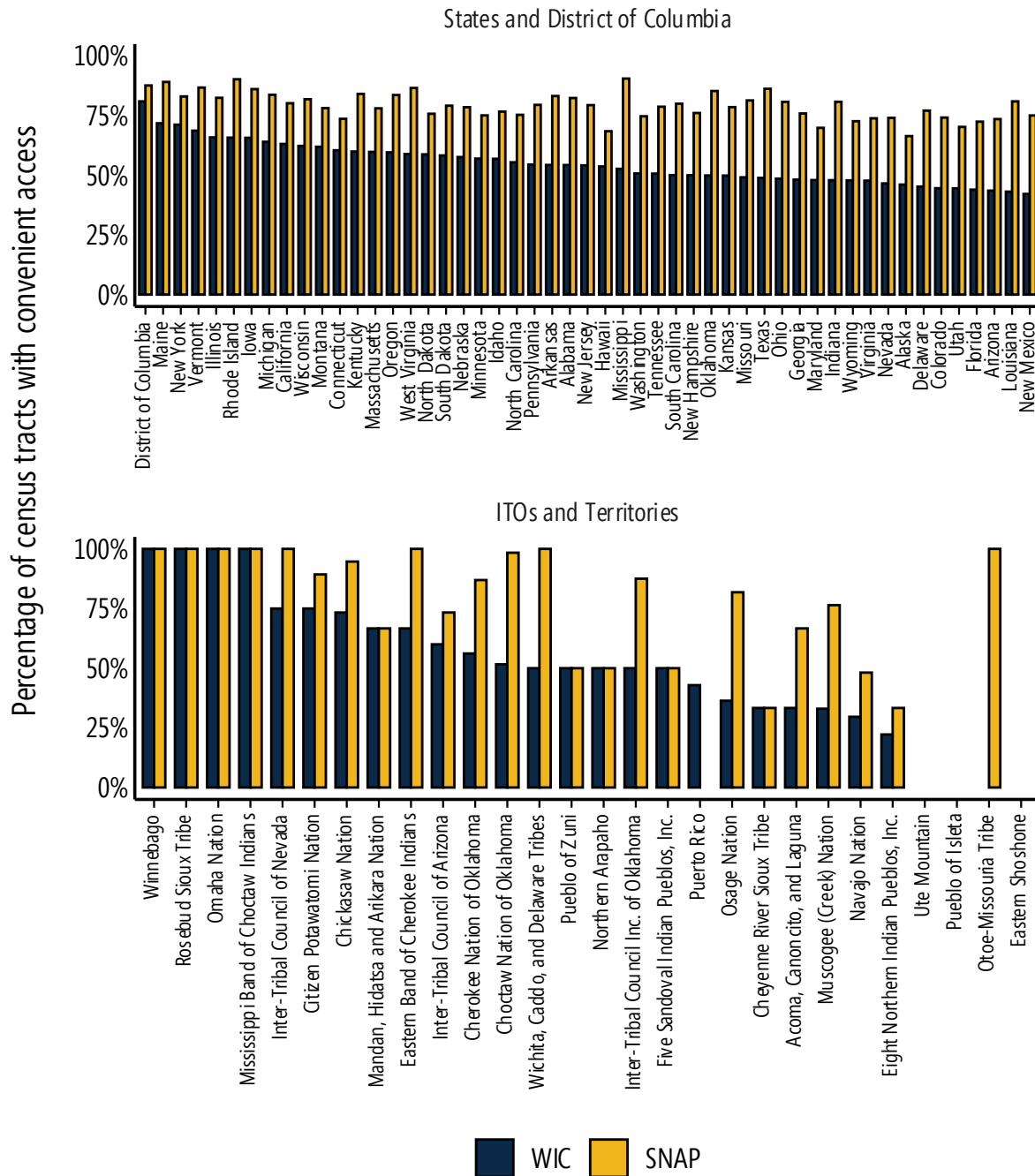


Source: ERS Food Atlas, 2015–2019 ACS 5-Year Estimates, FDP and STARS (2022 data)

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family.

Among ITOs and territories, the pattern was reversed: 45 percent of census tracts had convenient access to at least one WIC retailer, whereas 34 percent had convenient access to a SNAP retailer. Access to WIC and SNAP retailers differed across the ITOs. In four ITOs, every census tract had convenient access to at least one WIC and SNAP retailer. In contrast, three ITOs did not have any census tracts within convenient access to WIC or to SNAP retailers. Furthermore, many tribal members choose to participate in the Food Distribution Program on Indian Reservations (FDPIR) program instead of participating in SNAP, because they do not have easy access to authorized food retailers (USDA FNS, 2024e).

Exhibit V.2. Percentage of census tracts with convenient access, by program (WIC and SNAP)



Source: 2015–2019 ACS 5-Year Estimates, FDP and STARS (2022 data)

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability. Puerto Rico does not participate in SNAP, so convenient access to SNAP retailers cannot be computed.

ITO = Indian Tribal Organization

B. Disparities in WIC retailer access by area demographics

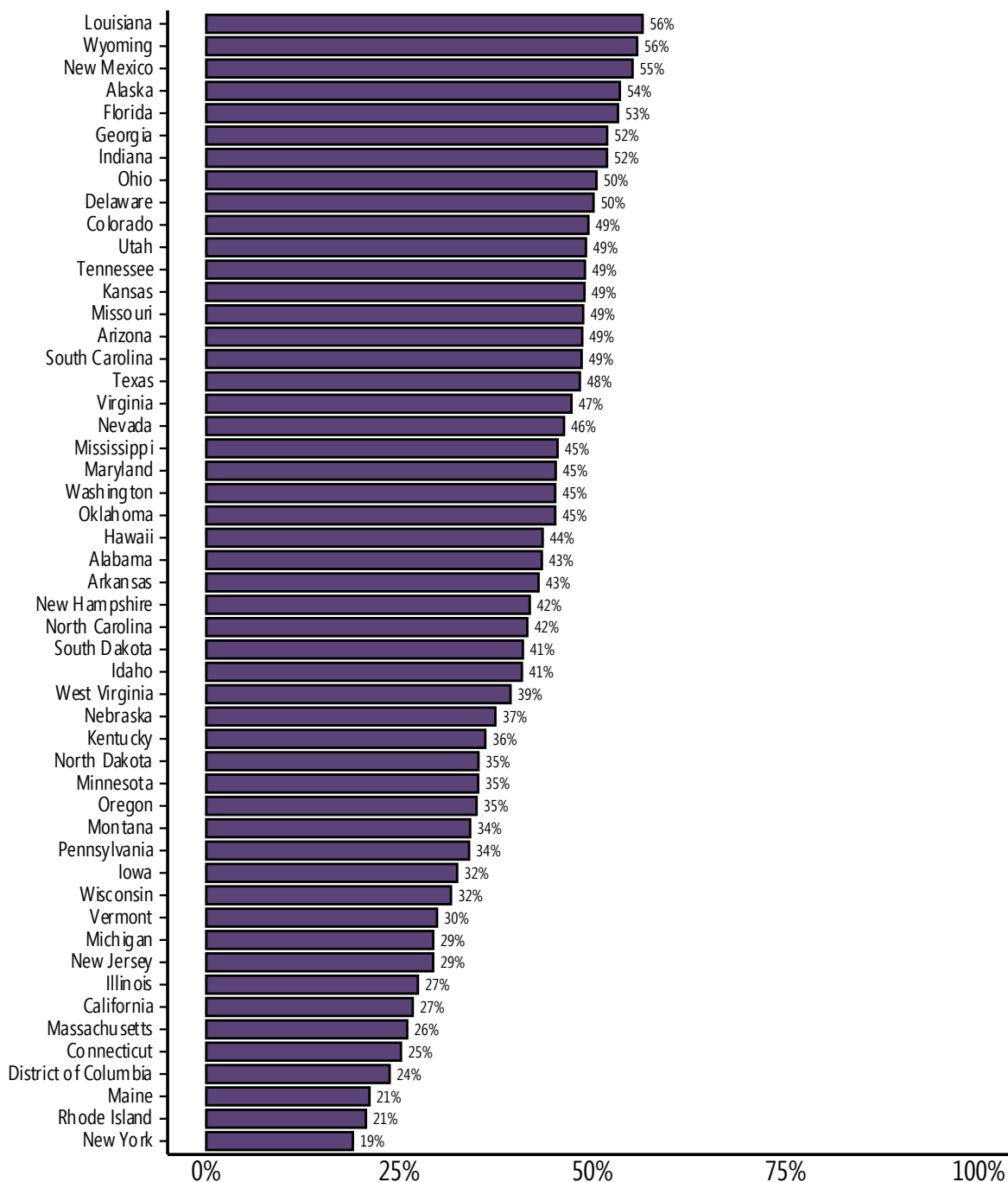
To understand potential disparities in WIC retailer access, the study estimated the number of WIC-eligible families without convenient access to WIC retailers. WIC-eligible families were estimated by counting the number of families with children younger than 5 and with incomes below 185 percent of poverty. This measure may underestimate WIC eligibility, as it does not capture families with pregnant women, who may also be WIC eligible, or those who may be adjunctively eligible through Medicaid, which has a higher income eligibility threshold than WIC in some States. In contrast, the measure may overestimate the number of other WIC-eligible families, as it does not take into consideration nutritional risk of family members, which is required to determine WIC eligibility.⁸ However, for simplicity, this report refers to these potentially WIC-eligible families as “WIC-eligible families” throughout this report. The number of WIC-eligible families without convenient access to any WIC retailers is the number who live in a census tract without convenient access, which is defined as the number who live in a census tract that does not have an authorized WIC retailer within one mile (urban) or 10 miles (rural) of the population weighted centroid. Exhibit V.3 displays the percentage of WIC-eligible families without convenient access to a WIC-authorized retailer among the 50 States and DC, and Exhibit V.4 and Appendix Table A.20 display this information by State agency.

Among the 50 States and DC, it is estimated that 2.1 million WIC-eligible families did not have convenient access to a WIC retailer in FY 2022. This represents 40 percent of the WIC-eligible population. Among the 50 States and DC, 9 States lacked convenient access to at least one WIC retailer for 50 percent or more of WIC-eligible families in the State. New Mexico and Wyoming had the highest proportion of WIC-eligible families without convenient access to WIC, at 56 percent. In contrast, New York had the lowest proportion of WIC-eligible families without convenient access (19 percent).

Among ITOs and Puerto Rico, approximately 73,000 WIC-eligible families, representing 54 percent of all WIC-eligible families, lacked convenient access to a WIC retailer. In 13 ITOs, at least 50 percent of the WIC-eligible population lacked convenient access to a WIC retailer. In three ITOs, none of the WIC-eligible families had convenient access to a WIC retailer.

⁸ WIC applicants must be evaluated for nutritional risk by a health professional. This can be done at a WIC clinic during the application process, or applicants can provide documentation from another health professional such as their physician.

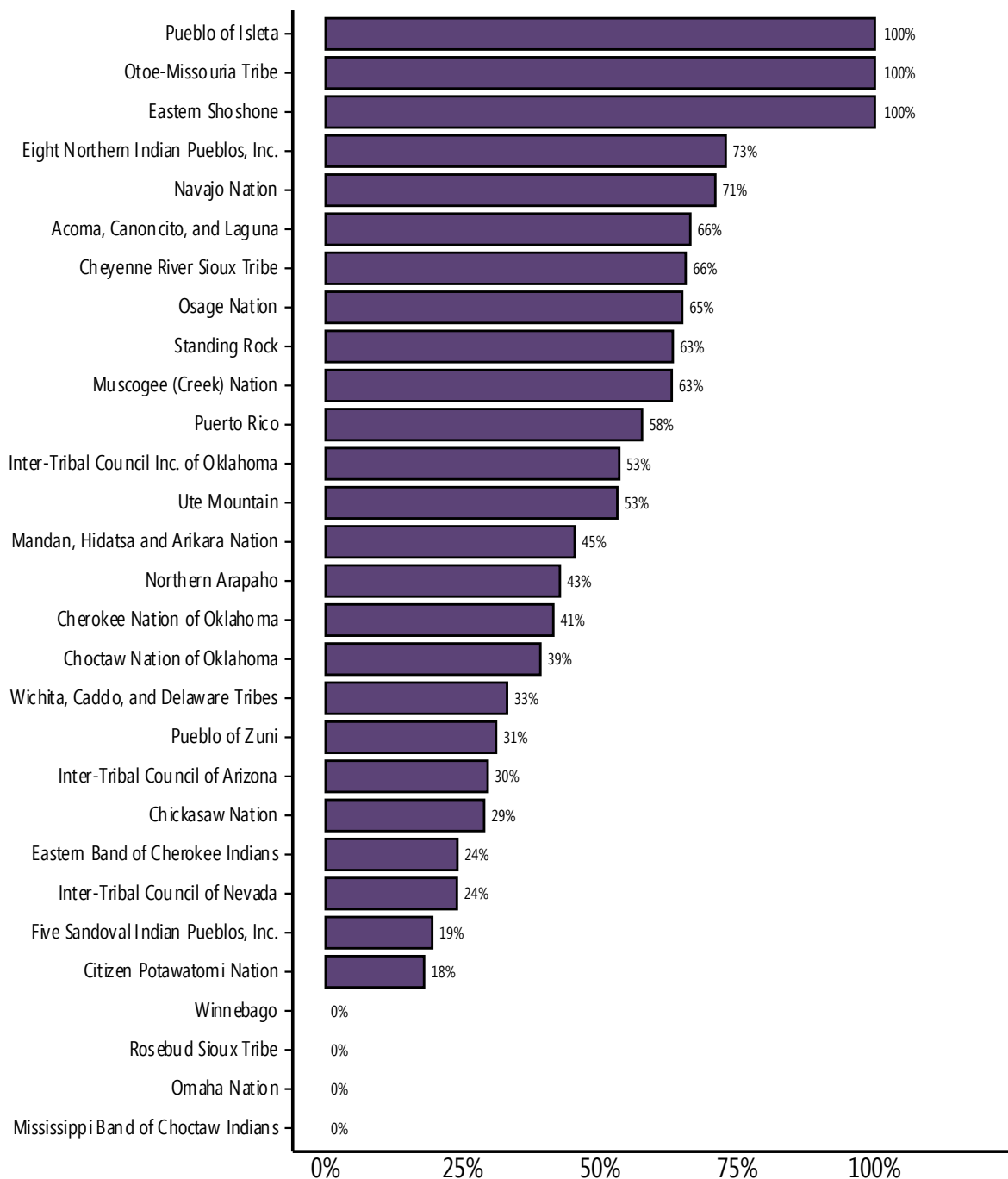
Exhibit V.3. Percentage of WIC-eligible families without convenient access to a WIC-authorized retailer, among the 50 States and DC



Source: FDP (2022 data), ERS Food Atlas, and 2015–2019 ACS 5-Year Estimates

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family.

Exhibit V.4. Percentage of WIC-eligible families without convenient access to a WIC-authorized retailer, among ITOs and Puerto Rico



Source: FDP (2022 data), ERS Food Atlas, and 2015–2019 ACS 5-Year Estimates

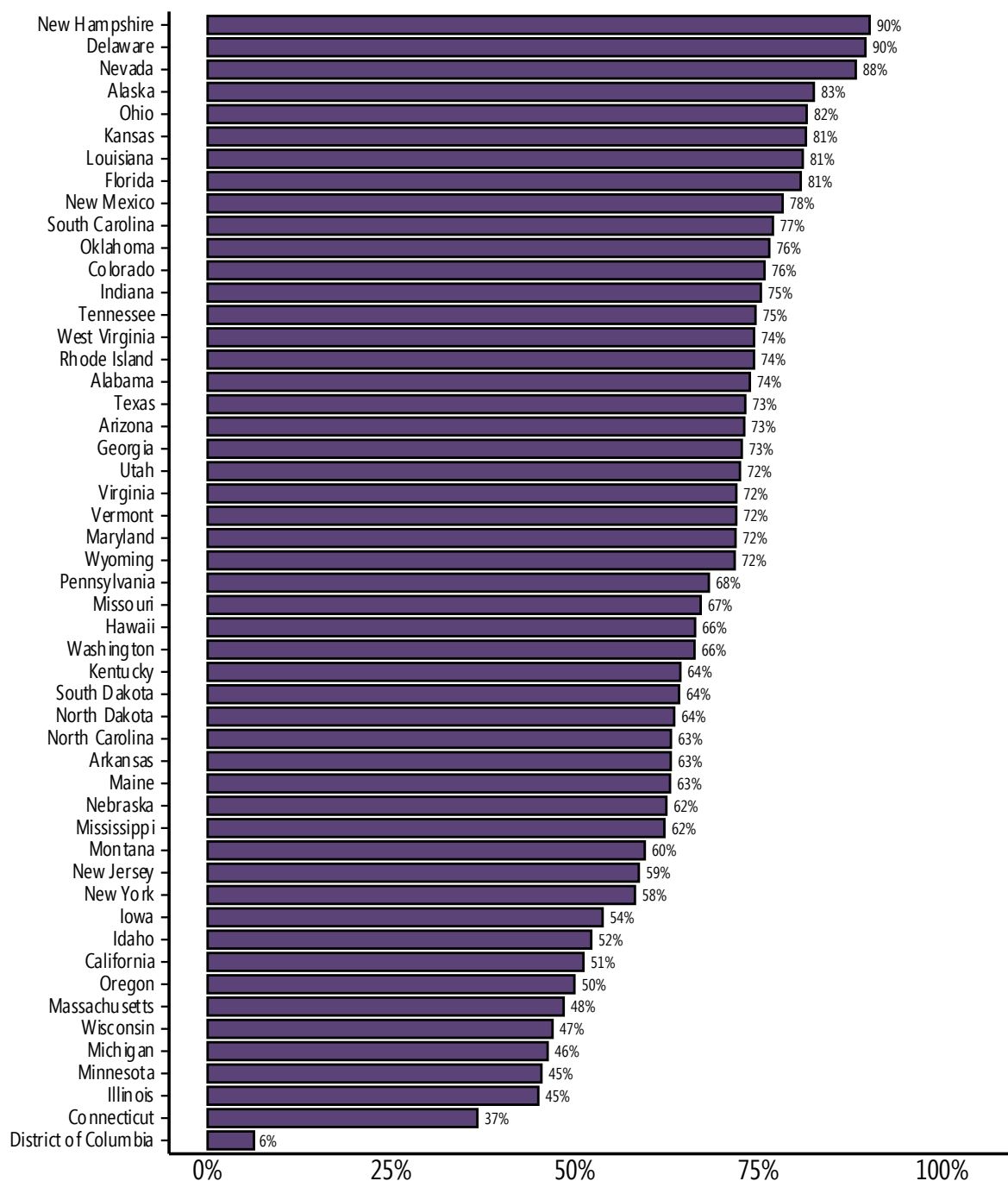
Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family.

ITO = Indian Tribal Organization

1. Disparities in access by low-income, low-access status

Among the 50 States and DC, nearly 745,000 (68 percent) WIC-eligible families living in LILA census tracts lacked convenient access to WIC retailers (see Exhibit V.5 and Appendix Table A.21). In 44 of these State agencies, at least 50 percent of WIC-eligible families living in LILA census tracts lacked convenient access. In non-LILA census tracts, 1.4 million WIC-eligible families lacked convenient access to WIC retailers. This represents 33 percent of WIC-eligible families living in non-LILA census tracts. Among ITOs, more than 12,000 WIC-eligible families in LILA census tracts lacked convenient access to WIC retailers, representing 67 percent of all WIC-eligible families (see Exhibit V.6). In non-LILA census tracts, approximately 14,000 WIC-eligible families, or 38 percent, lacked convenient access.

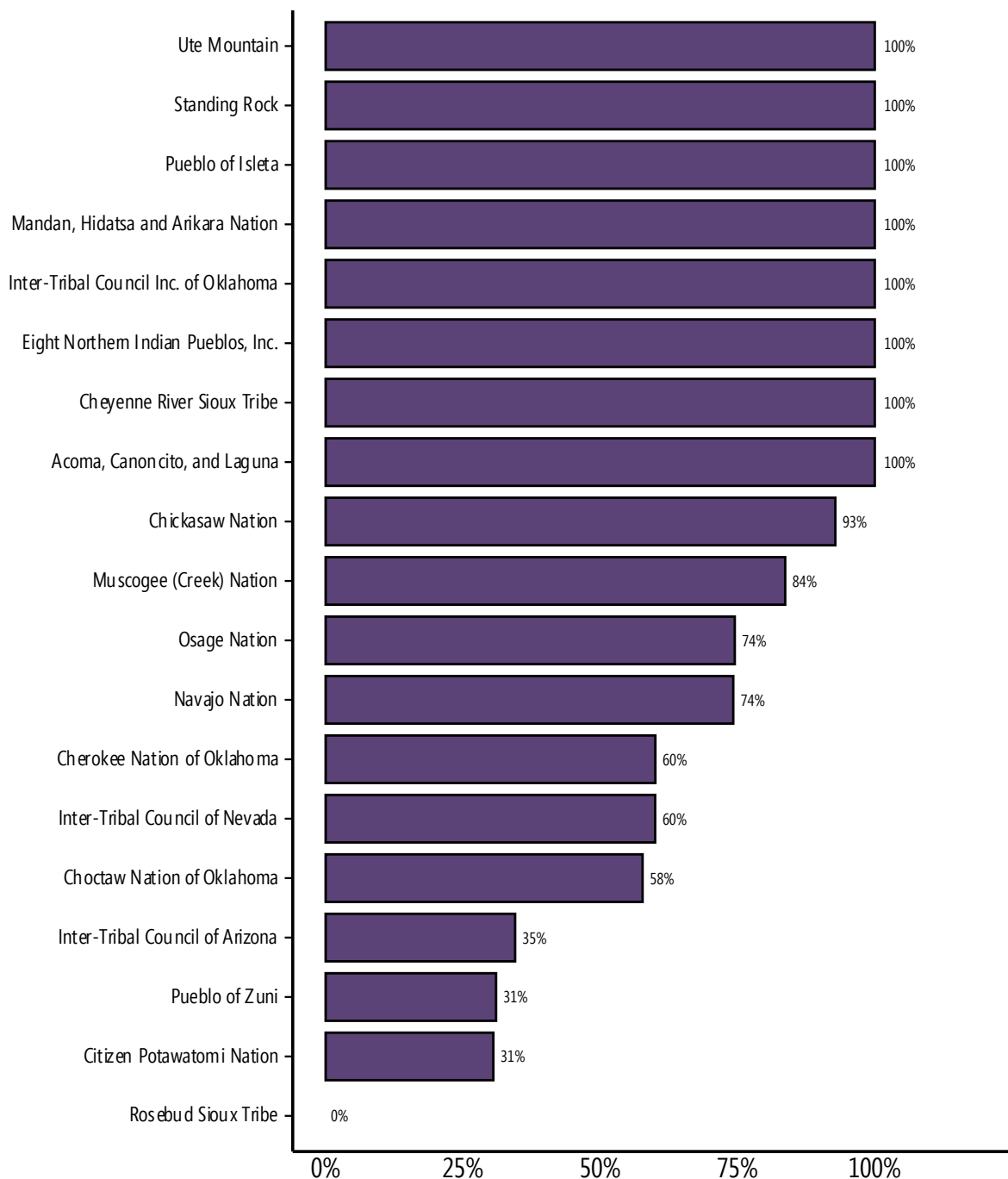
Exhibit V.5. Percentage of WIC-eligible families without convenient access to a WIC-authorized retailer, among LILA census tracts in the 50 States and DC



Source: FDP (2022 data), ERS Food Atlas, and 2015–2019 ACS 5-Year Estimates

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family.

Exhibit V.6. Percentage of WIC-eligible families without convenient access to a WIC-authorized retailer, among LILA census tracts, ITOs



Source: FDP (2022 data), ERS Food Atlas, and 2015–2019 ACS 5-Year Estimates

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family.

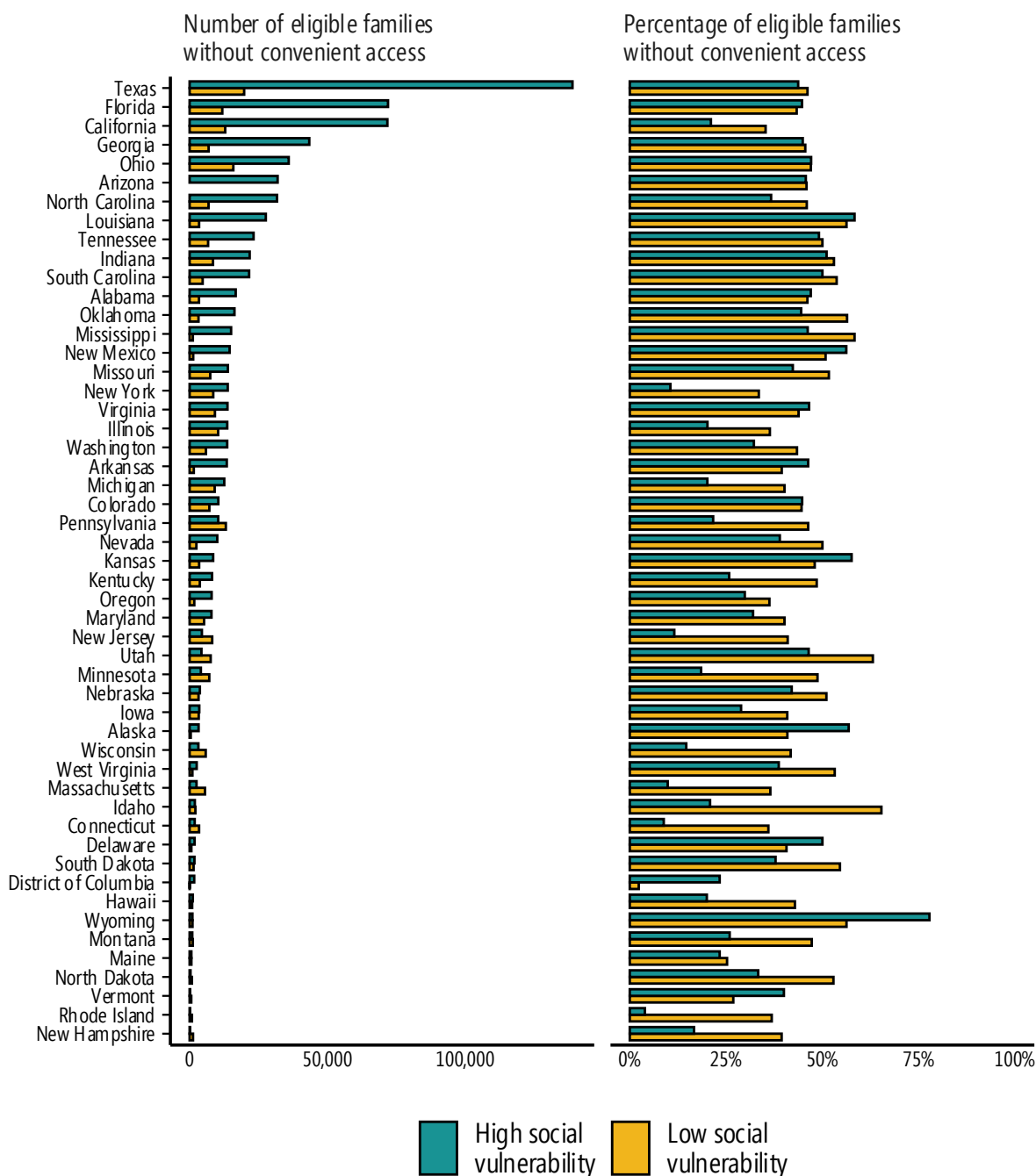
ITO = Indian Tribal Organization; LILA = low-income, low-access

2. Disparities in access by social vulnerability status

Across all States and DC, about one-third (33 percent) of WIC-eligible families residing in high SVI census tracts lacked convenient access to WIC retailers compared to nearly 60 percent of WIC-eligible families residing in low SVI census tracts (see Exhibit V.7 and Appendix Table A.22). Among seven States, at least 50 percent of WIC-eligible families residing in high SVI areas lacked convenient access compared to 47 States where at least 50 percent of WIC-eligible families residing in low SVI areas lacked convenient access to WIC retailers. Nonetheless, there were nearly three times as many WIC-eligible families that lacked convenient access in high SVI areas compared to low SVI areas among the 50 States and DC (785,000 families versus 260,000, respectively). These findings highlight the differences in the population density of high SVI versus low SVI census tracts.

Among ITOs, 15,000 WIC-eligible families (or 47 percent) residing in high SVI census tracts lacked convenient access to WIC retailers (see Exhibit V.8). In five ITOs, all WIC-eligible families lacked convenient access, and in eight ITOs, no WIC-eligible families lacked access. About 1,600 WIC-eligible families residing in low SVI census tracts lacked convenient access to WIC retailers, representing 71 percent of all WIC-eligible families living in these communities. However, only five ITOs had census tracts in low SVI areas with any WIC-eligible families.

Exhibit V.7. Number and proportion of WIC-eligible families without convenient access to a WIC-authorized retailer, among the 50 States and DC, by SVI status

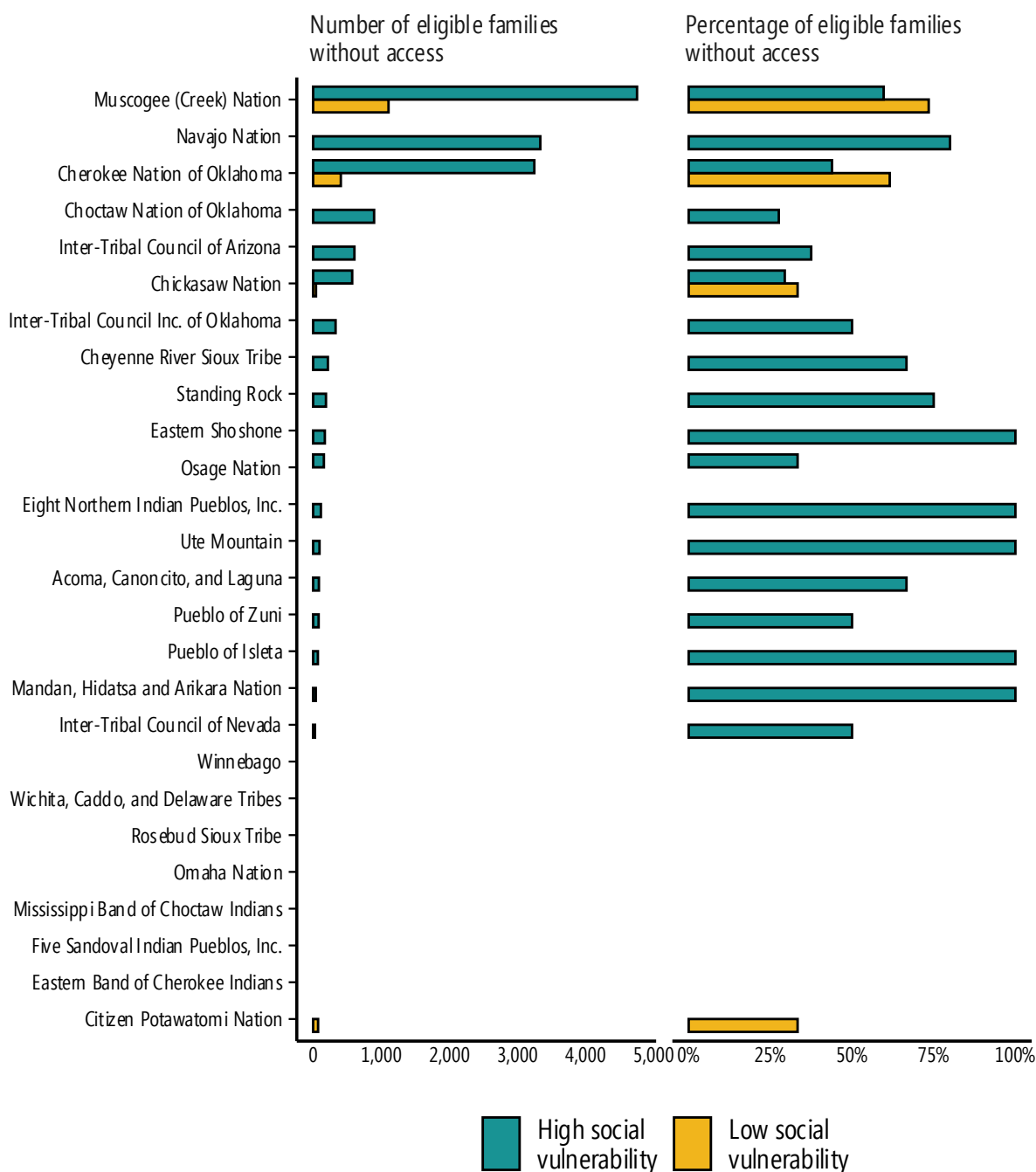


Source: FDP (2022 data), ERS Food Atlas, 2015–2019 ACS 5-Year Estimates, and CDC SVI.

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family. Social vulnerability scores are categorized as low, low-medium, medium-high, and high. Only low and high are shown. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

SVI = Social Vulnerability Index

Exhibit V.8. Number and proportion of WIC-eligible families without convenient access to a WIC-authorized retailer, among ITOs, by SVI status



Source: FDP (2022 data), ERS Food Atlas, 2015–2019 ACS 5-Year Estimates, and CDC SVI

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family. Social vulnerability scores are categorized as low, low-medium, medium-high, and high. Only low and high are shown. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization; SVI = Social Vulnerability Index

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VI. Disparities in Access to WIC Retailers Based on WIC State Agency Policies

This chapter reports on analysis findings for the Objective 3 research questions (see callout box). Specifically, the chapter examines one potential driver of the disparities in access to WIC-authorized retailers discussed in the prior chapters: State agency policies on retailer authorization.

Key findings

- Convenient access to WIC retailers was consistently lower among State agencies that used limiting criteria compared to those that did not.
- Among the 50 States and DC, agencies that used optional selection criteria generally had higher average numbers of WIC retailers within convenient access than those that did not. ▲

A. Variation in WIC access by State agency limiting criteria and selection criteria

As described in Chapter I, WIC State agencies set their own policies for WIC retailer authorization. These are divided into two types: limiting criteria and selection criteria. Limiting criteria are those that put constraints on the number of WIC retailers a State agency will authorize, expressed as a ratio of retailers to WIC participants, WIC clinics, agency staff, or geographic areas. State agencies can also set a simple numerical cap on the number of retailers. FNS permits State agencies to limit the number of authorized retailers so they can ensure that the number of retailers is manageable for the agency, as authorizing, training, monitoring, and investigating retailers takes time and resources. The sidebar lists the types of limiting criteria that State agencies may impose. These include agency-specific retailer to participation ratios and vender to geographic area ratios, among others. In FY 2022, 34 State agencies (38%) used at least one limiting criterion when authorizing retailers.

Selection criteria are a broader set of requirements for WIC retailers. There are six required criteria set forth in regulation (7 C.F.R. 246.12): Retailers must (1) carry a minimum variety and quantity of supplemental foods; (2) demonstrate business integrity; (3) not be disqualified from SNAP participation; (4) have competitive prices; (5) be EBT capable; and (6) for A-50 stores, not provide prohibited incentive items. State agencies may impose additional selection criteria in addition to the required criteria. However, FNS requires that States waive the optional criteria to authorize retailers that are needed to ensure adequate

Objective 3 research questions

1. Do the number and distribution of WIC retailers per State agency vary based on certain WIC retailer selection and/or limiting criteria?
2. Do retailer selection and/or limiting criteria seem to have an influence on any observed gaps in the geographic distribution of WIC retailers, including across LILA and socially vulnerable census tracts? ▲

Retailer limiting criteria and share of State agencies using each, FY 2022

- Retailer to participation ratio (24%)
- Retailer to geographic area ratio (20%)
- Retailer to local service area or county ratio (3%)
- Statewide cap on the number of retailers (3%)
- Retailer to State agency or staff ratio (1%)
- Retailer to local agency or clinic ratio (0%)
- Other limiting factor (16%)

Source: FY 2022 WIC State Plan data. ▲

participant access. The side bar lists the full set of optional selection criteria used by States in FY 2022. These include requirements regarding specific hours of operation, proof of authorization as a SNAP retailer, and requirements to stock a full range of foods in addition to WIC supplemental foods, among others. In FY 2022, 87 State agencies (98%) elected to use optional selection criteria when authorizing retailers.

To assess how State choices around the use of optional selection and limiting criteria affect geographic access to WIC retailers, the study examined the selection and limiting criteria used by each State agency in the FY 2022 WIC Agency State Plans. Binary variables were defined to indicate which State agencies implemented any limiting criteria or selection criteria. The study also examined specific types of limiting and optional selection criteria used by States. The study then compared the number of WIC retailers within convenient access by the presence of any limiting or optional selection criteria and by each specific type of criteria and compared them to State agencies not implementing these restrictions or requirements. The study also analyzed gaps in geographic access by LILA status and high and low SVI status. Limiting criteria findings are presented first, followed by selection criteria findings.

Standard optional retailer selection criteria, and share of State agencies using each, FY 2022

- Hours of operation criteria (74%)
- Proof of authorization as a SNAP retailer (73%)
- A requirement to stock a full range of foods in addition to WIC supplemental foods (70%)
- A location necessary to ensure adequate participant access (67%)
- Satisfactory compliance with previous retailer agreement (65%)
- Certification by an approved State or local health department (52%)
- Lack of previous WIC sanctions (49%)
- Redemption of a minimum number/volume of food instruments and CVVs/CVBs (37%)
- Other optional selection criterion (46%)

Source: FY 2022 WIC State Plan data. ▲

B. Limiting criteria

In FY 2022, 34 of the 87 WIC State agencies that used a retail food delivery system (39 percent) imposed limiting criteria when authorizing WIC; 53 (61 percent) did not (see Exhibit VI.1 and Appendix Table A.23). On average, there were fewer authorized retailers in State agencies that imposed any limiting criteria compared with those that did not (307 retailers versus 564 retailers, respectively).

Exhibit VI.1. Number of State agencies and census tracts, by use of limiting criteria

Characteristic	No limiting criteria	Any limiting criteria
Average number of WIC retailers per State agency	564.4	306.9
Number of WIC retailers	29,912	10,435
Number of census tracts ^a	54,227	20,066
Number of State agencies	53	34
Percent of State agencies	61%	39%

Source: FDP (2022 data), ERS Food Atlas, FY 2022 State Plans, and ACS 5-Year Estimates.

Note: Count of census tracts does not include American Samoa, Guam, the U.S. Virgin Islands, or the Northern Mariana Islands, as they are not divided into census tracts. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

Among the States and DC, 16 State agencies (31 percent) imposed limiting criteria (see Exhibit VI.2). Among these States, nine used a retailer participation ratio, six used a retailer to geographic area ratio, two used a retailer to local service area county ratio, and eight used other types of criteria. The average number of WIC retailers within convenient access was consistently lower in areas with limiting criteria. On average, there were 1.4 retailers within convenient access in census tracts with any limiting criteria, compared with 2.1 retailers in areas with no criteria. This pattern is held for each type of limiting criteria.

The same pattern is seen among ITOs and Puerto Rico (see Exhibit VI.3). Fourteen of the 32 State agencies that had a retail food delivery system in FY 2022 (43 percent) imposed at least one limiting criteria. Census tracts with these limiting criteria had on average a lower number of retailers within convenient access (0.8 retailers) compared with those with no criteria (1.4 retailers).

Exhibit VI.2. Average number of WIC retailers within convenient access, by limiting criteria, among States and DC

Limiting criterion	Mean number of WIC retailers	Number of State agencies
Any limiting criteria		
Yes	1.4	16
No	2.1	35
Vendor participation ratio		
Yes	1.4	9
No	2.0	42
Vendor/geographic area (e.g., number per mile or Zip code)		
Yes	1.3	6
No	1.9	45
Vendor/local service area or county ratio		
Yes	1.1	2
No	1.9	49
Vendor/local agency or clinic ratio		
Yes	N/A	0
No	1.9	51
Vendor or State agency staff ratio		
Yes	N/A	0
No	1.9	51
Statewide cap on number of retailers		
Yes	N/A	0
No	1.9	51
Other		
Yes	1.5	8
No	1.9	43

Source: FDP (2022 data), ERS Food Atlas, FY 2022 State Plan, and 2015–2019 ACS 5-Year Estimates.

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

Exhibit VI.3. Average number of WIC retailers within convenient access, by limiting criteria, among ITOs and Puerto Rico

Limiting criterion	Mean number of WIC retailers	Number of State agencies
Any limiting criteria		
Yes	0.8	14
No	1.4	15
Vendor participation ratio		
Yes	0.8	9
No	1.3	20
Vendor/geographic area (e.g., number per mile or Zip code)		
Yes	0.8	8
No	1.2	21
Vendor/local service area or county ratio		
Yes	0.8	1
No	1.1	28
Vendor/local agency or clinic ratio		
Yes	N/A	0
No	1.1	29
Vendor or State agency staff ratio		
Yes	1.3	1
No	1.1	28
Statewide cap on number of retailers		
Yes	N/A	0
No	1.1	29
Other		
Yes	0.9	6
No	1.2	23

Source: FDP (2022 data), ERS Food Atlas, FY 2022 State Plan, and 2015–2019 ACS 5-Year Estimates.

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization; N/A = not applicable

Next, the study examined the average number of WIC retailers within convenient access by limiting criteria and LILA status. As shown in Exhibit IV.4, among the States and DC, access was generally lower (though modestly so) among LILA census tracts that used limiting criteria versus those that did not (1.6 versus 1.7 average retailers within convenient access). Differences in convenient access were more pronounced among areas that were not designated as LILA. Among non-LILA census tracts, States that used any type of limiting criteria had on average convenient access to 1.4 retailers compared to 2.1 retailers in States that did not use limiting criteria.

Exhibit VI.4. Average number of WIC retailers within convenient access, by limiting criteria, among States and DC, by LILA status

Limiting criterion	Mean number of WIC retailers	
	LILA	Not LILA
Any limiting criteria		
Yes	1.6	1.4
No	1.7	2.1
Vendor participation ratio		
Yes	1.3	1.4
No	1.8	2.0
Vendor/geographic area (e.g., number per mile or Zip code)		
Yes	1.3	1.2
No	1.8	2.0
Vendor/local service area or county ratio		
Yes	1.3	0.9
No	1.7	1.9
Vendor/local agency or clinic ratio		
Yes	N/A	N/A
No	1.7	1.9
Vendor or State agency staff ratio		
Yes	N/A	N/A
No	1.7	1.9
Statewide cap on number of retailers		
Yes	N/A	N/A
No	1.7	1.9
Other		
Yes	2.0	1.2
No	1.6	2.0

Source: FDP (2022 data), ERS Food Atlas, FY 2022 State Plan, and 2015–2019 ACS 5-Year Estimates

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

LILA = low-income, low-access; N/A = not applicable

Among ITOs, the study generally found the same pattern, however convenient access within LILA and non-LILA areas among State agencies that used limiting criteria was only modestly smaller compared to State agencies that did not use limiting criteria (see Exhibit VI.5). In LILA census tracts where limiting criteria were present, on average, there were 0.7 retailers within convenient access compared with 0.9 retailers when limiting criteria were not present. However, for several criteria—retailer to geographic area, retailer to local service area or county ratio, and other criteria—there were no differences in the average number of retailers in areas with and without those criteria. For ITOs using a retailer to State agency staff ratio criteria, average access was higher when these criteria were present compared to areas where they were not (1.3 retailers within access, compared with 0.7 retailers).

Exhibit VI.5. Average number of WIC retailers within convenient access, by limiting criteria, among ITOs, by LILA status

Limiting criterion	Mean number of WIC retailers	
	LILA	Not LILA
Any limiting criteria		
Yes	0.7	1.0
No	0.9	1.2
Vendor participation ratio		
Yes	0.7	0.8
No	0.8	1.2
Vendor/geographic area (e.g., number per mile or Zip code)		
Yes	0.8	1.0
No	0.8	1.1
Vendor/local service area or county ratio		
Yes	0.8	N/A
No	0.8	1.1
Vendor/local agency or clinic ratio		
Yes	N/A	N/A
No	0.8	1.1
Vendor or State agency staff ratio		
Yes	1.3	N/A
No	0.7	1.1
Statewide cap on number of retailers		
Yes	N/A	N/A
No	0.8	1.1
Other		
Yes	0.8	0.9
No	0.8	1.2

Source: FDP (2022 data), ERS Food Atlas, FY 2022 State Plan, and 2015–2019 ACS 5-Year Estimates

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization; LILA = low-income, low-access; N/A = not applicable

Next, the study examined the average number of WIC retailers within convenient access by presence of limiting criteria and SVI status. Among the 50 States and DC, in high SVI census tracts, the study found that there were, on average, fewer WIC retailers (1.3) within access when limiting criteria were present than when they were not (2.1) (see Exhibit VI.6). This pattern held in low SVI census tracts as well, though the differences were less pronounced (1.8 retailers compared with 1.9 retailers).

Exhibit VI.6. Average number of WIC retailers within convenient access, by limiting criteria, among States and DC, by SVI status

Limiting criterion	Mean number of WIC retailers			
	Low SVI	Low-Med SVI	Med-High SVI	High SVI
Any limiting criteria				
Yes	1.8	1.4	1.3	1.3
No	1.9	2.6	1.5	2.1
Vendor participation ratio				
Yes	1.8	1.1	1.4	1.3
No	1.9	2.3	1.4	2.1
Vendor/geographic area (e.g., number per mile or Zip code)				
Yes	2.2	0.9	1.1	1.3
No	1.8	2.3	1.5	2.1
Vendor/local service area or county ratio				
Yes	N/A	0.9	1.3	N/A
No	1.9	2.2	1.4	2.0
Vendor/local agency or clinic ratio				
Yes	N/A	N/A	N/A	N/A
No	1.9	2.1	1.4	2.0
Vendor or State agency staff ratio				
Yes	N/A	N/A	N/A	N/A
No	1.9	2.1	1.4	2.0
Statewide cap on number of retailers				
Yes	N/A	N/A	N/A	N/A
No	1.9	2.1	1.4	2.0
Other				
Yes	N/A	1.5	1.3	N/A
No	1.9	2.3	1.4	2.0

Source: FDP (2022 data), ERS Food Atlas, FY 2022 State Plan, and 2015–2019 ACS 5-Year Estimates

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

SVI = Social Vulnerability Index; N/A = not applicable

Among ITOs, the study found similar patterns in high SVI census tracts with fewer retailers within convenient access, on average, in areas with limiting criteria (0.8 retailers) compared to those without limiting criteria (1.0 retailers). Because few ITOs had census tracts with low SVI scores and few imposed limiting criteria, there were no overall patterns for low SVI census tracts (see Exhibit VI.7).

Exhibit VI.7. Average number of WIC retailers within convenient access, by limiting criteria, among ITOs, by SVI status

Limiting criterion	Mean number of WIC retailers			
	Low SVI	Low-Med SVI	Med-High SVI	High SVI
Any limiting criteria				
Yes	2.0	0.0	0.9	0.8
No	N/A	N/A	1.2	1.0
Vendor participation ratio				
Yes	N/A	0.0	0.9	0.8
No	2.0	N/A	1.2	0.9
Vendor/geographic area (e.g., number per mile or Zip code)				
Yes	N/A	N/A	0.7	0.9
No	2.0	0.0	1.2	0.9
Vendor/local service area or county ratio				
Yes	N/A	N/A	0.8	N/A
No	2.0	0.0	1.1	0.9
Vendor/local agency or clinic ratio				
Yes	N/A	N/A	N/A	N/A
No	2.0	0.0	1.0	0.9
Vendor or State agency staff ratio				
Yes	N/A	N/A	N/A	1.3
No	2.0	0.0	1.0	0.9
Statewide cap on number of retailers				
Yes	N/A	N/A	N/A	N/A
No	2.0	0.0	1.0	0.9
Other				
Yes	2.0	0.0	0.7	1.1
No	N/A	N/A	1.3	0.9

Source: FDP (2022 data), ERS Food Atlas, FY 2022 State Plan, and 2015–2019 ACS 5-Year Estimates

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization; SVI = Social Vulnerability Index; N/A = not applicable

C. Optional selection criteria

All 50 States and DC implemented optional selection criteria in FY 2022 (see Exhibit VI.8 and Appendix Table A.23). The most common criteria implemented were proof of authorization as a SNAP retailer (44 State agencies, or 86%), hours of operation that meet State agency criteria (42 State agencies, or 82%), and requirements to stock a full range of foods in addition to WIC supplemental foods (37 State agencies, or 73%). In most cases, States with an optional selection criterion had a higher average number of WIC retailers within convenient access than States without these criteria. Stocking standards were the only

criterion for which the States with this criterion had fewer retailers (1.6 retailers) within convenient access, on average, than States that did not have this criterion (2.4 retailers). Notably, for States requiring a location necessary to ensure adequate participant access, there were more retailers within access (2.0 retailers) than among States without this criterion (1.7 retailers) on average.

Exhibit VI.8. Average number of WIC retailers within convenient access, by optional selection criteria, among States and DC

Optional selection criterion	Mean number of WIC retailers	Number of State agencies
Any optional selection criteria		
Yes	1.9	51
No	N/A	0
Redemption of a minimum number/volume of food instruments and CVVs/CVBs		
Yes	1.9	20
No	1.8	31
Proof of authorization as a SNAP retailer		
Yes	1.9	44
No	1.7	7
Hours of operation that meet State agency criteria		
Yes	1.9	42
No	1.8	9
Requirements to stock a full range of foods in addition to WIC supplemental foods		
Yes	1.6	37
No	2.4	14
Lack of previous WIC sanctions		
Yes	2.0	27
No	1.7	24
Certification by an approved State or local health department		
Yes	2.0	32
No	1.6	19
Satisfactory compliance with previous retailer agreement		
Yes	1.9	35
No	1.9	16
A location necessary to ensure adequate participant access		
Yes	2.0	31
No	1.7	20
Other		
Yes	1.7	32
No	2.1	19

Source: FDP (2022 data), ERS Food Atlas, FY 2022 State Plan, and 2015–2019 ACS 5-Year Estimates.

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was

estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

N/A = not applicable

All ITOs included in our analysis and Puerto Rico implemented optional selection criteria (see Exhibit VI.9). There were no clear patterns in access among the ITOs and Puerto Rico that implemented specific optional selection criteria and those that did not. For instance, among State agencies requiring proof of authorization as a SNAP retailer, convenient access was higher among those that had this requirement (1.4 retailers) compared to those that did not (0.9 retailers) on average. In contrast, convenient access was on average twice as high among State agencies that require authorized retailers to have no previous WIC sanctions (1.6 retailers) compared to those that did not have this criterion (0.8).

Exhibit VI.9. Average number of WIC retailers within convenient access, by optional selection criteria, among ITOs and Puerto Rico

Optional selection criterion	Mean number of WIC retailers	Number of State agencies
Any optional selection criteria		
Yes	1.1	29
No	N/A	0
Redemption of a minimum number/volume of food instruments and CVVs/CVBs		
Yes	0.9	11
No	1.3	18
Proof of authorization as a SNAP retailer		
Yes	0.9	15
No	1.4	14
Hours of operation that meet State agency criteria		
Yes	1.1	20
No	1.1	9
Requirements to stock a full range of foods in addition to WIC supplemental foods		
Yes	1.2	19
No	1.0	10
Lack of previous WIC sanctions		
Yes	1.6	12
No	0.8	17
Certification by an approved State or local health department		
Yes	1.2	10
No	1.1	19
Satisfactory compliance with previous retailer agreement		
Yes	1.4	18
No	0.6	11

Optional selection criterion	Mean number of WIC retailers	Number of State agencies
A location necessary to ensure adequate participant access		
Yes	1.1	22
No	1.3	7
Other		
Yes	1.7	7
No	1.0	22

Source: FDP (2022 data), ERS Food Atlas, FY 2022 State Plan, and 2015–2019 ACS 5-Year Estimates.

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization; N/A = not applicable

Among LILA census tracts within the 50 States and DC, convenient access was typically higher among States that used specific types of optional selection criteria versus those that did not. For five out of eight optional selection criteria, this was the case. For example, among LILA census tracts within States that required certification by an approved State or local health department, there was an average of 1.7 authorized WIC retailers within convenient access compared to 1.3 retailers in States that did not have this requirement. However, among LILA census tracts within States with additional stocking standards, access was lower, on average, compared to States without this requirement (1.6 versus 2.2 retailers within convenient access). Among non-LILA census tracts, the study found few differences in convenient access to WIC retailers based on specific types of optional selection criteria used by States. Exceptions to this pattern include when States require additional stocking standards, lack of previous WIC sanctions, or certification by an approved State or local health department to authorize retailers.

Exhibit VI.10. Average number of WIC retailers within convenient access, by optional selection criteria, among States and DC, by LILA status

Optional selection criterion	Mean number of WIC retailers	
	LILA	Not LILA
Any optional selection criteria		
Yes	1.7	1.9
No	N/A	N/A
Redemption of minimum number/volume of food instruments and CVVs, CVBs		
Yes	2.1	1.9
No	1.4	1.9
Proof of authorization of SNAP retailer		
Yes	1.8	1.9
No	1.3	1.8
Hours of operation that meet State agency criteria		
Yes	1.7	1.9
No	1.3	1.9

Optional selection criterion	Mean number of WIC retailers	
	LILA	Not LILA
Requirement to stock a full range of foods in addition to WIC supplemental foods		
Yes	1.6	1.7
No	2.2	2.5
Lack of previous WIC sanctions		
Yes	1.7	2.1
No	1.7	1.6
Certification by an approved State or local health department		
Yes	1.7	2.1
No	1.3	1.6
Satisfactory compliance with previous retailer agreement		
Yes	1.7	1.9
No	1.8	1.9
A location necessary to ensure adequate participant access		
Yes	2.0	2.0
No	1.3	1.8
Other		
Yes	1.7	1.7
No	1.8	2.2

Source: FDP (2022 data), ERS Food Atlas, FY 2022 State Plan, and 2015–2019 ACS 5-Year Estimates.

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

LILA = low-income, low access; N/A = not applicable

Among ITOs and Puerto Rico, implementing optional selection criteria among LILA areas was associated with lower access to WIC retailers for five of the eight optional selection criteria examined. However, access overall was low, and differences between State agencies with and without optional selection criteria were generally not large. Among non-LILA areas, a somewhat different pattern emerged, where convenient access was on average higher among State agencies that used seven of the eight optional selection criteria compared to those that did not. For example, among non-LILA census tracts within State agencies that require a lack of previous WIC sanctions when authorizing retailers, there were 2.9 retailers within convenient access on average compared with 0.7 retailers in State agencies without that criterion.

Exhibit VI.11. Average number of WIC retailers within convenient access, by optional selection criteria, among ITOs and Puerto Rico, by LILA status

Optional selection criterion	Mean number of WIC retailers	
	LILA	Not LILA
Any optional selection criteria		
Yes	0.8	1.1
No	N/A	N/A
Redemption of minimum number/volume of food instruments and CVVs, CVBs		
Yes	0.5	1.7
No	1.1	1.0
Proof of authorization of SNAP retailer		
Yes	0.5	1.3
No	1.2	0.9
Hours of operation that meet State agency criteria		
Yes	0.8	0.9
No	0.6	1.5
Requirement to stock a full range of foods in addition to WIC supplemental foods		
Yes	0.7	1.2
No	0.9	1.1
Lack of previous WIC sanctions		
Yes	0.9	2.9
No	0.6	0.7
Certification by an approved State or local health department		
Yes	0.7	1.6
No	0.8	0.8
Satisfactory compliance with previous retailer agreement		
Yes	0.8	1.7
No	0.7	0.6
A location necessary to ensure adequate participant access		
Yes	0.6	1.3
No	1.4	0.6
Other		
Yes	1.2	1.4
No	0.6	1.1

Source: FDP (2022 data), ERS Food Atlas, FY 2022 State Plan, and 2015–2019 ACS 5-Year Estimates.

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization; LILA = low-income, low access; N/A = not applicable

The study also examined how convenient access varied by the presence of optional selection criteria among places with varying degrees of social vulnerability (see Exhibit VI. 12). Among the States and DC, the study found that among high SVI census tracts in States that used optional selection criteria, convenient access was generally higher than in States that did not. For five out of eight specific criteria, access was higher; for one criterion, there was no difference in access; and for two criteria, access was lower. Among high SVI census tracts in States with added stocking standards, convenient access was lower by almost one retailer, on average, than in States without this requirement (1.8 versus 2.7 retailers). In contrast, among high SVI census tracts within States that required a retailer to redeem a minimum number or volume of food instruments and CVVs/CVBs, access was higher by almost one retailer, on average, than in States without this criterion (2.7 versus 1.6 retailers).

Exhibit VI.12. Average number of WIC retailers within convenient access, by optional selection criteria, among States and DC, by SVI status

Optional selection criterion	Mean number of WIC retailers			
	Low SVI	Low-Med SVI	Med-High SVI	High SVI
Any optional selection criteria				
Yes	1.9	2.1	1.4	2.0
No	N/A	N/A	N/A	N/A
Redemption of a minimum number/volume of food instruments and CVVs/CVBs				
Yes	2.1	1.9	1.2	2.7
No	1.7	2.2	1.5	1.6
Proof of authorization as a SNAP retailer				
Yes	1.8	2.2	1.3	2.1
No	2.3	1.1	2.1	1.3
Hours of operation that meet State agency criteria				
Yes	1.7	2.3	1.3	2.0
No	2.3	1.3	1.7	N/A
Requirements to stock a full range of foods in addition to WIC supplemental foods				
Yes	1.9	1.6	1.3	1.8
No	1.8	3.7	1.7	2.7
Lack of previous WIC sanctions				
Yes	1.9	2.9	1.4	2.1
No	1.9	1.4	1.3	2.0
Certification by an approved State or local health department				
Yes	1.7	2.6	1.4	2.3
No	2.1	1.3	1.5	1.6
Satisfactory compliance with previous retailer agreement				
Yes	1.8	2.4	1.4	1.7
No	2.0	1.5	N/A	2.4

Optional selection criterion	Mean number of WIC retailers			
	Low SVI	Low-Med SVI	Med-High SVI	High SVI
A location necessary to ensure adequate participant access				
Yes	1.8	2.6	1.4	2.3
No	1.9	1.6	1.5	1.5
Other				
Yes	2.0	1.6	1.5	2.0
No	1.7	2.5	1.0	2.0

Source: FDP (2022 data), ERS Food Atlas, FY 2022 State Plan, CDC SVI, and 2015–2019 ACS 5-Year Estimates.

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

SVI = Social Vulnerability Index; N/A = not applicable

Among the ITOs, the study found little difference in access among high SVI census tracts within State agencies that used or did not use optional selection criteria in FY 22. For four out of eight specific criteria, convenient access was higher among high SVI census tracts within State agencies that used optional selection criteria compared to those that did not; for two criteria, there was no difference in convenient access; and for two criteria, convenient access was lower on average among State agencies that used these criteria. Few ITOs included any census tracts with lower levels of social vulnerability, which makes it difficult to draw any conclusions regarding how the presence of optional selection criteria may influence convenient access among less vulnerable areas within ITOs.

Exhibit VI.13. Average number of WIC retailers within convenient access, by optional selection criteria, among ITOs, by SVI status

Optional selection criterion	Mean number of WIC retailers			
	Low SVI	Low-Med SVI	Med-High SVI	High SVI
Any optional selection criteria				
Yes	2.0	0.0	1.0	0.9
No	N/A	N/A	N/A	N/A
Redemption of a minimum number/volume of food instruments and CVVs/CVBs				
Yes	N/A	N/A	0.7	0.9
No	2.0	0.0	1.3	0.9
Proof of authorization as a SNAP retailer				
Yes	N/A	N/A	0.9	0.9
No	2.0	0.0	1.1	1.0
Hours of operation that meet State agency criteria				
Yes	2.0	0.0	0.9	0.9
No	N/A	N/A	1.3	1.0
Requirements to stock a full range of foods in addition to WIC supplemental foods				
Yes	N/A	N/A	0.9	0.9
No	2.0	0.0	1.3	0.9

Optional selection criterion	Mean number of WIC retailers			
	Low SVI	Low-Med SVI	Med-High SVI	High SVI
Lack of previous WIC sanctions				
Yes	2.0	N/A	1.6	1.3
No	N/A	0.0	0.9	0.5
Certification by an approved State or local health department				
Yes	N/A	N/A	0.9	1.3
No	2.0	0.0	1.1	0.7
Satisfactory compliance with previous retailer agreement				
Yes	N/A	N/A	1.3	1.1
No	2.0	0.0	0.6	0.5
A location necessary to ensure adequate participant access				
Yes	2.0	0.0	1.1	0.8
No	N/A	N/A	0.8	1.1
Other				
Yes	N/A	N/A	2.6	1.0
No	2.0	0.0	0.8	0.9

Source: FDP (2022 data), ERS Food Atlas, FY 2022 State Plan, CDC SVI, and 2015–2019 ACS 5-Year Estimates.

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization; SVI = Social Vulnerability Index; N/A = not applicable

VII. Conclusions

A. Summary of key findings

The WIC Participant Access to Authorized Vendors Study, Part 1 provides important insights into the current geographic coverage and density of WIC retailers across the United States, ITOs, and territories. The study also examines whether and where there might be disparities in geographic access to WIC retailers, and how changes in the composition of retailers over time may have contributed to or perpetuated disparities. The study findings are intended to support FNS in developing updated guidance to States regarding the definition of adequate participant access with respect to WIC retailers.

Between FY 2015 and FY 2022, there was a 15 percent decline in WIC retailers across the U.S. Notably, the decline in the number of retailers was largest in the period before FY 2020. Since FY 2020, the number of WIC retailers across all State agencies has remained relatively constant. The decreases in the number of WIC retailers were not evenly distributed across State agencies or by retailer type. Although most State agencies experienced decreases, some State agencies had substantial declines in the total number and percentage of retailers participating in WIC over this period. Further, the largest declines occurred among smaller retailers (36 percent decline in the number of authorized retailers), such as convenience stores and smaller grocery stores, compared with large retailers (4 percent decline in the number of authorized retailers). These declines may have been driven by factors such as the added costs and technology burdens placed on retailers to implement WIC EBT by 2020 or changes in State selection and limiting criteria that may have reduced the number of small retailers in their programs. Because this study did not have information on the total number of retailers that applied for WIC authorization in each State agency over time, it was not possible to determine whether declines were due to retailers leaving the program or because they were not re-authorized. Future research should explore these potential drivers to better understand the factors that influence fluctuations in the total number of authorized retailers over time.

Analyses revealed disparities in convenient access to WIC retailers among WIC-eligible families. Across the nation, over 2.2 million or 41 percent of WIC-eligible families did not have convenient access to a WIC retailer. Among the States and DC, 2.1 million WIC-eligible families did not have convenient access to a WIC retailer in FY 2022, representing 40 percent of the WIC-eligible population. Among ITOs and Puerto Rico, approximately 73,000 WIC-eligible families, representing 54 percent of all WIC-eligible families, lacked convenient access to a WIC retailer. Importantly, the definition of convenient access used throughout this study was based solely on geographic proximity to WIC retailers and did not account for other dimensions of accessibility, such as the availability of WIC food items at authorized retailers, store hours of operation, or WIC participants' access to reliable and affordable transportation options necessary for commuting to authorized retailers in their community. For these reasons, estimates of convenient access may overstate the true level of convenience experienced by WIC participants residing in these areas.

The study also uncovered disparities in access to WIC relative to SNAP. SNAP retailers outnumbered WIC retailers by a factor of nearly 7 to 1. In the 50 States and DC, 80 percent of census tracts had convenient access to a SNAP-authorized retailer, whereas only 55 percent had convenient access to a WIC retailer. Among ITOs and territories, the pattern was reversed: 46 percent of census tracts had convenient access to a WIC retailer, and 34 percent had access to a SNAP retailer. This reversed pattern for ITOs and territories is likely due to

higher participation in FDPIR than SNAP among Tribal members, and participation in NAP instead of SNAP in the territories.

Greater access to SNAP relative to WIC is not a surprising result, given participation in SNAP is almost 7 times higher than WIC; 41 million people participated in SNAP in FY 2022, while 6 million participated in WIC (USDA, 2024b and USDA, 2024d). However, about one-quarter of WIC participants also participate in SNAP (Zvavitch et al., 2024). For these participants, having the ability to shop with their SNAP and WIC benefits at the same retailers could improve their participant experience and utilization of benefits. To expand access to WIC, States could consider authorizing SNAP retailers that are not currently participating in WIC. Nonetheless, because retailers must meet different authorization criteria for each program, some retailers that are SNAP-authorized may not be eligible to be WIC-authorized. For instance, a SNAP-authorized retailer may not stock sufficient quantities and/or varieties of WIC foods to become a WIC-authorized retailer.

Results also indicate that the distribution of authorized retailers along with convenient access to WIC retailers varied widely across communities in the United States. Low-income, low-access (LILA) areas had substantially fewer authorized retailers and generally experienced lower levels of access to WIC retailers in comparison to non-LILA areas. Although 80 percent of all authorized retailers were located in urban census tracts, analyses suggested that convenient access to WIC retailers was generally better in rural areas than in urban areas. This finding is likely influenced by two methodological choices. First, consistent with the ERS Food Access Research Atlas, the distance markers used for defining access in rural areas was 10 times larger than in urban areas. Second, many suburban census tracts—areas with generally higher retailer availability—were defined as rural in this study based on the ERS Food Access Research Atlas definitions. The study also found that high SVI census tracts (places that are more socially vulnerable) had more authorized WIC retailers and were more likely to have convenient access to WIC compared to low SVI census tracts. These results are likely due to low SVI census tracts being concentrated in suburban areas, that as noted previously were more likely to be classified as rural, leading to higher average access when compared to high SVI census tracts that tend to be either very rural or very urban.

The study also examined State agency policies on retailer authorization, focusing on the use of limiting and optional selection criteria. The results from these analyses showed that 39 percent of all State agencies used limiting criteria. In State agencies with any limiting criteria, access to WIC retailers was, on average, lower, with fewer retailers within convenient access. The study also examined individual limiting criteria and found the same general pattern—when a limiting criterion was present, access was lower. In contrast, all State agencies included in our analysis used optional selection criteria, and the use of these criteria among the 50 States and DC was often, though not always, associated with higher levels of convenient access to WIC. Notably, in areas with a requirement to stock a full range of foods in addition to WIC supplemental foods, access was generally lower. Results were more mixed among ITOs that used specific types of optional selection criteria.

B. Limitations of the study

This study provides an important first step toward understanding the distribution of access to WIC retailers within and across State agencies. However, this study is not without its limitations, as discussed below.

Definition of convenient access. Convenient access was based on the assumption of a one-mile driving radius in urban areas and a 10-mile driving radius in rural areas; however, some individuals may be willing to travel farther than these distances to access WIC foods and others may be unable to travel these distances. In addition, the analyses treat access to authorized retailers equally regardless of retailer type, size, or other characteristics, despite research suggesting that participants may be willing to travel farther to shop at large retailers, such as supermarkets, compared to smaller retailers (Wu et al., 2017; Tiehen & Frazão, 2018; Geller et al., 2012).

Additionally, other aspects of the retail experience beyond proximity to a retailer likely facilitate or constrain a participant's ability to use their WIC benefits. These include a participant's ability to find WIC foods within a store, clarity in labeling of what foods are WIC eligible, and cashier understanding of the WIC program and what foods can be purchased. A recent multistate survey of WIC participants revealed that nearly three in four participants (73 percent) reported that WIC foods are hard to find within authorized retailer locations (Lee et al., 2024), which suggests that access to the physical retailer is just one element of convenient access to WIC foods.

Data limitations. Because it was not possible to obtain data on WIC participant locations, the study instead relied on publicly available census data to approximate the WIC-eligible population by census tract and determined convenient access at the census tract level. Given the complexity of WIC eligibility rules, it is likely that the proxy for WIC-eligible families overstates the number of families without convenient access to WIC. In addition, the study did not have access to information on the number of retailers that applied for authorization within each State agency, which constrained our ability to understand whether declines in the number of authorized retailers over time was primarily due to retailers voluntarily leaving the program versus changes in how State agencies applied limiting or selection criteria when making authorization determinations. Finally, the study did not have data on the full universe of food retailers within each state agency. Although the universe of SNAP-authorized retailers likely captures a large proportion of total food retailers, it was not possible to estimate how access would differ in the broader set of food retailers in a state were to become WIC-authorized.

Analytic limitations. There are three key analytic limitations. First, a small number of retailers, representing less than 1 percent of all retailers, were excluded from the analysis because their geographic coordinates placed the retailer far from any nearby road network. Second, it was not feasible to conduct geographic access analyses in four of the five territories (all but Puerto Rico) due to a combination of low-quality geocoding results for the retailer address information and a lack of ACS tract-level data. Finally, it was not possible to conduct this analysis in five ITOs because they either did not use a retail food delivery system to provide WIC foods in the years that data were analyzed for this report, or because the geographic boundaries of the ITO comprised only a small segment of a single census tract preventing accurate distance calculations from being performed.

C. Areas for future research

The goal of this study was to explore geographic access to WIC retailers, assess potential disparities in access, and explore how State policies on retailer authorization may be associated with WIC access. However, more research is needed to understand WIC access within the complexity of actual participants' shopping choices and retailer participation in WIC. Replicating the analysis with actual participant data,

particularly leveraging information about where participants redeem their benefits, could help inform decisions regarding convenient access thresholds while also improving how demand locations are identified. Relatedly, future research could aim to better understand factors that determine demand (the preferences and needs of WIC-eligible families) and supply (retailer barriers and facilitators to WIC participation). Results from these additional analyses could help inform decisions about how to reach more eligible families and improve the adequacy of retailer accessibility.

Qualitative research with WIC participants could provide valuable insights into participants' perceptions of access to WIC retailers and the factors that influence those perceptions. Understanding how WIC participants decide where to shop could allow for greater differentiation in how access is defined. For instance, participants may prefer to redeem their WIC benefits at supermarkets rather than convenience stores, because of the increased availability of other food items, and as a result, may choose to travel farther to large retailers compared to smaller ones. With additional information regarding these preferences, the definition of convenient access could be updated to vary not only based on urbanicity but also by store type (e.g., allow larger distance markers for large retailers versus smaller retailers). Qualitative data collection with participants would also provide opportunities to ground truth findings from the quantitative access analyses. For example, participants who reside in areas designated as having convenient access to WIC retailers could be asked about their reactions to this designation and whether it feels accurate to their lived experience.

Given the large number of SNAP-authorized retailers within convenient access to census tracts compared to WIC-authorized retailers, more research is needed to understand current barriers that prevent more SNAP-authorized vendors from becoming WIC authorized. It is possible that a large portion of SNAP-but-not-WIC authorized retailers do not meet the eligibility requirements for WIC due to insufficient stocking of WIC supplemental foods or other factors, however it may be the case that SNAP-but-not-WIC authorized retailers lack familiarity with the WIC authorization process or may not be aware that they could be WIC eligible. It is also possible that State agency policies, including the use of limiting criteria and optional selection criteria, prevent retailers from becoming WIC authorized despite meeting Federal program requirements.

Additional areas of exploration include examining the interaction between the decline in the number of WIC retailers and the decline in WIC participation over time. Between FYs 2015 and 2022, there were meaningful declines in both the number of authorized WIC retailers and the total number of WIC participants nationwide. However, it is unclear whether WIC participation rates declined as a result of having access to fewer WIC retailers, or if changes in the number of WIC participants led retailers to voluntarily exit the program. The decline in the number of authorized retailers prior to FY 2020, which was especially large among smaller retailers, raises important questions regarding how the rollout of WIC EBT may have contributed to changes in WIC authorizations. In light of the FNS policy memo that was issued in October 2022 that encouraged State agencies to assess the adequacy of their vendor populations, States may have made substantive changes to their policies and vendor populations since FY 2022. As such, replicating this study's analysis using more recent data could help shed light on how access to WIC retailers has evolved in response to this memo and since this report was developed.

These topics and questions are beyond the scope of the current study, but new research addressing these issues could help policymakers and program administrators target resources to ensure better access to WIC for eligible families.

D. Next steps

As a next step toward ensuring WIC participants have adequate access to WIC retailers, FNS is currently undertaking a new study (WIC Participant Access Study Part 2) that will create an operational definition of “adequate participant access” for State agencies to use in selecting and managing WIC retailers. The Part 2 study will build upon the analyses completed under Part 1 using more recent data and new data sources to address gaps in understanding that were surfaced from the Part 1 study.

Under the Part 2 study, the study team will use WIC Participant Characteristics data and EBT transaction data to investigate the types of vendors that WIC participants use most often to redeem their WIC benefits and how far they typically travel when doing so. These data will allow us to better understand and subsequently account for participant preferences regarding vendor type and location when developing and refining the definition of “adequate participant access.” The study team will also obtain data on the full universe of food retailers located in State agencies, which will allow for a more complete picture of the food retailer environment than was not possible under Part 1. These data will be used to examine access to eligible-but-not-authorized retailers within and across State agencies.

To understand how State agencies currently define adequate access and apply State policies when selecting, authorizing, and terminating WIC vendors, the study team will conduct interviews with a mix of State agencies. The study team will aim to include State agencies that vary with respect to State policies used, level of urbanicity, geographic size, and population density, among other characteristics. The study team will complement these State interviews with a thorough review of policy documents and more recent WIC State Plan data from FY 2024.

Together, the updated quantitative and qualitative data collection and analyses will support the development of a new operational definition of “adequate participant access.” Using this definition, the study team will run sensitivity analyses to determine how this definition closes the gaps in access across a select subsample of States. Results of this study will be used to create a toolkit, resource guide, or other materials to assist States in applying this new definition to their vendor selection, authorization, and termination policies and practices.

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Appendix A.

Supplemental Tables

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Table A.1. Proportion of retailers by key characteristics

WIC State Agency	Urbanicity		LILA		SVI				Total
	Urban	Rural	LILA	Non-LILA	Low	Low-Med	Med-High	High	
States and D.C.									
California	93.7%	6.3%	7.0%	93.0%	9.0%	16.4%	23.9%	50.8%	3999
New York	92.0%	8.0%	2.8%	97.2%	11.6%	18.0%	26.2%	44.2%	3184
Texas	81.6%	18.4%	15.0%	85.0%	16.8%	16.9%	23.7%	42.7%	2244
Illinois	91.2%	8.8%	9.7%	90.3%	24.9%	24.2%	23.3%	27.5%	2181
Florida	89.0%	11.0%	11.0%	89.0%	16.2%	25.3%	27.9%	30.6%	2109
North Carolina	74.1%	25.9%	19.3%	80.7%	16.7%	20.6%	25.8%	37.0%	1710
Michigan	81.4%	18.6%	12.6%	87.4%	18.2%	23.8%	27.4%	30.6%	1564
Pennsylvania	83.8%	16.2%	4.9%	95.1%	18.3%	27.1%	23.6%	31.0%	1317
Georgia	77.8%	22.2%	22.2%	77.8%	19.5%	18.9%	27.0%	34.7%	1304
Ohio	85.1%	14.9%	10.3%	89.7%	25.8%	27.2%	27.4%	19.6%	1102
Minnesota	73.2%	26.8%	16.6%	83.4%	22.3%	25.9%	28.5%	23.3%	1045
Wisconsin	78.9%	21.1%	8.4%	91.6%	22.3%	31.1%	26.5%	20.1%	1031
New Jersey	96.0%	4.0%	4.4%	95.6%	18.8%	15.9%	19.4%	46.0%	883
Massachusetts	95.6%	4.4%	7.0%	93.0%	21.4%	26.4%	23.8%	28.4%	880
Virginia	78.7%	21.3%	13.3%	86.7%	30.2%	27.3%	26.4%	16.1%	834
Tennessee	72.9%	27.1%	21.0%	79.0%	14.4%	20.9%	30.9%	33.8%	809
Washington	78.2%	21.8%	15.8%	84.2%	13.1%	24.9%	32.7%	29.3%	679
Missouri	68.7%	31.3%	17.7%	82.3%	16.7%	21.3%	38.6%	23.5%	677
Alabama	60.7%	39.3%	18.4%	81.6%	14.7%	21.7%	30.1%	33.4%	631
South Carolina	73.6%	26.4%	14.1%	85.9%	19.7%	21.9%	25.3%	33.1%	629
Connecticut	91.5%	8.5%	8.2%	91.8%	26.3%	26.1%	18.1%	29.5%	613
Indiana	76.9%	23.1%	15.0%	85.0%	15.4%	25.9%	35.9%	22.8%	602
Kentucky	51.3%	48.7%	14.4%	85.6%	10.7%	15.5%	34.7%	39.1%	589
Iowa	71.9%	28.1%	7.6%	92.4%	18.5%	37.8%	30.2%	13.5%	556
Maryland	87.1%	12.9%	9.2%	90.8%	28.8%	26.4%	27.3%	17.4%	556
Arizona	92.0%	8.0%	13.6%	86.4%	18.5%	21.6%	22.8%	37.1%	523
Oregon	78.0%	22.0%	14.8%	85.2%	10.9%	20.3%	31.4%	37.4%	513
Louisiana	78.8%	21.2%	20.6%	79.4%	8.2%	19.5%	33.8%	38.5%	452
Oklahoma	71.2%	28.8%	13.9%	86.1%	9.7%	20.1%	34.7%	35.4%	452
Colorado	77.8%	22.2%	11.8%	88.2%	37.1%	26.0%	15.6%	21.3%	450
Arkansas	63.1%	36.9%	23.0%	77.0%	7.9%	16.6%	36.7%	38.8%	379
Kansas	65.2%	34.8%	12.5%	87.5%	15.9%	33.0%	36.8%	14.2%	345
Nebraska	67.2%	32.8%	7.5%	92.5%	24.5%	35.8%	27.2%	12.5%	335
Mississippi	69.2%	30.8%	29.5%	70.5%	5.8%	14.6%	26.6%	52.9%	308
Maine	34.0%	66.0%	6.5%	93.5%	15.6%	32.7%	38.4%	13.3%	294
Utah	82.4%	17.6%	9.7%	90.3%	31.1%	29.2%	29.2%	10.5%	267

Table A.1 (continued)

WIC State Agency	Urbanicity		LILA		SVI				Total
	Urban	Rural	LILA	Non-LILA	Low	Low-Med	Med-High	High	
West Virginia	46.2%	53.8%	13.6%	86.4%	4.2%	27.3%	49.6%	18.9%	264
Nevada	88.2%	11.8%	3.2%	96.8%	15.5%	27.3%	24.5%	32.7%	220
Montana	39.8%	60.2%	14.1%	85.9%	15.5%	36.9%	32.0%	15.5%	206
New Mexico	74.8%	25.2%	20.9%	79.1%	8.4%	16.8%	23.8%	51.0%	206
Idaho	55.4%	44.6%	12.3%	87.7%	8.8%	29.4%	40.2%	21.6%	204
South Dakota	38.3%	61.7%	10.9%	89.1%	14.9%	36.6%	28.6%	20.0%	175
Rhode Island	97.0%	3.0%	3.0%	97.0%	13.1%	17.9%	16.7%	52.4%	168
Alaska	27.0%	73.0%	38.0%	62.0%	5.5%	10.4%	22.1%	62.0%	163
New Hampshire	60.4%	39.6%	14.8%	85.2%	28.2%	41.6%	23.5%	6.7%	149
North Dakota	37.1%	62.9%	7.7%	92.3%	22.4%	51.0%	20.3%	6.3%	143
Hawaii	75.8%	24.2%	13.6%	86.4%	13.6%	31.1%	28.8%	26.5%	132
Vermont	34.5%	65.5%	5.5%	94.5%	21.8%	39.1%	37.3%	1.8%	110
Wyoming	59.7%	40.3%	11.7%	88.3%	16.9%	42.9%	32.5%	7.8%	77
Delaware	77.6%	22.4%	11.8%	88.2%	23.7%	25.0%	34.2%	17.1%	76
District of Columbia	100.0%	0.0%	5.2%	94.8%	17.2%	19.0%	29.3%	34.5%	58
All States and D.C.	80.8%	19.1%	11.7%	88.3%	17.1%	22.7%	26.9%	33.2%	38,397
Indian Tribal Organizations									
Chickasaw Nation	34.2%	65.8%	11.9%	88.1%	7.7%	17.7%	43.5%	31.2%	260
Inter-Tribal Council of Arizona	84.2%	15.8%	22.6%	77.4%	8.4%	8.4%	23.2%	60.0%	190
Inter-Tribal Council of Nevada	80.0%	20.0%	4.7%	95.3%	14.1%	29.4%	27.1%	29.4%	85
Cherokee Nation of Oklahoma	74.4%	25.6%	21.8%	78.2%	7.7%	15.4%	24.4%	52.6%	78
Navajo Nation	49.3%	50.7%	49.3%	50.7%	2.8%	2.8%	11.3%	83.1%	71
Wichita, Caddo, and Delaware Tribes	88.1%	11.9%	7.5%	92.5%	14.9%	22.4%	26.9%	35.8%	67
Osage Nation	88.9%	11.1%	12.7%	87.3%	11.1%	15.9%	41.3%	31.7%	63
Citizen Potawatomi Nation	83.9%	16.1%	16.1%	83.9%	14.3%	26.8%	30.4%	28.6%	56
Muscogee (Creek) Nation	70.0%	30.0%	22.0%	78.0%	12.0%	14.0%	30.0%	44.0%	50
Choctaw Nation of Oklahoma	51.4%	48.6%	29.7%	70.3%	2.7%	2.7%	24.3%	70.3%	37
Otoe-Missouria Tribe	76.7%	23.3%	6.7%	93.3%	6.7%	26.7%	30.0%	36.7%	30
Five Sandoval Indian Pueblos, Inc.	100.0%	0.0%	6.3%	93.8%	12.5%	31.3%	31.3%	25.0%	16
Rosebud Sioux Tribe	25.0%	75.0%	50.0%	50.0%	0.0%	8.3%	41.7%	50.0%	12
Mandan, Hidatsa and Arikara Nation	45.5%	54.5%	0.0%	100.0%	27.3%	27.3%	45.5%	0.0%	11
Eight Northern Indian Pueblos, Inc.	100.0%	0.0%	37.5%	62.5%	0.0%	14.3%	28.6%	57.1%	8

Table A.1 (continued)

WIC State Agency	Urbanicity		LILA		SVI				Total
	Urban	Rural	LILA	Non-LILA	Low	Low-Med	Med-High	High	
Pueblo of Zuni	75.0%	25.0%	75.0%	25.0%	0.0%	0.0%	0.0%	100.0%	8
Inter-Tribal Council Inc. of Oklahoma	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%	28.6%	71.4%	7
Omaha Nation	0.0%	100.0%	0.0%	100.0%	0.0%	14.3%	0.0%	85.7%	7
Standing Rock	57.1%	42.9%	14.3%	85.7%	14.3%	14.3%	28.6%	42.9%	7
Mississippi Band of Choctaw Indians	50.0%	50.0%	33.3%	66.7%	16.7%	0.0%	16.7%	66.7%	6
Pueblo of Isleta	100.0%	0.0%	33.3%	66.7%	0.0%	16.7%	50.0%	33.3%	6
Winnebago	20.0%	80.0%	0.0%	100.0%	0.0%	0.0%	20.0%	80.0%	5
Ute Mountain	50.0%	50.0%	50.0%	50.0%	0.0%	0.0%	0.0%	100.0%	4
Acoma, Canonicito, and Laguna	66.7%	33.3%	33.3%	66.7%	0.0%	0.0%	0.0%	100.0%	3
Cheyenne River Sioux Tribe	33.3%	66.7%	33.3%	66.7%	33.3%	0.0%	0.0%	66.7%	3
Eastern Shoshone	66.7%	33.3%	0.0%	100.0%	0.0%	33.3%	33.3%	33.3%	3
Passamaquoddy Tribe at Pleasant Point	0.0%	100.0%	0.0%	100.0%	0.0%	0.0%	66.7%	33.3%	3
Northern Arapaho	50.0%	50.0%	0.0%	100.0%	0.0%	0.0%	50.0%	50.0%	2
Passamaquoddy Tribe at Indian Township	0.0%	100.0%	0.0%	100.0%	0.0%	0.0%	100.0%	0.0%	2
Eastern Band of Cherokee Indians	0.0%	100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	100.0%	1
Santee Sioux	0.0%	100.0%	0.0%	100.0%	0.0%	0.0%	100.0%	0.0%	1
ITOs	65.0%	35.0%	18.2%	81.8%	8.9%	15.5%	30.3%	45.2%	1,102
Puerto Rico	78.5%	21.5%	N/A	N/A	N/A	N/A	N/A	N/A	744

Source: FDP (2022 data), ERS Food Access Research Atlas, and CDC SVI

Note: Results exclude 16 retailers whose geographic coordinates placed the retailer far from any nearby road network. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization.

Table A.2. Participants-per-retailer ratio by program type

WIC State Agency	WIC retailers	Participants per WIC retailer	SNAP retailers	Participants per SNAP retailer
States and D.C.				
Texas	2,245	311	23,124	149
Indiana	602	252	5,824	106
Arizona	523	249	3,996	207
Nevada	220	236	2,031	224
California	3,999	234	26,177	177
Delaware	76	234	855	139
Mississippi	308	216	3,442	120
Maryland	557	213	3,911	198
District of Columbia	58	201	482	302
Hawaii	132	196	963	176
Florida	2,110	195	16,197	176
Louisiana	452	187	4,662	176
Kentucky	589	184	4,846	112
Washington	680	179	5,299	165
Colorado	451	173	3,227	167
Alabama	631	172	5,206	146
New Jersey	883	166	6,324	136
New Mexico	206	156	1,718	302
North Carolina	1,710	151	9,668	165
Arkansas	379	148	2,851	98
Georgia	1,305	147	10,768	149
Virginia	834	145	6,697	119
Ohio	1,105	145	10,499	142
Oregon	513	145	3,550	202
Idaho	204	142	1,186	105
Tennessee	809	142	6,884	120
Oklahoma	452	141	3,891	167
Utah	267	140	1,621	96
South Carolina	629	137	5,409	114
Massachusetts	880	131	5,400	190
West Virginia	264	129	2,275	137
Kansas	345	128	2,144	91
Michigan	1,564	128	10,022	135
Missouri	677	124	5,235	126
New York	3,184	122	18,644	152
Pennsylvania	1,317	120	10,815	171
Nebraska	336	105	1,449	107

Table A.2 (continued)

WIC State Agency	WIC retailers	Participants per WIC retailer	SNAP retailers	Participants per SNAP retailer
Vermont	110	102	701	99
Iowa	556	101	3,015	92
Rhode Island	168	96	974	143
Minnesota	1,045	95	3,758	116
New Hampshire	149	92	1,079	64
Wyoming	77	87	382	79
Alaska	164	84	548	168
Wisconsin	1,031	82	4,565	155
South Dakota	175	78	799	89
Connecticut	613	76	2,668	141
Illinois	2,182	71	9,967	199
North Dakota	143	69	591	80
Montana	206	67	828	108
Maine	294	57	1,440	113
All States and D.C.	38,409	147	268,607	145
Indian Tribal Organizations				
Eastern Band of Cherokee Indians	1	608	1	N/A
Cheyenne River Sioux Tribe	3	161	3	N/A
Pueblo of Isleta	6	158	6	N/A
Choctaw Nation of Oklahoma	37	147	32	N/A
Mississippi Band of Choctaw Indians	6	128	4	N/A
Acoma, Canoncito, and Laguna	3	100	3	N/A
Inter-Tribal Council Inc. of Oklahoma	7	81	7	N/A
Northern Arapaho	2	80	1	N/A
Rosebud Sioux Tribe	12	71	9	N/A
Cherokee Nation of Oklahoma	78	63	78	N/A
Osage Nation	63	62	61	N/A
Navajo Nation	71	61	65	N/A
Wichita, Caddo, and Delaware Tribes	67	60	66	N/A
Pueblo of Zuni	8	57	5	N/A
Muscogee (Creek) Nation	50	45	48	N/A
Santee Sioux	1	38	0	N/A
Standing Rock	7	36	6	N/A
Inter-Tribal Council of Arizona	190	35	190	N/A
Ute Mountain	4	33	4	N/A
Omaha Nation	7	28	5	N/A
Citizen Potawatomi Nation	56	25	45	N/A
Eight Northern Indian Pueblos, Inc.	8	24	7	N/A
Eastern Shoshone	4	23	2	N/A

Table A.2 (continued)

WIC State Agency	WIC retailers	Participants per WIC retailer	SNAP retailers	Participants per SNAP retailer
Passamaquoddy Tribe at Indian Township	2	23	1	N/A
Winnebago	5	20	5	N/A
Chickasaw Nation	260	14	118	N/A
Passamaquoddy Tribe at Pleasant Point	3	12	3	N/A
Mandan, Hidatsa and Arikara Nation	11	11	5	N/A
Five Sandoval Indian Pueblos, Inc.	16	9	3	N/A
Otoe-Missouria Tribe	30	8	22	N/A
Inter-Tribal Council of Nevada	85	7	84	N/A
Pueblo of San Felipe	0	N/A	0	N/A
Santo Domingo Tribe	0	N/A	0	N/A
All ITOs	1,103	72	889	N/A
Territories				
Virgin Islands	10	263	89	250
Guam	29	184	261	139
Commonwealth of the Northern Mariana Islands	16	175	0	N/A
Puerto Rico	744	124	4	N/A
American Samoa	36	109	0	N/A
All territories	835	171	354	194

Source: FDP (2022 data), ERS Food Atlas, STARS, FNS WIC Data Tables, and FNS SNAP Data Tables.

Note: The SNAP participant-to-retailer ratio counts the ratio of WIC-eligible participants to SNAP retailers. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization; N/A = not applicable.

Table A.3. Number of WIC retailers by State agency, 2015—2022

WIC State Agency	2015	2016	2017	2018	2019	2020	2021	2022
States and D.C.								
California	4,848	4,683	4,534	4,373	4,161	4,014	4,154	3,999
New York	4,191	3,855	3,505	3,150	3,007	3,038	3,036	3,184
Texas	2,338	2,315	2,345	2,299	2,283	2,238	2,215	2,245
Illinois	2,403	2,360	2,325	2,262	2,215	2,097	2,002	2,182
Florida	2,080	2,097	2,105	2,105	2,078	2,087	2,136	2,110
North Carolina	2,165	2,104	2,091	2,023	1,893	1,811	1,793	1,710
Michigan	1,964	1,873	1,874	1,780	1,637	1,569	1,643	1,564
Pennsylvania	2,314	2,224	2,185	1,981	1,770	1,516	1,334	1,317
Georgia	1,512	1,500	1,454	1,422	1,356	1,327	1,357	1,305
Ohio	1,463	1,393	1,338	1,306	1,238	1,175	1,203	1,105
Minnesota	1,180	1,155	1,147	1,102	1,100	1,008	1,021	1,045
Wisconsin	1,307	1,296	1,231	1,189	1,147	1,082	1,049	1,031
New Jersey	934	1,015	956	1,014	1,013	968	946	883
Massachusetts	999	1,002	985	930	887	875	869	880
Virginia	879	869	879	873	854	833	837	834
Tennessee	920	877	851	836	832	815	809	809
Washington	810	797	736	724	702	487	696	680
Missouri	703	707	690	669	677	654	668	677
Alabama	728	723	709	690	646	636	639	631
South Carolina	696	680	682	695	667	650	705	629
Connecticut	720	692	685	642	649	611	648	613
Indiana	711	697	712	639	627	614	N/A	602
Kentucky	787	740	721	701	685	637	611	589
Maryland	970	899	769	710	663	626	575	557
Iowa	681	655	595	585	586	590	572	556
Arizona	718	684	646	618	556	537	525	523
Oregon	608	575	553	540	531	519	517	513
Louisiana	599	564	616	593	547	498	476	452
Oklahoma	475	472	453	437	428	433	429	452
Colorado	451	452	471	461	460	460	449	451
Arkansas	423	423	402	390	376	379	361	379
Kansas	391	385	373	361	358	352	353	345
Nebraska	408	371	364	347	352	330	365	336
Mississippi	0	0	0	0	0	0	286	308
Maine	280	261	258	244	242	239	213	294
Utah	298	305	300	300	290	286	282	267
West Virginia	307	304	287	280	270	252	258	264
Nevada	237	218	218	219	218	217	217	220

Table A.3 (continued)

WIC State Agency	2015	2016	2017	2018	2019	2020	2021	2022
Montana	205	195	199	196	198	199	201	206
New Mexico	225	224	237	209	207	207	203	206
Idaho	219	222	213	206	203	201	204	204
South Dakota	203	204	200	198	183	175	176	175
Rhode Island	231	213	234	219	214	200	194	168
Alaska	172	165	164	163	163	164	166	164
New Hampshire	217	180	176	167	161	155	152	149
North Dakota	195	179	171	168	167	156	150	143
Hawaii	141	138	139	135	133	134	132	132
Vermont	149	210	114	115	109	110	108	110
Wyoming	92	85	84	86	82	77	78	77
Delaware	88	89	83	77	79	80	81	76
District of Columbia	47	48	47	47	49	48	52	58
All States and D.C.	45,682	44,374	43,106	41,476	39,949	38,366	38,146	38,409
Indian Tribal Organizations								
Chickasaw Nation	34	44	63	80	85	94	143	260
Inter-Tribal Council of Arizona	142	140	149	147	146	146	146	190
Inter-Tribal Council of Nevada	55	60	60	73	81	83	84	85
Cherokee Nation of Oklahoma	65	67	68	67	67	68	65	78
Navajo Nation	108	107	104	102	102	81	78	71
Wichita, Caddo, and Delaware Tribes	58	62	61	64	63	62	67	67
Osage Nation	32	34	34	42	42	49	43	63
Citizen Potawatomi Nation	53	58	57	57	52	50	59	56
Muscogee (Creek) Nation	54	53	50	47	46	47	47	50
Choctaw Nation of Oklahoma	38	37	38	37	33	35	34	37
Otoe-Missouria Tribe	23	28	28	27	27	28	35	30
Five Sandoval Indian Pueblos, Inc.	4	4	4	5	4	4	4	16
Rosebud Sioux Tribe	12	11	11	11	11	11	11	12
Mandan, Hidatsa and Arikara Nation	13	12	11	12	12	12	11	11
Eight Northern Indian Pueblos, Inc.	7	7	7	10	9	8	8	8
Pueblo of Zuni	8	8	8	9	9	9	8	8
Inter-Tribal Council Inc. of Oklahoma	6	6	6	6	6	6	6	7
Omaha Nation	6	6	6	5	5	5	5	7
Standing Rock	11	10	9	9	8	8	8	7
Mississippi Band of Choctaw Indians	7	6	6	6	5	6	6	6
Pueblo of Isleta	7	7	7	7	7	6	6	6

Appendix A. Supplemental Tables
Table A.3 (continued)

WIC State Agency	2015	2016	2017	2018	2019	2020	2021	2022
Winnebago	5	5	5	5	5	5	5	5
Eastern Shoshone	5	5	5	5	4	5	3	4
Ute Mountain	3	3	3	3	3	5	5	4
Acoma, Canoncito, and Laguna	4	3	3	3	3	3	3	3
Cheyenne River Sioux Tribe	3	3	3	3	3	3	3	3
Passamaquoddy Tribe at Pleasant Point	3	4	3	3	3	3	3	3
Northern Arapaho	5	5	5	5	4	3	2	2
Passamaquoddy Tribe at Indian Township	2	3	2	2	2	2	2	2
Eastern Band of Cherokee Indians	2	2	2	2	2	2	1	1
Santee Sioux	3	3	3	3	2	2	1	1
Pueblo of San Felipe	0	0	0	0	0	0	0	0
Santo Domingo Tribe	0	0	0	0	0	0	0	0
All ITOs	778	803	821	857	851	851	902	1,103
Territories								
Puerto Rico	805	748	684	755	728	800	765	744
American Samoa	47	59	64	62	43	37	37	36
Guam	22	21	21	21	29	26	26	29
Commonwealth of the Northern Mariana Islands	15	17	15	15	15	16	16	16
Virgin Islands	14	12	11	12	12	11	10	10
All territories	903	857	795	865	827	890	854	835

Source: TIP, FDP and ERS Food Atlas.

Note: Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization.

Table A.4. Percentage change in WIC retailers between 2015 and 2022

WIC State Agency	Number of WIC retailers		Difference	Percent change
	2015	2022		
States and D.C.				
Mississippi	0	308	308	*
District of Columbia	47	58	11	23%
Maine	280	294	14	5%
Florida	2,080	2,110	30	1%
Montana	205	206	1	0%
Colorado	451	451	0	0%
Missouri	703	677	-26	-4%
Texas	2,338	2,245	-93	-4%
Alaska	172	164	-8	-5%
Oklahoma	475	452	-23	-5%
Virginia	879	834	-45	-5%
New Jersey	934	883	-51	-5%
Hawaii	141	132	-9	-6%
Idaho	219	204	-15	-7%
Nevada	237	220	-17	-7%
New Mexico	225	206	-19	-8%
Illinois	2,403	2,182	-221	-9%
South Carolina	696	629	-67	-10%
Arkansas	423	379	-44	-10%
Utah	298	267	-31	-10%
Minnesota	1,180	1,045	-135	-11%
Kansas	391	345	-46	-12%
Massachusetts	999	880	-119	-12%
Tennessee	920	809	-111	-12%
Alabama	728	631	-97	-13%
Delaware	88	76	-12	-14%
Georgia	1,512	1,305	-207	-14%
South Dakota	203	175	-28	-14%
West Virginia	307	264	-43	-14%
Connecticut	720	613	-107	-15%
Indiana	711	602	-109	-15%
Oregon	608	513	-95	-16%
Washington	810	680	-130	-16%
Wyoming	92	77	-15	-16%
California	4,848	3,999	-849	-18%
Nebraska	408	336	-72	-18%
Iowa	681	556	-125	-18%

Table A.4 (continued)

WIC State Agency	Number of WIC retailers		Difference	Percent change
	2015	2022		
Michigan	1,964	1,564	-400	-20%
North Carolina	2,165	1,710	-455	-21%
Wisconsin	1,307	1,031	-276	-21%
New York	4,191	3,184	-1,007	-24%
Ohio	1,463	1,105	-358	-24%
Louisiana	599	452	-147	-25%
Kentucky	787	589	-198	-25%
Vermont	149	110	-39	-26%
North Dakota	195	143	-52	-27%
Arizona	718	523	-195	-27%
Rhode Island	231	168	-63	-27%
New Hampshire	217	149	-68	-31%
Maryland	970	557	-413	-43%
Pennsylvania	2,314	1,317	-997	-43%
All States and D.C.	45,682	38,409	-7,273	-16%
Indian Tribal Organizations				
Chickasaw Nation	34	260	226	665%
Five Sandoval Indian Pueblos, Inc.	4	16	12	300%
Osage Nation	32	63	31	97%
Inter-Tribal Council of Nevada	55	85	30	55%
Inter-Tribal Council of Arizona	142	190	48	34%
Ute Mountain	3	4	1	33%
Otoe-Missouria Tribe	23	30	7	30%
Cherokee Nation of Oklahoma	65	78	13	20%
Inter-Tribal Council Inc. of Oklahoma	6	7	1	17%
Omaha Nation	6	7	1	17%
Wichita, Caddo, and Delaware Tribes	58	67	9	16%
Eight Northern Indian Pueblos, Inc.	7	8	1	14%
Citizen Potawatomi Nation	53	56	3	6%
Cheyenne River Sioux Tribe	3	3	0	0%
Passamaquoddy Tribe at Indian Township	2	2	0	0%
Passamaquoddy Tribe at Pleasant Point	3	3	0	0%
Pueblo of Zuni	8	8	0	0%
Rosebud Sioux Tribe	12	12	0	0%
Winnebago	5	5	0	0%
Pueblo of San Felipe	0	0	0	0%
Santo Domingo Tribe	0	0	0	0%
Choctaw Nation of Oklahoma	38	37	-1	-3%
Muscogee (Creek) Nation	54	50	-4	-7%

Appendix A. Supplemental Tables
Table A.4 (continued)

WIC State Agency	Number of WIC retailers		Difference	Percent change
	2015	2022		
Mississippi Band of Choctaw Indians	7	6	-1	-14%
Pueblo of Isleta	7	6	-1	-14%
Mandan, Hidatsa and Arikara Nation	13	11	-2	-15%
Eastern Shoshone	5	4	-1	-20%
Acoma, Canonicito, and Laguna	4	3	-1	-25%
Navajo Nation	108	71	-37	-34%
Standing Rock	11	7	-4	-36%
Eastern Band of Cherokee Indians	2	1	-1	-50%
Northern Arapaho	5	2	-3	-60%
Santee Sioux	3	1	-2	-67%
All ITOs	778	1,103	325	42%
Territories				
Guam	22	29	7	32%
Commonwealth of the Northern Mariana Islands	15	16	1	7%
Puerto Rico	805	744	-61	-8%
American Samoa	47	36	-11	-23%
Virgin Islands	14	10	-4	-29%
All territories	903	835	-68	-8%

Source: TIP and FDP (2022 data)

Note: Mississippi did not use a retail food delivery method in 2015 and has been excluded from the analysis. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization.

Table A.5. Change in number and proportion of WIC retailers by retailer type between 2015 and 2022

WIC State Agency	Large retailers		Other retailers		Unknown	
	Number	Percentage	Number	Percentage	Number	Percentage
States and D.C.						
Mississippi	89	*	18	*	201	*
Rhode Island	13	17%	-69	-47%	-7	-100%
New Mexico	21	13%	-17	-41%	-23	-88%
Montana	12	8%	-12	-21%	1	25%
South Dakota	9	7%	-33	-43%	-4	-100%
Minnesota	32	6%	-129	-22%	-38	-83%
Idaho	9	5%	-23	-43%	-1	-100%
Massachusetts	18	4%	-137	-25%	0	0%
Florida	73	4%	-43	-39%	0	0%
Alaska	2	3%	-12	-12%	2	67%
Colorado	7	2%	-10	-29%	3	150%
New York	20	1%	-911	-39%	-116	-95%
West Virginia	2	1%	-38	-48%	-7	-100%
Oklahoma	3	1%	-27	-36%	1	33%
Texas	-20	-1%	-71	-27%	-2	-40%
Virginia	-12	-1%	-31	-53%	-2	-33%
Iowa	-6	-1%	-100	-39%	-19	-83%
Hawaii	-3	-2%	-6	-38%	0	0%
Missouri	-18	-3%	-23	-38%	15	1,500%
Utah	-7	-3%	-20	-45%	-4	-40%
Wisconsin	-17	-3%	-230	-33%	-29	-58%
Arkansas	-13	-3%	-32	-76%	1	100%
Connecticut	-13	-5%	-84	-20%	-10	-91%
District of Columbia	-2	-5%	7	88%	6	600%
New Jersey	-32	-5%	-3	-1%	-16	-67%
North Carolina	-80	-6%	-378	-47%	3	75%
California	-200	-6%	-623	-40%	-26	-87%
Alabama	-42	-6%	-53	-73%	-2	-100%
New Hampshire	-10	-7%	-57	-84%	-1	-100%
Illinois	-76	-7%	-122	-10%	-23	-42%
Maryland	-38	-7%	-370	-87%	-5	-83%
Louisiana	-33	-7%	-115	-90%	1	17%
Nevada	-17	-7%	0	0%	0	0%
Delaware	-6	-7%	-5	-83%	-1	-100%
Tennessee	-69	-9%	-43	-36%	1	8%
Ohio	-104	-9%	-221	-69%	-33	-100%

Table A.5 (continued)

WIC State Agency	Large retailers		Other retailers		Unknown	
	Number	Percentage	Number	Percentage	Number	Percentage
Georgia	-100	-9%	-103	-23%	-4	-80%
South Carolina	-64	-10%	-2	-4%	-1	-11%
Maine	-21	-10%	36	55%	-1	-20%
Oregon	-44	-10%	-50	-29%	-1	-100%
Washington	-69	-10%	-60	-48%	-1	-14%
Kansas	-34	-10%	-20	-33%	8	267%
Kentucky	-62	-12%	-131	-52%	-5	-83%
North Dakota	-12	-12%	-36	-49%	-4	-20%
Pennsylvania	-153	-13%	-745	-73%	-99	-73%
Michigan	-124	-13%	-248	-25%	-28	-80%
Vermont	-15	-14%	-16	-50%	-8	-100%
Arizona	-81	-14%	-112	-88%	-2	-67%
Nebraska	-35	-14%	-53	-35%	16	267%
Wyoming	-13	-16%	-1	-10%	-1	-100%
Indiana	-112	-18%	5	7%	-2	-67%
All States and D.C.	-1,447	-5%	-5,559	-38%	-267	-35%
Indian Tribal Organizations						
Five Sandoval Indian Pueblos, Inc.	4	*	0	0%	8	200%
Chickasaw Nation	69	209%	154	15,400%	3	*
Osage Nation	30	100%	0	0%	1	*
Eight Northern Indian Pueblos, Inc.	3	75%	-2	-67%	0	0%
Inter-Tribal Council of Nevada	29	54%	0	0%	1	*
Pueblo of Zuni	1	50%	-2	-33%	1	*
Inter-Tribal Council of Arizona	55	44%	-6	-38%	-1	-100%
Ute Mountain	1	33%	0	0%	0	0%
Cherokee Nation of Oklahoma	15	24%	-2	-100%	0	0%
Otoe-Missouria Tribe	5	23%	0	0%	2	*
Wichita, Caddo, and Delaware Tribes	10	21%	-1	-10%	0	0%
Inter-Tribal Council Inc. of Oklahoma	1	17%	0	0%	0	0%
Rosebud Sioux Tribe	1	14%	0	0%	-1	-50%
Navajo Nation	1	2%	-32	-56%	-6	-75%
Citizen Potawatomi Nation	1	2%	1	100%	1	*
Acoma, Canoncito, and Laguna	0	0%	0	0%	-1	-100%
Cheyenne River Sioux Tribe	0	0%	0	0%	0	0%
Eastern Band of Cherokee Indians	0	0%	-1	-100%	0	0%
Mississippi Band of Choctaw Indians	0	0%	-1	-33%	0	0%
Omaha Nation	0	0%	-1	-33%	2	*

Table A.5 (continued)

WIC State Agency	Large retailers		Other retailers		Unknown	
	Number	Percentage	Number	Percentage	Number	Percentage
Passamaquoddy Tribe at Indian Township	0	0%	0	0%	0	0%
Passamaquoddy Tribe at Pleasant Point	0	0%	0	0%	0	0%
Santee Sioux	0	0%	-1	-100%	-1	-50%
Winnebago	0	0%	0	0%	0	0%
Pueblo of San Felipe	0	0%	0	0%	0	0%
Santo Domingo Tribe	0	0%	0	0%	0	0%
Muscogee (Creek) Nation	-4	-8%	-1	-50%	1	*
Choctaw Nation of Oklahoma	-3	-10%	-2	-29%	4	*
Pueblo of Isleta	-1	-14%	0	0%	0	0%
Standing Rock	-1	-14%	-3	-75%	0	0%
Mandan, Hidatsa and Arikara Nation	-2	-25%	-1	-50%	1	33%
Eastern Shoshone	-2	-50%	0	0%	1	100%
Northern Arapaho	-3	-75%	0	0%	0	0%
All ITOs	210	33%	99	78%	16	70%
Territories						
Puerto Rico	2	*	-88	-28%	25	5%
Guam	4	33%	-2	-22%	5	500%
American Samoa	0	0%	0	0%	-11	-23%
Commonwealth of the Northern Mariana Islands	0	0%	1	100%	0	0%
Virgin Islands	-2	-17%	-2	-100%	0	0%
All territories	4	17%	-91	-28%	19	3%

Source: TIP, FDP and STARS (2022 data)

Note: Large retailers include super stores, supermarkets, and large grocery stores. Other retailers include medium and small grocery stores and A-50 stores, as well as smaller retailers, such as convenience stores, combination grocery stores, specialty food stores, commissaries, pharmacies, and farmers' markets. When defining store type, information provided in the STARS data was privileged over retailer information available in FDP. Missing store type includes WIC retailers that are classified as "regular retail retailer" in the FDP data but could not be classified using STARS data, either because they were not SNAP authorized or because the store type information was missing. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

A-50 = Above-50-percent; ITO = Indian Tribal Organization.

Table A.6. Average number of retailers per census tract, among those with WIC-eligible families, by key characteristics

WIC State Agency	Urbanicity		LILA		SVI				Overall
	Urban	Rural	LILA	Non-LILA	Low	Low-Med	Med-High	High	
States and D.C.									
Alaska	0.56	1.62	2.14	0.82	0.50	0.34	0.86	2.30	1.07
Maine	0.92	0.80	0.60	0.86	0.50	0.72	1.06	1.30	0.83
Rhode Island	0.86	0.27	0.40	0.85	0.33	0.44	0.74	1.73	0.83
South Dakota	0.75	0.86	0.59	0.86	0.43	0.93	1.04	0.95	0.82
North Carolina	0.98	0.55	0.93	0.79	0.72	0.70	0.74	1.01	0.81
Minnesota	0.89	0.66	0.91	0.79	0.44	0.73	1.03	1.49	0.81
Connecticut	0.84	0.46	0.77	0.80	0.49	0.77	0.96	1.07	0.80
Montana	0.79	0.78	0.82	0.78	0.45	0.72	1.08	1.19	0.79
Wisconsin	0.91	0.48	0.67	0.77	0.48	0.78	0.91	1.08	0.76
New York	0.78	0.39	0.45	0.73	0.37	0.48	0.68	1.11	0.72
Illinois	0.77	0.39	0.67	0.71	0.59	0.67	0.72	0.84	0.71
North Dakota	0.63	0.75	0.65	0.71	0.46	0.83	0.83	0.75	0.70
Idaho	0.67	0.73	0.61	0.71	0.38	0.65	0.77	0.92	0.70
Massachusetts	0.72	0.24	0.60	0.69	0.35	0.61	0.99	0.95	0.68
Iowa	0.88	0.43	0.51	0.70	0.40	0.70	0.94	0.82	0.68
Georgia	0.77	0.46	0.65	0.67	0.66	0.58	0.67	0.72	0.67
Oregon	0.71	0.53	0.79	0.64	0.40	0.45	0.66	0.99	0.66
New Hampshire	0.73	0.56	0.53	0.67	0.31	0.89	0.87	0.83	0.65
Nebraska	0.66	0.61	0.44	0.67	0.42	0.79	0.81	0.62	0.64
Wyoming	0.68	0.54	0.75	0.60	0.43	0.65	0.70	0.67	0.61
Michigan	0.67	0.39	0.59	0.59	0.36	0.53	0.65	0.82	0.59
South Carolina	0.73	0.39	0.41	0.64	0.69	0.56	0.51	0.63	0.59
Tennessee	0.69	0.37	0.65	0.54	0.39	0.43	0.57	0.82	0.56
Arkansas	0.72	0.41	0.51	0.57	0.45	0.43	0.55	0.68	0.56
Kentucky	0.56	0.55	0.57	0.55	0.34	0.36	0.54	0.92	0.56
Alabama	0.62	0.47	0.45	0.58	0.56	0.55	0.49	0.62	0.55
California	0.56	0.43	0.53	0.55	0.28	0.41	0.49	0.72	0.55
Vermont	0.75	0.47	0.42	0.55	0.37	0.55	0.82	0.40	0.54
West Virginia	0.58	0.51	0.56	0.54	0.18	0.47	0.61	0.65	0.54
Florida	0.55	0.45	0.44	0.55	0.44	0.53	0.55	0.56	0.53
New Jersey	0.53	0.23	0.38	0.52	0.24	0.30	0.51	0.96	0.51
Missouri	0.52	0.47	0.49	0.50	0.32	0.41	0.66	0.59	0.50
Washington	0.50	0.47	0.63	0.48	0.24	0.41	0.58	0.75	0.50
Virginia	0.52	0.36	0.43	0.49	0.39	0.47	0.53	0.55	0.48
Mississippi	0.66	0.30	0.45	0.48	0.32	0.45	0.36	0.59	0.47

Table A.6 (continued)

WIC State Agency	Urbanicity		LILA		SVI				Overall
	Urban	Rural	LILA	Non-LILA	Low	Low-Med	Med-High	High	
Kansas	0.47	0.48	0.31	0.51	0.29	0.50	0.65	0.38	0.47
Hawaii	0.42	0.71	0.58	0.46	0.32	0.41	0.50	0.63	0.47
Utah	0.45	0.57	0.54	0.46	0.37	0.47	0.62	0.47	0.47
Oklahoma	0.50	0.36	0.36	0.46	0.26	0.43	0.46	0.52	0.45
Pennsylvania	0.49	0.30	0.27	0.46	0.27	0.36	0.45	0.82	0.44
Texas	0.46	0.37	0.34	0.47	0.40	0.39	0.41	0.49	0.44
Maryland	0.45	0.37	0.39	0.44	0.36	0.39	0.52	0.50	0.44
Louisiana	0.46	0.31	0.37	0.43	0.34	0.39	0.44	0.43	0.42
Indiana	0.46	0.31	0.32	0.43	0.27	0.38	0.55	0.43	0.41
New Mexico	0.43	0.34	0.32	0.44	0.28	0.39	0.37	0.45	0.40
Colorado	0.38	0.43	0.31	0.41	0.36	0.39	0.36	0.51	0.39
Ohio	0.42	0.26	0.27	0.40	0.32	0.40	0.46	0.35	0.38
Delaware	0.36	0.41	0.29	0.39	0.33	0.43	0.36	0.38	0.37
Nevada	0.34	0.49	0.17	0.37	0.22	0.39	0.41	0.36	0.36
Arizona	0.38	0.20	0.30	0.37	0.27	0.33	0.38	0.40	0.36
District of Columbia	0.25	N/A	0.17	0.26	0.20	0.31	0.14	0.29	0.25
All States and D.C.	0.62	0.49	0.53	0.58	0.38	0.52	0.64	0.76	0.58
Indian Tribal Organizations and Puerto Rico									
Eastern Band of Cherokee Indians	N/A	0.33	N/A	0.33	N/A	N/A	0.00	0.50	1.67
Cheyenne River Sioux Tribe	1.00	0.50	0.50	1.00	N/A	N/A	N/A	0.67	1.00
Mississippi Band of Choctaw Indians	N/A	1.00	N/A	1.00	N/A	N/A	N/A	1.00	1.00
Northern Arapaho	2.00	0.00	N/A	1.00	N/A	0.00	2.00	N/A	1.00
Omaha Nation	N/A	5.00	N/A	5.00	N/A	N/A	N/A	5.00	1.00
Rosebud Sioux Tribe	N/A	2.50	2.50	N/A	N/A	N/A	N/A	2.50	1.00
Three Affiliated Tribes	N/A	1.33	0.00	2.00	N/A	N/A	2.00	0.00	1.00
Ute Mountain	N/A	0.00	0.00	N/A	N/A	N/A	N/A	0.00	1.00
Puerto Rico	0.91	0.69	N/A	N/A	N/A	N/A	N/A	N/A	0.85
Acoma, Canoncito, and Laguna	N/A	0.33	0.00	1.00	N/A	N/A	N/A	0.33	0.67
Chickasaw Nation	1.31	1.71	0.67	1.65	2.33	1.38	1.62	1.53	0.60
Choctaw Nation of Oklahoma	1.50	1.41	0.83	1.82	N/A	1.25	1.14	1.76	0.53
Cherokee Nation of Oklahoma	0.84	0.29	0.39	0.63	0.18	0.53	0.58	0.65	0.50
Five Sandoval Indian Pueblos, Inc.	1.00	0.00	N/A	0.50	N/A	N/A	0.00	1.00	0.50

Table A.6 (continued)

WIC State Agency	Urbanicity		LILA		SVI				Overall
	Urban	Rural	LILA	Non-LILA	Low	Low-Med	Med-High	High	
Inter-Tribal Council of Nevada	N/A	0.50	0.00	1.00	N/A	N/A	0.50	0.50	0.50
Wichita, Caddo, and Delaware Tribes	N/A	0.25	N/A	0.25	N/A	N/A	0.00	1.00	0.50
Muscogee (Creek) Nation	0.55	0.40	0.56	0.50	0.40	0.39	0.55	0.65	0.43
Inter-Tribal Council Inc. of Oklahoma	0.60	0.00	0.00	0.50	N/A	N/A	0.00	0.50	0.38
Osage Nation	1.33	0.13	1.00	0.14	0.00	0.00	0.60	0.67	0.36
Eight Northern Indian Pueblos, Inc.	0.50	0.00	0.50	0.29	N/A	0.00	0.33	0.50	0.33
Citizen Potawatomi Nation	0.57	0.76	1.00	0.69	0.50	0.44	1.00	1.00	0.25
Standing Rock	N/A	0.75	0.50	1.00	N/A	N/A	N/A	0.75	0.25
Navajo Nation	1.60	0.80	0.89	1.00	N/A	N/A	N/A	0.90	0.19
Inter-Tribal Council of Arizona	1.00	1.00	1.25	0.75	N/A	N/A	0.00	1.07	0.17
Eastern Shoshone	N/A	0.00	N/A	0.00	N/A	N/A	N/A	0.00	0.00
Otoe-Missouria Tribe	N/A	0.00	N/A	0.00	N/A	0.00	N/A	N/A	0.00
Pueblo of Isleta	0.00	0.00	0.00	0.00	N/A	N/A	0.00	0.00	0.00
Pueblo of San Felipe	N/A	0.00	0.00	N/A	N/A	N/A	N/A	0.00	0.00
Pueblo of Zuni	2.00	N/A	2.00	N/A	N/A	N/A	N/A	2.00	0.00
Santo Domingo Tribe	0.00	N/A	0.00	N/A	N/A	N/A	N/A	0.00	0.00
Winnebago	N/A	1.00	N/A	1.00	N/A	N/A	N/A	1.00	0.00
Acoma, Canoncito, and Laguna	N/A	0.33	0.00	1.00	N/A	N/A	N/A	0.33	0.67
ITOs and Puerto Rico	0.97	0.71	0.60	0.92	0.68	0.44	0.65	0.91	0.51

Source: FDP (2022 data), ERS Food Access Research Atlas, and CDC SVI

Note: Results exclude 16 retailers whose geographic coordinates placed the retailer far from any nearby road network. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization.

Table A.7. Percentage of census tracts with convenient access to WIC retailers, among those with WIC-eligible families

WIC State Agency States and D.C.	Percentage of census tracts with convenient WIC access
District of Columbia	81%
Maine	72%
New York	71%
Vermont	69%
Illinois	66%
Rhode Island	66%
Iowa	66%
Michigan	64%
California	63%
Wisconsin	62%
Montana	62%
Connecticut	60%
Kentucky	60%
Massachusetts	60%
Oregon	60%
North Dakota	59%
West Virginia	59%
South Dakota	58%
Nebraska	58%
Minnesota	57%
Idaho	57%
North Carolina	55%
Pennsylvania	55%
Arkansas	54%
Alabama	54%
New Jersey	54%
Hawaii	54%
Mississippi	53%
Washington	51%
Tennessee	51%
New Hampshire	50%
South Carolina	50%
Oklahoma	50%
Kansas	50%
Wyoming	49%
Missouri	49%
Texas	49%

Table A.7 (continued)

WIC State Agency	Percentage of census tracts with convenient WIC access
Ohio	49%
Georgia	48%
Maryland	48%
Indiana	48%
Virginia	48%
Nevada	47%
Alaska	45%
Delaware	45%
Colorado	45%
Utah	45%
Florida	44%
Arizona	43%
Louisiana	43%
New Mexico	42%
All States and D.C.	55%
Indian Tribal Organizations and Puerto Rico	
Mississippi Band of Choctaw Indians	100%
Omaha Nation	100%
Rosebud Sioux Tribe	100%
Winnebago	100%
Citizen Potawatomi Nation	75%
Inter-Tribal Council of Nevada	75%
Chickasaw Nation	73%
Eastern Band of Cherokee Indians	67%
Mandan, Hidatsa and Arikara Nation	67%
Inter-Tribal Council of Arizona	56%
Cherokee Nation of Oklahoma	56%
Choctaw Nation of Oklahoma	52%
Five Sandoval Indian Pueblos, Inc.	50%
Inter-Tribal Council Inc. of Oklahoma	50%
Northern Arapaho	50%
Pueblo of Zuni	50%
Wichita, Caddo, and Delaware Tribes	50%
Puerto Rico	43%
Osage Nation	36%
Acoma, Canoncito, and Laguna	33%
Cheyenne River Sioux Tribe	33%
Muscogee (Creek) Nation	33%
Standing Rock	25%
Eight Northern Indian Pueblos, Inc.	22%

Appendix A. Supplemental Tables**Table A.7** (continued)

WIC State Agency	Percentage of census tracts with convenient WIC access
Navajo Nation	20%
Eastern Shoshone	0%
Otoe-Missouria Tribe	0%
Pueblo of Isleta	0%
Ute Mountain	0%
Passamaquoddy Tribe at Indian Township	N/A
Passamaquoddy Tribe at Pleasant Point	N/A
Pueblo of San Felipe	N/A
Santee Sioux	N/A
Santo Domingo Tribe	N/A
All ITOs and Puerto Rico	45%

Source: FDP (2022 data), ERS Food Atlas, and 2015-2019 ACS 5-Year Estimates

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization; N/A = not applicable.

Table A.8. Average number of WIC retailers within convenient access

WIC State Agency	Average number of WIC retailers within convenient access
States and D.C.	
New York	9.49
Rhode Island	3.62
Connecticut	3.30
North Carolina	3.11
Maine	3.04
New Jersey	2.94
Illinois	2.85
Massachusetts	2.82
Wisconsin	2.52
Pennsylvania	2.29
Michigan	2.23
California	2.22
South Carolina	2.18
Oregon	2.05
Minnesota	1.96
Georgia	1.87
Tennessee	1.83
Alabama	1.82
District of Columbia	1.81
Vermont	1.80
Arkansas	1.76
Iowa	1.75
Kentucky	1.66
New Hampshire	1.65
Nebraska	1.54
West Virginia	1.52
Hawaii	1.45
Montana	1.43
Ohio	1.38
Florida	1.35
Washington	1.33
Maryland	1.32
Texas	1.32
Oklahoma	1.30
Mississippi	1.29
Delaware	1.27
Idaho	1.27
Missouri	1.25

Table A.8 (continued)

WIC State Agency	Average number of WIC retailers within convenient access
Indiana	1.24
Virginia	1.22
South Dakota	1.19
Louisiana	1.18
Nevada	1.04
Arizona	0.96
Kansas	0.96
North Dakota	0.95
Colorado	0.95
Utah	0.90
New Mexico	0.89
Alaska	0.87
Wyoming	0.83
All States and D.C.	2.31
Indian Tribal Organizations and Puerto Rico	
Omaha Nation	4.00
Puerto Rico	3.91
Winnebago	3.00
Chickasaw Nation	2.57
Rosebud Sioux Tribe	2.50
Citizen Potawatomi Nation	2.00
Cherokee Nation of Oklahoma	1.54
Pueblo of Zuni	1.50
Mandan, Hidatsa and Arikara Nation	1.33
Inter-Tribal Council of Arizona	1.12
Inter-Tribal Council Inc. of Oklahoma	1.00
Inter-Tribal Council of Nevada	1.00
Mississippi Band of Choctaw Indians	1.00
Choctaw Nation of Oklahoma	0.98
Muscogee (Creek) Nation	0.76
Wichita, Caddo, and Delaware Tribes	0.75
Eastern Band of Cherokee Indians	0.67
Osage Nation	0.55
Five Sandoval Indian Pueblos, Inc.	0.50
Northern Arapaho	0.50
Acoma, Canonicito, and Laguna	0.33
Cheyenne River Sioux Tribe	0.33
Navajo Nation	0.32
Standing Rock	0.25
Eight Northern Indian Pueblos, Inc.	0.22

Appendix A. Supplemental Tables

Table A.8 (continued)

WIC State Agency	Average number of WIC retailers within convenient access
Eastern Shoshone	0.00
Otoe-Missouria Tribe	0.00
Pueblo of Isleta	0.00
Ute Mountain	0.00
Passamaquoddy Tribe at Indian Township	N/A
Passamaquoddy Tribe at Pleasant Point	N/A
Pueblo of San Felipe	N/A
Santee Sioux	N/A
Santo Domingo Tribe	N/A
All ITOs and Puerto Rico	2.75

Source: FDP (2022 data), ERS Food Atlas, and 2015-2019 ACS 5-Year Estimates

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization; N/A = not applicable.

Table A.9. Average number of WIC retailers within convenient access, by urbanicity

WIC State Agency	Average number of WIC retailers within convenient access	
	Urban	Rural
States and D.C.		
New York	10.52	3.88
Rhode Island	3.09	12.00
New Jersey	2.71	5.93
Massachusetts	2.30	8.30
Wisconsin	2.20	3.14
Illinois	2.17	6.07
Connecticut	2.01	12.08
District of Columbia	1.81	N/A
California	1.75	7.41
Pennsylvania	1.74	3.97
Minnesota	1.72	2.41
Michigan	1.29	4.52
Iowa	1.06	2.57
Maine	1.06	3.81
Oregon	1.01	4.70
Nebraska	1.00	2.51
Hawaii	0.96	3.93
Montana	0.82	1.82
Vermont	0.82	2.15
Maryland	0.77	4.45
Nevada	0.76	3.63
North Dakota	0.75	1.10
South Dakota	0.72	1.51
New Hampshire	0.65	2.72
Washington	0.65	3.53
Florida	0.64	5.81
Oklahoma	0.62	2.47
Texas	0.62	3.72
Idaho	0.62	2.13
North Carolina	0.62	6.88
Utah	0.60	2.66
Wyoming	0.58	1.11
Kentucky	0.58	2.72
Arizona	0.57	3.28
Ohio	0.57	3.99
Colorado	0.53	2.47
Missouri	0.52	2.59

Table A.9 (continued)

WIC State Agency	Average number of WIC retailers within convenient access	
	Urban	Rural
New Mexico	0.52	1.70
Kansas	0.51	1.78
Virginia	0.51	2.90
Alaska	0.49	1.27
Arkansas	0.49	2.94
Indiana	0.48	2.87
Louisiana	0.47	2.92
Tennessee	0.45	3.81
Georgia	0.45	4.56
Mississippi	0.43	2.13
West Virginia	0.42	2.41
Alabama	0.42	3.43
South Carolina	0.42	4.73
Delaware	0.38	4.27
All States and D.C.	1.78	3.86
Indian Tribal Organizations and Puerto Rico		
Pueblo of Zuni	1.50	N/A
Puerto Rico	1.37	10.69
Cheyenne River Sioux Tribe	1.00	0.00
Five Sandoval Indian Pueblos, Inc.	1.00	0.00
Inter-Tribal Council Inc. of Oklahoma	1.00	1.00
Inter-Tribal Council of Arizona	1.00	1.14
Northern Arapaho	1.00	0.00
Osage Nation	0.67	0.50
Cherokee Nation of Oklahoma	0.61	2.52
Navajo Nation	0.60	0.29
Chickasaw Nation	0.58	3.63
Choctaw Nation of Oklahoma	0.56	1.13
Muscogee (Creek) Nation	0.40	1.87
Eight Northern Indian Pueblos, Inc.	0.33	0.00
Citizen Potawatomi Nation	0.29	2.57
Pueblo of Isleta	0.00	0.00
Acoma, Canoncito, and Laguna	N/A	0.33
Eastern Band of Cherokee Indians	N/A	0.67
Eastern Shoshone	N/A	0.00
Inter-Tribal Council of Nevada	N/A	1.00
Pueblo of Zuni	1.50	N/A
Mandan, Hidatsa and Arikara Nation	N/A	1.33
Mississippi Band of Choctaw Indians	N/A	1.00

Appendix A. Supplemental Tables

Table A.9 (continued)

WIC State Agency	Average number of WIC retailers within convenient access	
	Urban	Rural
Omaha Nation	N/A	4.00
Otoe-Missouria Tribe	N/A	0.00
Rosebud Sioux Tribe	N/A	2.50
Standing Rock	N/A	0.25
Ute Mountain	N/A	0.00
Wichita, Caddo, and Delaware Tribes	N/A	0.75
Winnebago	N/A	3.00
Passamaquoddy Tribe at Indian Township	N/A	N/A
Passamaquoddy Tribe at Pleasant Point	N/A	N/A
Pueblo of San Felipe	N/A	N/A
Santee Sioux	N/A	N/A
Santo Domingo Tribe	N/A	N/A
All ITOs and Puerto Rico	1.08	5.49

Source: FDP (2022 data), ERS Food Atlas, and 2015-2019 ACS 5-Year Estimates.

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization; N/A = not applicable.

Table A.10. Average number of WIC retailers within convenient access, by retailer type

WIC State Agency	Large retailer	Other retailer	Unknown
States and D.C.			
New York	4.34	3.48	1.67
North Carolina	2.30	0.71	0.10
South Carolina	1.98	0.11	0.09
Maine	1.93	0.28	0.83
Alabama	1.78	0.05	0.00
Arkansas	1.73	0.03	0.01
Tennessee	1.65	0.14	0.04
Oregon	1.57	0.47	0.01
California	1.52	0.66	0.04
New Jersey	1.49	1.41	0.04
Vermont	1.49	0.31	0.00
New Hampshire	1.49	0.16	0.00
Rhode Island	1.45	2.15	0.03
Pennsylvania	1.40	0.80	0.09
Georgia	1.39	0.44	0.04
Hawaii	1.38	0.07	0.00
West Virginia	1.35	0.17	0.00
Kentucky	1.33	0.24	0.09
Florida	1.30	0.05	0.00
Connecticut	1.25	2.02	0.03
Delaware	1.25	0.00	0.02
Ohio	1.24	0.13	0.02
Washington	1.24	0.09	0.01
Texas	1.20	0.11	0.01
Montana	1.19	0.22	0.02
Iowa	1.18	0.50	0.08
Virginia	1.17	0.04	0.00
Missouri	1.16	0.05	0.03
Oklahoma	1.16	0.08	0.06
Idaho	1.16	0.11	0.00
District of Columbia	1.13	0.44	0.24
Illinois	1.13	1.65	0.07
Maryland	1.13	0.18	0.01
Massachusetts	1.13	1.67	0.01
Louisiana	1.12	0.04	0.02
Michigan	1.11	1.09	0.03
Indiana	1.07	0.16	0.00
Nevada	1.01	0.03	0.00

Table A.10 (continued)

WIC State Agency	Large retailer	Other retailer	Unknown
Wisconsin	0.99	1.49	0.04
Nebraska	0.97	0.37	0.21
South Dakota	0.95	0.22	0.02
Arizona	0.94	0.02	0.00
Minnesota	0.93	1.02	0.01
Colorado	0.91	0.02	0.01
Kansas	0.86	0.07	0.04
Utah	0.84	0.04	0.01
New Mexico	0.81	0.06	0.03
Wyoming	0.78	0.05	0.00
North Dakota	0.75	0.14	0.07
Alaska	0.69	0.17	0.01
Mississippi	0.41	0.01	0.87
All States and D.C.	1.49	0.67	0.15
Indian Tribal Organizations and Puerto Rico			
Omaha Nation	2.00	1.00	2.00
Winnebago	2.00	0.00	2.00
Citizen Potawatomi Nation	1.71	0.11	0.18
Rosebud Sioux Tribe	1.50	1.00	0.00
Cherokee Nation of Oklahoma	1.49	0.00	0.05
Chickasaw Nation	1.05	0.08	1.44
Inter-Tribal Council Inc. of Oklahoma	1.00	0.00	0.00
Mississippi Band of Choctaw Indians	1.00	0.00	0.00
Inter-Tribal Council of Arizona	0.81	0.31	0.00
Inter-Tribal Council of Nevada	0.75	0.25	0.00
Muscogee (Creek) Nation	0.75	0.00	0.02
Wichita, Caddo, and Delaware Tribes	0.75	0.00	0.00
Choctaw Nation of Oklahoma	0.73	0.06	0.19
Eastern Band of Cherokee Indians	0.67	0.00	0.00
Mandan, Hidatsa and Arikara Nation	0.67	0.00	0.67
Osage Nation	0.55	0.00	0.00
Five Sandoval Indian Pueblos, Inc.	0.50	0.00	0.00
Northern Arapaho	0.50	0.00	0.50
Pueblo of Zuni	0.50	1.00	0.00
Acoma, Canoncito, and Laguna	0.33	0.00	0.00
Cheyenne River Sioux Tribe	0.33	0.00	0.00
Navajo Nation	0.25	0.08	0.02
Standing Rock	0.25	0.00	0.00
Eight Northern Indian Pueblos, Inc.	0.11	0.11	0.00
Eastern Shoshone	0.00	0.00	0.00

Table A.10 (continued)

WIC State Agency	Large retailer	Other retailer	Unknown
Otoe-Missouria Tribe	0.00	0.00	0.00
Pueblo of Isleta	0.00	0.00	0.00
Puerto Rico	0.00	1.21	2.69
Ute Mountain	0.00	0.00	0.00
Passamaquoddy Tribe at Indian Township	N/A	N/A	N/A
Passamaquoddy Tribe at Pleasant Point	N/A	N/A	N/A
Pueblo of San Felipe	N/A	N/A	N/A
Santee Sioux	N/A	N/A	N/A
Santo Domingo Tribe	N/A	N/A	N/A
All ITOs and Puerto Rico	0.40	0.72	1.64

Source: FDP (2022 data), ERS Food Atlas, and 2015-2019 ACS 5-Year Estimates

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family. Large retailers include super stores, supermarkets, and large grocery stores. Other retailers include medium and small grocery stores and A-50 stores, as well as smaller retailers, such as convenience stores, combination grocery stores, specialty food stores, commissaries, pharmacies, and farmers' markets. When defining store type, information provided in the STARS data was privileged over retailer information available in FDP. Unknown type includes WIC retailers that are classified as "regular retail retailer" in the FDP data but could not be classified using STARS data, either because they were not SNAP authorized or because the store type information was missing. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization; N/A = not applicable.

Table A.11. Percentage of census tracts with convenient access to WIC retailers, by LILA status.

WIC State Agency States and D.C.	LILA	Non-LILA
District of Columbia	75%	82%
Connecticut	55%	61%
Minnesota	52%	58%
Illinois	51%	68%
Wisconsin	51%	64%
Idaho	49%	58%
Massachusetts	48%	61%
Michigan	48%	67%
Iowa	41%	68%
North Dakota	41%	61%
Rhode Island	40%	67%
Oregon	40%	63%
California	39%	65%
Montana	38%	65%
South Dakota	38%	62%
New York	37%	73%
Mississippi	36%	60%
Nebraska	35%	61%
North Carolina	34%	60%
Vermont	33%	72%
Wyoming	33%	51%
Missouri	33%	53%
Kentucky	32%	64%
Hawaii	32%	57%
Arkansas	32%	62%
Washington	32%	54%
West Virginia	28%	64%
New Jersey	28%	56%
Virginia	27%	52%
Georgia	27%	55%
Maine	27%	76%
Texas	26%	55%
Tennessee	25%	57%
Pennsylvania	25%	57%
Alaska	24%	50%
Indiana	24%	54%
Maryland	23%	51%
Utah	23%	47%

Table A.11 (continued)

WIC State Agency	LILA	Non-LILA
Colorado	23%	49%
Kansas	23%	57%
Alabama	22%	64%
Oklahoma	22%	56%
New Mexico	22%	50%
South Carolina	21%	58%
Arizona	20%	48%
Ohio	19%	54%
Louisiana	18%	51%
Florida	18%	49%
New Hampshire	12%	57%
Nevada	11%	50%
Delaware	10%	53%
All States and D.C.	30%	59%
Indian Tribal Organizations		
Rosebud Sioux Tribe	100%	N/A
Citizen Potawatomi Nation	50%	77%
Inter-Tribal Council of Arizona	50%	62%
Inter-Tribal Council of Nevada	50%	100%
Pueblo of Zuni	50%	N/A
Cherokee Nation of Oklahoma	33%	64%
Choctaw Nation of Oklahoma	33%	63%
Osage Nation	25%	43%
Muscogee (Creek) Nation	18%	36%
Chickasaw Nation	17%	78%
Navajo Nation	16%	67%
Acoma, Canonicito, and Laguna	0%	100%
Cheyenne River Sioux Tribe	0%	100%
Eight Northern Indian Pueblos, Inc.	0%	29%
Inter-Tribal Council Inc. of Oklahoma	0%	67%
Mandan, Hidatsa and Arikara Nation	0%	100%
Pueblo of Isleta	0%	0%
Standing Rock	0%	50%
Ute Mountain	0%	N/A
Eastern Band of Cherokee Indians	N/A	67%
Eastern Shoshone	N/A	0%
Five Sandoval Indian Pueblos, Inc.	N/A	50%
Mississippi Band of Choctaw Indians	N/A	100%
Northern Arapaho	N/A	50%
Omaha Nation	N/A	100%

Table A.11 (continued)

WIC State Agency	LILA	Non-LILA
Otoe-Missouria Tribe	N/A	0%
Wichita, Caddo, and Delaware Tribes	N/A	50%
Winnebago	N/A	100%
Passamaquoddy Tribe at Indian Township	N/A	N/A
Passamaquoddy Tribe at Pleasant Point	N/A	N/A
Pueblo of San Felipe	N/A	N/A
Santee Sioux	N/A	N/A
Santo Domingo Tribe	N/A	N/A
All ITOs and Puerto Rico	25%	55%

Source: FDP (2022 data), ERS Food Atlas, and 2015-2019 ACS 5-Year Estimates

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization; LILA = low-income, low-access; N/A = not applicable.

Table A.12. Average number of WIC retailers within convenient access, by LILA status

WIC State Agency	LILA	Non-LILA
States and D.C.		
Connecticut	1.08	3.54
Wisconsin	1.03	2.69
Rhode Island	1.00	3.77
Illinois	0.97	3.09
Massachusetts	0.95	3.01
District of Columbia	0.92	1.92
Minnesota	0.86	2.16
Michigan	0.75	2.46
California	0.70	2.35
Hawaii	0.65	1.57
Iowa	0.63	1.87
New York	0.63	9.90
Vermont	0.58	1.90
North Carolina	0.54	3.66
Mississippi	0.53	1.66
New Jersey	0.53	3.10
Idaho	0.51	1.40
Montana	0.50	1.57
Oregon	0.50	2.29
Nebraska	0.44	1.68
Kentucky	0.44	1.86
Arkansas	0.44	2.23
South Dakota	0.44	1.32
Missouri	0.43	1.44
Washington	0.43	1.47
North Dakota	0.41	1.01
Georgia	0.40	2.33
Tennessee	0.37	2.18
West Virginia	0.36	1.71
Pennsylvania	0.34	2.47
Maryland	0.33	1.45
Wyoming	0.33	0.88
South Carolina	0.33	2.68
Texas	0.32	1.58
Virginia	0.32	1.40
Utah	0.31	0.95
Colorado	0.31	1.07
Alaska	0.31	1.01

Table A.12 (continued)

WIC State Agency	LILA	Non-LILA
Indiana	0.30	1.47
Maine	0.30	3.33
New Mexico	0.30	1.12
Oklahoma	0.29	1.51
Alabama	0.28	2.30
Florida	0.27	1.54
Kansas	0.26	1.13
Louisiana	0.26	1.47
Ohio	0.24	1.59
Arizona	0.21	1.13
Delaware	0.13	1.51
Nevada	0.13	1.11
New Hampshire	0.12	1.91
All States and D.C.	0.44	2.62
Indian Tribal Organizations		
Rosebud Sioux Tribe	2.50	N/A
Pueblo of Zuni	1.50	N/A
Inter-Tribal Council of Arizona	1.25	1.00
Cherokee Nation of Oklahoma	0.52	1.89
Citizen Potawatomi Nation	0.50	2.12
Inter-Tribal Council of Nevada	0.50	1.50
Osage Nation	0.50	0.57
Choctaw Nation of Oklahoma	0.42	1.34
Navajo Nation	0.24	1.33
Muscogee (Creek) Nation	0.21	0.87
Chickasaw Nation	0.17	2.78
Acoma, Canoncito, and Laguna	0.00	1.00
Cheyenne River Sioux Tribe	0.00	1.00
Eight Northern Indian Pueblos, Inc.	0.00	0.29
Inter-Tribal Council Inc. of Oklahoma	0.00	1.33
Mandan, Hidatsa and Arikara Nation	0.00	2.00
Pueblo of Isleta	0.00	0.00
Standing Rock	0.00	0.50
Ute Mountain	0.00	N/A
Eastern Band of Cherokee Indians	N/A	0.67
Eastern Shoshone	N/A	0.00
Five Sandoval Indian Pueblos, Inc.	N/A	0.50
Mississippi Band of Choctaw Indians	N/A	1.00
Northern Arapaho	N/A	0.50
Omaha Nation	N/A	4.00

Appendix A. Supplemental Tables

Table A.12 (continued)

WIC State Agency	LILA	Non-LILA
Otoe-Missouria Tribe	N/A	0.00
Wichita, Caddo, and Delaware Tribes	N/A	0.75
Winnebago	N/A	3.00
Passamaquoddy Tribe at Indian Township	N/A	N/A
Passamaquoddy Tribe at Pleasant Point	N/A	N/A
Pueblo of San Felipe	N/A	N/A
Santee Sioux	N/A	N/A
Santo Domingo Tribe	N/A	N/A
All ITOs and Puerto Rico	0.40	1.48

Source: FDP (2022 data), ERS Food Atlas, and 2015-2019 ACS 5-Year Estimates

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization; LILA = low-income, low-access; N/A = not applicable.

Table A.13. Average number of WIC retailers within convenient access, by urbanicity, among LILA tracts

WIC State Agency	Urban LILA areas	Rural LILA areas
States and D.C.		
Wisconsin	1.17	0.54
Connecticut	1.08	N/A
Illinois	1.01	0.65
Rhode Island	1.00	N/A
Massachusetts	0.96	0.00
District of Columbia	0.92	N/A
Minnesota	0.87	0.83
Michigan	0.78	0.46
New York	0.70	0.13
Iowa	0.64	0.62
California	0.61	1.60
Vermont	0.57	0.60
Idaho	0.56	0.43
Oregon	0.54	0.38
New Jersey	0.52	1.00
North Carolina	0.49	1.06
Alaska	0.44	0.25
Nebraska	0.43	0.50
Maine	0.41	0.15
South Dakota	0.39	0.50
Arkansas	0.38	0.58
Kentucky	0.38	0.66
North Dakota	0.38	0.44
Washington	0.36	0.66
Missouri	0.35	0.75
Maryland	0.34	0.00
West Virginia	0.34	0.41
Tennessee	0.34	0.59
Hawaii	0.33	1.71
Mississippi	0.33	0.93
Pennsylvania	0.32	0.64
Georgia	0.32	1.00
Montana	0.31	0.62
Texas	0.30	0.59
Indiana	0.29	0.80
Oklahoma	0.29	0.29
Virginia	0.26	0.57

Table A.13 (continued)

WIC State Agency	Urban LILA areas	Rural LILA areas
South Carolina	0.24	0.76
New Mexico	0.24	0.40
Ohio	0.24	0.33
Alabama	0.24	0.42
Florida	0.23	0.82
Arizona	0.23	0.18
Louisiana	0.22	0.50
Utah	0.22	0.64
Kansas	0.21	0.58
Colorado	0.19	0.74
Delaware	0.13	N/A
Nevada	0.12	0.14
Wyoming	0.12	0.75
New Hampshire	0.07	0.40
All States and D.C.	0.41	0.63
Indian Tribal Organizations		
Pueblo of Zuni	1.50	N/A
Citizen Potawatomi Nation	1.00	0.00
Osage Nation	0.67	0.00
Navajo Nation	0.60	0.19
Cherokee Nation of Oklahoma	0.54	0.40
Choctaw Nation of Oklahoma	0.50	0.36
Muscogee (Creek) Nation	0.17	0.40
Chickasaw Nation	0.00	1.00
Eight Northern Indian Pueblos, Inc.	0.00	0.00
Inter-Tribal Council Inc. of Oklahoma	0.00	N/A
Inter-Tribal Council of Arizona	0.00	1.43
Pueblo of Isleta	0.00	N/A
Acoma, Canonicito, and Laguna	N/A	0.00
Cheyenne River Sioux Tribe	N/A	0.00
Inter-Tribal Council of Nevada	N/A	0.50
Mandan, Hidatsa and Arikara Nation	N/A	0.00
Rosebud Sioux Tribe	N/A	2.50
Standing Rock	N/A	0.00
Ute Mountain	N/A	0.00
Eastern Band of Cherokee Indians	N/A	N/A
Eastern Shoshone	N/A	N/A
Five Sandoval Indian Pueblos, Inc.	N/A	N/A
Mississippi Band of Choctaw Indians	N/A	N/A
Northern Arapaho	N/A	N/A

Table A.13 (continued)

WIC State Agency	Urban LILA areas	Rural LILA areas
Omaha Nation	N/A	N/A
Otoe-Missouria Tribe	N/A	N/A
Passamaquoddy Tribe at Indian Township	N/A	N/A
Passamaquoddy Tribe at Pleasant Point	N/A	N/A
Pueblo of San Felipe	N/A	N/A
Santee Sioux	N/A	N/A
Santo Domingo Tribe	N/A	N/A
Wichita, Caddo, and Delaware Tribes	N/A	N/A
Winnebago	N/A	N/A
All ITOs and Puerto Rico	0.39	0.41

Source: FDP (2022 data), ERS Food Atlas, ERS RUCA data, and 2015-2019 ACS 5-Year Estimates.

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization; LILA = low-income, low-access; N/A = not applicable.

Table A.14. Average number of WIC retailers within convenient access, by store type, among LILA tracts

WIC State Agency	Large retailers	Other retailers	Missing
States and D.C.			
Hawaii	0.55	0.10	0.00
Idaho	0.41	0.10	0.00
Arkansas	0.41	0.02	0.01
Missouri	0.40	0.02	0.01
California	0.36	0.32	0.03
Oregon	0.36	0.14	0.00
North Carolina	0.34	0.18	0.02
Iowa	0.34	0.24	0.05
Washington	0.34	0.09	0.00
Minnesota	0.33	0.52	0.01
Rhode Island	0.30	0.70	0.00
Virginia	0.28	0.04	0.00
Colorado	0.28	0.04	0.00
Tennessee	0.27	0.08	0.01
Massachusetts	0.27	0.68	0.00
Texas	0.27	0.05	0.00
Connecticut	0.27	0.78	0.03
Montana	0.26	0.24	0.00
Alabama	0.26	0.01	0.00
Georgia	0.26	0.12	0.01
Oklahoma	0.26	0.01	0.02
Florida	0.25	0.02	0.00
South Dakota	0.25	0.19	0.00
Wyoming	0.25	0.08	0.00
Wisconsin	0.25	0.75	0.04
Louisiana	0.24	0.02	0.00
Kentucky	0.24	0.15	0.05
South Carolina	0.24	0.03	0.06
West Virginia	0.23	0.12	0.00
Kansas	0.23	0.02	0.01
New Mexico	0.23	0.06	0.00
New York	0.23	0.30	0.10
Maryland	0.22	0.09	0.02
Illinois	0.22	0.72	0.03
Utah	0.21	0.10	0.00
Alaska	0.21	0.10	0.00
Pennsylvania	0.20	0.14	0.00

Table A.14 (continued)

WIC State Agency	Large retailers	Other retailers	Missing
Indiana	0.19	0.11	0.00
Arizona	0.19	0.03	0.00
North Dakota	0.18	0.24	0.00
Michigan	0.17	0.58	0.00
Nebraska	0.17	0.22	0.06
Vermont	0.17	0.42	0.00
Ohio	0.17	0.07	0.00
Maine	0.13	0.03	0.13
Delaware	0.13	0.00	0.00
New Jersey	0.13	0.39	0.01
Nevada	0.13	0.00	0.00
New Hampshire	0.12	0.00	0.00
Mississippi	0.11	0.00	0.41
District of Columbia	0.08	0.67	0.17
All States and D.C.	0.26	0.17	0.02
Indian Tribal Organizations and Puerto Rico			
Rosebud Sioux Tribe	1.50	1.00	0.00
Inter-Tribal Council of Arizona	0.88	0.38	0.00
Inter-Tribal Council of Nevada	0.50	0.00	0.00
Osage Nation	0.50	0.00	0.00
Pueblo of Zuni	0.50	1.00	0.00
Cherokee Nation of Oklahoma	0.45	0.00	0.06
Choctaw Nation of Oklahoma	0.25	0.04	0.12
Muscogee (Creek) Nation	0.21	0.00	0.00
Navajo Nation	0.19	0.05	0.03
Acoma, Canoncito, and Laguna	0.00	0.00	0.00
Cheyenne River Sioux Tribe	0.00	0.00	0.00
Chickasaw Nation	0.00	0.00	0.17
Citizen Potawatomi Nation	0.00	0.00	0.50
Eight Northern Indian Pueblos, Inc.	0.00	0.00	0.00
Inter-Tribal Council Inc. of Oklahoma	0.00	0.00	0.00
Mandan, Hidatsa and Arikara Nation	0.00	0.00	0.00
Pueblo of Isleta	0.00	0.00	0.00
Standing Rock	0.00	0.00	0.00
Ute Mountain	0.00	0.00	0.00
Eastern Band of Cherokee Indians	N/A	N/A	N/A
Eastern Shoshone	N/A	N/A	N/A
Five Sandoval Indian Pueblos, Inc.	N/A	N/A	N/A
Mississippi Band of Choctaw Indians	N/A	N/A	N/A
Northern Arapaho	N/A	N/A	N/A

Appendix A. Supplemental Tables

Table A.14 (continued)

WIC State Agency	Large retailers	Other retailers	Missing
Omaha Nation	N/A	N/A	N/A
Otoe-Missouria Tribe	N/A	N/A	N/A
Wichita, Caddo, and Delaware Tribes	N/A	N/A	N/A
Winnebago	N/A	N/A	N/A
Passamaquoddy Tribe at Indian Township	N/A	N/A	N/A
Passamaquoddy Tribe at Pleasant Point	N/A	N/A	N/A
Pueblo of San Felipe	N/A	N/A	N/A
Puerto Rico	N/A	N/A	N/A
Santee Sioux	N/A	N/A	N/A
Santo Domingo Tribe	N/A	N/A	N/A
All ITOs and Puerto Rico	0.29	0.06	0.05

Source: FDP (2022 data), ERS Food Atlas, and 2015-2019 ACS 5-Year Estimates.

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family. Large retailers include super stores, supermarkets, and large grocery stores. Other retailers include medium and small grocery stores and A-50 stores, as well as smaller retailers, such as convenience stores, combination grocery stores, specialty food stores, commissaries, pharmacies, and farmers' markets. When defining store type, information provided in the STARS data was privileged over retailer information available in FDP. Unknown type includes WIC retailers that are classified as "regular retail retailer" in the FDP data but could not be classified using STARS data, either because they were not SNAP authorized or because the store type information was missing. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

A-50 = Above-50 percent; ITO = Indian Tribal Organization; LILA = low-income, low-access; N/A = not applicable.

Table A.15. Percentage of census tracts with convenient access to WIC, by SVI status

WIC State Agency	Low SVI	Low-Med SVI	Med-High SVI	High SVI
States and D.C.				
District of Columbia	80%	94%	86%	75%
Vermont	69%	62%	79%	60%
Maine	65%	72%	74%	77%
Iowa	57%	69%	70%	71%
Arkansas	52%	49%	59%	53%
Wisconsin	51%	58%	69%	85%
Illinois	49%	62%	72%	79%
Oregon	49%	58%	57%	70%
Montana	48%	58%	77%	74%
Michigan	48%	61%	68%	80%
New York	44%	57%	78%	89%
North Dakota	43%	65%	71%	67%
Kentucky	43%	53%	63%	74%
Nebraska	42%	68%	68%	58%
New Hampshire	42%	49%	61%	83%
Alabama	42%	60%	57%	53%
Ohio	41%	48%	54%	52%
South Dakota	40%	61%	76%	62%
Indiana	39%	52%	51%	48%
Minnesota	39%	56%	71%	81%
Kansas	38%	55%	59%	42%
Washington	38%	46%	53%	67%
Massachusetts	37%	47%	77%	90%
Pennsylvania	36%	50%	63%	78%
West Virginia	36%	61%	61%	61%
Colorado	36%	43%	54%	55%
Alaska	36%	42%	55%	43%
North Carolina	36%	53%	59%	63%
Wyoming	36%	46%	70%	22%
Oklahoma	35%	52%	50%	55%
Georgia	35%	43%	51%	55%
Texas	35%	43%	51%	56%
Rhode Island	35%	55%	77%	96%
Tennessee	35%	55%	56%	51%
Virginia	34%	52%	55%	53%
Connecticut	34%	53%	69%	91%
Maryland	34%	46%	52%	68%
Missouri	33%	47%	57%	57%

Table A.15 (continued)

WIC State Agency	Low SVI	Low-Med SVI	Med-High SVI	High SVI
Delaware	33%	42%	51%	50%
South Carolina	31%	47%	63%	50%
California	31%	51%	61%	79%
Arizona	30%	38%	42%	54%
Utah	29%	54%	55%	53%
Hawaii	29%	46%	57%	79%
Florida	26%	36%	47%	55%
New Jersey	26%	37%	65%	88%
Louisiana	24%	44%	51%	41%
Idaho	24%	44%	70%	79%
Nevada	23%	39%	51%	61%
New Mexico	21%	34%	52%	43%
Mississippi	18%	57%	55%	54%
All States and D.C.	38%	51%	60%	66%
Indian Tribal Organizations				
Osage Nation	100%	50%	0%	67%
Chickasaw Nation	67%	81%	72%	71%
Citizen Potawatomi Nation	67%	67%	83%	100%
Cherokee Nation of Oklahoma	27%	53%	65%	56%
Muscogee (Creek) Nation	20%	33%	36%	40%
Acoma, Canoncito, and Laguna	N/A	N/A	N/A	33%
Cheyenne River Sioux Tribe	N/A	N/A	N/A	33%
Choctaw Nation of Oklahoma	N/A	75%	28%	72%
Eastern Band of Cherokee Indians	N/A	N/A	0%	100%
Eastern Shoshone	N/A	N/A	N/A	0%
Eight Northern Indian Pueblos, Inc.	N/A	0%	33%	0%
Five Sandoval Indian Pueblos, Inc.	N/A	N/A	0%	100%
Inter-Tribal Council Inc. of Oklahoma	N/A	N/A	50%	50%
Inter-Tribal Council of Arizona	N/A	N/A	0%	60%
Inter-Tribal Council of Nevada	N/A	N/A	100%	50%
Mandan, Hidatsa and Arikara Nation	N/A	N/A	100%	0%
Mississippi Band of Choctaw Indians	N/A	N/A	N/A	100%
Navajo Nation	N/A	N/A	N/A	20%
Northern Arapaho	N/A	0%	100%	N/A
Omaha Nation	N/A	N/A	N/A	100%
Otoe-Missouria Tribe	N/A	0%	N/A	N/A
Pueblo of Isleta	N/A	N/A	0%	0%
Pueblo of Zuni	N/A	N/A	N/A	50%
Rosebud Sioux Tribe	N/A	N/A	N/A	100%
Standing Rock	N/A	N/A	N/A	25%

Table A.15 (continued)

WIC State Agency	Low SVI	Low-Med SVI	Med-High SVI	High SVI
Ute Mountain	N/A	N/A	N/A	0%
Wichita, Caddo, and Delaware Tribes	N/A	N/A	33%	100%
Winnebago	N/A	N/A	N/A	100%
Passamaquoddy Tribe at Indian Township	N/A	N/A	N/A	N/A
Passamaquoddy Tribe at Pleasant Point	N/A	N/A	N/A	N/A
Pueblo of San Felipe	N/A	N/A	N/A	N/A
Santee Sioux	N/A	N/A	N/A	N/A
Santo Domingo Tribe	N/A	N/A	N/A	N/A
All ITOs and Puerto Rico	29%	48%	51%	49%

Source: FDP (2022 data), ERS Food Atlas, 2015-2019 ACS 5-Year Estimates, and CDC SVI

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family. Social vulnerability scores are categorized as low, low-medium, medium-high, and high. Only low and high are shown. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization; SVI = Social Vulnerability Index; N/A = not applicable.

Table A.16. Average number of WIC retailers within convenient access, by SVI status

WIC State Agency	Low SVI	Low-Med SVI	Med-High SVI	High SVI
States and D.C.				
Maine	3.71	2.88	2.88	2.57
Connecticut	3.54	2.91	1.93	4.20
Rhode Island	3.21	1.11	2.69	7.31
Arkansas	3.10	2.04	1.71	1.28
Oregon	2.91	2.87	1.39	1.56
North Carolina	2.49	3.52	3.59	2.68
Illinois	2.48	2.92	2.91	3.06
Michigan	2.40	2.30	1.97	2.27
Iowa	2.38	1.51	1.35	1.62
New York	2.34	3.19	8.73	18.56
Wisconsin	2.33	1.51	1.90	5.98
Massachusetts	2.25	1.52	2.75	5.04
Alabama	2.20	2.10	1.95	1.34
Tennessee	1.94	2.42	1.83	1.08
Vermont	1.92	1.67	1.87	1.60
Ohio	1.91	1.57	1.08	0.86
Oklahoma	1.89	1.49	1.19	1.00
Georgia	1.83	2.16	2.07	1.55
West Virginia	1.79	1.90	1.38	1.07
Nebraska	1.75	1.74	1.28	1.03
New Hampshire	1.66	1.48	1.54	3.17
Pennsylvania	1.64	1.83	1.78	4.78
Montana	1.64	1.33	1.43	1.30
District of Columbia	1.60	2.62	2.00	1.50
Minnesota	1.58	1.56	1.64	4.33
South Carolina	1.47	2.67	2.64	1.78
Kentucky	1.44	1.62	1.82	1.63
Indiana	1.44	1.55	1.12	0.78
Maryland	1.43	1.32	1.11	1.50
Washington	1.40	1.63	1.01	1.31
Delaware	1.39	1.27	1.35	1.00
Texas	1.27	1.30	1.26	1.39
Kansas	1.27	1.13	0.78	0.57
South Dakota	1.25	1.12	1.48	0.86
Colorado	1.22	0.65	0.94	0.84
Virginia	1.22	1.55	1.05	0.90
Missouri	1.12	1.33	1.33	1.14
Florida	1.03	1.35	1.51	1.35

Table A.16 (continued)

WIC State Agency	Low SVI	Low-Med SVI	Med-High SVI	High SVI
North Dakota	0.95	0.92	0.91	1.33
New Jersey	0.94	1.15	2.59	6.74
Louisiana	0.91	1.53	1.31	0.96
Nevada	0.88	0.57	1.00	1.48
Utah	0.84	0.96	0.96	0.80
California	0.81	1.42	1.84	3.19
Mississippi	0.79	1.78	1.54	0.98
Idaho	0.76	0.94	1.61	1.54
Arizona	0.70	1.21	0.91	0.99
Alaska	0.64	1.02	0.90	0.75
Wyoming	0.61	0.71	1.27	0.33
Hawaii	0.37	1.11	1.76	2.35
New Mexico	0.26	0.75	1.28	0.83
All States and D.C.	1.68	1.80	2.17	3.33
Indian Tribal Organizations				
Chickasaw Nation	3.33	2.00	3.13	1.71
Citizen Potawatomi Nation	2.17	1.67	2.25	1.00
Cherokee Nation of Oklahoma	1.36	1.37	1.95	1.32
Osage Nation	1.00	1.00	0.00	1.00
Muscogee (Creek) Nation	0.51	1.12	0.95	0.50
Acoma, Canoncito, and Laguna	N/A	N/A	N/A	0.33
Cheyenne River Sioux Tribe	N/A	N/A	N/A	0.33
Choctaw Nation of Oklahoma	N/A	2.00	0.59	1.24
Eastern Band of Cherokee Indians	N/A	N/A	0.00	1.00
Eastern Shoshone	N/A	N/A	N/A	0.00
Eight Northern Indian Pueblos, Inc.	N/A	0.00	0.33	0.00
Five Sandoval Indian Pueblos, Inc.	N/A	N/A	0.00	1.00
Inter-Tribal Council Inc. of Oklahoma	N/A	N/A	1.00	1.00
Inter-Tribal Council of Arizona	N/A	N/A	0.00	1.20
Inter-Tribal Council of Nevada	N/A	N/A	1.00	1.00
Mandan, Hidatsa and Arikara Nation	N/A	N/A	2.00	0.00
Mississippi Band of Choctaw Indians	N/A	N/A	N/A	1.00
Navajo Nation	N/A	N/A	N/A	0.32
Northern Arapaho	N/A	0.00	1.00	N/A
Omaha Nation	N/A	N/A	N/A	4.00
Otoe-Missouria Tribe	N/A	0.00	N/A	N/A
Pueblo of Isleta	N/A	N/A	0.00	0.00
Pueblo of Zuni	N/A	N/A	N/A	1.50
Rosebud Sioux Tribe	N/A	N/A	N/A	2.50
Standing Rock	N/A	N/A	N/A	0.25

Table A.16 (continued)

WIC State Agency	Low SVI	Low-Med SVI	Med-High SVI	High SVI
Ute Mountain	N/A	N/A	N/A	0.00
Wichita, Caddo, and Delaware Tribes	N/A	N/A	0.67	1.00
Winnebago	N/A	N/A	N/A	3.00
Passamaquoddy Tribe at Indian Township	N/A	N/A	N/A	N/A
Passamaquoddy Tribe at Pleasant Point	N/A	N/A	N/A	N/A
Pueblo of San Felipe	N/A	N/A	N/A	N/A
Santee Sioux	N/A	N/A	N/A	N/A
Santo Domingo Tribe	N/A	N/A	N/A	N/A
All ITOs and Puerto Rico	0.94	1.35	1.57	0.92

Source: FDP (2022 data), ERS Food Atlas, 2015-2019 ACS 5-Year Estimates, and CDC SVI.

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family. Social vulnerability scores are categorized as low, low-medium, medium-high, and high. Only low and high are shown. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization; SVI = Social Vulnerability Index; N/A = not applicable.

Table A.17. Average number of WIC retailers within convenient access, by urbanicity and SVI status

WIC State Agency	Low SVI		Low-Med SVI		Med-High SVI		High SVI	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
States and D.C.								
District of Columbia	1.60	N/A	2.62	N/A	2.00	N/A	1.50	N/A
Illinois	1.21	6.12	1.73	5.90	2.38	6.14	2.98	7.50
New York	1.19	6.13	3.12	3.37	9.81	2.88	18.97	3.33
Vermont	1.11	2.06	0.69	2.00	0.80	2.54	0.75	5.00
Oregon	0.95	11.79	0.90	6.10	0.91	2.34	1.23	3.21
Nebraska	0.80	2.84	1.18	2.53	1.09	1.77	0.92	1.88
Iowa	0.73	3.18	0.98	1.97	1.13	2.07	1.37	7.00
Wisconsin	0.72	4.38	1.05	2.11	1.65	2.53	6.22	2.93
Minnesota	0.62	2.96	1.20	2.10	1.62	1.70	4.57	2.86
Massachusetts	0.62	9.54	1.06	5.93	2.64	6.33	5.04	N/A
Michigan	0.58	6.23	0.89	4.33	1.19	3.53	2.21	3.02
Montana	0.56	1.98	0.70	1.80	1.13	1.71	0.82	1.62
North Dakota	0.56	1.08	0.75	1.04	0.81	1.22	1.33	1.33
Oklahoma	0.51	6.08	0.57	2.73	0.66	1.72	0.67	2.07
Connecticut	0.45	10.58	1.04	18.60	1.86	5.50	4.08	14.00
California	0.44	4.95	0.82	6.53	1.32	6.76	2.76	9.53
Maine	0.44	4.80	0.45	3.45	1.00	3.69	2.42	2.82
South Dakota	0.43	1.69	0.57	1.35	0.96	2.28	0.88	0.85
Kentucky	0.42	3.86	0.33	2.68	0.55	2.57	0.95	2.57
Alaska	0.40	1.25	0.08	2.04	0.70	1.09	0.86	0.65
Georgia	0.40	6.80	0.34	5.37	0.42	4.19	0.56	3.72
Hawaii	0.39	0.00	0.63	3.83	1.24	3.26	1.57	6.62
Maryland	0.39	4.75	0.53	4.31	0.89	3.67	1.38	5.33
North Carolina	0.38	8.30	0.49	7.45	0.58	6.29	0.85	6.63
Kansas	0.37	2.55	0.54	1.63	0.61	1.20	0.48	2.14
Ohio	0.37	4.97	0.49	3.80	0.61	2.79	0.75	3.32
Colorado	0.37	4.00	0.56	0.92	0.60	2.09	0.72	1.67
Washington	0.36	3.83	0.55	4.54	0.68	2.19	0.97	3.07
South Carolina	0.36	6.85	0.33	6.02	0.55	4.28	0.41	3.94
Pennsylvania	0.36	4.78	0.58	4.09	1.50	2.72	4.84	2.50
Texas	0.35	6.47	0.46	3.32	0.59	2.70	0.80	4.45
Virginia	0.34	3.87	0.51	3.55	0.67	1.68	0.59	2.35
Utah	0.33	4.19	0.75	2.04	0.82	1.70	0.72	1.60
Arizona	0.32	4.85	0.42	7.21	0.57	2.40	0.80	1.91
Rhode Island	0.31	15.88	1.08	1.67	2.69	N/A	7.31	N/A
Alabama	0.30	6.15	0.34	3.34	0.40	3.06	0.51	3.16
Missouri	0.30	3.38	0.40	2.44	0.59	2.28	0.76	3.00

Table A.17 (continued)

WIC State Agency	Low SVI		Low-Med SVI		Med-High SVI		High SVI	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Louisiana	0.27	7.10	0.45	3.39	0.63	2.40	0.44	2.79
Nevada	0.26	4.64	0.56	0.67	0.74	2.94	1.15	6.00
New Jersey	0.26	5.14	0.63	6.74	2.38	7.54	6.75	6.00
Arkansas	0.25	6.62	0.28	2.91	0.50	2.46	0.60	2.69
Wyoming	0.25	0.88	0.56	0.90	0.86	1.87	0.25	0.40
Florida	0.24	6.67	0.40	6.38	0.64	5.81	0.98	4.65
Delaware	0.23	7.17	0.33	4.10	0.37	3.75	0.62	3.20
New Mexico	0.23	0.38	0.35	1.70	0.61	2.62	0.60	1.32
Indiana	0.21	2.95	0.38	2.71	0.54	2.97	0.65	3.71
Idaho	0.21	2.00	0.42	1.58	0.83	2.58	0.96	2.23
Tennessee	0.16	5.62	0.42	4.00	0.47	3.23	0.64	2.91
New Hampshire	0.15	2.53	0.36	2.89	0.77	3.00	3.09	4.00
West Virginia	0.05	3.83	0.42	2.93	0.40	1.98	0.62	1.85
Mississippi	0.04	4.33	0.36	2.71	0.36	2.15	0.54	1.66
All States and D.C.	0.49	4.83	0.83	3.78	1.73	3.25	3.23	3.92
Indian Tribal Organizations								
Muscogee (Creek) Nation	0.32	2.00	0.23	2.53	0.53	1.83	0.45	0.73
Cherokee Nation of Oklahoma	0.00	3.75	0.40	1.71	0.94	2.68	0.59	2.65
Chickasaw Nation	0.00	5.00	0.50	2.21	0.36	4.21	0.83	3.80
Citizen Potawatomi Nation	0.00	3.25	0.25	2.80	N/A	2.25	1.00	N/A
Acoma, Canonicito, and Laguna	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33
Cheyenne River Sioux Tribe	N/A	N/A	N/A	N/A	N/A	N/A	1.00	0.00
Choctaw Nation of Oklahoma	N/A	N/A	N/A	2.00	0.40	0.62	0.64	1.61
Eastern Band of Cherokee Indians	N/A	N/A	N/A	N/A	N/A	0.00	N/A	1.00
Eastern Shoshone	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00
Eight Northern Indian Pueblos, Inc.	N/A	N/A	N/A	0.00	0.33	N/A	0.00	0.00
Five Sandoval Indian Pueblos, Inc.	N/A	N/A	N/A	N/A	N/A	0.00	1.00	N/A
Inter-Tribal Council Inc. of Oklahoma	N/A	N/A	N/A	N/A	N/A	1.00	1.00	1.00
Inter-Tribal Council of Arizona	N/A	N/A	N/A	N/A	N/A	0.00	1.00	1.23
Inter-Tribal Council of Nevada	N/A	N/A	N/A	N/A	N/A	1.00	N/A	1.00
Mandan, Hidatsa and Arikara Nation	N/A	N/A	N/A	N/A	N/A	2.00	N/A	0.00
Mississippi Band of Choctaw Indians	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.00
Navajo Nation	N/A	N/A	N/A	N/A	N/A	N/A	0.60	0.29
Northern Arapaho	N/A	N/A	N/A	0.00	1.00	N/A	N/A	N/A
Omaha Nation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.00

Table A.17 (continued)

WIC State Agency	Low SVI		Low-Med SVI		Med-High SVI		High SVI	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Osage Nation	N/A	1.00	N/A	1.00	0.00	0.00	1.00	1.00
Otoe-Missouria Tribe	N/A	N/A	N/A	0.00	N/A	N/A	N/A	N/A
Pueblo of Isleta	N/A	N/A	N/A	N/A	N/A	0.00	0.00	N/A
Pueblo of Zuni	N/A	N/A	N/A	N/A	N/A	N/A	1.50	N/A
Rosebud Sioux Tribe	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.50
Standing Rock	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.25
Ute Mountain	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00
Wichita, Caddo, and Delaware Tribes	N/A	N/A	N/A	N/A	N/A	0.67	N/A	1.00
Winnebago	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.00
Passamaquoddy Tribe at Indian Township	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Passamaquoddy Tribe at Pleasant Point	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pueblo of San Felipe	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Santee Sioux	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Santo Domingo Tribe	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All ITOs and Puerto Rico	0.26	3.06	0.27	2.08	0.58	2.18	0.61	1.24

Source: FDP (2022 data), ERS Food Atlas, 2015-2019 ACS 5-Year Estimates, and CDC SVI

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family. Social vulnerability scores are categorized as low, low-medium, medium-high, and high. Only high is shown. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization; SVI = Social Vulnerability Index; N/A = not applicable.

Table A.18. Average number of WIC retailers within convenient access, by retailer type and SVI status

WIC State Agency	Low SVI		Low-Med SVI		Med-High SVI		High SVI	
	Large retailer	Other retailer	Large retailer	Other retailer	Large retailer	Other retailer	Large retailer	Other retailer
States and D.C.								
Arkansas	3.09	0.00	2.02	0.02	1.68	0.02	1.22	0.06
Maine	2.44	0.39	1.94	0.18	1.78	0.23	1.10	0.60
Oregon	2.29	0.61	2.22	0.63	1.07	0.32	1.15	0.41
Alabama	2.13	0.06	2.02	0.08	1.92	0.03	1.31	0.03
North Carolina	1.94	0.54	2.58	0.84	2.70	0.78	1.91	0.64
Tennessee	1.85	0.07	2.20	0.18	1.63	0.15	0.92	0.13
Rhode Island	1.81	1.37	0.65	0.42	1.20	1.43	2.16	5.16
Ohio	1.79	0.11	1.44	0.11	0.96	0.10	0.65	0.19
Oklahoma	1.75	0.07	1.28	0.11	1.09	0.07	0.87	0.09
Vermont	1.68	0.24	1.36	0.31	1.46	0.41	1.20	0.40
Iowa	1.62	0.66	1.04	0.42	1.00	0.29	0.79	0.72
West Virginia	1.62	0.18	1.74	0.17	1.20	0.17	0.88	0.19
New York	1.58	0.27	1.84	0.68	4.18	2.86	7.76	7.78
New Hampshire	1.57	0.09	1.41	0.07	1.39	0.15	1.75	1.42
Connecticut	1.54	1.95	1.33	1.57	0.62	1.30	1.24	2.91
South Carolina	1.41	0.05	2.40	0.11	2.39	0.14	1.61	0.10
District of Columbia	1.40	0.00	2.19	0.06	1.43	0.21	0.66	0.70
Delaware	1.39	0.00	1.22	0.00	1.32	0.00	1.00	0.00
Montana	1.36	0.23	1.14	0.17	1.25	0.18	0.81	0.48
Pennsylvania	1.36	0.24	1.50	0.28	1.24	0.49	1.49	3.00
Georgia	1.35	0.46	1.64	0.49	1.53	0.50	1.14	0.34
Washington	1.33	0.07	1.52	0.10	0.89	0.11	1.22	0.09
Wisconsin	1.33	0.94	0.78	0.68	0.79	1.08	1.02	4.93
Maryland	1.32	0.10	1.21	0.10	0.96	0.14	0.98	0.47
Indiana	1.29	0.14	1.43	0.13	0.93	0.18	0.58	0.20
Massachusetts	1.28	0.96	0.79	0.72	0.91	1.85	1.49	3.51
Texas	1.24	0.03	1.24	0.05	1.18	0.08	1.17	0.20
Michigan	1.24	1.15	1.27	1.00	1.00	0.94	0.92	1.31
Colorado	1.20	0.01	0.62	0.02	0.90	0.04	0.79	0.03
Virginia	1.19	0.02	1.50	0.04	1.01	0.03	0.81	0.09
Kansas	1.17	0.05	0.97	0.11	0.69	0.07	0.54	0.02
Kentucky	1.15	0.24	1.35	0.19	1.50	0.22	1.20	0.32
Nebraska	1.10	0.36	1.13	0.40	0.80	0.33	0.58	0.35
Missouri	1.06	0.04	1.23	0.08	1.23	0.05	1.10	0.03
Illinois	1.05	1.36	1.23	1.62	1.18	1.65	1.06	1.92
Florida	1.01	0.01	1.33	0.03	1.47	0.04	1.27	0.08

Table A.18 (continued)

WIC State Agency	Low SVI		Low-Med SVI		Med-High SVI		High SVI	
	Large retailer	Other retailer	Large retailer	Other retailer	Large retailer	Other retailer	Large retailer	Other retailer
South Dakota	0.98	0.25	0.93	0.17	1.15	0.30	0.70	0.14
Minnesota	0.96	0.61	0.84	0.73	0.76	0.87	1.34	2.96
Louisiana	0.87	0.03	1.49	0.03	1.23	0.06	0.91	0.02
Nevada	0.87	0.01	0.57	0.01	0.98	0.02	1.42	0.06
Utah	0.80	0.00	0.88	0.07	0.90	0.06	0.75	0.05
New Jersey	0.77	0.16	0.91	0.23	1.48	1.10	2.72	3.90
North Dakota	0.75	0.14	0.70	0.16	0.80	0.03	0.92	0.33
California	0.74	0.06	1.25	0.15	1.43	0.38	1.92	1.23
Arizona	0.69	0.01	1.20	0.01	0.88	0.02	0.94	0.04
Idaho	0.67	0.10	0.86	0.08	1.51	0.10	1.33	0.21
Alaska	0.57	0.07	0.86	0.14	0.71	0.17	0.50	0.25
Wyoming	0.54	0.07	0.62	0.08	1.27	0.00	0.33	0.00
Mississippi	0.26	0.00	0.60	0.01	0.52	0.00	0.28	0.01
Hawaii	0.26	0.11	1.09	0.02	1.65	0.11	2.27	0.08
New Mexico	0.23	0.03	0.68	0.05	1.14	0.09	0.75	0.06
All States and D.C.	1.27	0.35	1.38	0.35	1.48	0.54	1.74	1.32
Indian Tribal Organizations								
Citizen Potawatomi Nation	2.00	0.00	1.56	0.00	1.83	0.25	0.00	0.00
Cherokee Nation of Oklahoma	1.36	0.00	1.37	0.00	1.93	0.00	1.23	0.00
Chickasaw Nation	1.33	0.00	0.94	0.12	1.26	0.08	0.65	0.06
Osage Nation	1.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00
Muscogee (Creek) Nation	0.49	0.00	1.10	0.00	0.93	0.00	0.50	0.00
Acoma, Canonicito, and Laguna	N/A	N/A	N/A	N/A	N/A	N/A	0.33	0.00
Cheyenne River Sioux Tribe	N/A	N/A	N/A	N/A	N/A	N/A	0.33	0.00
Choctaw Nation of Oklahoma	N/A	N/A	2.00	0.00	0.41	0.00	0.86	0.14
Eastern Band of Cherokee Indians	N/A	N/A	N/A	N/A	0.00	0.00	1.00	0.00
Eastern Shoshone	N/A	N/A	N/A	N/A	N/A	N/A	0.00	0.00
Eight Northern Indian Pueblos, Inc.	N/A	N/A	0.00	0.00	0.00	0.33	0.00	0.00
Five Sandoval Indian Pueblos, Inc.	N/A	N/A	N/A	N/A	0.00	0.00	1.00	0.00
Inter-Tribal Council Inc. of Oklahoma	N/A	N/A	N/A	N/A	1.00	0.00	1.00	0.00

Table A.18 (continued)

WIC State Agency	Low SVI		Low-Med SVI		Med-High SVI		High SVI	
	Large retailer	Other retailer	Large retailer	Other retailer	Large retailer	Other retailer	Large retailer	Other retailer
Inter-Tribal Council of Arizona	N/A	N/A	N/A	N/A	0.00	0.00	0.87	0.33
Inter-Tribal Council of Nevada	N/A	N/A	N/A	N/A	0.50	0.50	1.00	0.00
Mandan, Hidatsa and Arikara Nation	N/A	N/A	N/A	N/A	1.00	0.00	0.00	0.00
Mississippi Band of Choctaw Indians	N/A	N/A	N/A	N/A	N/A	N/A	1.00	0.00
Navajo Nation	N/A	N/A	N/A	N/A	N/A	N/A	0.25	0.08
Northern Arapaho	N/A	N/A	0.00	0.00	1.00	0.00	N/A	N/A
Omaha Nation	N/A	N/A	N/A	N/A	N/A	N/A	2.00	1.00
Otoe-Missouria Tribe	N/A	N/A	0.00	0.00	N/A	N/A	N/A	N/A
Pueblo of Isleta	N/A	N/A	N/A	N/A	0.00	0.00	0.00	0.00
Pueblo of Zuni	N/A	N/A	N/A	N/A	N/A	N/A	0.50	1.00
Rosebud Sioux Tribe	N/A	N/A	N/A	N/A	N/A	N/A	1.50	1.00
Standing Rock	N/A	N/A	N/A	N/A	N/A	N/A	0.25	0.00
Ute Mountain	N/A	N/A	N/A	N/A	N/A	N/A	0.00	0.00
Wichita, Caddo, and Delaware Tribes	N/A	N/A	N/A	N/A	0.67	0.00	1.00	0.00
Winnebago	N/A	N/A	N/A	N/A	N/A	N/A	2.00	0.00
Passamaquoddy Tribe at Indian Township	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Passamaquoddy Tribe at Pleasant Point	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pueblo of San Felipe	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Santee Sioux	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Santo Domingo Tribe	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All ITOs and Puerto Rico	0.82	0.00	1.17	0.02	1.12	0.04	0.72	0.07

Source: FDP (2022 data), ERS Food Atlas, 2015–2019 ACS 5-Year Estimates, and CDC SVI.

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family. Large retailers include super stores, supermarkets, and large grocery stores. Other retailers include medium and small grocery stores and A-50 stores, as well as smaller retailers, such as convenience stores, combination grocery stores, specialty food stores, commissaries, pharmacies, and farmers' markets. When defining store type, information provided in the STARS data was privileged over retailer information available in FDP. Unknown type includes WIC retailers that are classified as "regular retail retailer" in the FDP data but could not be classified using STARS data, either because they were not SNAP authorized or because the store type information was missing. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

A-50 = Above-50-percent; ITO = Indian Tribal Organization; SVI = Social Vulnerability Index; N/A = not applicable.

Table A.19. Percentage of census tracts with convenient access, by program type

WIC State Agency	WIC	SNAP
States and D.C.		
District of Columbia	81%	88%
Maine	72%	89%
New York	71%	83%
Vermont	69%	87%
Illinois	66%	82%
Rhode Island	66%	90%
Iowa	66%	86%
Michigan	64%	84%
California	63%	80%
Wisconsin	62%	82%
Montana	62%	77%
Connecticut	60%	74%
Kentucky	60%	84%
Massachusetts	60%	78%
Oregon	60%	84%
North Dakota	59%	76%
West Virginia	59%	87%
South Dakota	58%	79%
Nebraska	58%	79%
Minnesota	57%	75%
Idaho	57%	77%
North Carolina	55%	75%
Pennsylvania	55%	80%
Arkansas	54%	83%
Alabama	54%	82%
New Jersey	54%	79%
Hawaii	54%	68%
Mississippi	53%	91%
Washington	51%	75%
Tennessee	51%	79%
New Hampshire	50%	76%
South Carolina	50%	80%
Oklahoma	50%	85%
Kansas	50%	79%
Wyoming	49%	73%
Missouri	49%	81%
Texas	49%	86%
Ohio	49%	81%

Table A.19 (continued)

WIC State Agency	WIC	SNAP
Georgia	48%	76%
Maryland	48%	70%
Indiana	48%	81%
Virginia	48%	74%
Nevada	47%	74%
Alaska	45%	63%
Delaware	45%	77%
Colorado	45%	74%
Utah	45%	70%
Florida	44%	72%
Arizona	43%	73%
Louisiana	43%	81%
New Mexico	42%	75%
All States and D.C.	55%	80%
Indian Tribal Organizations and Puerto Rico		
Mississippi Band of Choctaw Indians	100%	100%
Omaha Nation	100%	100%
Rosebud Sioux Tribe	100%	100%
Winnebago	100%	100%
Citizen Potawatomi Nation	75%	89%
Inter-Tribal Council of Nevada	75%	100%
Chickasaw Nation	73%	95%
Eastern Band of Cherokee Indians	67%	100%
Mandan, Hidatsa and Arikara Nation	67%	67%
Inter-Tribal Council of Arizona	56%	69%
Cherokee Nation of Oklahoma	56%	87%
Choctaw Nation of Oklahoma	52%	98%
Five Sandoval Indian Pueblos, Inc.	50%	50%
Inter-Tribal Council Inc. of Oklahoma	50%	88%
Northern Arapaho	50%	50%
Pueblo of Zuni	50%	50%
Wichita, Caddo, and Delaware Tribes	50%	100%
Puerto Rico	43%	0%
Osage Nation	36%	82%
Acoma, Canoncito, and Laguna	33%	67%
Cheyenne River Sioux Tribe	33%	33%
Muscogee (Creek) Nation	33%	76%
Standing Rock	25%	25%
Eight Northern Indian Pueblos, Inc.	22%	33%
Navajo Nation	20%	32%

Table A.19 (continued)

WIC State Agency	WIC	SNAP
Eastern Shoshone	0%	0%
Otoe-Missouria Tribe	0%	100%
Pueblo of Isleta	0%	0%
Ute Mountain	0%	0%
Passamaquoddy Tribe at Indian Township	N/A	N/A
Passamaquoddy Tribe at Pleasant Point	N/A	N/A
Pueblo of San Felipe	N/A	N/A
Santee Sioux	N/A	N/A
Santo Domingo Tribe	N/A	N/A
All ITOs and Puerto Rico	45%	34%

Source: FDP (2022 data), STARS, and 2015-2019 ACS 5-Year Estimates

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family. The SNAP participant-to-retailer ratio counts the ratio of WIC-eligible participants to SNAP retailers. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization; N/A = not applicable.

Table A.20. Number and percentage of WIC-eligible families without convenient access to WIC

WIC State Agency	Number	Percentage
States and D.C.		
Texas	269,890	48%
Florida	165,060	53%
California	156,960	27%
Ohio	104,493	50%
Georgia	98,737	52%
North Carolina	78,318	42%
Arizona	64,072	49%
Indiana	61,510	52%
Tennessee	61,424	49%
Pennsylvania	61,363	34%
New York	53,555	19%
Louisiana	52,889	56%
Missouri	52,720	49%
Illinois	52,224	27%
Virginia	50,730	47%
Michigan	49,134	29%
Washington	46,976	45%
South Carolina	44,972	49%
Alabama	39,605	43%
Oklahoma	36,817	45%
Colorado	34,579	49%
Kentucky	32,399	36%
Maryland	30,396	45%
New Jersey	30,387	29%
Mississippi	28,929	45%
Arkansas	28,835	43%
Utah	26,580	49%
Wisconsin	26,248	32%
Minnesota	25,795	35%
Kansas	25,241	49%
New Mexico	23,246	55%
Nevada	22,792	46%
Oregon	21,464	35%
Massachusetts	17,821	26%
Iowa	16,240	32%
Idaho	13,976	41%
Nebraska	12,807	37%
West Virginia	12,729	39%

Table A.20 (continued)

WIC State Agency	Number	Percentage
Connecticut	9,713	25%
Hawaii	6,606	44%
South Dakota	6,361	41%
Alaska	6,271	54%
Delaware	6,121	50%
Montana	5,700	34%
Wyoming	4,986	56%
New Hampshire	4,718	42%
North Dakota	3,846	35%
Maine	3,467	21%
Rhode Island	2,736	21%
Vermont	2,171	30%
District of Columbia	1,726	24%
All States and D.C.	2,096,335	40%
Indian Tribal Organizations and Puerto Rico		
Puerto Rico	46,130	58%
Muscogee (Creek) Nation	10,040	63%
Cherokee Nation of Oklahoma	5,402	41%
Navajo Nation	3,338	71%
Choctaw Nation of Oklahoma	2,367	39%
Chickasaw Nation	1,831	29%
Osage Nation	644	65%
Inter-Tribal Council of Arizona	627	30%
Inter-Tribal Council Inc. of Oklahoma	417	53%
Eight Northern Indian Pueblos, Inc.	338	73%
Citizen Potawatomi Nation	321	18%
Cheyenne River Sioux Tribe	217	66%
Standing Rock	189	63%
Eastern Shoshone	172	100%
Eastern Band of Cherokee Indians	125	24%
Ute Mountain	94	53%
Acoma, Canoncito, and Laguna	85	66%
Pueblo of Zuni	81	31%
Pueblo of Isleta	79	100%
Wichita, Caddo, and Delaware Tribes	73	33%
Northern Arapaho	61	43%
Mandan, Hidatsa and Arikara Nation	39	45%
Inter-Tribal Council of Nevada	27	24%
Five Sandoval Indian Pueblos, Inc.	26	19%
Otoe-Missouria Tribe	24	100%

Appendix A. Supplemental Tables**Table A.20** (continued)

WIC State Agency	Number	Percentage
Mississippi Band of Choctaw Indians	0	0%
Omaha Nation	0	0%
Rosebud Sioux Tribe	0	0%
Winnebago	0	0%
Passamaquoddy Tribe at Indian Township	N/A	N/A
Passamaquoddy Tribe at Pleasant Point	N/A	N/A
Pueblo of San Felipe	N/A	N/A
Santee Sioux	N/A	N/A
Santo Domingo Tribe	N/A	N/A
All ITOs and Puerto Rico	72,747	54%

Source: FDP (2022 data), ERS Food Atlas, and 2015-2019 ACS 5-Year Estimates.

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization; N/A = not applicable.

Table A.21. Number and percentage of WIC-eligible families without convenient access to WIC, by LILA status

WIC State Agency	LILA		Non-LILA	
	Number	Percentage	Number	Percentage
States and D.C.				
Texas	115,309	73%	154,581	39%
Florida	56,474	81%	108,586	45%
Georgia	46,827	73%	51,910	41%
Ohio	39,921	82%	64,572	41%
California	38,140	51%	118,820	23%
North Carolina	30,640	63%	47,678	34%
Tennessee	27,432	75%	33,992	38%
Indiana	24,696	75%	36,814	43%
Louisiana	24,473	81%	28,416	45%
Arizona	22,265	73%	41,807	41%
South Carolina	20,958	77%	24,014	37%
Missouri	19,709	67%	33,011	42%
Virginia	18,661	72%	32,069	39%
Alabama	17,971	74%	21,634	32%
Mississippi	15,335	62%	13,594	35%
Michigan	15,047	46%	34,087	25%
Washington	14,260	66%	32,716	40%
Oklahoma	14,222	76%	22,595	36%
Arkansas	14,215	63%	14,620	33%
Illinois	14,121	45%	38,103	24%
Colorado	13,127	76%	21,452	41%
Pennsylvania	12,732	68%	48,631	30%
New Mexico	12,040	78%	11,206	42%
Kansas	11,742	81%	13,499	36%
Kentucky	10,966	64%	21,433	29%
New York	10,365	58%	43,190	16%
Minnesota	8,097	45%	17,698	32%
Maryland	7,588	72%	22,808	40%
Oregon	5,853	50%	15,611	31%
New Jersey	5,808	59%	24,579	26%
Wisconsin	5,289	47%	20,959	29%
Utah	5,085	72%	21,495	46%
Iowa	4,540	54%	11,700	28%
Nevada	4,434	88%	18,358	42%
West Virginia	4,232	74%	8,497	32%
Massachusetts	3,937	48%	13,884	23%

Table A.21 (continued)

WIC State Agency	LILA		Non-LILA	
	Number	Percentage	Number	Percentage
Nebraska	3,523	62%	9,284	32%
Idaho	3,452	52%	10,524	38%
Hawaii	2,599	66%	4,007	36%
Connecticut	2,555	37%	7,158	23%
South Dakota	2,398	64%	3,963	34%
Alaska	2,359	83%	3,912	44%
Delaware	2,302	90%	3,819	40%
New Hampshire	2,132	90%	2,586	29%
Montana	1,963	60%	3,737	28%
Maine	1,323	63%	2,144	15%
Wyoming	980	72%	4,006	53%
North Dakota	757	64%	3,089	32%
Vermont	649	72%	1,522	24%
Rhode Island	560	74%	2,176	17%
District of Columbia	52	6%	1,674	26%
All States and D.C.	744,115	68%	1,352,220	33%
Indian Tribal Organizations				
Navajo Nation	3,254	74%	84	26%
Muscogee (Creek) Nation	2,759	84%	7,281	58%
Cherokee Nation of Oklahoma	2,216	60%	3,186	34%
Choctaw Nation of Oklahoma	1,328	58%	1,039	28%
Chickasaw Nation	685	93%	1,146	20%
Inter-Tribal Council of Arizona	452	35%	175	21%
Osage Nation	409	74%	235	53%
Inter-Tribal Council Inc. of Oklahoma	249	100%	168	32%
Cheyenne River Sioux Tribe	217	100%	0	0%
Eight Northern Indian Pueblos, Inc.	114	100%	224	64%
Standing Rock	104	100%	85	44%
Ute Mountain	94	100%	0	0%
Acoma, Canonicito, and Laguna	85	100%	0	0%
Pueblo of Zuni	81	31%	N/A	N/A
Pueblo of Isleta	70	100%	9	100%
Citizen Potawatomi Nation	51	31%	270	17%
Mandan, Hidatsa and Arikara Nation	39	100%	0	0%
Inter-Tribal Council of Nevada	27	60%	0	0%
Rosebud Sioux Tribe	0	0%	N/A	N/A
Eastern Band of Cherokee Indians	N/A	N/A	125	24%
Eastern Shoshone	N/A	N/A	172	100%
Five Sandoval Indian Pueblos, Inc.	N/A	N/A	26	19%

Appendix A. Supplemental Tables

Table A.21 (continued)

WIC State Agency	LILA		Non-LILA	
	Number	Percentage	Number	Percentage
Mississippi Band of Choctaw Indians	N/A	N/A	0	0%
Northern Arapaho	N/A	N/A	61	43%
Omaha Nation	N/A	N/A	0	0%
Otoe-Missouria Tribe	N/A	N/A	24	100%
Wichita, Caddo, and Delaware Tribes	N/A	N/A	73	33%
Winnebago	N/A	N/A	0	0%
Passamaquoddy Tribe at Indian Township	N/A	N/A	N/A	N/A
Passamaquoddy Tribe at Pleasant Point	N/A	N/A	N/A	N/A
Pueblo of San Felipe	N/A	N/A	N/A	N/A
Santee Sioux	N/A	N/A	N/A	N/A
Santo Domingo Tribe	N/A	N/A	N/A	N/A
All ITOs and Puerto Rico	12,234	67%	14,383	38%

Source: FDP (2022 data), ERS Food Atlas, and 2015-2019 ACS 5-Year Estimates.

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization; LILA = low-income, low-access; N/A = not applicable.

Table A.22. Number and percentage of WIC-eligible families without convenient access to WIC, by SVI status

WIC State Agency	Low SVI		Low-Med SVI		Med-High SVI		High SVI	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
States and D.C.								
Texas	19,816	64%	39,116	57%	71,852	51%	139,106	44%
Ohio	15,880	57%	23,703	52%	28,906	47%	36,004	50%
Pennsylvania	13,160	57%	20,590	46%	17,214	34%	10,399	17%
California	12,928	65%	27,686	51%	44,490	37%	71,856	18%
Florida	11,876	68%	32,642	62%	48,458	56%	72,084	47%
Illinois	10,357	48%	14,156	38%	14,044	27%	13,667	17%
Virginia	9,196	61%	12,314	48%	15,470	45%	13,750	43%
Michigan	9,101	51%	12,671	38%	14,780	29%	12,582	19%
New York	8,584	51%	15,906	40%	15,217	20%	13,848	9%
Indiana	8,501	60%	14,227	48%	16,961	50%	21,821	53%
New Jersey	8,202	75%	10,072	61%	7,653	32%	4,460	9%
Utah	7,645	64%	7,595	49%	7,041	40%	4,299	48%
Missouri	7,500	63%	12,809	53%	18,505	46%	13,906	44%
Colorado	7,172	59%	7,773	53%	9,200	49%	10,434	43%
Minnesota	7,143	57%	7,826	42%	6,745	32%	4,081	19%
Georgia	6,902	62%	19,719	59%	28,641	50%	43,475	49%
North Carolina	6,877	58%	17,732	51%	21,958	39%	31,751	37%
Tennessee	6,718	62%	12,396	46%	19,076	47%	23,234	49%
Washington	5,933	64%	12,160	54%	15,235	49%	13,648	34%
Wisconsin	5,844	44%	10,100	45%	7,121	30%	3,183	13%
Arizona	5,805	65%	10,436	61%	15,857	56%	31,974	41%
Massachusetts	5,579	63%	6,914	52%	2,822	18%	2,506	8%
Maryland	5,245	63%	7,400	52%	9,810	44%	7,941	35%
South Carolina	4,738	68%	8,454	56%	10,166	38%	21,614	49%
Kentucky	3,712	54%	9,224	51%	11,316	34%	8,147	26%
Kansas	3,457	60%	5,959	43%	7,280	45%	8,545	55%
Louisiana	3,437	75%	8,189	56%	13,583	48%	27,680	60%
Connecticut	3,430	63%	2,462	42%	1,977	31%	1,844	9%
Alabama	3,406	52%	7,496	43%	11,965	38%	16,738	47%
Iowa	3,304	38%	4,871	31%	4,556	31%	3,509	33%
Nebraska	3,243	55%	2,910	31%	2,935	32%	3,719	38%
Oklahoma	3,223	58%	5,432	43%	11,871	45%	16,291	44%
Nevada	2,462	75%	5,381	62%	4,909	46%	10,040	38%
Idaho	2,096	71%	5,076	60%	4,915	32%	1,889	25%
Oregon	1,688	56%	4,059	41%	7,716	41%	8,001	27%
Arkansas	1,510	45%	5,310	48%	8,517	36%	13,498	47%

Table A.22 (continued)

WIC State Agency	Low SVI		Low-Med SVI		Med-High SVI		High SVI	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
South Dakota	1,437	57%	2,068	48%	1,107	29%	1,749	36%
New Mexico	1,295	78%	2,893	66%	4,342	45%	14,528	56%
New Hampshire	1,233	54%	1,887	49%	1,437	41%	161	10%
Mississippi	1,166	74%	3,407	44%	9,291	43%	15,065	46%
Montana	1,153	41%	2,328	38%	1,259	27%	960	32%
Wyoming	1,046	73%	1,894	61%	1,029	35%	1,017	70%
West Virginia	1,013	60%	3,679	41%	5,476	37%	2,561	37%
Hawaii	914	57%	2,714	60%	1,820	44%	1,158	24%
Rhode Island	841	62%	1,076	45%	636	27%	183	3%
North Dakota	834	37%	1,488	36%	1,203	37%	321	25%
Maine	638	29%	1,164	20%	1,036	18%	629	23%
Delaware	632	57%	1,266	54%	2,414	50%	1,809	46%
Vermont	598	31%	751	31%	637	25%	185	45%
Alaska	399	45%	1,713	57%	909	39%	3,250	60%
District of Columbia	16	31%	8	2%	37	3%	1,665	29%
All States and D.C.	258,885	59%	459,102	49%	591,395	41%	786,765	33%
Indian Tribal Organizations								
Muscogee (Creek) Nation	1,108	78%	1,707	62%	2,466	64%	4,759	60%
Cherokee Nation of Oklahoma	407	74%	604	48%	1,141	31%	3,250	43%
Citizen Potawatomi Nation	73	60%	158	29%	90	9%	0	0%
Chickasaw Nation	42	20%	180	17%	1,035	32%	574	32%
Osage Nation	0	0%	33	50%	453	100%	158	36%
Acoma, Canonicito, and Laguna	N/A	N/A	N/A	N/A	N/A	N/A	85	66%
Cheyenne River Sioux Tribe	N/A	N/A	N/A	N/A	N/A	N/A	217	66%
Choctaw Nation of Oklahoma	N/A	N/A	36	19%	1,435	61%	896	25%
Eastern Band of Cherokee Indians	N/A	N/A	N/A	N/A	125	100%	0	0%
Eastern Shoshone	N/A	N/A	N/A	N/A	N/A	N/A	172	100%
Eight Northern Indian Pueblos, Inc.	N/A	N/A	43	100%	77	50%	114	100%
Five Sandoval Indian Pueblos, Inc.	N/A	N/A	N/A	N/A	26	100%	0	0%
Inter-Tribal Council Inc. of Oklahoma	N/A	N/A	N/A	N/A	87	63%	330	51%
Inter-Tribal Council of Arizona	N/A	N/A	0	N/A	20	100%	607	29%

Table A.22 (continued)

WIC State Agency	Low SVI		Low-Med SVI		Med-High SVI		High SVI	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Inter-Tribal Council of Nevada	N/A	N/A	N/A	N/A	0	0%	27	40%
Mandan, Hidatsa and Arikara Nation	N/A	N/A	N/A	N/A	0	0%	39	100%
Mississippi Band of Choctaw Indians	N/A	N/A	N/A	N/A	N/A	N/A	0	0%
Navajo Nation	N/A	N/A	N/A	N/A	N/A	N/A	3,338	71%
Northern Arapaho	N/A	N/A	61	100%	0	0%	N/A	N/A
Omaha Nation	N/A	N/A	N/A	N/A	N/A	N/A	0	0%
Otoe-Missouria Tribe	N/A	N/A	24	100%	N/A	N/A	N/A	N/A
Pueblo of Isleta	N/A	N/A	N/A	N/A	9	100%	70	100%
Pueblo of Zuni	N/A	N/A	N/A	N/A	N/A	N/A	81	31%
Rosebud Sioux Tribe	N/A	N/A	N/A	N/A	N/A	N/A	0	0%
Standing Rock	N/A	N/A	N/A	N/A	N/A	N/A	189	63%
Ute Mountain	N/A	N/A	N/A	N/A	0	0%	94	100%
Wichita, Caddo, and Delaware Tribes	N/A	N/A	N/A	N/A	73	52%	0	0%
Winnebago	N/A	N/A	N/A	N/A	N/A	N/A	0	0%
Passamaquoddy Tribe at Indian Township	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Passamaquoddy Tribe at Pleasant Point	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pueblo of San Felipe	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Santee Sioux	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Santo Domingo Tribe	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All ITOs and Puerto Rico	1,630	70%	2,846	47%	7,037	45%	15,000	47%

Source: FDP (2022 data), ERS Food Atlas, 2015-2019 ACS 5-Year Estimates, and CDC SVI

Note: Convenient access is defined as the presence of a WIC retailer within one mile of urban census tracts with a WIC-eligible population or within 10 miles of rural census tracts with a WIC-eligible population. The WIC-eligible population was estimated based on the number of families with incomes below 185 percent of the Federal Poverty Line with children younger than 5 present in the family. Social vulnerability scores are categorized as low, low-medium, medium-high, and high. Only low and high are shown. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization; SVI = Social Vulnerability Index; N/A = not applicable.

Table A.23. Use of limiting criteria and optional selection criteria by State agency

WIC State Agency	Limiting Criteria		Optional Selection Criteria	
	Any	Number	Any	Number
States and D.C.				
Alabama	No	0	Yes	6
Alaska	Yes	1	Yes	6
Arizona	No	0	Yes	8
Arkansas	Yes	1	Yes	4
California	No	0	Yes	5
Colorado	Yes	1	Yes	5
Connecticut	No	0	Yes	3
Delaware	Yes	2	Yes	7
District of Columbia	No	0	Yes	5
Florida	Yes	1	Yes	6
Georgia	Yes	1	Yes	9
Hawaii	Yes	1	Yes	8
Idaho	No	0	Yes	5
Illinois	No	0	Yes	4
Indiana	No	0	Yes	6
Iowa	No	0	Yes	4
Kansas	Yes	2	Yes	6
Kentucky	Yes	1	Yes	7
Louisiana	No	0	Yes	8
Maine	Yes	1	Yes	9
Maryland	No	0	Yes	6
Massachusetts	No	0	Yes	8
Michigan	Yes	2	Yes	7
Minnesota	No	0	Yes	4
Mississippi	No	0	Yes	2
Missouri	No	0	Yes	9
Montana	No	0	Yes	2
Nebraska	No	0	Yes	9
Nevada	Yes	1	Yes	7
New Hampshire	No	0	Yes	5
New Jersey	No	0	Yes	8
New Mexico	Yes	4	Yes	7
New York	No	0	Yes	6
North Carolina	No	0	Yes	5
North Dakota	No	0	Yes	3
Ohio	Yes	1	Yes	6
Oklahoma	Yes	3	Yes	4

Table A.23 (continued)

WIC State Agency	Limiting Criteria		Optional Selection Criteria	
	Any	Number	Any	Number
Oregon	No	0	Yes	8
Pennsylvania	No	0	Yes	6
Rhode Island	No	0	Yes	8
South Carolina	No	0	Yes	4
South Dakota	No	0	Yes	8
Tennessee	No	0	Yes	7
Texas	No	0	Yes	6
Utah	Yes	2	Yes	5
Vermont	No	0	Yes	4
Virginia	No	0	Yes	3
Washington	No	0	Yes	5
West Virginia	No	0	Yes	5
Wisconsin	No	0	Yes	4
Wyoming	No	0	Yes	8
Indian Tribal Organizations				
Acoma, Canonicito, and Laguna	Yes	1	Yes	6
Cherokee Nation of Oklahoma	Yes	1	Yes	6
Cheyenne River Sioux Tribe	Yes	1	Yes	8
Chickasaw Nation	No	0	Yes	4
Choctaw Nation of Oklahoma	Yes	1	Yes	4
Citizen Potawatomi Nation	Yes	1	Yes	3
Eastern Band of Cherokee Indians	No	0	Yes	4
Eastern Shoshone	No	0	Yes	2
Eight Northern Indian Pueblos, Inc.	No	0	Yes	4
Five Sandoval Indian Pueblos, Inc.	No	0	Yes	5
Inter-Tribal Council Inc. of Oklahoma	No	0	Yes	5
Inter-Tribal Council of Arizona	Yes	2	Yes	7
Inter-Tribal Council of Nevada	Yes	2	Yes	9
Mandan, Hidatsa and Arikara Nation	Yes	3	Yes	4
Mississippi Band of Choctaw Indians	Yes	1	Yes	7
Muscogee (Creek) Nation	Yes	4	Yes	4
Navajo Nation	No	0	Yes	5
Northern Arapaho	No	0	Yes	2
Omaha Nation	No	0	Yes	7
Osage Nation	Yes	3	Yes	8
Otoe-Missouria Tribe	Yes	2	Yes	2

Table A.23 (continued)

WIC State Agency	Limiting Criteria		Optional Selection Criteria	
	Any	Number	Any	Number
Passamaquoddy Tribe at Indian Township	No	0	Yes	5
Passamaquoddy Tribe at Pleasant Point	No	0	Yes	5
Pueblo of Isleta	Yes	1	Yes	7
Pueblo of San Felipe	No	0	No	0
Pueblo of Zuni	No	0	Yes	2
Rosebud Sioux Tribe	No	0	Yes	4
Santee Sioux	No	0	Yes	4
Santo Domingo Tribe	No	0	No	0
Standing Rock	No	0	Yes	2
Ute Mountain	No	0	Yes	2
Wichita, Caddo, and Delaware Tribes	Yes	2	Yes	2
Winnebago	No	0	Yes	4
Territories				
American Samoa	Yes	3	Yes	4
Commonwealth of the Northern Mariana Islands	Yes	3	Yes	9
Guam	Yes	2	Yes	7
Puerto Rico	No	0	Yes	5
Virgin Islands	Yes	2	Yes	7

Source: FY 2022 WIC State Plan.

Appendix B.

Methods Used for Indian Tribal Organization Spatial Analyses

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This appendix provides additional details regarding the geographic access analyses conducted in Indian Tribal Organizations (ITOs). In Section A, we describe the procedures used to construct geographic boundaries for each ITO, and in Section B, we discuss how the WIC-eligible population were defined for these State agencies.

A. Defining ITO geographic boundaries

Unlike other State agencies, which have well-defined geographic boundaries published by the U.S. Census Bureau, ITOs represent a wide variety of tribal lands. An ITO is the recognized governing body of any Indian tribe (34 USC § 12291(a)(38)). These governing bodies can represent individual tribal governments (within a single tribe) and legally established organizations comprising multiple tribes, which may span multiple States, be non-contiguous, or overlap. Because ITOs are primarily governmental entities, determining the geographic (or jurisdictional) coverage of these entities required developing customized spatial geographies. To do this, we used publicly available information on various tribal land designations (Exhibit B.1).

Exhibit B.1. Description of Tribal land area definitions

Data source	Description	Publisher
AIAN National Land Area Representation	- Federally recognized Tribal reservations and trust land located off-reservation - May include reservation extents, trust lands, or a combination of both	BIA
AIAN National Land Area Representation Supplemental	- Includes 9 additional Land Areas that include Federally recognized Tribal reservations and trust land located off-reservation not included in the AIAN National Land Area Representation data file. These 9 Land Areas include: - Spirit Lake - Fallon - Fallon Colony - Eastern Cherokee - Navajo (Canoncito), - Snoqualmie - Absentee Wynadotte of Colorado, - Ponca Nebraska, - Paiute Indian Tribe of Utah - May include reservation extents, trust lands, or a combination of both	BIA
Tribal Statistical Area	- Administrative units that do not represent land ownership but are identified and delineated by federally recognized American Indian Tribes in Oklahoma - These areas, unlike Reservations, may contain a mix of tribal members and non-tribal members with only tribal members being subject to the tribal government	BIA
Tribal Census Tract	Statistical geographic unit located within the boundaries of federally recognized American Indian reservations and/or off-reservation trust lands	Census Bureau

Source: BIA Tract Viewer.

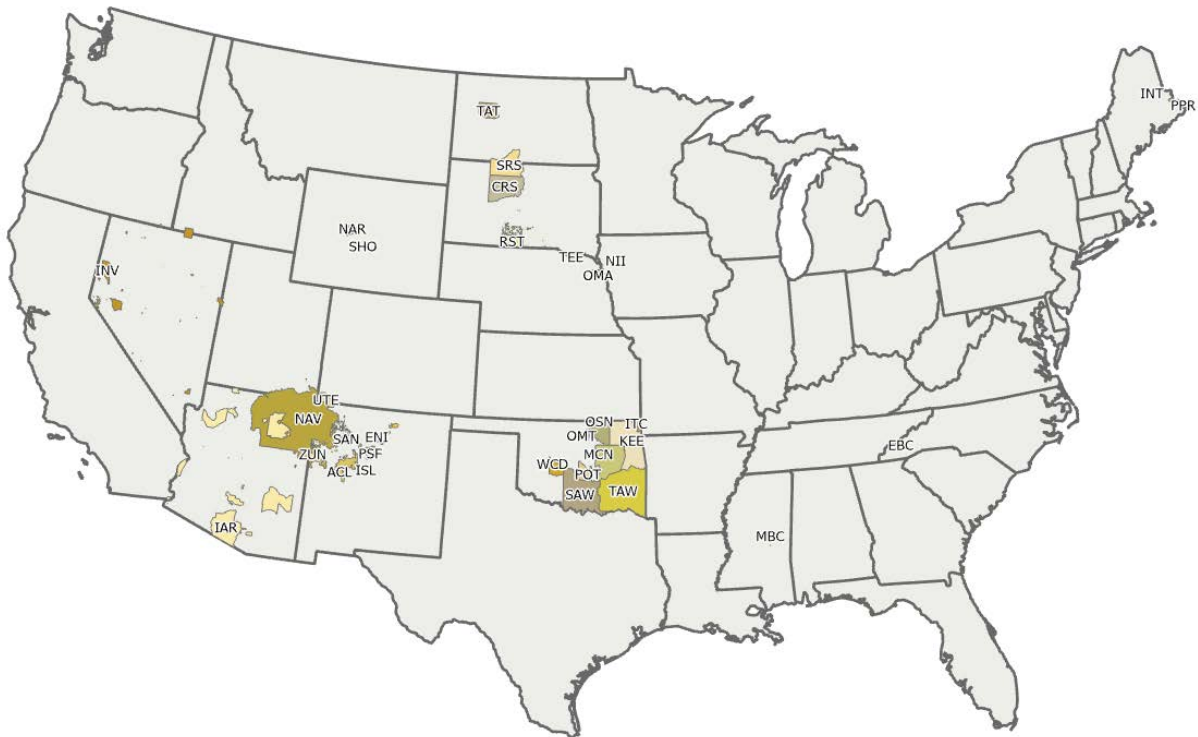
AIAN = American Indian and Alaska Native; BIA = Bureau of Indian Affairs

The Bureau of Indian Affairs (BIA) Tract Viewer (<https://biamaps.geoplatform.gov/biatracts/>) was the primary source used to identify the geographic extent of each ITO WIC State agency. This interactive data dashboard published by the BIA includes multiple data layers representing different Federal American

Indian and Alaska Native (AIAN) land designations, including AIAN National Land Area Representation, AIAN Land Area Representation Supplemental, and Tribal Statistical Areas. These Land Areas include both federally recognized tribal reservation lands, trust lands, and combinations of the two. Although the BIA Tract Viewer is the most comprehensive source for identifying tribal land areas in the U.S., the data are not downloadable, and the BIA does not publish a consolidated data set for research purpose.

As a result, Mathematica replicated the procedures used to create the Tract Viewer prior to performing the geographic analyses required under this study (Exhibit B.2). Specifically, we obtained separate geographic data layers containing the boundaries for each of the land areas described in Exhibit B.1. We then manually edited the files using ESRI's ArcGIS Pro software to construct each ITO boundary. In some cases, an ITO's boundary is based on a single source of information (for instance, the Mississippi Band of Choctaw Indians ITO comprises a single tribal statistical area), and in other cases, data from both Land Area Representation and Tribal Statistical Area or Tribal census tract layers were used to create a custom geography. For ITOs that represent multiple tribes, such as the Inter-Tribal Council of Arizona that comprises more than 20 separate tribes, we also used information published on ITO websites to confirm the set of member tribes, and when possible, we cross-referenced the geographic boundaries developed for this study with those published on ITO websites.

Exhibit B.2. Map of ITO boundaries



Source: BIA and Census Bureau
ITO = Indian Tribal Organization

B. Defining WIC-eligible families in ITOs

As shown in Exhibit B.2., ITOs vary widely in terms of their geographic size and location. Several ITOs, particularly those located in Oklahoma, comprise communities that contain both tribal and non-tribal populations and allow both tribal and non-tribal WIC participants to redeem benefits at authorized retailers located on ITO land. Given that ITOs coincide with States, it is also not uncommon for WIC retailers located within an ITO to be authorized by more than one WIC State agency.⁹ Given this, we define the WIC-eligible population in each ITO using the same definition that is used in other State agencies. Specifically, we use data on census tracts (as opposed to tribal census tracts) from the American Community Survey representing the number of families with incomes below 185 percent of the Federal Poverty Line with children under the age of 5 present in the family. This approach was intentionally broad and encompasses not only tribal communities that may be WIC-eligible within ITOs but also non-tribal communities that may rely on these retailers to access WIC foods. This approach likely somewhat overstates the number of eligible families per WIC retailer in ITOs as non-tribal WIC participants would have access to State authorized WIC retailers that are not included in the ITO analysis.

⁹ In FY 2022, a single WIC retailer located in Oklahoma was authorized by four separate State agencies.

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Appendix C.

Two-Step Floating Catchment Area Analysis

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This appendix presents findings from an exploratory geographic analysis of WIC access that uses a novel Two-Step Floating Catchment Area (2SFCA) analysis to measure relative access to WIC foods. This analysis approach produces a geographic access score that encompasses both supply- and demand-side factors that influence access. Rather than a simple binary measure of convenient access of a census tract, the geographic access score allows for a continuous measure of access: higher scores indicate greater access, and lower scores indicate less access.

The results of this analysis produced a wide range of access scores that were highly skewed, with substantial differences in the magnitude of the results for rural and urban areas (see Exhibit C.1). These outcomes make interpretation difficult. We include them here, however, to showcase how this novel approach to calculating access can be applied.

For future analyses of geographic access to WIC retailers, we would suggest applying lessons learned about the sensitivity of findings to methodological decisions. Methodological improvements could include exploring different distance thresholds in urban and rural areas; restricting analyses to census tracts with larger WIC-eligible populations (so results are not as sensitive to outliers); and analyzing rural and urban areas separately.

In the sections that follow, we describe how the 2SFCA analysis was conducted and present exploratory findings. When possible, we discuss how these findings compare with those presented in the main report.

A. Overview of two-step floating catchment area analysis

To quantify the level of geographic access to authorized retailers within each WIC State agency, we performed an exploratory 2SFCA analysis. This spatial analysis method was initially developed to measure geographic access to primary care facilities (Luo and Wang, 2003), but has subsequently been widely applied to determine geographic access to other types of service providers (see McGrail, 2012; Yang et al., 2006; Dai, 2011), including food retailers (Dai and Wang, 2011; Chen and Jia, 2019; Jabbari et al., 2021). As described in greater detail below, the result of the 2SFCA analysis is an access score assigned to each census tract.

As the name suggests, the 2SFCA analysis is composed of two steps:

Step 1 determines the service catchment area for each retailer after which a retailer-to-population ratio is computed. This retailer-to-population ratio represents the potential service demand for each retailer. To determine each retailer's service catchment, we conducted a network analysis that identified areas within a one-mile driving distance of urban retailers and 10-mile driving distance of rural retailers.¹⁰ We then calculated the retailer-to-population ratio for each retailer by dividing the number of retailers (one retailer) by the total number of WIC-eligible families located within the retailer's service catchment.¹¹ As a result, retailers with

¹⁰ The one-mile and 10-mile distance thresholds were based on the Economic Research Service (ERS) definition of low access for urban and rural areas, respectively (Rhone et al., 2019).

¹¹ The total number of WIC-eligible families located within the retailer's service catchment was defined proportionally. When a retailer's service catchment fully covered a census tract, the total population of WIC-eligible families in that census tract were counted as being within the retailer's service catchment. When only a portion of a census tract was included in the retailer's service catchment, the proportion of tract area located within the service catchment was used to determine the fraction of the tract's WIC-eligible population located within the retailer's service catchment. For instance, if 30 percent of a census tract containing 100 WIC-eligible families was located within a retailer's service catchment, then 30 WIC-eligible families were considered to be located within the retailer's service catchment.

service catchment areas that encompass densely populated areas, such as city centers, will have lower retailer-to-population ratios (values closer to 0) compared to those whose service catchment area covers less densely populated areas.

Step 2 of the analysis computes a geographic access score by allocating the potential service demands to each census tract. We conducted a second network analysis that identified the areas within a one-mile driving distance of the population-weighted centroid of urban census tracts and 10-mile driving distance of rural census tracts. We then identified all the retailers that were located within each census tract's catchment and summed the retailer-to-population ratios associated with those retailers. This sum represents the geographic access to retailers for each census tract and can be interpreted as the ratio of supply and demand of authorized retailers. Higher access scores represent greater access to retailers in comparison to lower scores. An access score of zero indicates no convenient access to retailers.

To account for the fact that participants must redeem their WIC benefits at retailers authorized by the same State agency that issued their benefits, we conducted 2SFCA analysis separately for each State agency. We also repeated this analysis using 2022 SNAP-authorized retailer location information to understand how access to WIC retailers compares to access to SNAP retailers.

Additional spatial data processing was required to implement the analysis for ITOs, since the geographic boundaries for each of these agencies were not publicly available. These procedures included 1) constructing geographic boundaries for each ITO based on a review of tribal census tracts, Indian reservation boundaries, and ITO websites; and 2) determining which census tracts (tribal or non-tribal) to use to represent the WIC-eligible population in these agencies. A detailed description regarding the procedures used to perform the ITO spatial analysis is provided in Appendix B.

B. Caveats to analysis

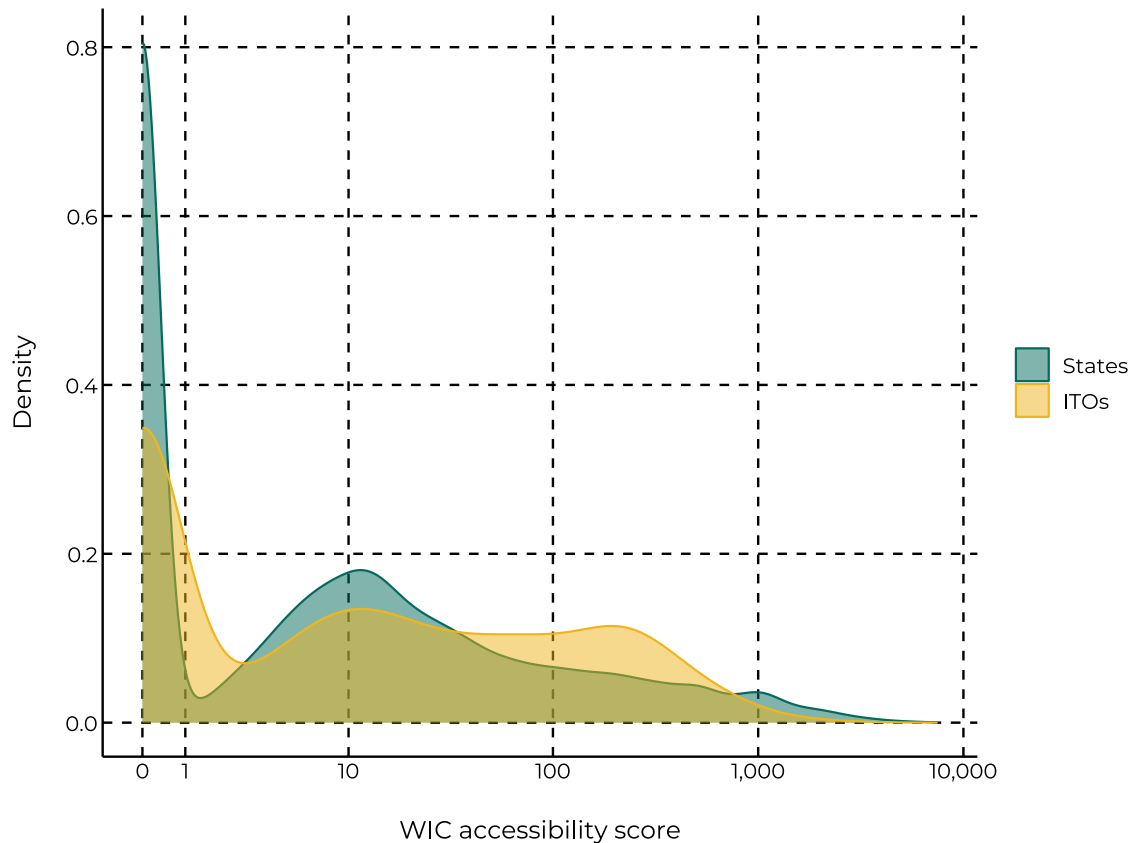
Although this access score offers an easy-to-interpret metric for comparing variation in access to retailers across census tracts both within and across State WIC agencies, the 2SFCA analysis has not previously been used to quantify access across more than one State. As such, the findings from this analysis represent the first time that this method has been applied in large-scale data analysis comprising a diversity of geographic contexts. As with the access findings reported in the main report, it was not possible to conduct the 2SFCA analysis for a small number of retailers that were located far from the road network. In addition, we could not calculate a retailer-to-population ratio for every retailer in the analysis data set, because some retailer service catchment areas did not intersect with a census tract containing WIC-eligible populations. These retailers represented less than 3 percent of all retailers and were assigned an undefined retailer-to-population ratio and were subsequently excluded from the access score calculations.

C. Findings

Geographic access scores varied considerably across census tracts. As shown in Exhibit C.1., access scores were highly skewed and bimodal in distribution. Among the 50 States and DC, there was a large proportion of census tracts with no access to WIC (access scores equaled to 0) and a smaller but still pronounced group of census tracts with scores between 5 and 100. However, there was a small proportion (about 5 percent) of census tracts with very large access scores exceeding 500, indicating

places with very high access to WIC. A similar distribution of access scores was also observed among census tracts located in ITOs and Puerto Rico.

Exhibit C.1. Distribution of WIC access scores



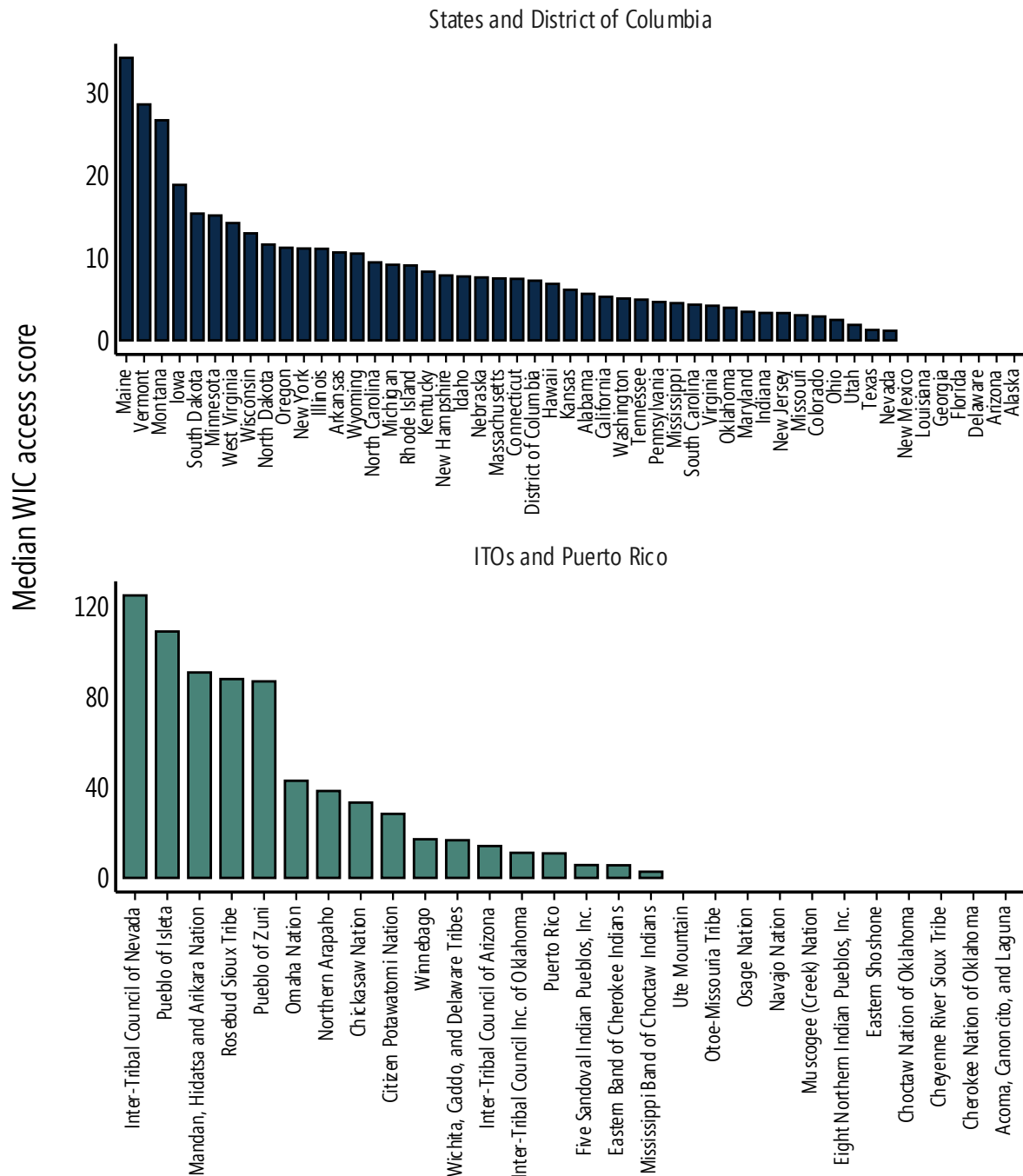
Source: FDP (2022 data), ERS Food Atlas, and 2015-2019 ACS 5-Year Estimates

Note: States include the 50 States and Washington DC ITOs include the 31 ITOs that use a retail food delivery distribution system and Puerto Rico. Accessibility scores of 0 indicate no WIC retailers within 1-mile of urban census tracts or within 10-miles of rural census tracts. Higher values indicate greater geographic accessibility.

ITO = Indian Tribal Organization

As shown in Exhibit C.2., States with higher proportions of rural areas tended to have higher levels of access. For instance, Maine, Vermont, and Montana had the highest median access scores across State agencies. Both overall and within each State agency, median access scores were substantially higher for rural census tracts than urban census tracts (Exhibit C.3). This finding is likely driven by a few methodological factors, including the definition of convenient access (which was 10 times larger in rural places than urban places) and the definition of rural which includes many suburban and exurban communities located nearby population-dense urban areas.

Exhibit C.2. Median WIC access score

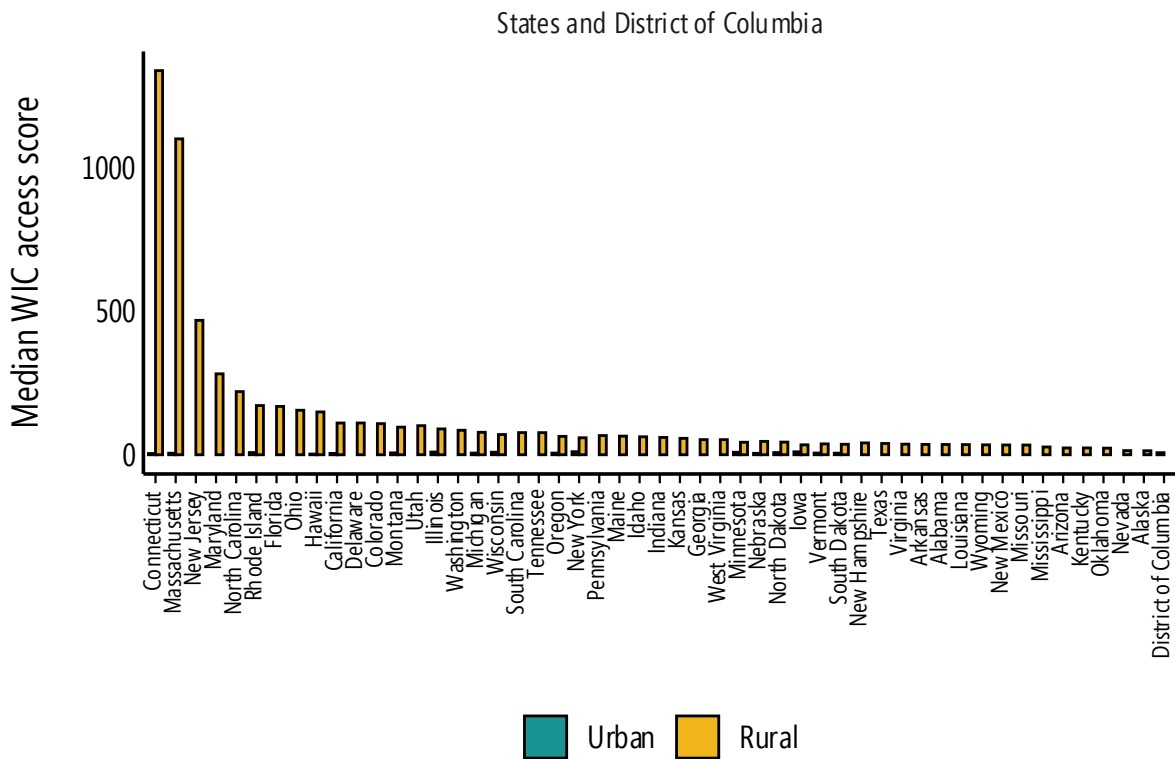


Source: FDP (2022 data), ERS Food Atlas, and 2015–2019 ACS 5-Year Estimates.

Note: Accessibility scores of 0 indicate no WIC retailers within 1-mile of urban census tracts with WIC-eligible population or within 10-miles of rural census tracts with WIC-eligible population. Higher values indicate greater geographic accessibility. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization

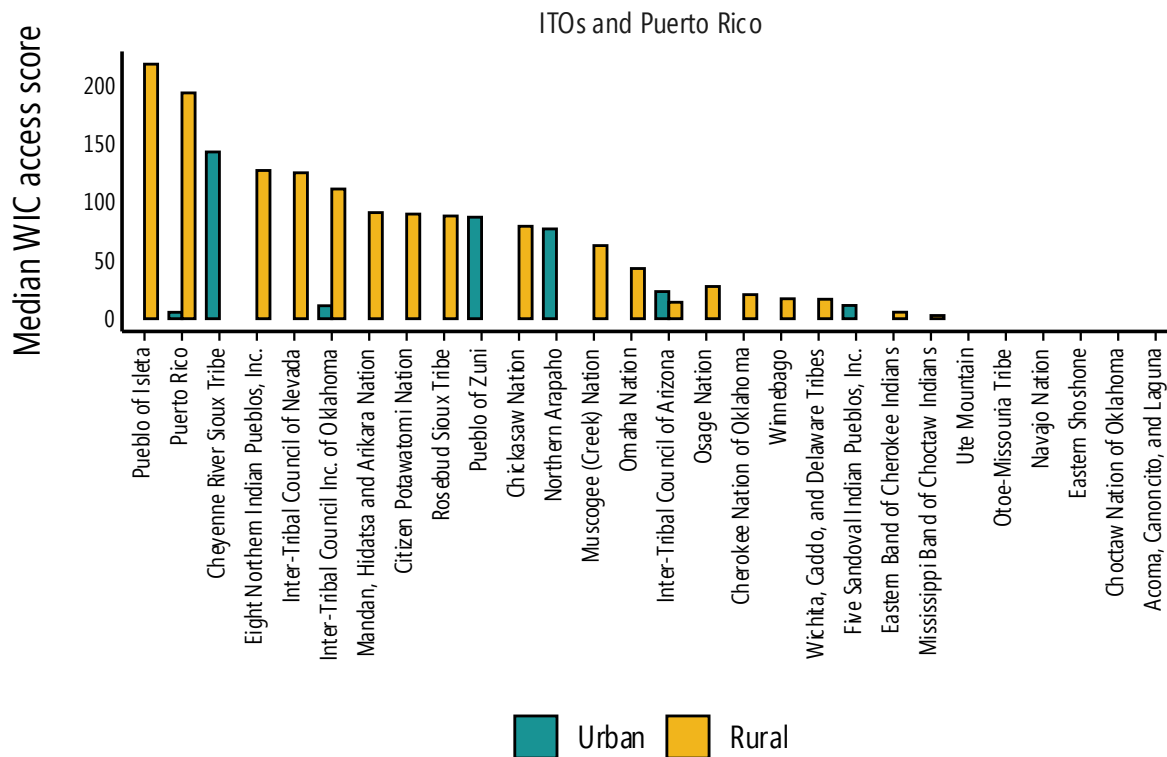
Exhibit C.3. Median WIC access score by urbanicity, States and DC



Source: FDP (2022 data), ERS Food Atlas, 2015–2019 ACS 5-Year Estimates, and USDA RUCA data

Note: Accessibility scores of 0 indicate no WIC retailers within 1-mile of urban census tracts with WIC-eligible population or within 10-miles of rural census tracts with WIC-eligible population. Higher values indicate greater geographic accessibility. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

Exhibit C.4. Median WIC access score by urbanicity, ITOs and Puerto Rico



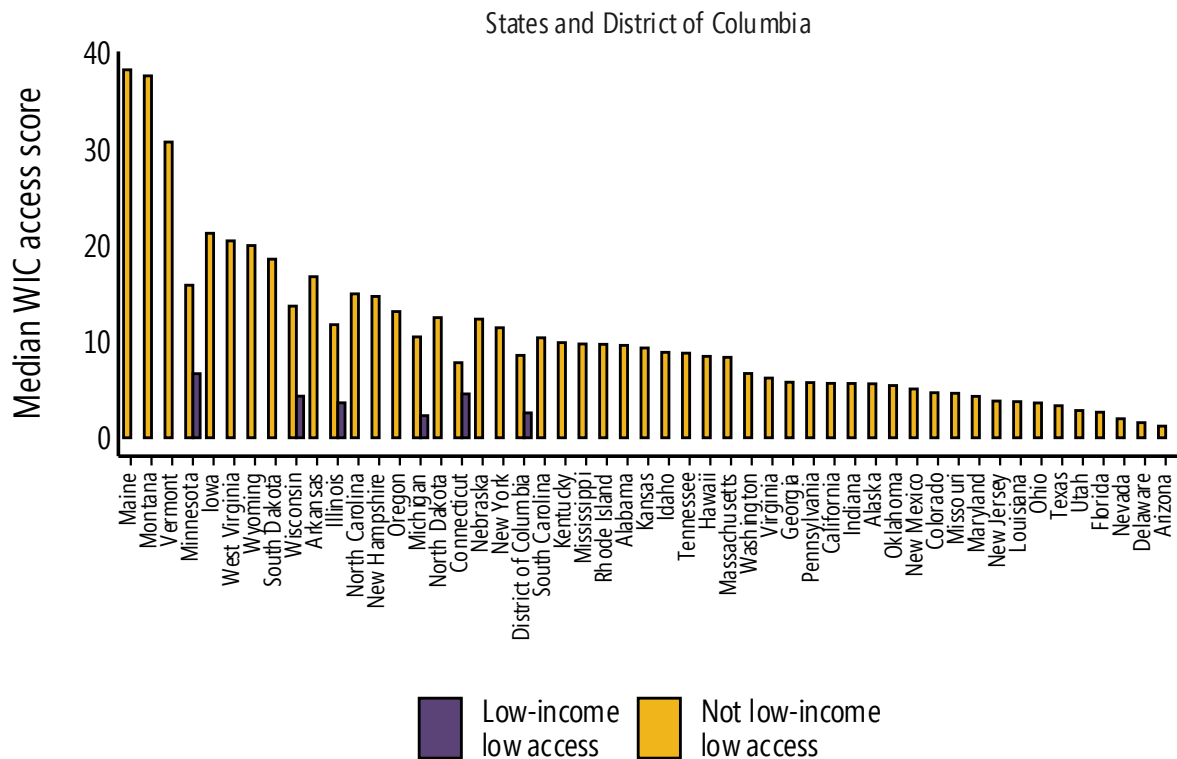
Source: FDP (2022 data), ERS Food Atlas, 2015–2019 ACS 5-Year Estimates, and USDA RUCA data.

Note: Accessibility scores of 0 indicate no WIC retailers within 1-mile of urban census tracts with WIC-eligible population or within 10-miles of rural census tracts with WIC-eligible population. Higher values indicate greater geographic accessibility. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization

Consistent with findings from the main report, we observe substantially lower geographic access in low-income and low-access (LILA) census tracts versus those that are not LILA. Similarly, overall and within each State agency, census tracts with higher social vulnerability tended to have lower access than those with low social vulnerability. Additional findings are presented in the exhibits that follow.

Exhibit C.5. Median WIC access score by LILA status, States and DC

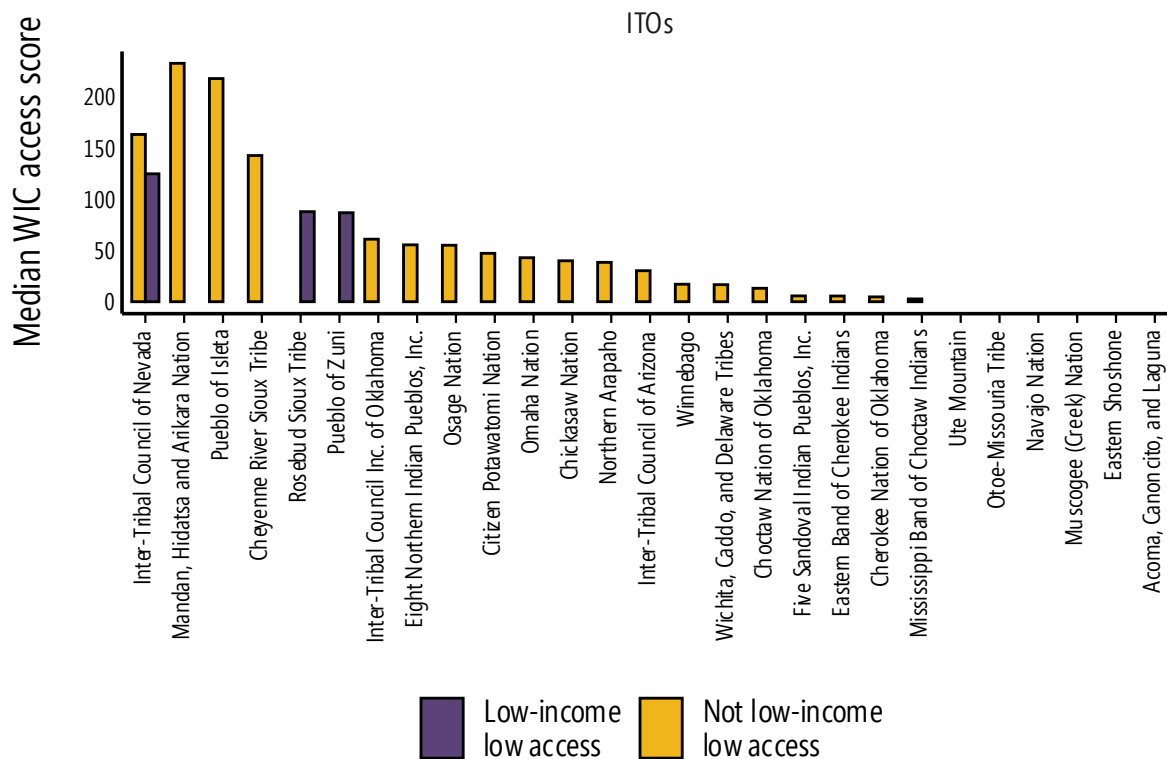


Source: FDP (2022 data), ERS Food Atlas, and 2015–2019 ACS 5-Year Estimates.

Note: Accessibility scores of 0 indicate no WIC retailers within 1-mile of urban census tracts with WIC-eligible population or within 10-miles of rural census tracts with WIC-eligible population. Higher values indicate greater geographic accessibility. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

LILA = low-income, low-access

Exhibit C.6. Median WIC access score by LILA status, ITOs

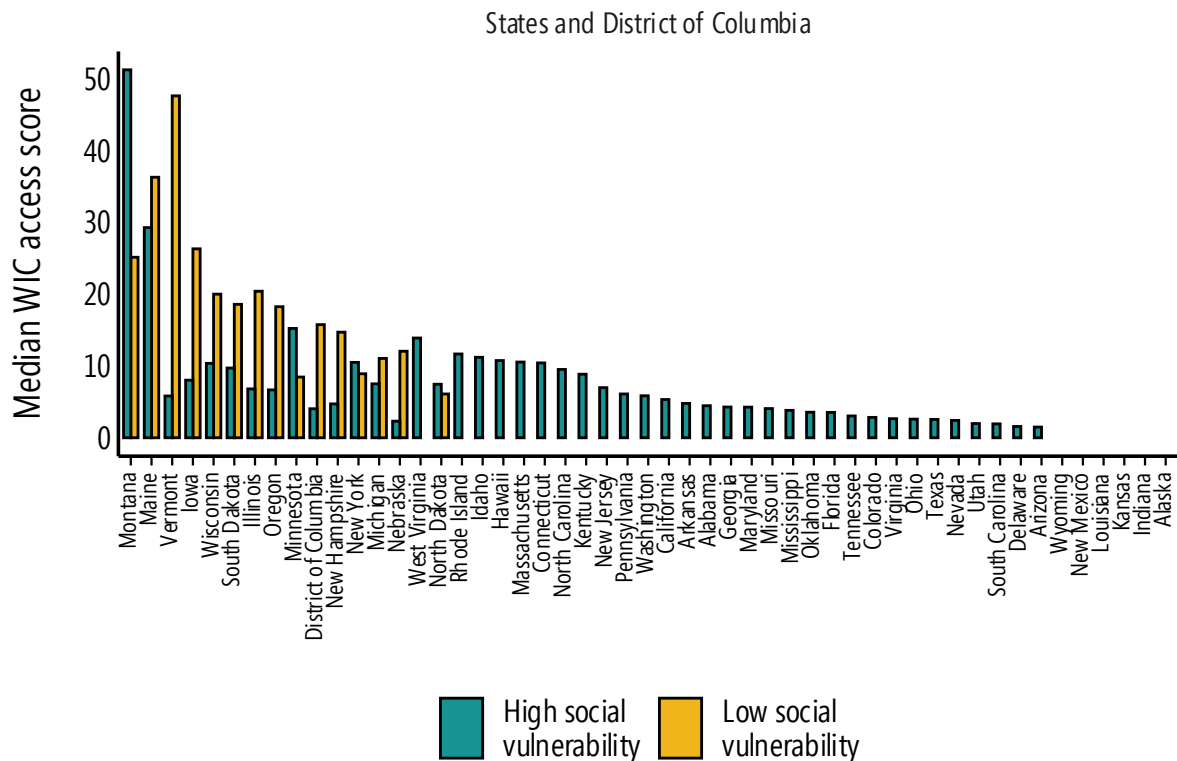


Source: FDP (2022 data), ERS Food Atlas, and 2015–2019 ACS 5-Year Estimates.

Note: Accessibility scores of 0 indicate no WIC retailers within 1-mile of urban census tracts with WIC-eligible population or within 10-miles of rural census tracts with WIC-eligible population. Higher values indicate greater geographic accessibility. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization; LILA = low-income, low-access

Exhibit C.7. Median WIC access score by SVI status, States and DC

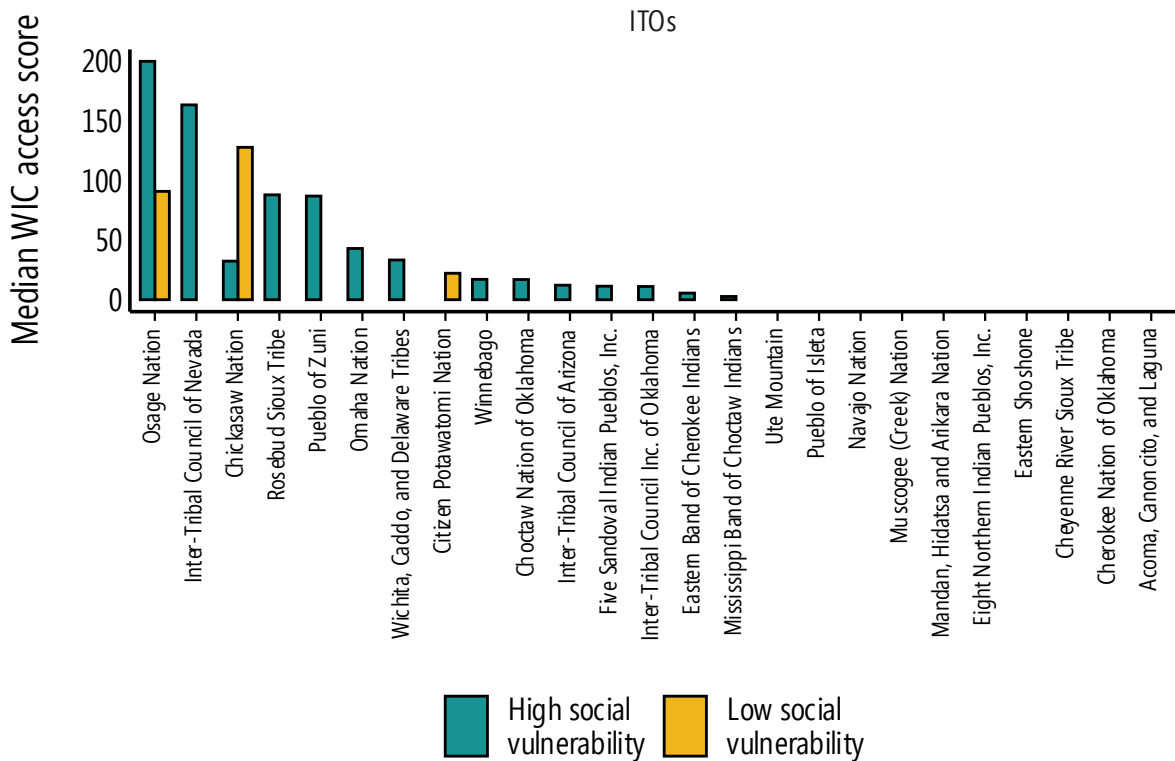


Source: FDP (2022 data), ERS Food Atlas, 2015-2019 ACS 5-Year Estimates, and CDC SVI.

Note: Accessibility scores of 0 indicate no WIC retailers within 1-mile of urban census tracts with WIC-eligible population or within 10-miles of rural census tracts with WIC-eligible population. Higher values indicate greater geographic accessibility. Social vulnerability scores are categorized as low, low-medium, medium-high, and high. Only low and high are shown. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

SVI = Social Vulnerability Index

Exhibit C.8. Median WIC access score by SVI status, ITOs

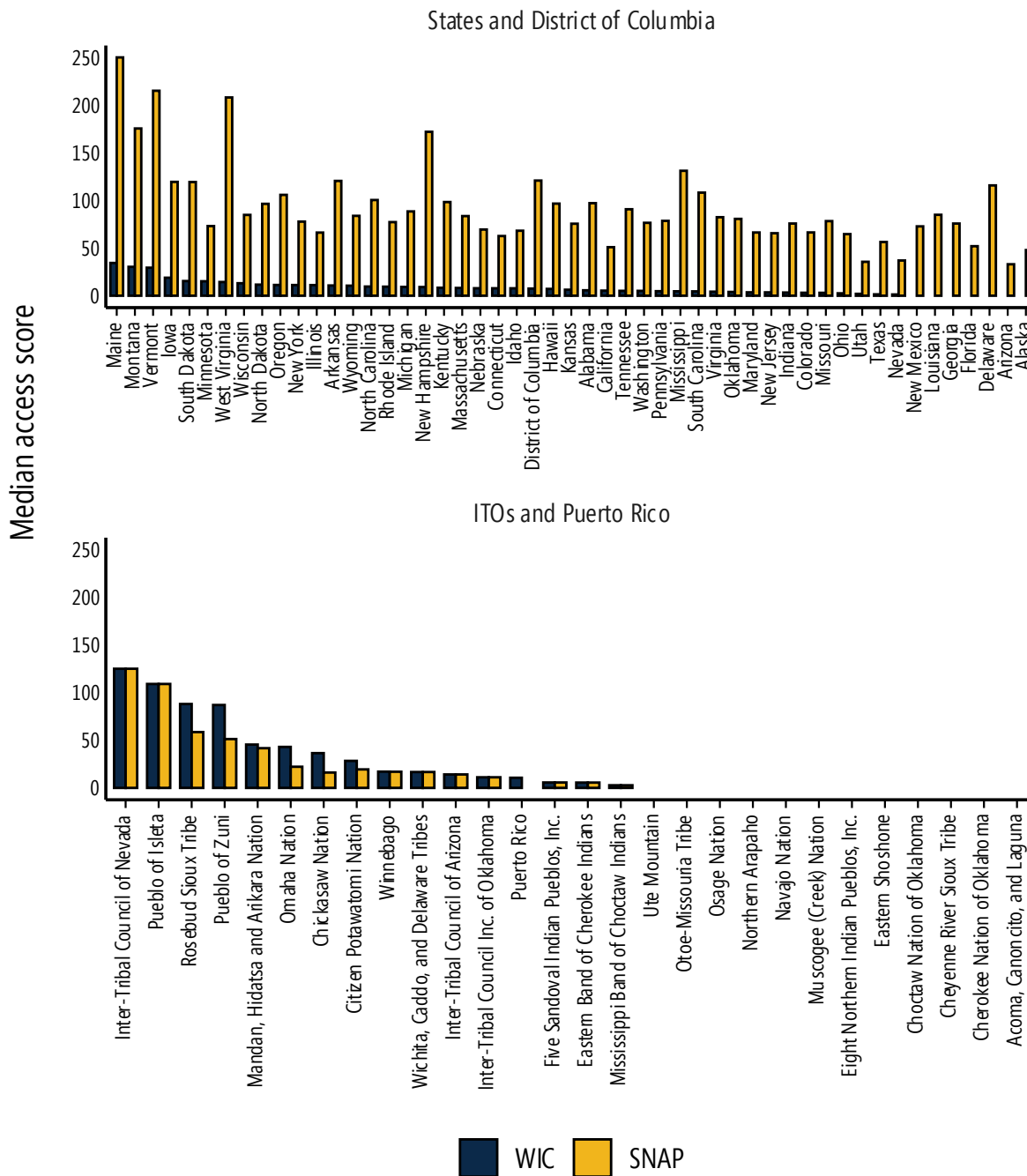


Source: FDP (2022 data), ERS Food Atlas, 2015-2019 ACS 5-Year Estimates, and CDC SVI.

Note: Accessibility scores of 0 indicate no WIC retailers within 1-mile of urban census tracts with WIC-eligible population or within 10-miles of rural census tracts with WIC-eligible population. Higher values indicate greater geographic accessibility. Social vulnerability scores are categorized as low, low-medium, medium-high, and high. Only low and high are shown. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization; SVI = Social Vulnerability Index

Exhibit C.9. Median geographic access score by State agency, by program type



Source: FDP (2022 data), STARS, and 2015-2019 ACS 5-Year Estimates.

Note: Accessibility scores of 0 indicate no WIC retailers within 1-mile of urban census tracts with WIC-eligible population or within 10-miles of rural census tracts with WIC-eligible population. Higher values indicate greater geographic accessibility. The SNAP accessibility scores are for WIC-eligible participants' access to SNAP retailers. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization

Exhibit C.10. Average geographic access of WIC retailers by State agency's use of limiting criteria among States and DC

Limiting criterion	Geographic access	Number of State agencies
Any limiting criteria		
Yes	5.5	16
No	8.7	35
Vendor participation ratio		
Yes	2.6	9
No	8.8	42
Vendor/geographic area (e.g., number per mile or Zip code)		
Yes	3.5	6
No	8.3	45
Vendor/local service area or county ratio		
Yes	2.0	2
No	7.9	49
Vendor/local agency or clinic ratio		
Yes	N/A	0
No	7.7	51
Vendor or State agency staff ratio		
Yes	N/A	0
No	7.7	51
Statewide cap on number of retailers		
Yes	N/A	0
No	7.7	51
Other		
Yes	8.0	8
No	7.6	43

Source: FDP (2022 data), FY 2022 State Plan, and 2015-2019 ACS 5-Year Estimates

Note: Accessibility scores of 0 indicate no WIC retailers within 1-mile of urban census tracts with WIC-eligible population or within 10-miles of rural census tracts with WIC-eligible population. Higher values indicate greater geographic accessibility. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

N/A = not applicable

Exhibit C.11. Average geographic access of WIC-authorized retailers by State agency's use of limiting criteria among ITOs and Puerto Rico

Limiting criterion	Geographic access	Number of State agencies
Any limiting criteria		
Yes	27.6	14
No	24.3	15
Vendor participation ratio		
Yes	38.3	9
No	20.1	20
Vendor/geographic area (e.g., number per mile or Zip code)		
Yes	28.8	8
No	24.8	21
Vendor/local service area or county ratio		
Yes	0.0	1
No	26.9	28
Vendor/local agency or clinic ratio		
Yes	N/A	0
No	26.0	29
Vendor or State agency staff ratio		
Yes	90.9	1
No	23.6	28
Statewide cap on number of retailers		
Yes	N/A	0
No	26.0	29
Other		
Yes	9.8	6
No	30.4	23

Source: FDP (2022 data), FY 2022 State Plan, and 2015-2019 ACS 5-Year Estimates

Note: Accessibility scores of 0 indicate no WIC retailers within 1-mile of urban census tracts with WIC-eligible population or within 10-miles of rural census tracts with WIC-eligible population. Higher values indicate greater geographic accessibility. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization; N/A = not applicable

Exhibit C.12. Average geographic access of WIC retailers by State agency's use of optional selection criteria among States and DC

Optional selection criterion	Geographic access	Number of State agencies
Any optional selection criteria		
Yes	7.7	51
No	N/A	0
Redemption of a minimum number/volume of food instruments and CVVs/CVBs		
Yes	7.6	20
No	7.8	31
Proof of authorization as a SNAP retailer		
Yes	7.6	44
No	8.0	7
Hours of operation that meet State agency criteria		
Yes	7.2	42
No	10.0	9
Requirements to stock a full range of foods in addition to WIC supplemental foods		
Yes	8.2	37
No	6.4	14
Lack of previous WIC sanctions		
Yes	7.8	27
No	7.6	24
Certification by an approved State or local health department		
Yes	6.9	32
No	9.0	19
Satisfactory compliance with previous retailer agreement		
Yes	6.2	35
No	11.0	16
A location necessary to ensure adequate participant access		
Yes	6.6	31
No	9.4	20
Other		
Yes	7.1	32
No	8.7	19

Source: FDP (2022 data), FY 2022 State Plan, and 2015-2019 ACS 5-Year Estimates

Note: Accessibility scores of 0 indicate no WIC retailers within 1-mile of urban census tracts with WIC-eligible population or within 10-miles of rural census tracts with WIC-eligible population. Higher values indicate greater geographic accessibility. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

N/A = not applicable

Exhibit C.13. Average geographic access of WIC-authorized retailers by State agency's use of optional selection criteria among ITOs and Puerto Rico

Optional selection criterion	Geographic access	Number of State agencies
Any optional selection criteria		
Yes	26.0	29
No	N/A	0
Redemption of a minimum number/volume of food instruments and CVVs/CVBs		
Yes	27.5	11
No	25.0	18
Proof of authorization as a SNAP retailer		
Yes	22.2	15
No	29.7	14
Hours of operation that meet State agency criteria		
Yes	26.3	20
No	25.2	9
Requirements to stock a full range of foods in addition to WIC supplemental foods		
Yes	29.8	19
No	19.1	10
Lack of previous WIC sanctions		
Yes	45.7	12
No	11.1	17
Certification by an approved State or local health department		
Yes	20.2	10
No	29.2	19
Satisfactory compliance with previous retailer agreement		
Yes	29.8	18
No	19.0	11
A location necessary to ensure adequate participant access		
Yes	23.4	22
No	35.4	7
Other		
Yes	39.8	7
No	21.3	22

Source: FDP (2022 data), FY 2022 State Plan, and 2015-2019 ACS 5-Year Estimates

Note: Accessibility scores of 0 indicate no WIC retailers within 1-mile of urban census tracts with WIC-eligible population or within 10-miles of rural census tracts with WIC-eligible population. Higher values indicate greater geographic accessibility. Analyses include the entire population of authorized retailers. Therefore, any differences observed between categories reflect true differences and are not influenced by sampling variability.

ITO = Indian Tribal Organization; N/A = not applicable

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