Online purchasing may expand access to fresh produce for Supplemental Nutrition Assistance Program (SNAP) participants, however, accessibility factors such as broadband connection must be considered. SNAP launched online purchasing through select retailers in 2019; Virginia currently has 17 authorized retailer sites. The objective of this study was to determine overlap of broadband connection and pickup sites for fresh produce ordered online with SNAP benefits within Virginia to identify potentially underserved areas. QGIS software was used to create a map overlapping broadband connection and pickup locations. OF 749 retail locations, 605 locations offer pickup for online fresh produce purchases. Of 744 retail locations, 605 locations offer pickup for online fresh produce purchases. As of January 2023, 144 locations accept online SNAP purchases but do not offer pickup. Pickup locations for produce purchased online with SNAP were concentrated in Virginia’s metro areas. Rural areas had fewer pickup locations and less broadband connection. Non-metro areas are underserved by availability of online SNAP purchases and pickup locations. Expanded broadband connection may encourage retailers to increase coverage of their online systems into currently underserved areas. Residents have implications for digital infrastructure and nutrition policies. Future research should explore delivery coverage of online SNAP purchases and the feasibility of offering produce incentive programs online.

Introduction

Supplemental Nutrition Assistance Program (SNAP)

- SNAP is the largest federally funded food assistance program in the United States (U.S.), providing benefits to individuals earning an income at or below 130% of the federal poverty limit (Center on Budget and Policy Priorities, 2022b).
- In fiscal year 2021, 757,600 Virginia residents participated in SNAP (Center on Budget and Policy Priorities, 2022a).
- Households with children, seniors, and rural households are overrepresented in SNAP participants.
- Access to food retailers with nutrition-promoting environments is often not equitable for households and communities with low income and this limited food access can influence health outcomes and food security (Johnson et al., 2009).

SNAP Online Purchasing Pilot (SNOP OPP)

- The 2014 Farm Bill mandated that the United States Department of Agriculture (USDA) implement a pilot test of online grocery purchasing with SNAP benefits (United States Department of Agriculture, 2022a).
- In 2019-2020, the Online Purchasing Pilot (OPP) launched in six states. The OPP expanded to 49 states by the end of 2020 as a response to the Covid-19 pandemic (Jones, 2021; United States Department of Agriculture, 2022a).
- As of November 2022, there are 17 authorized retailer systems for online SNAP purchases in Virginia (United States Department of Agriculture, 2022a).

Resource Disparities

- Broadband connection is a social determinant of health (Siek et al., 2021) and there are disparities in connectivity for rural communities, seniors, and ethnic minority populations, and households with lower income (Federal Communications Commission, 2022).
- Broadband connection has important implications for equitable access to food system resources. SNAP participants experience disproportionately poor access to nutritious foods (Christensen & Bronchetti, 2020; Racine et al., 2017; Sathie et al., 2022).

Objective

The objective was to determine overlap of broadband connection and pickup sites for fresh produce ordered online with SNAP benefits within Virginia to identify potentially underserved areas. An exploration of this relationship is warranted to build an understanding of the availability of online grocery purchasing for SNAP participants so that future research and policies can be designed to improve digital and nutrition equity.

Methods

Step 1: Create a list of SNAP-authorized food retailers with online purchasing platforms in Virginia

A nationwide dataset of SNAP-authorized retailers, current to January 4, 2023, was downloaded from the United States Department of Agriculture Food and Nutrition Service (USDA FNS). Retailers located in Virginia with authorization to accept online SNAP payments were filtered into a smaller dataset.

Step 2: Code individual retail locations for availability of curbside pickup of fresh produce

Curbside pickup availability was determined by hand-searching the retailer website to determine the specific stores that offer curbside pickup. Retailer websites were searched by zip code and filters to determine pickup availability. Pickup availability was coded as 1-pickup available and 0-pickup not available. Retailer whose primary function is a grocery store (Aldi, BJs, Earth Fare, Food City, Food Lion, Giant, Martins, Safeway, Sam’s Club, Sprouts Farmers Market, Wegmans, Weis, and Whole Foods) were coded as 1-pickup available if the store listed pickup available on the website for that location. Walmart locations were verified to have fresh produce available for pickup by selecting location to the specific store, then browsing the fresh produce page and ensuring that at least one item was available for online ordered pickup. Several Target stores were deleted from the dataset because “fresh grocery” was not listed under available store services. Some address discrepancies between the FNS dataset and store websites were found and the store location was determined by matching the latitude and longitude provided by the FNS to the store location given on the website. Coding was performed January 11-17, 2023.

Step 3: Obtain broadband connection data for Virginia

The dataset used for broadband connection was collected by the Virginia Department of Housing and Community Development Office of Broadband in December 2021 and is publicly available on the Virginia Open Data Portal. Connectivity data used in this analysis is any type of broadband infrastructure (cable, DSL, fiber, and fixed wireless) with 100 Mbps download and 20 Mbps upload. The shapefile of any broadband connection infrastructure, with at least 100 mbps download and 20 mbps upload by census block was used to generate the map shown in Figure 1.

Step 4: Use the QGIS program to create a map of broadband connection rates and pickup locations for online SNAP purchases of fresh produce in Virginia

Dark blue shading represents census blocks with higher levels of broadband connection and light blue shading represents census blocks with lower levels of broadband connection. Red square pins were used to represent stores that accept online SNAP payments but do not offer pickup. Green circular pins were used to represent stores that accept online SNAP payment and do offer pickup.

Results

- Broadband shading is per census block, dark blue areas indicate more broadband connection and light blue areas indicate less broadband connection.
- Green circular pins are retailer locations that accept online SNAP purchases and offer pickup.
- Red square pins are retailer locations that accept online SNAP purchases but do not offer pickup.

Conclusions

- Non-metro areas are underserved by availability of online SNAP purchases and pickup locations.
- Expanded broadband connection may encourage retailers to increase coverage of their online systems into currently underserved areas.
- Future research should explore delivery coverage of online SNAP purchases and the feasibility of offering purchase incentive programs online.

This study can help to identify high-needs areas and serve as a roadmap for future studies focused on needs within specific communities, including the accessibility of online purchasing platforms for SNAP participants.

References


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Key

- Broadband shading is per census block, dark blue areas indicate more broadband connection and light blue areas indicate less broadband connection.
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Results

- Broadband shading is per census block, dark blue areas indicate more broadband connection and light blue areas indicate less broadband connection.
- Green circular pins are retailer locations that accept online SNAP purchases and offer pickup.
- Red square pins are retailer locations that accept online SNAP purchases but do not offer pickup.
- Availability of pickup locations was concentrated in Virginia’s metro areas.
- Rural areas had fewer pickup locations and overall lower broadband connection.

Conclusions

- Non-metro areas are underserved by availability of online SNAP purchases and pickup locations.
- Expanded broadband connection may encourage retailers to increase coverage of their online systems into currently underserved areas.
- Future research should explore delivery coverage of online SNAP purchases and the feasibility of offering purchase incentive programs online.

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