Food Access in the Age of Online Grocery: An Evaluation of Current Retail Trends and Their Potential to Alleviate Food Deserts in the U.S.

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ABSTRACT

Online grocery shopping is growing rapidly and has been heralded as a potential solution to food insecurity. Supermarkets are increasing their online presence, and some have joined the United States Department of Agriculture's (USDA) pilot program aimed at increasing online grocery access among Supplemental Nutrition Assistance Program (SNAP) participants. Although both the growth of the online grocery industry and the launch of the USDA pilot program are steps in the right direction for greater food access, it is worth asking how these initiatives will address food access among low-income consumers. This paper aims to answer the following questions: does online grocery shopping reduce or eliminate food access barriers for low-income consumers? Does it introduce new barriers? Does online grocery shopping have the potential to reshape the definition of a food desert? Using Hilary Shaw's (2006) categorization of food access barriers—ability, asset, attitude—as a framework, online grocery shopping motivations were reviewed, and a case study on current practices at Kroger, Wal-Mart, and Amazon Fresh was conducted. The results suggested that none of the retailers' current practices significantly reduce the barriers that low-income consumers are likely to experience when trying to shop online. Although the online channel eliminates the physical barrier of having to carry groceries, it in turn introduces new barriers, such as sensory risk aversion to buying perishables online, the necessity of possessing relevant technological skills, and having access to a computer. This paper proposes a new term, "digital food desert," to define (1) a community without access to online grocery due to infrastructure constraints, or (2) a community with access to online grocery, but whose market manifests the conditions of a physical food desert online.

KEYWORDS: online grocery, food access, categorization, barriers

INTRODUCTION

Online grocery shopping is growing in popularity and could have major implications for food access among low-income consumers. The trend of purchasing groceries online and having them delivered, as opposed to going to a brick-and-mortar store to shop, was formerly considered to be "the Bermuda Triangle of e-commerce—a place where investment dollars go but never return" (Kang, Moon, Kim, & Choe, 2016, p. 3604). This perception is beginning to change. Although currently 75% of online shoppers rarely or never buy online groceries (Baertlein & Kahn, 2017), there is an expected 14% annual global increase in the adoption of online shopping (Anesbury, Nenycz-Thiel, Dawes, & Kennedy, 2016). The industry is expected to grow to 20% of all grocery spending in the U.S. by 2025 (Nielson, 2017).

Amazon propelled online grocery shopping into the spotlight with its high-profile acquisition of Whole Foods for \$13.7 billion in 2017, which many heralded as the solution to providing fresh groceries for all. Aside from the merger, Amazon, as well as six other food retailers, have been selected by the United States Department of Agriculture (USDA) for a pilot program, which enables the retailers to accept Supplemental Nutrition Assistance Program (SNAP) benefits for online grocery purchasing. This two-year program was mandated by the 2014 Farm Bill to test the feasibility of online ordering and payment using SNAP benefits and was in its preliminary stages as of December 2017 (U.S. Department of Agriculture, 2017a).

According to former USDA Secretary Tom Vilsack, "Online purchasing is a potential lifeline for SNAP participants living in urban neighborhoods and rural communities where access to healthy food choices can be limited" (U.S. Department of Agriculture, 2017b). Jack Karsten and Darrell West of the Brookings Institution agree, suggesting that using SNAP for online grocery shopping "eliminates the cost of building new supermarkets, circumvents the issue of low population density in rural areas, and provides users, especially the elderly and disabled, with the agency to feed themselves and their families with the nutritious foods they enjoy" (2017).

Although the growth of the online grocery industry and the launch of the USDA pilot program are steps in the right direction for greater food access, it is worth asking how these initiatives will address food access specifically among low-income consumers. This paper aims to answer the following questions: Does online grocery shopping reduce or eliminate food access barriers for low-income consumers? Does it introduce new barriers? Does online grocery shopping have the potential to reshape the definition of a food desert?

METHODOLOGY

To answer these questions, we used Hilary Shaw's categorization of food access barriers—ability, asset, attitude—as a framework for comparing barriers found in brick-and-mortar shopping and online shopping (Shaw, 2006). We reviewed literature discussing motivations and trends among online grocery shoppers to determine whether this channel reduces or exacerbates the food access barriers present for physical grocery stores. Lastly, a comparison of online grocery shopping at Kroger, Wal-Mart, and Amazon Fresh was conducted to evaluate the current feasibility of online shopping for a SNAP recipient. The additional fees charged by the three food retailers for delivery, pickup, and minimum purchase requirements were analyzed. It was then determined whether the stores accept Electronic Benefits Transfer (EBT) card transactions. Lastly, the delivery options and pickup options available from each retailer were researched.

LITERATURE REVIEW OF ONLINE GROCERY TRENDS

The USDA defines a food desert as "an area with limited access to affordable and nutritious food, particularly such an area composed of predominately lower income neighborhoods and communities" (2009). Food deserts are characterized by their lack of supermarkets; low-income zip codes have twenty-five percent fewer chain supermarkets than middle-income areas and half as many as high-income areas (Treuhaft & Karpyn, 2010). The lack of accessible supermarkets causes low-income people to shop for groceries at nearby liquor and convenience stores where prices are disproportionately high, fresh produce is rarely available, and the majority of options are unhealthy, processed food (McClintock, 2011). Given that shopping for food online seemingly eliminates the problem of supermarket proximity, online grocery shopping could have the potential to offer more healthy choices to consumers (de Kervenoael, Elms, & Hallsworth, 2014, p. 157).

There are several food access barriers that contribute to food deserts. These barriers can be categorized into a consumer's ability, assets, and attitude. "Ability" encompasses the physical ability of a consumer to travel, carry, and handle food containers. "Asset" barriers are limitations that can include a lack of money for transportation to physical stores or lack of money to pay delivery fees for online shopping. They can also include a lack of time to shop. Lastly, an "attitude" barrier refers to a consumer's reluctance to access nutritious food due to cultural, safety, or familial constraints, regardless of that consumer's physical ability or monetary assets (Shaw, 2006). Using Shaw's categorization, the potential for online grocery shopping to reduce or exacerbate food access barriers will be evaluated.

Online grocery shopping and delivery allows a consumer to shop from home, thus eliminating the "ability" barrier of carrying and handling food containers (Shaw, 2006). The physical costs of item picking and basket carrying are factors that encourage consumers to adopt online shopping (Chintagunta, Chu, & Cebollada, 2012). Even if consumers are multi-channel shoppers—they shop both online and offline—they tend to buy bulky items online (Campo & Breugelmans, 2015). Online grocery shopping has the potential to eliminate the transportation ability barrier if at-home delivery is guaranteed; however, many delivery options still require consumers to pick up their purchase at the physical store location.

Shopping online does not reduce the "asset" barriers of money or time. It introduces additional barriers, such as access to a computer or internet-enabled device, technological skills, payment constraints, and delivery requirements (Shaw, 2006; Van Droogenbroeck & Van Hove, 2017). Additionally, online shopping does not significantly reduce the food access barrier of monetary assets. Consumers choose to shop offline to avoid delivery charges and receive in-store price promotions; however, these costs must be weighed against the cost of transportation to get to the store (Chintagunta et al., 2012).

Most online retailers require that payment be made with a credit or debit card, which is a constraint that does not exist in most brick-and-mortar stores. Additionally, the costs of the groceries themselves could increase because, "online retailing allows virtually unlimited variety, and variety provision can enhance retail market power, raising retail prices and margins" (Richards, Hamilton, & Allender, 2016, p. 279).

The assets required to receive groceries once they have been ordered online depends on the delivery options available from the retailers. Some stores offer at-home delivery, which would require the consumer to have a permanent address secure enough for their purchases to be left there unattended. The other primary option is to order online and pick up in-store: however, this would require the same assets as traditional offline shopping.

Consumers want to shop efficiently and spend as little time as possible buying "low-involvement" items, such as groceries (Van Droogenbroeck & Van Hove, 2017). The convenience factor encourages consumers to adopt online grocery shopping when they have more items to buy (Chintagunta et al., 2012). However, convenience in relation to saving time is not a significant factor in encouraging online shopping (Kang et al., 2016). In fact, consumers exert the same amount of effort and spend the same amount of time making selections online as they do offline (Anesbury et al., 2016). Although online shopping does not seem to save shopping time, it would still reduce the barrier of travel time experienced by people who must travel outside of their food desert area in order to shop at a supermarket.

Shopping for food online adds a new "attitude" barrier to food access: consumers do not trust online channels when buying fresh produce since they do not have the same sensory input they would have in a physical store (Chintagunta et al., 2012; Van Droogenbroeck & Van Hove, 2017). Sixty-five percent of consumers are less likely to buy sensory purchases online due to this higher perceived risk (Campo & Breugelmans, 2015). This added barrier is significant in the context of food deserts because access to fresh food is important in ensuring low-income people can eat healthy food. If risk-averse consumers influence what types of products online retailers will sell, the availability of fresh produce for purchase online may decline as a result. The USDA should consider sensory risk aversion when rolling out new programs aimed at increasing online grocery shopping among low-income consumers.

Social influence reduces some "attitude" barriers and creates others. Some consumers choose to shop online to enhance their social status (Sreeram, Kesharwani, & Desai, 2017). The more socially connected a person is, the more likely they are to buy online (Naseri & Elliott, 2011). However, the loss of social interaction with other shoppers is an inhibiting factor for adopting online grocery shopping in the first place (Van Droogenbroeck & Van Hove, 2017). This also means that the less connected a consumer is, the less likely they are to hear about online shopping (Naseri & Elliott, 2011).

RESULTS

According to a case study comparison of the online grocery services available through Kroger, Wal-Mart, and Amazon Fresh (Table 1), none of the retailers' current practices significantly reduce the food access barriers that low-income consumers are likely to experience when trying to shop online. Shopping online at Kroger.com presents several potential barriers to consumers: monetary assets (delivery and pickup fees), access to transportation (pickup), and time assets (to be available during a one-hour delivery timeslot). Unlike Wal-Mart and Amazon, Kroger is not participating in the USDA's pilot program, which allows SNAP recipients to order groceries online using their EBT card. Kroger spokesman Keith Dailey addressed the topic of accepting EBT online and said the company is "watching the conversation closely." Despite this, there are no plans to accept EBT in the future (Premack, 2016).

As part of the USDA pilot program, Wal-Mart has started a "click-and-collect" program at five locations that allows SNAP recipients to order online and then pick up their items at the store (Turner, 2017). Although "click-and-collect" does give SNAP

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recipients greater online access, they are still limited by the same barriers as shopping at Kroger: monetary assets (delivery fee and minimum \$30 purchase fees), access to transportation (pickup), and time assets (to be available during reserved pickup timeslot).

Amazon Fresh is also participating in the USDA program and will accept EBT payments for online orders in select locations. Amazon provides more delivery options, which could reduce the time and transportation access barriers. However, there are a number of barriers that make Amazon Fresh an exclusionary service: it is only available to Amazon Prime members, and there is a \$9.99 delivery fee for orders under \$50, which cannot be covered using SNAP benefits. In a gesture of goodwill, Amazon does offer Amazon Prime membership at a discounted rate of \$5.99 per month (instead of \$10.99) to SNAP recipients, although this cost could still be prohibitive to some.

CONCLUSION

Online grocery shopping eliminates the physical barrier of having to carry groceries. However, monetary and time assets remain barriers to food access, as does transportation dependent on delivery options. The USDA pilot program is an important step in encouraging powerful retailers like Amazon and Wal-Mart to expand their services to people with SNAP benefits. The overarching goal of the USDA pilot program is to eliminate food deserts by allowing the use of SNAP benefits in online grocery shopping channels. For this program to be truly effective in giving low-income people access to healthy food, home delivery services must be expanded and associated fees must be eliminated. If industry and government interests continue to support the growth in online grocery shopping, then the logistics of getting food to the consumers at a reasonable price should be prioritized.

Does online grocery shopping reduce or eliminate food access barriers for low-income consumers? Does it introduce new barriers?

Online grocery shopping introduces new barriers. In order to shop online, a consumer needs a device that can be connected to the Internet, a secure connection, and the technological skills to navigate the webpage itself. Even though the lack of a computer and technological skills is an especially relevant barrier to discuss in the online shopping context, it is not what ultimately stands between the consumer and food. The internet is the medium by which a consumer can participate in the online market; however, it is up to the food retailers to provide service in given areas. For example, Wal-Mart only accepts online EBT transactions at five locations, and Amazon Fresh is only available in select cities.

Another barrier introduced by online shopping is sensory risk aversion to buying produce online. The aversion to buying perishable items online is likely to be a major stumbling block for companies, especially if they intend on focusing on healthy food. This barrier could potentially exacerbate food deserts because online retailers might discontinue selling produce in certain areas based on a lack of market interest. If online stores become the main source of food in an area, it will be important to find solutions to the issue of buying sensory products online.

Does online grocery shopping have the potential to reshape the definition of a food desert?

Despite the USDA's definition of a food desert, there is ongoing discussion about what the term entails. Nuanced versions of

the term have been developed, such as "unsupportive food environments" and "food denial zones" (Shaw, 2006), as well as "food hinterlands" (Leete, Bania, & Sparks-Ibanga, 2012). Given the projected growth of online grocery shopping and the lack of a robust response to food desert mitigation, we propose a new term for food access in the online age: digital food desert. A digital food desert could be applied in two different scenarios. In the first scenario, a digital food desert defines a community without access to online grocery shopping due to infrastructure constraints (e.g. lack of reliable internet) or lack of delivery options (e.g. Amazon Fresh is only currently available in a few locations).

The second type of digital food desert defines a community with access to online grocery shopping, but whose market manifests the conditions of a physical food desert online. That is, the online grocery channel has been saturated with processed foods, low-income residents have been targeted with marketing that promotes those unhealthy foods, and sensory risk aversion prevents competitive prices for fresh produce. As a result, it is in the best interests of the corporate processed food regime to recreate the conditions of physical food deserts online. According to Eric Holt-Giménez, the corporate food regime is characterized by a "global concentration in the input, processing, and food retail sectors" (2011, p. 313). As more consumers move to online shopping, food retailers are searching for ways to maintain their market control.

Consumers buy fewer impulse, or "vice," items when they are shopping online (Campo & Breugelmans, 2015; Huyghe, Verstraeten, Guens, & Van Kerckhove, 2017). Supermarkets have perfected techniques to prompt consumers to make instant gratification purchases, such as candy bars in the checkout lane, but these products are less vivid online (Huyghe et al., 2017). However, email promotions and targeted coupons can encourage households to shop for these items online (Chintagunta et al., 2012). Online retailers are turning to targeted advertising, paid placement, and data analytics to encourage vice purchases (Gasparro & Haddon, 2017), which will most likely be to the detriment of low-income consumers.

The current market for online grocery shopping is aimed at convenience-minded middle- and upper-class consumers. Though well-intentioned, the USDA's pilot program for online SNAP transactions is more concerned with preventing fraud than with people's need to access healthy food. The program is trying to solve the technological challenge of using EBT cards online. Although this aim is important, the USDA is overlooking the other structural barriers that will continue to prevent SNAP recipients from accessing food. Addressing the method of payment will not alleviate food deserts unless it is accompanied with public policy and corporate commitment to establishing physical and online stores offering healthy food in low-income communities.

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APPENDIX

Table 1.

Current Feasibility of Online Grocery Shopping at Kroger, Wal-Mart, and Amazon

Food Retailer	Additional Fees	SNAP accommodation	Delivery options
Kroger	- Delivery fee - Pickup fee after third order	- Does not accept or plan to accept EBT transactions online	- Pickup at store - Delivery with 1 hour timeframe
Wal-Mart	- Delivery fee - No pickup fee - Minimum \$30 purchase	 Does not accept EBT transactions for delivery Will accept EBT for pickup at five locations as part of USDA pilot program 	- Pickup at store during reserved timeslot
Amazon Fresh	 Delivery fee of \$9.99 on orders under \$50 SNAP benefits cannot be used for delivery fee 	 Will accept EBT online orders in select locations as part of USDA pilot program Prime membership available to SNAP recipients at a discounted rate of \$5.99 per month (instead of \$10.99) 	 Pickup available for Prime member in select cities Attended delivery with 1 hour timeslot for in-person delivery Doorstep delivery (left at door) with 2-3 hour time frame

Abbreviations used: SNAP (Supplemental Nutrition Assistance Program), EBT (Electronic Benefits Transfer), USDA (United States Department of Agriculture)

Sources: ("ClickList Pickup," 2018); ("Walmart Grocery," 2018); ("About AmazonFresh Delivery," 2018)