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How strong is the demand for food through direct-to-consumer outlets?☆

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1. Introduction

U.S. supermarkets and supercenters are selling more locally-sourced produce and other foods traditionally available at direct-to-consumer (DTC) outlets like farmers markets and farm stores (e.g., Martinez et al., 2010; Low et al., 2015). These retailers include Wal-Mart. In 2013, the chain bought 11% of its produce locally, exceeding Wal-Mart's previously stated goal to grow that percentage from 4% to 9% between 2010 and 2015 (e.g., Clifford, 2010; Fentress Swanson, 2013). Richards et al. (2017) argue that, if consumers incur time and/or money costs for shopping, they may prefer to purchase local foods at multi-category retailers like supermarkets and supercenters instead of DTC outlets. Multi-category retailers, in turn, have an incentive to grow their local food sales. While this may create opportunities for farmers who market through DTC outlets to expand their consumer base to include supermarkets and supercenters, it also raises questions about the future of DTC outlets themselves and farmers who remain dependent on those outlets: How might U.S. consumer demand for food through DTC outlets change now that other types of retailers offer similar products?

If retail marketing trends negatively impact DTC outlets, small farmers have the most to lose. USDA conducts a census of U.S. farms every five years. In 2012, Census of Agriculture data show that 144,530 farmers sold $1.3 billion in food for human consumption directly to consumers.[2] This represented only 0.3% of total U.S. agricultural sales. However, 82% of these producers were small farms.[3] Moreover, among small farms that market through DTC outlets, direct sales represent about 35% of total agricultural product sales across all marketing channels (Martinez et al., 2010).[4] By contrast, among medium and large farms who also market through DTC channels, direct sales represent only 17% and 7.5% of total agricultural product sales, respectively (Martinez et al., 2010).[5] Small DTC farmers are less apt to also work with buyers for local grocery stores and restaurants, and likewise rely more heavily on DTC outlets (e.g., Park et al., 2014; Low and Vogel, 2011; Martinez et al., 2010).

Fruit and vegetable growers also rely disproportionately on DTC outlets. Vegetable and melon farmers accounted for 32% of the $1.3 billion in food sold through DTC channels in 2012. Fruit and tree nut farmers accounted for another 28%. According to USDA, fresh fruits and vegetables are "at the heart of the U.S. farmers' market business model" (USDA Agricultural Marketing Service, 2015, p. 1).

Working to support DTC outlets as the marketing environment around them changes are a number of USDA programs. The Farmers Market Promotion Program (FMPP), for one, awards grants to recipients who, in turn, build capacity, facilitate marketing, and provide technical assistance to farmers selling through DTC outlets. Other programs focus on low-income households receiving food assistance benefits. The Senior Farmers Market Nutrition Program (SFMNP) provides low-income seniors with coupons that can be exchanged for eligible foods at farmers markets, roadside stands, and community-supported agriculture (CSA) networks.[6]

Most important to the future of DTC outlets may be whether key customers continue to exhibit a strong demand for food through these outlets. While Americans, on average, patronize DTC outlets only infrequently, consumers who exhibit certain food-related attitudes and behaviors represent a key customer base. Much research shows that a heightened concern for diet quality, an interest in nutrition, a joy of

☆ Any opinions, findings, recommendations, or conclusions are those of the authors and do not necessarily reflect the views of the Economic Research Service of the U.S. Department of Agriculture.

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[2] Estimates of DTC sales reported in the Census of Agriculture exclude non-edible products such as craft items and processed food products such as jellies, sausages, hams, cider, and wine.

[3] In this study, we consider farms with less than $50,000 in agricultural sales across all marketing channels to be "small." This definition is consistent with both Low and Vogel (2011) and Martinez et al. (2010). By contrast, Low et al. (2015), who use the Agricultural Resource Management Survey, consider local food farms with less than $75,000 in gross cash farm income (GCFI) to be "small." This approach is not possible using the Census of Agriculture which reports DTC sales for farms in 11 size categories. The first category includes farms with less than $1000 in total farm sales. The second category includes farms that earned $1000 to $2499. The sixth category includes farms that earned $25,000 to $49,999. However, the seventh largest size category comprises farms with between $50,000 and $99,999 in total farm sales.

[4] Estimates reported by Martinez et al. (2010) are based on the 2007 Census of Agriculture.

[5] Farms with between $50,000 and $499,999 in agricultural sales across all marketing channels are considered medium. Those with over $499,999 in total sales are considered large.

[6] The members of a CSA network typically pledge in advance to cover the anticipated costs of a farm operation and the farmer's salary. In return, they receive a share of the farm's output (e.g., a box of fresh vegetables each week throughout the farming season).

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cooking, valuing family meals, and gardening are all closely associated with patronizing DTC outlets on a more frequent basis (e.g., Gumirakiza et al., 2014; Maples et al., 2013; Webber et al., 2013; Zepeda and Li, 2006; McGarry Wolf et al., 2005).

In this study, we build on our previous research that asks whether patronizing DTC outlets increases a household's demand for produce by further investigating what motivates households to buy directly from farmers and the competitive environment direct-marketing farmers face.[7] To begin, we review the existing literature. We then model a household's decision to patronize DTC outlets. Unlike past studies, we incorporate the household's demands for produce and other at-home foods among our model's explanatory variables. On the one hand, it is possible that a household's demand for produce has little relationship with its decision to patronize DTC outlets. Moreover, after including this variable in our model, we may find a positive and significant relationship between patronizing DTC outlets and a household's interest in nutrition, joy of cooking, value placed family meals, diet quality, and keeping a garden. Such a combination of findings would suggest that households who exhibit these characteristics shop at DTC outlets for reasons other than buying produce; rather they may value aspects of the DTC-shopping experience, such as interacting with farmers, that supermarkets and supercenters cannot easily replicate and likewise serve to differentiate DTC outlets from other types of retailers. On the other hand, it is also possible that a household's demand for produce is a primary driver of its decision to patronize DTC outlets. Moreover, after accounting for produce demand, we may find that food-related attitudes and behaviors identified in past studies as being closely related to the demand for food through DTC outlets have little effect. This combination of findings would suggest that a key group of consumers patronizes DTC outlets primarily to buy foods which other types of retailers now sell. For direct-marketing farmers, these results would underscore the potential for competition with supermarkets and supercenters that could put downwards pressure on DTC prices as well as the profitability of marketing through those outlets. For policymakers, it would underscore the potentially difficult situation these farmers face.

2. Existing research on the demand for food through DTC outlets

2.1. Key attitudes and behaviors associated with patronizing DTC outlets

A large body of research investigates the characteristics of consumers who buy food directly from farmers, and how often they do so. This research has been done partially to help direct-marketing farmers as well as the managers of DTC outlets to increase sales and enhance profitability. According to McGarry Wolf and Berrenson (2003), "… there will always be a need to understand consumer behaviors and identify what type of people come for what reason in order to promote and advertise effectively" (pg. 107). As noted above, a heightened concern for diet quality, an interest in nutrition, a joy of cooking, valuing family meals, and gardening are among some key consumer characteristics that researchers have identified as being closely associated with patronizing DTC outlets (e.g., Gumirakiza et al., 2014; Maples et al., 2013; Webber et al., 2013; Zepeda and Li, 2006; McGarry Wolf et al., 2005). However, to our knowledge, previous studies do not consider whether households who exhibit these characteristics patronize DTC outlets simply to buy foods, or if they primarily value unique aspects of the DTC-shopping experience. It is certainly possible that these households derive more utility from activities, such as interacting with farmers, that differentiate DTC outlets from supermarkets and supercenters. It is also possible that these key attitudes and behaviors primarily reflect a household's tastes and preferences over different types of foods. Households who share these attitudes and behaviors may patronize DTC outlets, because they have a greater demand for produce, but place little importance on buying directly from farmers.

2.2. Demand for produce and other foods

Households may visit DTC outlets primarily to buy foods, especially if they desire local and/or organic produce, which are widely available at such places (e.g., USDA Agricultural Marketing Service, 2015). When Gumirakiza et al. (2014), for one, asked 1488 consumers at 16 farmers markets in Nevada and Utah about their primary reason for visiting the market, 73% cited purchasing produce. In another study, Conner et al. (2010) interviewed 953 consumers in Michigan. Survey participants reported that buying high quality food products was their most important reason for visiting a farmers market. Along the same lines, in a 2006 nationwide survey of 1549 households, Keeling Bond et al. (2009) found that looking for superior quality, local produce significantly increased the odds that a U.S. household patronizes DTC outlets.

2.3. Civic engagement and other motives for patronizing DTC outlets

In addition to being a source of produce and other foods, DTC outlets also offer consumers a unique shopping experience. When Abello et al. (2014) asked 170 consumers at two Texas farmers markets about what aspects of the DTC-shopping experience they value, 64% cited food events, followed by entertainment activities (58%), educational activities (36%), activities for kids (26%), festivals (24%), and contests (19%). Overall, according to McGarry Wolf and Berrenson (2003, p. 107), buying directly from farmers can be a "sociable and enjoyable" experience.

Some households may also believe that patronizing DTC outlets will have a greater impact on the environment or better support local jobs than buying the same foods through a large retail chain would have. Thilmany et al. (2008) argue that interacting with farmers at DTC outlets may reduce a consumer's uncertainty about product claims made by sellers, rendering those claims more credible than similar claims by large retail chains. Indeed, although Wal-Mart is selling local foods, critics have questioned whether small farmers will benefit (e.g., Fentress Swanson, 2013).

Even if a consumer patronizes DTC outlets primarily to buy produce or other foods, he or she may still value other aspects of the DTC-shopping experience enough to justify any additional time and travel costs incurred for visiting one. In a survey of Los Angeles farmers markets, 75% of shoppers came to the market to do more than just shop (McCarthy, 2007).

That patronizing DTC outlets can benefit consumers in a variety of ways is further supported by substantial research showing that consumers are willing to pay a premium for local foods.[8] Moreover, some consumers are willing to pay an even greater premium for local foods when those foods are sold at DTC outlets (e.g., Onozaka et al., 2011; Shi et al., 2012). For example, Shi et al. (2012) find that consumers are willing to pay more money for locally-produce blueberries at farmers markets than they are willing to pay for the same food at supermarkets.

3. Survey provides new insights on DTC patrons

The National Household Food Acquisition and Purchase Survey (FoodAPS) provides insights into households' food shopping behavior (Kirlin and Denbaly, 2017). When designing the sampling frame, USDA divided the continental U.S. into 948 counties or groups of contiguous

[7] A household's demand for produce and its propensity to patronize DTC outlets may be simultaneously determined. In Stewart and Dong (2018), we investigate whether shopping at DTC outlets increases a household's demand for fresh fruits and vegetables. By contrast, in the current study, we ask the opposite question. We investigate to what extent the demand for these foods drives a household's decision to patronize DTC outlets.

[8] Martinez et al. (2010) and Low et al. (2015) both provide literature reviews.