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International Journal of Consumer Studies

Provided in Cooperation with:
Leibniz Institute of Agricultural Development in Transition Economies (IAMO), Halle (Saale)

Suggested Citation: Bavorova, Miroslava; Unay-Gailhard, İlkay; Lehberger, Mira (2016) : Who buys from farmers' markets and farm shops: The case of Germany, International Journal of Consumer Studies, ISSN 1470-6431, Wiley, Oxford, Vol. 40, Iss. 1, pp. 107-114, https://doi.org/10.1111/ijcs.12220 , https://onlinelibrary.wiley.com/doi/full/10.1111/ijcs.12220

This Version is available at:
https://hdl.handle.net/10419/223344

Who Buys from Farmers' Markets and Farm Shops: The Case of Germany[1]

Miroslava Bavorova*, İlkay Unay-Gailhard** and Mira Lehberger*

*Martin Luther University, Halle (Saale), Germany.
**Leibniz Institute of Agricultural Development in Transition Economies (IAMO), Halle (Saale), Germany.

miroslava.bavorova@landw.uni-halle.de

Abstract: In this article, we analyze the influence of socio-demographic factors and consumer attitudes toward direct marketing products and sources (outlets) on the frequency of buying food from farmers' markets and farm shops. By conducting an intercept survey with pedestrians in 2011 and 2012, we interviewed a total of n=550 consumers. The target regions of the study were the Eastern German federal states. The study employs two ordered logit regression models to investigate consumers' shopping behavior at farmers' markets and farm shops separately. We find that different factors significantly influence consumers' buying behavior at the two direct marketing outlets. Specifically, both a more favorable view toward the freshness of directly marketed foods and the intention to support local producers are positively related to consumers' purchase frequency from farmers' markets. In contrast, consumers' purchase frequency from farm shops is significantly influenced by their perception of the cost of the products, confidence in food producers of directly marketed products, perception of the safety of the food and perception of the accessibility of farm shops. The study results indicate that considering consumer behavior separately for different direct marketing channels for food rather than considering the entire category of local food outlets may provide new and valuable insights.

Key words: direct marketing, farmers' markets, farm shops, consumer behavior, local food, logit regression

[1] This is the peer reviewed version of the following article: Bavorova, M.; Unay-Gailhard, I.; Lehberger, M. (2016) Who buys from farmers' markets and farm shops: The case of Germany. International Journal of Consumer Studies 40 (1): 107-114, which has been published in final form at https://doi.org/10.1111/ijcs.12220. This article may be used for non-commercial purposes in accordance with Wiley Terms and Conditions for Use of Self-Archived Versions.

1. Introduction

In Germany, as in other countries, it was historically common for farmers to sell their products directly to consumers. However, after the Second World War, the direct marketing approach to buying and selling food products almost disappeared. With the aim of increasing revenues, direct marketing began to reemerge in the 1980s (Sommer, 1995). Although no official statistics are available regarding the current number of German farmers involved in direct marketing, it is estimated that approximately 30,000 to 40,000 farms, corresponding to approximately 6–8% of German farms, sold their production directly to consumers in 2013 (BMELV, 2013). Because of the historic division in Germany, the structure of farms in Eastern and Western Germany remains considerably different. For example, in the Western German state of Bavaria, a total of 94,000 farms cultivate, on average, 33 ha of agricultural land, and the number of direct-selling farmers is estimated to be approximately 3,500 (3.7%) (STMELF Bayern, 2013). Given the number of consumers, in Bavaria, there are approximately 3,580 consumers per farm. In the Eastern German state of Saxony, 6,100 farms currently cultivate an average of 149 ha of agricultural land, and the number of direct-selling farmers was approximately 500 in 2013 (8.2% of Saxony farms). Given the number of consumers in Saxony, this leads to approximately 8,300 consumers per farm (Direktvermarktung in Sachsen e.V., 2013). In conjunction with the difference in the availability of farm shops in the Eastern and Western German federal states, higher income and lower unemployment rates in the West may affect consumer behavior toward directly sold food. While a few studies have investigated consumer behavior toward directly sold food in Western Germany (Zenner, Wirthgen and Altmann, 2004; Wirthgen, 2005), to our knowledge, no study has conducted such an investigation in Eastern Germany.

Internationally, the growing market for local products has engendered increasing scholarly interest in consumers' perceptions of and attitudes toward direct marketing, as reflected by the increasing number of published studies on this topic, especially in North America (e.g., Thilmany, Wirthgen, 2005; Bond, Thilmany and Bond, 2006; Zepeda and Li, 2006; Bond and Bond, 2008; Cranfield, Henson and Blandon, 2012; Adekunle, Filson and Sethuratnam, 2013) but also in the EU (e.g., Wirthgen, 2005; Roininen, Arvola and Lähteenmaki, 2006; Chambers et al., 2007; Rocchi, Cavicchi and Baldeschi, 2011; Carey et al., 2011). However, in the EU, such consumer studies remain rare, while the differences between EU countries regarding direct marketing and consumer behavior remain large (Vecchio, 2011).

Some studies on consumer preferences for directly sold food concentrate on a specific distribution channel, such as farmers' markets. Directly sold food is generally considered local food; however, food does not have to be sold directly by farmers to be considered local. Thus, some studies that investigate the effects of attitudinal and socio-demographic factors on consumers' likelihood of buying local food neglect the effect of distribution channels. This study contributes to the literature by investigating the effect of distribution channels and comparing the influence of socio-demographic characteristics and perceived product attributes on consumers' purchase frequency in two market outlets: village or city farmers' markets and farm shops, which are located on farms. We focus on these distribution channels because other direct marketing channels, such as box schemes or farm stands, are rarely used in the considered region. To contribute to the understanding of how consumers' perceptions influence their decision to buy food directly from farmers via different distribution channels, we investigate the following two research questions: Which perceived attributes and socio-demographic factors determine consumers' frequency of buying food products from farmers' markets and farm shops? Do the perceived attributes of products and the socio-demographic characteristics that influence consumers' buying behavior differ between farmers' markets and farm shops? To answer these questions, we apply two ordered logit regression models on data collected in Eastern Germany. In contrast to other similar studies, instead of quantity of food, we use purchase frequency as the dependent variable. However, we assume that perceived attributes and socio-demographic factors influence the frequency and value of food purchased directly from farmers in very similar ways.

The article is structured as follows: After describing the study's theoretical background, the survey and methodology are detailed. The results are then presented, and a discussion and conclusions are provided to close the paper.

2. Background

2.1. Defining Direct Marketing and Local Food

Direct marketing (direct selling) can be defined in multiple ways. Our study focuses on direct marketing in a narrow sense, where producers sell their ready-to-eat products directly to consumers. In Germany, the most common distribution channels for direct marketing are farmers' markets and farm shops. These channels are also common supply chains through which local food products are sold in the US (Feagan et al., 2004; Selfa and Qazi, 2005; Ilbery and Maye, 2006;

Bond, Thilmany and Keeling-Bond, 2008). Some studies include more direct marketing channels, such as farmers' markets, Community Supported Agriculture, and farm stands, and examine these channels collectively as "local food" (e.g., Zepeda and Li, 2006).

Local food products are generally distinguished from other foods by the distance between the place of production and the final market. US studies have used a distance ranging anywhere from 30 to 150 miles to define local food (Selfa and Qazi, 2005; Chambers et al., 2007). Moreover, some studies define local food as food grown within a country or state, while other authors doubt whether political boundaries are the best delineation to define local food (Zepeda and Leviten-Reid, 2004; Darby, Batte, Ernst and Roe, 2008). In the study by Zepeda and Leviten-Reid (2004), most US consumers defined local in terms of driving time instead of political boundaries.

In conclusion, local food can be understood as a broad category comprising food products from different marketing distribution channels, such as farmers' markets and farm shops. Thus, in the cited studies on consumer behavior toward local food, the effect of distribution channels is not considered.

2.2. Consumers' Attitudes toward Directly Marketed Food

Attitudinal and behavioral characteristics are generally better predictors of local food buying behavior than demographic characteristics (Zepeda and Li, 2006). In the following, we identify attributes from the literature that have been found to determine consumers' buying behavior with regard to local and directly marketed food products. Two main branches of literature exist: the first branch focuses on local food in general, whereas the second branch considers only selected distribution channels, in most cases farmers' markets (Table 1). The studies we reviewed on consumer behavior toward local food do not consider the possible differences in consumers' characteristics and attitudes between different distribution channels. We selected papers that are most relevant for our study with respect to the considered distribution channels and geographical location. Therefore, this overview includes studies in the two main branches of the literature mentioned above from Europe and the US.

Table 1: Selection of studies on factors influencing consumer behavior toward local food (or farmers markets) in different regions

The results of previous studies typically indicate that consumers positively associate attributes related to *taste* and *freshness* with local food products (La Trobe, 2001; Selfa and Qazi, 2005; Chambers et al., 2007; Feagan and Morris, 2009; Carey et al., 2011). Findings from a focus group discussion carried out by Chambers et al. (2007) suggest that *perceived prices* rather than objective prices influence consumers' decision not to buy local food products. Furthermore, empirical data suggest that the prices of local food products are perceived to be high (Roininen, Arvola and Lähteenmaki, 2006, Chambers et al., 2007).

Other empirical evidence indicates that consumers perceive a key benefit of local food to be that they know "where the food came from" (Roininen, Arvola and Lähteenmaki, 2006). The literature further suggests that consumers associate local food products with *greater transparency* (Jones, Comfort and Hillier, 2004). This assumption is supported by the results of a study in Germany based on a rank-ordered logit analysis showing that consumers mistrust conventional food from elsewhere (Wirthgen, 2005).

A number of studies have confirmed that *convenience of location* is of high importance for consumers' choice of outlet (e.g., Bond, Thilmany and Bond, 2006; Zepeda, 2009; Adekunle, Filson and Sethuratnam, 2013). Other studies show that consumer decisions to buy food from local farmers are driven by the *willingness to support* the farmers and, thus, the region (Eastwood et al., 1999; Feagean et al., 2004; Zepeda and Leviten-Reid, 2004; Bond, Thilmany and Bond, 2006; Feagan and Moris, 2009). Consumers often associate *transportation distance* with fuel consumption, and environmentally conscious consumers may thus be more inclined to buy locally (Zepeda and Li, 2006; Seyfang, 2006).

3. Data Collection and Methodology

3.1. Data Collection

The data were collected by using an intercept survey with a structured questionnaire. Standardized face-to-face interviews were administered to pedestrians in May and June of 2011 and 2012. Trained students with knowledge of agricultural marketing acted as interviewers after they received a four-hour long training session on how to conduct the survey given by two of the co-authors of this study. The target regions of the study were the Eastern German States of Saxony, Saxony-Anhalt and Thuringia. Participants were approached on the street. In line with Zenner,

Wirthgen and Altmann (2004), stratified sampling using the criteria of gender (goal: 70% female/30% male) and age (goal: 30% of participants between 18 and 35 years, 40% between 36 and 60 years, and 30% above 60 years) was conducted to approximate the typical German grocery shopper. A total of n=550 study participants were interviewed.

The questionnaire comprised three essential parts. The first part contained questions on the study participants' grocery shopping behavior. The second part then focused on consumers' attitudes toward directly marketed food. All answers in the second part were given on a seven-point Likert scale. Finally, the third part collected socio-demographic data. To ensure the quality and comprehensibility of the questions, a pre-test was carried out. Subsequently, some of the questions were refined and improved.

3.2. Methodology

In the literature, research by Warshaw and Dröge (1986) on consumer choices links discrete choices to attitude theory in economic psychology. Furthermore, in consumer behavior studies, logistic (or probit) regression is often applied in contexts where consumers choose from a set of alternatives (Thilmany, Bond and Bond, 2008; Keiling-Bond et al., 2009).

In our study, two ordered logistic regression models are used to estimate the influence of socio-demographic characteristics and attributes as perceived by consumers on their purchase frequency from two direct marketing channels: farmers' markets and farm shops.

The dependent variable, consumers' purchase frequency from the two direct marketing channels, is measured on a five-point scale ranging from "never" to "weekly". In the mapping process, the following set of consumer alternatives is used:

$$
\begin{aligned}
y_i &= 0 \text{ if } y^* \leq 0, \text{ nonbuyer} \\
&= 1 \text{ if } 0 < y^* \leq \mu 1, \text{ less frequent buyer} \\
&= 2 \text{ if } \mu 1 < y^* \leq \mu 2, \text{ monthly buyer} \\
&= 3 \text{ if } \mu 2 < y^* \leq \mu 3, = \text{ bi-monthly buyer} \\
&= 4 \text{ if } \mu 3 \leq y^*, \text{ weekly buyer}
\end{aligned}
$$

Given such discrete alternatives, the larger values are assumed to correspond to "higher" outcomes. The ordered logit model offers a data-generating process for this type of discrete choice-dependent

variable (Greene, 2003). The main objective of an ordered logit regression analysis is to predict the choice probabilities in response to changes in several independent variables.

As independent variables that influence consumers' buying decisions, we use consumers' perceptions of the attributes of direct marketing products and their sources. Product and source attributes as perceived by consumers are measured on a seven-point Likert scale, where respondents indicated their opinion regarding a statement on a scale ranging from strongly disagree to strongly agree. The internal consistency of the used 7 attribute statements in the order logit models measuring consumers' perceived product and source attributes is calculated by using Cronbach's alpha. This procedure is in line with most empirical analyses estimating the reliability of a set of question items (Cronbach 1951; Henson, 2001). In our case, Cronbach's alpha is 0.716, indicating that the scales had acceptable internal reliability. A coefficient greater than 0.70 was considered acceptable (Hair et al., 1988; Goyal and Singh 2007). In addition, the socio-demographic variables of sex, age, education, population of residence and household size are entered into the model as control variables. The underlying model process is expressed as follows:

$$y* = \beta_0 + \beta_1 X_{sex} + \beta_2 X_{age} + \beta_3 X_{education} + \beta_4 X_{population\ of\ residence} + \beta_5 X_{household\ size} + \beta_6 X_{perceieved\ attributes} + \varepsilon$$

where y* is the unobserved dependent variable. We run two separate ordered logistic regression models to estimate the influence of the examined factors with respect to each of the direct marketing channels, farmers' markets and farm shops. X is the vector of the independent variables, and β (beta) is the vector of regression coefficients that we aim to estimate. The beta coefficients are the ordered log-odds (logit) regression coefficients that enable the interpretation of the ordered logit model. The sign of the estimated ordered logit model parameters can be interpreted directly. A positive sign indicates that the set of alternative probabilities shifts to higher categories when the explanatory variable increases (Takeshi, 1994). The standard interpretation of a beta coefficient is a one-unit increase in the independent variable; the level of the dependent variable is expected to change by its corresponding regression coefficient in the ordered log-odds scale. This change occurs while other variables remain constant in the model (Bruin, 2006).

For our statistical analysis, we use the statistical software package STATA. Both regression models (one for farmers' market buyers and one for farm shop buyers) are tested for

multicollinearity by calculating Pearson's correlation coefficients for each pair of independent variables. Variables with coefficients showing correlations more than 0.5 (5 items) are eliminated from the model. Furthermore, multicollinearity is tested by using a variance inflation factor (VIF). The results show that the mean VIF values are between 1.05 and 1.68 for both the farmers' market and farm shop models and are thus under the threshold of 10 (Chatterjee and Hadi, 2006; O'Brien, 2007). Therefore, we conclude that there is no serious multicollinearity problem between the explanatory variables used in both models.

Because of missing values, the number of observations for the ordered logit regression model is reduced from 550 to 517. In the section that follows, the results from the two regressions, including coefficient estimates with P>|z| test significance levels, standard errors, and odds ratio, are presented.

4. Results

In this section, we present the results of the analysis in two parts. First, we examine consumers' perceived attributes associated with food purchased from the selected direct marketing channels. Second, we investigate the influence of these attributes on the consumers' purchase frequency from two direct marketing channels: farmers' markets and farm shops.

4.1. Consumers' Perceived Attributes

Table 2 provides a detailed overview of the rating results for the 12 statements used to assess consumers' perceptions of the attributes of food products and their sources. The majority of the respondents agree that food purchased directly from the farmer is fresh (approx. 80%) and tastes better than food purchased from other outlets (approx. 69%). We also find that over 60% of the respondents are interested in how and where their food is produced. The data indicate that the main drawback of food purchased from these outlets is not the (perceived) price (35% of the respondents agree that products purchased directly from farmers are too expensive) but rather the difficulty of reaching an outlet selling these directly marketed products. More than half of the respondents disagree with the statement that it is "very convenient" to buy food directly from farmers.

Regarding whether consumers have higher confidence in foods purchased directly from farmers than in products purchased from other outlets, merely 20% of the respondents have lower confidence in direct marketing products.

The majority of the respondents indicate that they are interested in supporting local farmers and short transportation distances. More than 50% of the respondents agree that they want to support local farmers with their purchases. Furthermore, approx. 26% of the respondents report that they do not prefer their food to be transported over short distances. Social desirability bias cannot be fully excluded from the responses to these statements.

Table 2: **Consumers' (n=550) Perceived Attributes of Direct Marketing Products and Sources (%)**

4.2. Results of the Ordered Logit Models

Table 3 presents the results of the ordered logit regression analysis for both the farmers' market model (FMM) and the farm shop model (FSM).

Table 3: **Results of ordered logit models with consumers' purchase frequency from two direct marketing channels as the dependent variable**

Because the explanatory variables are evaluated by the same group of consumers, differences between the two ordered logit model estimations are attributable to the difference in the dependent variables between the models, namely, consumers' purchase frequency from farmers' market and consumers' purchase frequency from farm shops.

Looking at the socio-demographic variables in two models, we find that being female is a significant determinant for purchase frequency only in the FMM model. The probability of shopping at farm shops is high for the 30-49 age group. The frequency of purchasing from farmers' markets is significantly higher for shoppers in the 30-65 age group than for younger shoppers. As in the FMM, in the FSM, education level is not a significant determinant for explaining consumers' purchase frequency. Consumers who live in a city with more than 100,000 inhabitants are less likely to frequently buy from farm shops than those who live in less populated locations. Further, consumers who live in places with more than 10,000 inhabitants are more likely to frequently purchase food from farmers markets than those who live in locations within the base category for population density (up to 10,000 inhabitants). The results show that higher household size is a significantly positive determinant of purchase frequency from farm shops but not from farmers' markets.

For the two studied direct marketing channels, a fairly different picture is found with respect to the influence of consumers' perceived product and source attributes on their purchase frequency. Consumers who perceive food sold by farmers as fresh and who want to support farmers in their region buy more frequently from farmers' markets, while these attributes are not significant determinants of consumers' purchase behavior in farm shops.

In contrast, consumers' purchase frequency from farm shops is significantly influenced by their perceived price of food in direct marketing channels, confidence in small farmers' products, confidence in food safety in direct marketing channels and convenience of outlet locations. Consumers who agree that products purchased directly from farmers are too expensive are less likely than other consumers to frequently buy food from farm shops. Consumers with higher confidence in food directly marketed by small family farms rather than by large farms buy from farm shops less often than other consumers. Respondents expressing higher confidence in foods sold directly by farmers than in other foods buy more often from farm shops than other respondents. The significant positive estimate for the convenient location variable implies that an increase in a consumer's perception of the convenience of the location of a farm shop increases the likelihood that the consumer will frequently buy from the farm shop.

5. Discussion and Conclusion

We use data for a sample of German food shoppers from 2011 and 2012 to investigate consumers' attitudes and shopping behavior toward directly marketed food. To offer a first indication of consumers' attitudes toward these products, we use descriptive statistics. To examine differences between farmers' market buyers and farm shop buyers, we employ two ordered logit regressions and separately model the influence of certain factors on consumers' buying behavior.

The descriptive statistics from the direct marketing survey indicate that the majority of the respondents agree that food purchased directly from farmers is fresher and tastes better than food purchased from other outlets. In general, the respondents are interested in knowing where and how their food is produced, and the majority of the respondents have higher confidence in both the products and the process quality of food purchased directly from farmers than in the products and the process quality of food purchased from other outlets. Furthermore, they want to support local farmers and prefer products with short transportation distances. We nevertheless find that a drawback of directly marketed food products is the perceived difficulty of buying such products:

more than 50% of the respondents find it very inconvenient to buy food directly from farmers. In contrast to other studies, we find that in Eastern Germany, frequent farm shop buyers do not have higher *confidence in small farms' products* than in large farms' products. One may speculate that this is attributable to the good reputation of large corporate farms resulting from Eastern Germany's communist past and the popularity of many of the farm shops run by large corporate farms.

The findings of the two ordered logit regressions offer insights into the factors that influence consumer behavior regarding buying from farmers' markets and farm shops. We find that several independent variables are significant in only one of the two regression models:

First, we find that if a customer strongly agrees that the food purchased directly from farmers is *fresh*, then that customer will more likely buy more frequently from farmers' markets. This result is in line with a number of studies (La Trobe, 2001; Selfa and Qasi, 2005; Chambers et al., 2007). However, we find that the perceived freshness of directly marketed products is not a significant determinant of consumers' purchase frequency from farm shops.

Second, regarding the influence of consumers' *willingness to support local producers* on their buying decisions, our data confirm results from previous US studies (Eastwood et al., 1999; Zepeda and Leviten-Reid, 2004; Bond, Thilmany and Bond, 2006) showing that consumers who consider it important to support local producers buy more frequently from farmers' markets than other consumers. However, we also find that this variable does not significantly influence consumers' purchase frequency from farm shops. This finding is interesting especially given that the results of the study show that farmers' market shoppers predominantly live in places with more than 100,000 inhabitants. Consequently, the results indicate that people from urban areas, who presumably do not have much direct contact with farmers, tend to be more concerned about supporting farmers than consumers who live with farmers in their neighborhoods.

Third, we find that consumers who agree that products purchased directly from farmers are *too expensive* are significantly less likely than other consumers to buy food frequently from farm shops only.

Fourth, our results indicate that higher *confidence in the food safety* of products purchased directly from farmers is significantly associated with a higher purchase frequency from farm shops. However, we find that this variable is not a significant predictor of consumers' purchase frequency from farmers' markets. When shopping at farm shops, consumers can see and check where and,

often, how a product is produced. This is not the case when they buy from farmers' markets as such information is provided only by the seller and cannot be easily verified by the buyer.

Fifth, consumers who find it *convenient* to buy products directly from farm shops buy from this source more often than other consumers. This observation may explain our finding that inhabitants of populated areas with more than 100,000 inhabitants are less likely than inhabitants of less populated areas to buy frequently from farm shops. As the majority of farm shops in Germany are located in less populated areas, it is more convenient for people living in these areas to reach farm shops. No significant effect of convenience is found in the farmers' market model. This result can be explained by the fact that farmers' markets take place more regularly in cities with more than 10,000 inhabitants and are thus convenient to visit for people living there. Inhabitants living in smaller places very often commute to larger cities to work and, thus, have the opportunity to shop at farmers' markets as well. By comparison, it seems very inconvenient for inhabitants from larger cities to drive to farm shops in a more distant area.

Overall, our findings suggest that consumers do not always act out of pure self-interest, as would be assumed by a homo economicus model of behavior. Similarly, Thilmany, Bond and Bond (2008) argue that the marginal utility of consuming a good may differ depending on the choice of outlet. Hence, private attributes of source characteristics, such as convenience and travel costs, may influence consumers' decisions, as may nonprivate, quasi-public characteristics, such as whether products are locally sourced or environmentally friendly. A main result of this study is that farmers' market buyers and farm shop buyers are, in many aspects, different. In this way, our results show that considering consumer behavior separately for different direct marketing channels for food rather than considering the entire category of local food may provide new and valuable insights in further research. Furthermore, given that consumers' perceptions of product and source attributes differ between the two marketing channels, public communication plans for the two direct marketing channels should integrate different information.

Regarding the implications of our findings for sellers at farmers' markets, our results confirm the common assumption that farmers should focus on advertising the freshness of their food. Furthermore, our findings indicate that sellers should clearly communicate that they or other farmers from the region produce the food they sell. Our findings also suggest that state agencies may effectively advertise farmers' markets by stressing the potential benefits for the local economy and for local agriculture. For farmers selling their products in farm shops, a promising strategy

may be to target consumers in the region, as the convenience of direct marketing channels is a key determinant of consumers' purchase frequency from farm shops. Our findings further suggest that when advertising farm shops in larger cities, farmers should offer information about their prices to counteract urban inhabitants' potential preconceived opinion that prices in farm shops are too high. Moreover, such advertisements should stress that during the visit to a farm shop, consumers can observe the production at the farm, which will increase buyers' confidence regarding the safety of the food and thus increase their willingness to buy from the farm shop.

While our empirical findings are likely important to direct food retailers in Germany, we are aware that they provide little insight into understanding why an increasing number of people prefer direct food channels. Therefore, the need for further research exploring the reasons why consumers exhibit the behavior that we observe persists.

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