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Determinants of Consumers' Adoption of Online Grocery Shopping

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In this paper, it is empirically investigated whether consumers who have adopted online grocery buying perceive this way of shopping differently from other online consumers. Data from 791 US online consumers are analyzed. Multiple discriminant results suggest that online grocery shopping adopters attach higher compatibility, higher relative advantage, more positive social norms, lower complexity and lower online grocery risk to Internet grocery shopping when compared to (a) consumers who have not searched for grocery-related information on the Internet and also when compared to (b) consumers who have searched for grocery-related information on the Internet, but who have not yet bought groceries over the Internet.

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EXTENDED ABSTRACT

Purpose of study: In recent years, fast growth of business-to-consumer e-commerce has occurred. Within the area of grocery retailing consumer adoption rates have, however, been relatively slow and many online grocery shops are facing difficulties in reaching breakeven (Geuens et al., 2003; Ring and Tigert, 2001). While research has attempted to explain the low consumer adoption rates by referring to e.g., the presence of transaction obstacles, complex procedures, and security problems, knowledge about key-decision-making variables of end-consumers online is still in its infancy (Odekerken-Schröder and Wetzels, 2003). Reflecting such findings, we investigated the extent to which consumers' perception of certain online grocery shopping characteristics will discriminate between three segments of online consumers: (1) consumers who have not searched for grocery-related information on the Internet yet; (2) consumers who have searched online for grocery-related information—but who have not yet bought groceries over the Internet; and (3) consumers who have bought groceries over the Internet. An understanding of possible discriminating factors between the three segments is highly relevant for online retailers seeking to attract new online customers and/or seeking to keep existing online customers. For example, if segment 3 consumers view certain factors more positively than segment 2 (and/or segment 1) consumers such a result may provide guidance to online retailers on what factors to stress in order to attract new online grocery customers. On the other hand, if no discrimination is found between segments this may suggest that other factors (e.g., differences in consumers' personal characteristics) should be taken into account when seeking to understand consumer adoption of online grocery shopping.

Methodology: The data presented in this study were collected from an online (web-based) survey of US consumers using self-administered questionnaires. A total sample of 1516 consumers was collected in November 2002. The questionnaires were distributed to households by the use of an Internet-panel administered by a market research firm. Drawing mainly on the theory of adoption of innovations (Rogers, 1983), multiple item scales were developed for five constructs (perceived complexity, perceived compatibility, perceived relative advantage, perceived Internet grocery risk, and subjective norm), which may affect consumer acceptance of the Internet as a grocery-shopping channel. Confirmatory factor analysis and multiple discriminant analysis were applied.

Results: A large number of cases were deleted because of missing responses across the items at interest. This resulted in an investigation sample of $n=791$ (segment 1, $n=385$; segment 2, $n=287$; segment 3, $n=119$). Confirmatory factor analysis results suggested that the five constructs do exist and that they are tapped by the measures used. In the multiple discriminant analysis, only the first discriminant function (Wilks' $\lambda=0.855$; $\chi^2=122.94$; $df=10$, $p\text{-value}<0.001$) was significant and explains 14.0% of the variance in the three segments. The first discriminant function, which accounts for 96.3% of the variance explained by the two functions, correctly classified 56.1% (55.4%, cross validation sample) of original grouped respondents. These hit ratios exceed the estimates of C_{pro} (39.1%) and C_{max} (48.7%) suggesting that the classification of respondents in both samples is significantly better than chance. The

results of the multiple discriminant analysis suggest that online grocery shopping adopters attach higher compatibility, higher relative advantage, more positive social norms, lower Internet grocery risk, and lower complexity to Internet grocery shopping when compared to (a) consumers who have never searched for online information concerning groceries and also when compared to (b) consumers who have searched online for grocery-related information but who have not yet bought groceries over the Internet.

Implications and limitations: Perceived compatibility was the primary discriminating construct between segments. Thus, online grocery retailing should be compatible with consumers' existing grocery shopping patterns. Online grocery retailers should not expect consumers to compromise their existing shopping needs and habits in order to carry out online grocery shopping. Instead, online grocery retailers must adapt themselves to the daily life of consumers. The results also suggest that it is still important that online suppliers provide online consumers with 'risk relievers' (Van den Poel & Leunis, 1999) in relation to specific online buying events. Such risk relievers, which may help consumers to reduce their uncertainty when considering an online grocery buying, may include 'complaint opportunities', 'security-guarantees', 'money-back-guarantees', 'privacy-guarantees', and the like.

In the survey, perceived social norm was also found to discriminate between segment 3 and segment 1/segment 2. At least two possible explanations seem to apply in connection hereto. First, much relevant information concerning online grocery buying may be classified as 'experience information' (refer to Nelson, 1970). For example, for many grocery products there may be a reduced opportunity to inspect salient offline search attributes (e.g., odour, physical appearance of fresh fruits and vegetables and meat products) before buying the products on the Internet. From an economics of information perspective inexperienced online consumers may simply be imperfectly informed and may therefore keep an open mind towards possible guidance from friends and relatives. Second, many consumers are members of a household in which major decisions regarding grocery store patronage (off- or online) may not just be a matter for the individual household-member but a matter for the entire household. Thus, a consumer may put weight to normative guidance from close social surroundings when considering online grocery shopping. Consumers belonging to segment 3 also attach higher relative advantage (possibilities for saving time and money) to online grocery shopping than do other consumers. Online retail managers may therefore wish to market such benefits of online grocery shopping to the entire household and thereby facilitate a more positive family decision-making in relation to online grocery shopping. It also seems important that online retailers design simple and effective information and ordering procedures that are easy to understand and that do not require high online navigation skills and effort. This suggestion is derived from the result that perceived complexity (with a negative sign) substantially contributed to the discrimination between segment 3 and segment 1/segment 2.

This research used a single respondent as a household representative. Since grocery buying concerns the entire household, this procedure assumes that the selected respondent provides answers, which are representative of the household's opinion. Future re-

search may wish to verify the proposed framework using multiple household representatives. Also, this research concentrated on analysing one product category (groceries). This could mean that the results may suffer from a lack of generalizability when other product categories are considered. A cross-section of product categories ought to be studied to improve the generalizability of the results.

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