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Rural Consumers' Online Shopping for Food and Fiber Products as a Form of Outshopping

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Abstract

The purpose of the research was to longitudinally investigate rural consumers' online shopping for food and fiber products as a function of satisfaction with local retailing and outshopping. Innovation diffusion theory was used to guide the research. Eight hundred seventy-nine rural consumers from 11 states completed surveys twice (in 2000 and 2003). Data were analyzed using structural equation modeling and analyses of variance. Dissatisfaction with local retailing in 2000 was a powerful driver of outshopping, beliefs about online shopping, and online shopping (both in 2000 and in 2003). Outshopping was positively related to online shopping at both points in time, suggesting that variables found to affect outshopping in the literature may affect online shopping in a similar way.

Keywords: rural consumers, online shopping, clothing shopping, outshopping, satisfaction

The Internet is a significant technology (Dickson, 2000; Malecki, 2002) that is affecting communication and commerce worldwide, including rural areas. An extensive literature links communication technology and change in rural communities (Caplow, 1982; Hoover, 1990; Lynd & Lynd, 1929, 1937; Ogburn & Gilfillan, 1933; Vidich & Bensman, 1968). For example, the development of the microchip and its application to home computers, the expansion of the in-

home shopping industry, and Internet commercialization have eliminated, or provide the potential to eliminate, rural–urban distinctions based on time or space constraints (Dickson, 2000; Dordick & Wang, 1993; Lubar, 1993; MacKay, 1997). Although Internet use has significant implications for rural consumers, research that focuses on Internet use in rural areas is limited (Grimes, 2000). As such, rural consumer use of the Internet is important to study.

Shifting demographic trends reveal increasing numbers of rural elderly with disabilities (DePoy & Gilson, 2003), a decline in some rural populations, and a parallel decline in rural retail outlets (Vias, 2004), all of which can affect satisfaction with local shopping options. Physical disabilities may make shopping difficult; fewer rural retail outlets mean less access to consumer goods in rural communities. Two general types of products are purchased outside rural communities—namely, food and fiber products (e.g., clothing, towels, sheets, curtains). Outshopping, buying goods outside one's local retail trade area, is common in rural areas (Hawes & Lumpkin, 1984) and has a long research history (Darden & Perreault, 1976; Finch & Jones, 1994; Home, 2002; Jarratt & Polonsky, 1993; Marjanen, 2000; Papadopoulos, 1980; Piron, 2002; Polonsky & Jarratt, 1992; Samli, Riecken, & Yavas, 1983; Thompson, 1971). Outshopping is a function of shoppers' satisfaction with local facilities and selection, with greater dissatisfaction resulting in more outshopping (Miller & Kean, 1997; Papadopoulos, 1980; Samli et al., 1983). Online shopping can be construed as outshopping because goods are acquired out of the local trading area. In fact, Piron (2001) suggested that outshopping research results may be applicable to research on online shopping.

Online shopping may become increasingly viable for rural consumers, who can use it to purchase items not immediately available. Food and fiber products were our focus because they are often purchased nonlocally by rural consumers. Accordingly, the purpose of the research was to longitudinally investigate variables (outshopping behavior, satisfaction with local retailing) that affect rural consumers' online shopping for food and fiber products. Research objectives were as follows: (a) to test diffusion theory in the context of online shopping; (b) to describe and compare levels of satisfaction with local retail-

ing, outshopping frequency, and online shopping frequency for the target products; and (c) to describe changes in online shopping and changes in belief scores as they relate to the adoption of online shopping for the target products.

Theoretical Framework

One theory that predicts adoption of new technologies such as online shopping is innovation diffusion theory (IDT; Rogers, 1995). IDT focuses on what factors affect decisions to adopt technology and how diffusion of the innovation occurs. In IDT, beliefs are proposed as precursors to behavior (adoption of an innovation). This view is consistent with both the theory of reasoned action (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975) and the theory of planned behavior (Ajzen, 1985), which hold that beliefs about a behavior are antecedent to performing the behavior. IDT also posits that contextual variables affect beliefs.

IDT (Rogers, 1995) includes a model of the innovation decision-making process, which is a mental process that people experience that begins with learning about an innovation through adoption and that ends with rejection or continued acceptance of the innovation. Innovations include any objects, ideas, and practices that are perceived as being new, such as use of the Internet to shop. Diffusion involves the process by which innovations are communicated among the members of a social system and how individuals adopt or reject those innovations. Rogers (1995) identified five stages in the decision-making process.

Stage 1 is the knowledge stage, in which people develop an understanding of an innovation and its functions (e.g., learning about online shopping). Prior conditions—such as previous practice, norms of the social sys-

tem, and characteristics of individuals— influence knowledge in Stage 1 and shape beliefs regarding innovations in Stage 2. Two important types of prior conditions include consumers' satisfaction with local retailing and the extent to which they shop out of the local retail community.

In Stage 2, persuasion, consumers form attitudes toward the innovation based on their knowledge of the innovation, their underlying beliefs, and their continued exposure to and experience with the innovation. During this stage, beliefs about online shopping (e.g., "Prices are reasonable"), perceived risks associated with online shopping, and relative benefits (e.g., "Internet shopping is useful") are important. Beliefs about online shopping are important because knowing about such an innovation does not guarantee that it will be adopted; to adopt an innovation, consumers must believe it to be useful or relevant (Rogers, 1995).

In Stage 3, decision, consumers decide to adopt or reject online shopping based on attitudes and underlying beliefs. In Stage 4, implementation, consumers take action on the decision made in Stage 3, perhaps becoming frequent online shoppers. Finally, in Stage 5, confirmation, consumers reconsider online shopping as a function of their satisfaction or dissatisfaction and opt to continue or discontinue use.

In studying innovation diffusion, longitudinal research offers several advantages over cross-sectional research. First, longitudinal research is needed to study change. Second, compared to cross-sectional studies, longitudinal studies do not rely as much on respondents' recall to reconstruct the timing of adoption and rejection. Finally, in longitudinal research, an assessment can be made of those who adopted but later rejected an innovation, rather than simply combine them with those who never adopted. This is an important potential contribution of our research

to IDT because the theory often focuses on adopters alone as a function of its pro-innovation bias.

Online Shopping

Details on the demographic characteristics of the online shopper are evolving. In 2004, the *Kiplinger Monitor* wrote that the average U.S. online shopper had a household income of \$64,063, was 47 years old, and spent \$717 yearly online ("Online Shopping," 2004). Credit card security (Lester, Forman, & Loyd, 2005; "Online Shopping," 2004) and disclosure of personal information (Maney & Dugas, 1997; Novak, Hoffman, & Peralta, 1998; "Online Shopping," 2004) continue to be barriers for online purchasing.

The frequency of online shopping and the amount of money spent online continue to grow. One source predicted that online sales would reach \$117 billion by 2008, reflecting 10% of total sales and over 63 million households ("Statistics for Online Purchases," 2005). Yet, U.S. online sales exceeded \$143 billion in 2005 and were expected to reach \$211 billion in 2006 (Burns, 2006b). U.S. holiday shoppers spent \$12 billion online during November 2006 alone. This figure represents a \$2 billion increase from the same period the previous year (Burns, 2006a). Apparel as a category continued to stay in high demand, given that shoppers spent \$1.4 billion more on apparel than they did on consumer electronics, and home furnishings was reported to be one of the fastest-growing categories online (e-tailing group, 2005). Online spending for home furnishings equaled \$19.8 billion during the first quarter of 2005, an increase of nearly 24% over the same period the previous year (Home Furnishings Now, 2005). As such, the following sections present a summary of research focusing on shopping online for clothing, food, and home-furnishing products.

Online Clothing Shopping

Research concerning online clothing shopping includes the factors that motivate and inhibit such shopping (Goldsmith & Goldsmith, 2002); the relationships among search behavior, attitudes toward the Internet, beliefs about the Internet, and buying intention (Y. Kim, Kim, & Kumar, 2003; Watchravesringkan & Shim, 2003; Yoh, Damhorst, Sapp, & Lazniak, 2003); and the quality and satisfaction of the clothing Web sites (S. Kim & Stoel, 2004). Factors that inhibit online clothing shopping include the inability to try on clothing, concerns about credit card security (E. Y. Kim & Kim, 2004; Kwon & Lee, 2003; Xu & Paulins, 2005), and difficulty assessing quality (Lu & Rucker, 2006). Factors that motivate online clothing shopping include the convenience, fun, and quickness of buying online; prior experience with the Internet (Lu & Rucker, 2006; Xu & Paulins, 2005; Yoh et al., 2003), availability of transportation (Xu & Paulins, 2005); and confidence in ability to purchase clothing online (Goldsmith & Goldsmith, 2002). Not surprisingly, consumers who hold positive attitudes toward online shopping and the Internet (Y. Kim et al., 2003; Yoh et al., 2003), who perceive Internet shopping as being socially acceptable (Yoh et al., 2003), who have previous Internet shopping experience, who are familiar with the brands carried (Park & Stoel, 2005), and who search for information online (M. A. J. Kim & Park, 2005; Watchravesringkan & Shim, 2003) are likely to make clothing purchases online.

Online Food Shopping

Hansen (2005) studied U.S. online consumers to determine what discriminated online grocery shoppers from those who did not purchase groceries online. He found that

perceived compatibility of online grocery shopping discriminated between non-online shoppers, online shoppers who had not purchased groceries online, and online grocery purchasers. Perceived risk, however, did not distinguish the three groups. Morganosky and Cude (2000) surveyed 243 U.S. users of an online grocery service; respondents were primarily young, highly educated women. Convenience was cited by 73% as the primary reason for using the service, whereas 14.8% cited physical constraints; of those, 28% were older than 55. In a follow-up study, convenience was still found to be the most important reason (76.5%), and physical constraints was still the second most important reason (14.7%) for buying groceries online (Morganosky & Cude, 2002). In a small online survey of university staff in the United Kingdom, Rafiq and Fulford (2005) found that respondents placed more importance on convenience than on variety or price as reasons that they purchased groceries online.

Tanskanen, Yrjölä, and Holmström (2002) maintain that effectiveness of the e-grocery business depends on customer density, which suggests that rural areas could not support a pure e-grocery business. The researchers also maintain that the relative cost of acquiring a new e-grocery customer is high in relation to profit margin. This finding underscores the importance of enhancing in-store customer loyalty as a way to convert in-store customers to online customers. In fact, in their study, Rafiq and Fulford (2005) found that for the two most successful grocers studied, 92% and 76% of in-store shoppers also shopped the online store. This finding is consistent with a PricewaterhouseCoopers report (Clark, 2000) that found that of Internet users surveyed, 43% would be more likely to purchase groceries online if they could do so from their regular store.

Online Home-Furnishing Products Shopping

Research that addresses online shopping for home-furnishing products is scarce and its focus is scattered. Nitse, Parker, Krumwiede, and Ottaway (2004) reported that nearly 30% of their study's respondents would purchase home decorations online, such as wall hangings. However, respondents were concerned with product color, and 59% said that they would return home decorations if the color of the product was different from the on-screen representation.

In the same year, Worthy et al. (2004) conducted technology use experiments with rural consumers from six states. The authors were interested in the extent to which guided use of Web sites that sold clothing, home-furnishing products, and food might lead to attitude change among non-Internet users. As compared to participants who had no guided experience, those who had the guided experience had more positive attitudes toward use of the Internet to purchase clothing, home-furnishing products, and food.

Dinlersoz and Hernández-Murillo (2004) noted that although products such as those for home furnishings did not initially sell well online, sales were experiencing sharp growth. Retail Forward (2006) reported that many shoppers of home-furnishing products use the Internet to compare prices and products but want to see and touch the products before purchasing them. However, the report also indicated that the number of people buying home-furnishing products online was expected to grow. Taken together, these research findings suggest that consumers are increasingly willing to purchase home furnishing products online.

Rural Consumers

In the United States, 56 million people live in rural areas, which account for about 80%

of the nation's land (Whitener & McGranahan, 2003). According to the U.S. Census Bureau (1995, 2004a), 21.4% of the U.S. population lived in rural areas in 2000, a decline of 24.8% over 1990. About 30% of the rural population is 60 years or older, compared to 28% of the urban population (U.S. Census Bureau, 2004b), and households including one or more elderly person (65 years old and older) account for a greater proportion of rural households (22.2%) than urban households (20.7%; U.S. Census Bureau, 2004a). In addition, approximately 55% of rural consumers older than 65 report at least one disability (DePoy & Gilson, 2003), suggesting that at least some of them find it difficult to shop in stores. Given these statistics, age and health-related disabilities are overrepresented among rural consumers, and such disabilities might encourage consumers to try forms of nonstore shopping, including online shopping.

Outshopping

As travel outside rural communities became easy, rural consumers began to shop elsewhere (Henderson, 1990, 1994), and downtown rural retailing declined. The dwindling number of retailers in some rural communities (Stone, 1989, 1995) led to fewer local options for acquiring goods and services (Vias, 2004). Alba et al. (1997) suggested that nonstore retail formats (e.g., online shopping) may be attractive in areas that lack a well-developed retail industry (e.g., some rural areas). Thus, some rural consumers may travel in order to shop in regional malls and discount outlets (Leistriz, Ayres, & Stone, 1992), or they may increasingly use alternatives such as online shopping. Shrinking local retail options give rural consumers limited access to the basic goods, such as food and fiber products. In an analysis of the 2004 holiday season, research company Hitwise found U.S.

rural consumers to be 16% more likely than other consumers to shop online (Internet Retailer, 2004). More recently, rural consumers in Wales were found to be more likely than urban consumers to shop online (Ping Wales, 2006). Several researchers have found that distance from retail stores is positively related to online purchasing (Farag, Weltevreden, van Rietbergen, Dijst, & van Oort, 2006; Sinai & Waldfogel, 2004). Thus, online shopping may be attractive and beneficial to rural consumers, especially, those who are aging, homebound, disabled, or far from stores. For example, as previously noted, Morganosky and Cude (2000) found that 14.8% of e-grocery shoppers cite physical constraints, such as being disabled, as the reason that they shop online for groceries. However, little is known about rural consumers' use of online shopping, if satisfaction with local retailing affects whether rural consumers shop online, or if shopping outside the rural community is related to online shopping.

Outshopping is the practice of leaving a local retail trade area to purchase a product or service. It is common in rural communities in the United States (Hawes & Lumpkin, 1984) and elsewhere, such as Finland (Home, 2002; Marjanen, 2000) and Australia (Jarratt & Polonsky, 1993; Polonsky & Jarratt, 1992). In research on traditional rural outshopping, clothing is identified as a product likely to be purchased out of town (Finch & Jones, 1994; Jarratt & Polonsky, 1993; Marjanen, 2000). Darden and Perreault (1976) studied outshopping and type of product purchased; they found different types of outshoppers, such as those who buy appearance-related products (clothing, jewelry) and those who outshop for expensive home products. Home (2002) studied rural grocery outshopping in Finland and found that about two thirds of the sample outshopped for groceries.

Researchers have operationalized outshopping inconsistently. Herrmann and

Beik (1968), Thompson (1971), Reynolds and Darden (1972), and Anderson and Kaminsky (1985) used the number of shopping trips out of the local trading area; however, each study specified a different number of trips as constituting outshopping. For Herrmann and Beik, it was one trip per year; for Thompson and Anderson and Kaminsky, it was one trip in 6 months; and for Reynolds and Darden, it was 12 or more trips per year. Others have operationalized outshopping as the proportion of purchases in dollars made out of the local trading area (Samli & Uhr, 1974).

Miller, Kim, and Schofield-Tomschin (1998) operationalized inshopping as the percentage of shopping for clothing and home furnishings items conducted with local merchants; the authors conceptualized an inshopping-outshopping continuum. Miller (2001) also measured frequency of inshopping and used an inshopping-outshopping continuum. In the current research, we assessed outshopping frequency and conceptualized it as a continuum.

Research on traditional outshopping examines which consumers purchase goods outside their home communities and why they do it. In more than 40 years of research, researchers have consistently found that outshopping is inversely related to satisfaction with local shopping conditions, such as parking (Piron, 2001), product quality (Piron, 2001; 2002; Thompson, 1971), merchandise selection, and price (Herrmann & Beik, 1968; Papadopoulos, 1980; Piron 2001, 2002; Thompson, 1971). Alternatively but supporting the same idea, Miller and Kean (1997) found that intent to shop within one's rural community (as compared to intent to outshop) is positively and most strongly predicted by satisfaction with local retailing. Based on this rationale, Hypothesis 1 was developed.

Hypothesis 1: Satisfaction with local retailing is negatively related to outshopping frequency.

Prior conditions, such as satisfaction with local retailing, affect beliefs about the innovation at the persuasion stage of the decision-making process (Rogers, 1995). This notion is consistent with research on innovations. Olshavsky and Spreng (1996) identified cognitive processes that influence the evaluation of innovations, including forming judgments about the innovation, calculating satisfaction with the currently used (or old) product, comparing the old product to the new (innovation), and forming a belief about whether the new product is better than the old. After assessing satisfaction with the old product, some consumers examined their beliefs about the new product. The research was exploratory, but it suggests that satisfaction with the old product leads to less positive beliefs about the new product. Extending this rationale, we expect satisfaction with current modes of shopping (analogous to an old product) to be negatively related to beliefs about online shopping. Wixom and Todd (2005) have reported empirical support for a general relationship between satisfaction and beliefs. Hypothesis 2 was formulated on the basis of this rationale.

Hypothesis 2: Satisfaction with local retailing is negatively related to beliefs about the Internet and online shopping.

Outshopping can be construed as a precursor to online shopping adoption. In IDT, outshopping can be classified as previous practice, which is hypothesized to predict adoption of the innovation, online shopping. No research was found that studied outshopping in relation to beliefs about the Internet and online shopping. However, outshopping and general beliefs are related. Beliefs that prices and selection are better in foreign retail environments are related to international outshopping (Piron, 2002; Tansuhaj, Ong, & McCullough, 1989). Piron (2002), Papadopoulos (1980), and Thompson (1971) found that outshopping was

related to beliefs about poor-quality merchandise, poor selection of merchandise, and high prices. Because outshopping is related to dissatisfaction with the local retail market, we expected outshopping to be positively related to beliefs about the Internet and online shopping, which led to Hypothesis 3.

Hypothesis 3: Outshopping frequency is positively related to beliefs about the Internet and online shopping.

Both the theory of reasoned action (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975) and the theory of planned behavior (Ajzen, 1985) posit that beliefs about a behavior affect performance of the behavior. Thus, in the context of online shopping, it is reasonable to expect that beliefs about online shopping and the Internet will influence decisions to shop online. Indeed, Lee and Littrell (2005) found that beliefs about a commercial Web site affected purchase intent from that Web site. This idea is consistent with that by Rogers (1995), who noted that beliefs affect the initial adoption decision and decisions about continued use of an innovation. Olshavsky and Spreng (1996) also suggested that beliefs are related to adoption. Finally, Porter and Donthu (2006) found that beliefs about the Internet affect attitudes toward and use of the Internet, whereas Monzuwe, Dellaert, and de Ruyter (2004) argue that beliefs about ease of use, usefulness, and enjoyment affect online shopping intent. These considerations provided the rationale for Hypothesis 4.

Hypothesis 4: Beliefs about the Internet and online shopping are related to online shopping purchase frequency in 2000.

Rogers (1995) contended that previous practice, such as past experience, affects adoption of innovations. There is considerable support for such a relationship: Internet

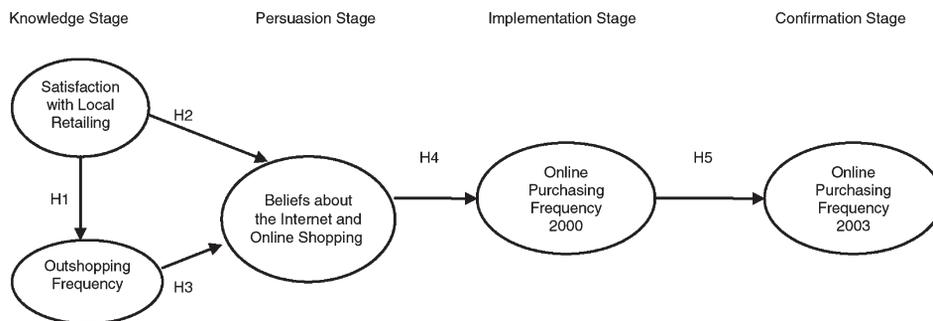


Figure 1. Proposed Model and Hypotheses

use experience is related to online purchasing (Bellman, Lohse, & Johnson, 1999; Bhatnagar, Misra, & Rao, 2000; Citrin, Sprott, Silverman, & Stem, 2000; Goldsmith & Goldsmith, 2002; Lohse, Bellman, & Johnson, 2000; Miyazaki & Fernandez, 2001; Siu & Cheng, 2001; Slyke, Comunale, & Belanger, 2002). Online shopping intent is related to previous online search experience (Shim, Eastlick, Lotz, & Warrington, 2001). Finally, intent to purchase clothing online is predicted by previous experience with another nonstore medium—catalogs (Goldsmith & Flynn, 2005; Yoh et al., 2003). Based on this rationale, Hypothesis 5 was formulated (see Figure 1 for proposed model comprising Hypotheses 1–5).

Hypothesis 5: Online shopping in 2000 is positively related to online shopping purchase frequency in 2003.

Given the nature of innovation diffusion as a process (Rogers, 1995) and the research presented in support of the first five hypotheses, we expected indirect effects among the variables measured. For instance, we have argued that rural consumers have reason to be dissatisfied with local shopping choices. Research shows that dissatisfaction with local shopping choices drives outshopping. Rural consumers have fewer stores from which to shop in their communities (Vias, 2004), and we know that people are more likely to shop on-

line when they have few nearby stores from which to shop (Farag et al., 2006). Sinai and Waldfogel (2004) found that online shopping likelihood is positively related to distance from retail stores. As such, we expected that among rural consumers, satisfaction with local shopping might be negatively related to online shopping. Therefore, we hypothesized the following indirect effects:

Hypothesis 6: Satisfaction with local retailing is indirectly and negatively related to beliefs about the Internet and online shopping.

Hypothesis 7: Satisfaction with local retailing is indirectly and negatively related to online purchase frequency in 2000 and 2003.

Hypothesis 8: Outshopping frequency is indirectly and positively related to online purchase frequency in 2000 and 2003.

Hypothesis 9: Beliefs about the Internet and online shopping is indirectly and positively related to online purchase frequency in 2003.

Method

Pilot Study

A preliminary form of the research instrument was pilot-tested on a random mail sample of consumers from rural communities in five states (Colorado, Minnesota, Ohio, North Dakota, South Dakota) during

the summer of 1999 (Johnson et al., 2000). No problems were found with the questionnaire. The typical respondent was 58 years old with a college education who had lived in a community of roughly 5,600 people for nearly 28 years and who drove 23 miles per week for regular shopping. Among 162 respondents (84 men, 78 women), 56% did not use the Internet, and 77% indicated that they had spent nothing online during the last 6 months. However, more than 20% of respondents had purchased something online. This result indicates that among these rural consumers, a higher percentage were online shoppers than what would be expected in the general population, and it suggests that rural consumers may likely be online purchasers.

Sampling for Main Study

Areas and populations are classified as *urban* if located in urbanized areas and urban clusters (U.S. Census Bureau, 2005); areas are classified as *rural* if located outside urbanized areas and urban clusters. However, the definitions of urbanized areas and urban clusters are complex and not simply related to population size. For example, an area with a population of 2,501 may be classified as urban cluster if densely settled and adjacent to a urbanized area. Adding to the confusion regarding what is rural, the Farm Security and Rural Investment Act (2002) defines rural in three ways, depending on rural development programs. Business programs define *rural* as any area other than a city or town with a population of 50,000 or more residents (U.S. Department of Agriculture, 2002b); water and waste disposal programs define *rural* as an area with no more than 10,000 inhabitants (U.S. Department of Agriculture, 2002c); and community facility programs define *rural* as an area with a population of no more than

20,000 residents (U.S. Department of Agriculture, 2002a).

Researchers have also defined rural differently. Miller and colleagues (Miller, 2001; Miller & Kean, 1997; Miller & Kim, 1999) defined a rural area as one with a population of 10,000 or fewer, a location in a nonstandard metropolitan county or a nonstandard metropolitan statistical area, and an economy based on agriculture; however, they acknowledge that there are many definitions for *rural community* (Miller & Kim, 1999). Polonsky and Jarratt (1992) defined a rural area as one with a population of 20,366; Wayland, Simpson, and Kemmerer (2003) used a community of 20,000 to define their rural area. Jarratt and Polonsky (1993), Sullivan and Savitt (1997), and Sullivan, Savitt, Zheng, and Cui (2002) did not specify how they defined a rural area. Home (2002) defined a rural territory as a sparsely populated area. Finally, we define *rural* as constituting areas in nonstandard metropolitan statistical area counties with populations of 12,500 or fewer. This definition is consistent with Code 7 of the 2003 Rural-Urban Continuum Code, where 1 is the most urban and 9 is the most rural (Economic Research Service, 2004).

A mailing list of consumers from nonstandard metropolitan statistical areas in 11 states (Colorado, Illinois, Iowa, Kentucky, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin) was purchased from a national sampling firm, with the intent to sample from communities with populations of 10,000 residents or fewer. However, at the time, the 2000 census figures were not yet available, and U.S. Census Bureau estimates were needed to identify appropriate zip codes. To compensate for population loss during the 1990s in some towns, we increased the upper population limit to 12,500. Targeted zip codes were provided to the sampling firm based on U.S. Census Bureau population estimates and postal re-

cords. Extrapolating from census data (U.S. Census Bureau, 2000), we estimated that of the approximately 51 million consumers in the 11-state region, about 26% lived in rural areas. Questionnaires were sent to heads of households ($n = 8,085$), and an equal number of households ($n = 735$) was randomly selected in each state. The 11 states differed in terms of percentages of rural and urban residents (U.S. Census Bureau, 2000), ranging from 51% rural in Mississippi to 12% rural in Illinois. Thus, the sample was not representative of the 11 states, because the rural residents of some states were oversampled.

Procedure

Via the Salant and Dillman mail survey method (1994), a questionnaire booklet, cover letter, and self-addressed stamped envelope were mailed in May 2000. Reminder postcards were mailed 8 days later. A second questionnaire was sent to nonrespondents 3 weeks after the first mailing. Instructions indicated that (a) the adult in the household who did the most shopping should complete the questionnaire, (b) unanswered questionnaires should be returned, and (c) a results summary could be requested. No incentive was offered. In 2003, the same procedure was used, and questionnaire booklets, cover letters, and self-addressed stamped envelopes were sent to all who had responded to the 2000 survey.

Instrument

The pilot instrument was expanded, and 30 five-point Likert-type items (5 = *strongly agree*, 1 = *strongly disagree*) assessed beliefs about the Internet and online shopping. We developed some of the items, and some came from previous research (Johnson et al., 2000; Yoh & Damhorst, 1999). Online purchasing

frequencies for clothing, food, and home-furnishing products (i.e., linens, draperies, towels) were each measured using a 5-point scale (1 = *never*, 5 = *at least once a week*). For each of the three products, outshopping frequencies and online information search were assessed using the same 5-point scale. Using another 5-point scale, respondents indicated their satisfaction (1 = *not satisfied*, 5 = *satisfied*) with local retail shopping for clothing, food, and home furnishings in their communities. The number of people in the household, the length of time in the current community, the population of the community, age, and distance traveled weekly to shop were provided in an open-ended format. Annual household income, education, sex, disabled status, homebound status, access to the Internet ("Do you have access to the Internet?"), and use of the Internet ("Do you use the Internet?") were asked via a closed-ended format. These items were completed on both surveys.

Results

Preliminary Analyses

To estimate nonresponse bias, a comparison was made of demographic characteristics of early responders (approximately, the first 25% to return) and late responders (approximately, the last 25% to return), given that late responders are similar to nonresponders (Armstrong & Overton, 1977). Using two multivariate analyses of variance (one for 2000, one for 2003) with time of response (early, late) as the independent variable and with demographic characteristics as the dependent variables, no significant differences were found, $F(10, 358) = .596, p > .80$ (for 2000); $F(10, 355) = .477, p > .90$ (for 2003). Thus, across both samples, early and late responders did not differ on distance traveled weekly to shop, number in household,

Table 1. Demographic profile of respondents who completed both 2000 and 2003 surveys

Value	<i>n</i>	%	U.S. Rural Population (%) ^a
Sex			
Male	308	36.4	49.8
Female	532	62.8	50.2
Age (<i>M</i> = 58) ^b			
21-24	4	.5	35.8
25-44	153	18.4	29.8
45-64	370	44.5	20.5
65 and older	304	36.6	13.9
Education			
Less than high school education	41	4.9	28.8
High school or equivalent	252	29.8	35.7
Some college or equivalent	309	36.5	22
College degree, some graduate work, or graduate degree	244	28.8	13.5
Household income			
Under \$25,000	219	28.5	45.3
\$25,000 to \$49,999	282	36.7	34.9
\$50,000 to \$74,999	151	19.7	13.1
\$75,000 and above	116	15.1	6.7
Years in community (<i>M</i> = 32.7)			
Under 15	203	24.2	
15-29	197	23.5	
30-44	196	23.3	
45-59	145	17.3	
60 and above	98	11.7	
Miles traveled for weekly shopping (<i>M</i> = 15.4 miles)			
Under 15	496	60.1	
15-29	184	22.3	
30-44	91	11.1	
45 and above	54	6.5	
Community size (<i>M</i> = 3,525)			
Under 2,000	363	43.1	
2,000-3,999	175	20.7	
4,000-5,999	109	12.9	
6,000-7,999	84	10.0	
8,000 and above	112	13.3	

a. Extrapolated from 2000 census figures (U.S. Census Bureau, 2000).

b. Age reported in 2003 data.

homebound status, report of physical disability, length of time in current community, sex, age, income, population of community, or education level.

Sample characteristics. In 2000, there were 8,085 questionnaires mailed; 2,198 respondents returned usable questionnaires ($n =$

764 men, $n = 1,408$ women, $n = 26$ with no information on sex) for a response rate of 28%. In the second data collection, questionnaires were mailed to the 2,198 respondents. Usable questionnaires were returned by 847 consumers ($n = 308$ men, $n = 532$ women, $n = 7$ with no information on sex), for a response rate of 38.4%. This research focused on the 847 respondents who completed both questionnaires. More than 60% of respondents were women, and 37% of respondents were older than 65. Most respondents (65%) had at least some college education. The most common income category was \$25,000-\$49,999. Respondents lived in communities of 3,525 people on average (range: 22 to 11,163), had resided there for an average of 32.7 years, and traveled an average of 15.4 miles per week to shop. This sample was older and better educated than the average U.S. rural consumer (see Table 1). Respondents' access and use of the Internet was fairly high, with 54.5% indicating that they had access to the Internet and with 49.5% indicating that they used the Internet. Although not exactly comparable, these figures compare fairly well with results from a survey by Pew Internet and American Life (Fox, 2004), which found that 58% of U.S. respondents between the ages of 50 and 64 use the Internet and that 22% of those older than 65 do. In 2003, 53 respondents self-identified as *disabled*, and 19 said that they were homebound (see Table 2). Of all who self-identified as being disabled, about 20% used the Internet in 2003 to search for information about food; the respective figures for clothing and home-furnishing products were 13% and 11%. Food was the product most often purchased online by disabled and homebound consumers in 2003.

Exploratory factor analysis. Exploratory factor analysis of the 30 belief items yielded three factors with eigenvalues greater than 1

Table 2. Homebound and disabled respondents who searched for or purchased products online in 2000 and 2003

	Homebound: 2000 <i>n</i> = 9 (%)	Homebound: 2003 <i>n</i> = 19 (%)	Disabled: 2000 <i>n</i> = 51 (%)	Disabled: 2003 <i>n</i> = 53 (%)
Information search				
Food	1 (11.1)	5 (26.3)	5 (9.8)	11 (20.8)
Clothing	2 (22.2)	5 (26.3)	4 (7.8)	7 (13.2)
Home furnishings	2 (22.2)	4 (21.1)	2 (3.9)	6 (11.3)
Product purchase				
Food	0 (0.0)	4 (21.1)	0 (0.0)	6 (11.3)
Clothing	1 (11.1)	2 (10.5)	1 (2.0)	5 (9.4)
Home furnishings	0 (0.0)	1 (5.3)	3 (5.9)	3 (5.7)

that accounted for 55% of the variance. Items were dropped if factor loadings were less than .40 (Field, 2005; Loewenthal, 2001; Stevens, 1992) and if they cross-loaded at .40 or more. Based on factor loadings, Cronbach's alphas, and percentage of variance explained by each factor, the three belief factors were defined and labeled as such:

AOS: Advantages of Online Shopping
 COS: Compatibility of Online Shopping
 BI: General Beliefs About the Internet

Reliabilities of the three factors were adequate—Cronbach's alphas were greater than .94, .92, and .84, respectively (see Table 3). Items within factors were summed to generate three indicators for the beliefs about the Internet and Internet shopping latent variable.

Structural Equation Modeling Analysis

The first research objective was to test IDT by examining relationships among variables identified by the theory. IDT focuses on changes in adoption, and in the context of this research, that means a focus on changes in adoption of online shopping. To assess change in adoption over time and variables

related to the change, data collected in 2000 were used to predict online purchase frequency in 2000 and 2003. Structural equation modeling using LISREL 8.71 (Jöreskog & Sörbom, 2004) was used for the analysis (see Table 4 for the input covariance matrix). The proposed model consisted of five latent variables—one exogenous latent variable (ξ), satisfaction with rural retailing, and four endogenous latent variables (η)—namely, out-shopping frequency, beliefs about the Internet and Internet shopping, online purchase frequency in 2000, online purchase frequency in 2003—each of which had three manifest variables (indicators) that related to food, clothing, and home-furnishing products. Beliefs about the Internet and Internet shopping had as indicators the three belief factors.

Model fit. Figure 2 illustrates model fit indices and parameter estimates for the proposed model. Because the chi-square statistic is sensitive to a large sample size, the significant value for the model was not surprising, $\chi^2 = 315.57$, $df = 85$, $p < .001$. All other fit indices suggest that the proposed model fits the data reasonably well: adjusted goodness of fit index = .93, non-normed fit index = .95,

Table 3. Factor loadings and reliability scores of the three belief factors

Factor and Items	Factor Loadings
Factor 1: Advantages of Online Shopping ^a	
Shopping on the Internet is faster than shopping in stores.	.616
Products purchased using the Internet are delivered quickly.	.794
Shopping via the Internet is easy.	.830
Internet shopping sites carry the brands I like.	.732
Internet shopping is convenient.	.799
Prices of merchandise sold on the Internet are reasonable.	.813
Internet shopping sites give good customer service.	.866
Internet shopping sites offer good values.	.777
Factor 1: Cronbach's $\alpha = .947$	
Factor means: 2000 = 2.888. Factor means: 2003 = 3.050.	
Factor 2: Compatibility of Online Shopping ^b	
I plan on buying things using the Internet.	.779
Internet shopping fits with my lifestyle.	.926
Internet shopping is useful.	.795
Factor 2: Cronbach's $\alpha = .926$.	
Factor means: 2000 = 2.324. Factor means: 2003 = 2.574.	
Factor 3: General Beliefs About the Internet ^c	
I like the Internet.	.777
I find it challenging to keep up-to-date with Internet applications.	.445
The Internet is a great convenience.	.631
It is easy for me to access the Internet.	.700
Factor 3: Cronbach's $\alpha = .845$.	
Factor means: 2000 = 3.341. Factor means: 2003 = 3.379.	

comparative fit index = .96, normed fit index = .95, goodness of fit index = .95, root mean square error of approximation = .057 (90% confidence interval = .051, .064).

Measurement model. Table 5 presents the measurement parameters estimated in the model and the average variance extracted of all latent constructs. All standardized path coefficients of the measurement model were significant ($\lambda = .46-.89$, $p < .001$), indicating the validity of the items for each latent construct. Although some path coefficients had low values ($< .50$), the average variance extracted of all latent constructs exceeded the critical value of .50, identified by Bagozzi and Yi (1991), Fornell and Larcker (1981), and

Segars (1997), to indicate that the measures are representative of the latent construct.

Structural model: Hypotheses testing. All path coefficients were significant in the hypothesized directions (see Figure 2). Hypothesis 1 predicted that satisfaction with local retailing would be negatively associated with out-shopping frequency. Because the direct effect of satisfaction with local retailing on out-shopping frequency was negative and significant ($\gamma_{11} = -.37$, $t = -8.05$, $p < .001$), Hypothesis 1 was supported. Hypothesis 2 proposed that satisfaction with local retailing would be negatively related to beliefs about the Internet and online shopping, and this hypothesis was supported: Satisfaction with local retail-

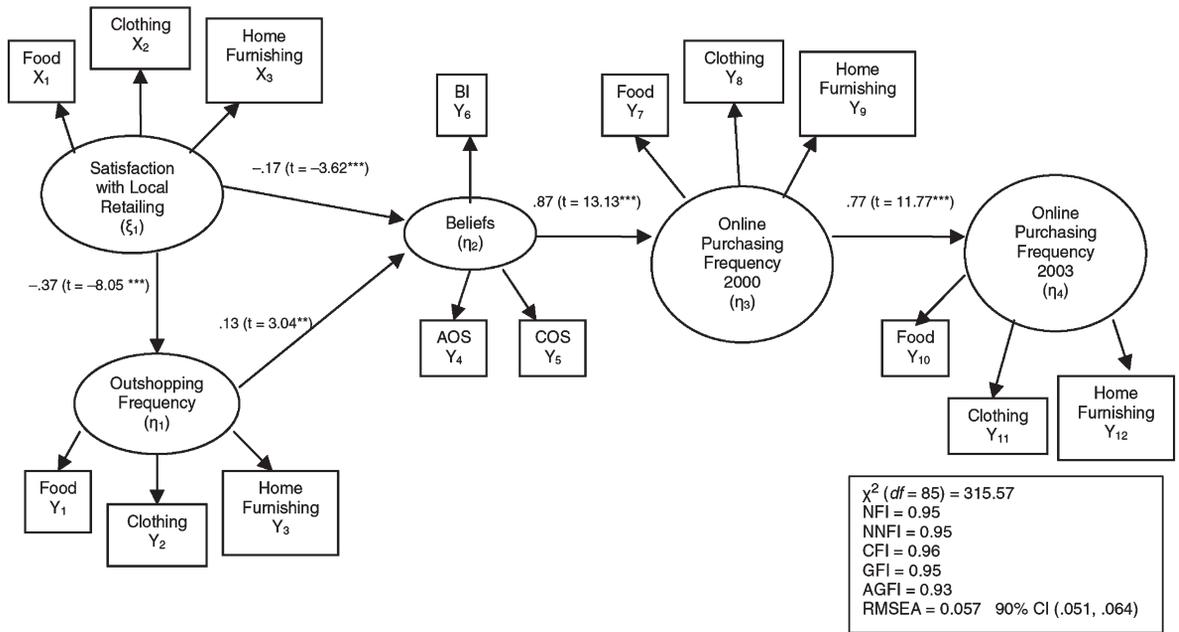


Figure 2. Model fit indices and path coefficients for structural model tested in the study
 All paths are significant. AOS = Advantages of Online Shopping; COS = Compatibility of Online Shopping; BI = General Beliefs About the Internet.

** $p < .01$, *** $p < .001$.

ing has a significant direct impact on beliefs about the Internet and online shopping ($\beta_{21} = -.17, t = -3.62, p < .001$), and the relationship is negative, as expected.

Hypothesis 3 predicted that outshopping frequency would be positively related to beliefs about the Internet and online shopping; the direct effect of outshopping frequency on beliefs is significant and positive ($\beta_{21} = .13, t = 3.04, p < 0.01$), thus supporting Hypothesis 3. Hypothesis 4 proposed that beliefs about the Internet and online shopping would be positively associated with online purchase frequency of clothing, food, and home-furnishing products in 2000. Results show a positive direct effect for beliefs about the Internet and online shopping on online purchase frequency in 2000 ($\beta_{32} = .87, t = 13.13, p < .001$). Thus, Hypothesis 4 was supported.

Hypothesis 5 predicted a longitudinal effect, namely, that online purchase frequency of clothing, food, and home-furnishing products in 2000 would be positively related to online purchase frequency in 2003. As expected, online purchase frequency in 2000 had a significant direct effect on online purchase frequency in 2003 ($\beta_{43} = .77, t = 11.77, p < .001$). Because the nature of the relationship is positive, Hypothesis 5 was supported.

Indirect effects. Satisfaction with local retailing is indirectly related to beliefs through outshopping (path coeff. = $-.05, t = -.88, p < .01$), thus supporting Hypothesis 6. Satisfaction with local retailing is indirectly related to online purchase frequency in 2000 (path coeff. = $-.19, t = -4.81, p < .001$) through outshopping and beliefs, thus supporting Hypothesis 7. In

Table 4. Covariance matrix analyzed in the study

	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	X1	X2	X3
Y1	1.5164														
Y2	.5394	1.0491													
Y3	.4409	.6508	.9878												
Y4	.0501	.2104	.1692	1.1374											
Y5	.0079	.1116	.0922	.6833	1.4756										
Y6	.0618	.1286	.0987	.5089	.6487	.7305									
Y7	.0002	.0354	.0004	.1161	.1754	.1022	.2271								
Y8	.0079	.0399	.0491	.1869	.3237	.1728	.0907	.3002							
Y9	.0154	.0294	.0612	.0812	.1573	.0751	.0499	.1225	.1584						
Y10	.0003	.0284	.0161	.0793	.1240	.0428	.0769	.0539	.0363	.2994					
Y11	.0181	.0469	.0480	.2707	.3890	.2020	.1155	.2236	.0933	.1744	.5740				
Y12	.0151	.0131	.0361	.1069	.1804	.0899	.0573	.0824	.0552	.0924	.1893	.2171			
X1	-.3177	-.2359	-.1622	-.1827	-.1786	-.1390	-.0350	-.0707	-.0343	-.0702	-.1314	-.0370	1.6056		
X2	-.3374	-.3867	-.2751	-.1981	-.1848	-.1989	-.0529	-.0992	-.0487	-.0508	-.1159	-.0614	.9417	2.0518	
X3	-.3153	-.2940	-.3383	-.1491	-.1771	-.1477	-.0291	-.1032	-.0515	-.0556	-.0814	-.0714	1.4249	.9534	2.0358

Outshopping frequency: Y1 = food, Y2 = clothing, Y3 = home furnishings. Y4 = Advantages of Online Shopping.

Y5 = Compatibility of Online Shopping. Y6 = General Beliefs About the Internet.

Online purchasing frequency in 2000: Y7 = food, Y8 = clothing, Y9 = home furnishings.

Online purchasing frequency in 2003: Y10 = food, Y11 = clothing, Y12 = home furnishings.

Satisfaction with local retailing: X1 = food, X2 = clothing, X3 = home furnishings.

addition, satisfaction with local retailing is indirectly related to online purchase frequency in 2003 through outshopping, beliefs, and online purchase frequency in 2000 (path coeff. = $-.14$, $t = -4.63$, $p < .001$), also as predicted by Hypothesis 7. As indicated by the t values, all those relationships are negative. Furthermore, outshopping is indirectly related to online purchase frequency in 2000 (path coeff. = $.12$, $t = 2.99$, $p < .01$), and it indirectly affects online purchase frequency in 2003 (path coeff. = $.09$, $t = 2.94$, $p < .01$). The relationships are positive, and these findings support Hypothesis 8. Finally, beliefs are indirectly related to online purchase frequency in 2003 (path coeff. = $.67$, $t = 10.44$, $p < .001$), and the relationship is positive, thus supporting Hypothesis 9.

Analyses of Variance

Analyses of variance and mean comparisons were calculated from the 2003 data to

address the second research objective. The independent variable is product category, which has three levels: clothing, food, home-furnishing products. Significant main effects were found for product category on satisfaction with local retailing, $F(2, 822) = 390.91$, $p < .001$, on outshopping frequency, $F(2, 782) = 150.12$, $p < .001$, and on online shopping frequency, $F(2, 798) = 49.92$, $p < .001$ (see Table 6 for means, standard deviations, and mean comparisons). Respondents were significantly more satisfied with local retailing for food than for clothing or home-furnishing products. Satisfaction with local retailing for home-furnishing products is significantly higher than it is for clothing, though both are slightly below the midpoint of the scale. Respondents outshopped significantly more for food than for clothing or home-furnishing products and more for clothing than for home-furnishing products. The outshopping frequency means were close to the midpoint

Table 5. Measurement parameters estimated in the model

Items	Standardized Coefficients	<i>t</i>	Average Variance Extracted ^a
Satisfaction with local retailing (ξ_1) ^b			.70
Shopping for food in local community (x_1)	.63	18.75	
Shopping for clothing in local community (x_2)	.84	25.99	
Shopping for home furnishings in local community (x_3)	.83	25.76	
Outshopping frequency (η_1) ^c			.65
Nonlocal food stores (y_1)	.52	13.79	
Nonlocal clothing stores (y_2)	.85	22.35	
Nonlocal home furnishings stores (y_3)	.75	20.45	
Beliefs about the Internet and online shopping (η_2)			.77
Advantages of Online Shopping (y_4)	.68	24.38	
Compatibility of Online Shopping (y_5)	.83	26.13	
General beliefs of the Internet (y_6)	.78	20.68	
Online purchasing frequency in 2000 (η_3)			.54
Use the Internet to purchase food (y_7)	.46	12.19	
Use the Internet to purchase clothing (y_8)	.85	20.64	
Use the Internet to purchase home furnishings (y_9)	.61	16.33	
Online purchasing frequency in 2003 (η_4)			.58
Use the Internet to purchase food (y_{10})	.48	12.51	
Use the Internet to purchase clothing (y_{11})	.89	17.07	
Use the Internet to purchase home furnishings (y_{12})	.62	16.05	

All values significant at $p < .001$.

a. Minimum standard is .50 (Bagozzi & Yi, 1991; Fornell & Larcker, 1981; Segars, 1997).

b. Exogenous latent variable.

c. Endogenous latent variable.

of the scale for clothing and food but somewhat lower for home-furnishing products. Clothing was purchased online significantly more than food or home-furnishing products, although no difference was found in online purchase frequency of food and home-furnishing products. Overall, purchase frequencies for all three product categories are low (less than once or twice per year), and differences, though significant, are relatively small.

Changes in online shopping. Descriptive statistics were used to address the third research objective. Twenty-one respondents purchased clothing online in 2000 but did not in 2003 (dropouts), whereas 89 did not pur-

chase clothing online in 2000 but did in 2003 (new adopters) and 94 purchased clothing in 2000 and 2003 (continuous adopters). Regarding online purchases for home-furnishing products, 21 respondents were dropouts, 64 were new adopters, and 25 were continuous adopters. With respect to online food purchases, 38 respondents were dropouts, 50 were new adopters, and 30 were continuous adopters. Compared to food and home-furnishing products, more respondents adopted online shopping to purchase clothing. Table 7 presents frequencies and percentages of respondents who purchased products online in 2000 and 2003. In general, online purchasing increased among respondents for all prod-

Table 6. Satisfaction, outshopping, and online purchasing of food, clothing, and home-furnishing products in 2003: Means, standard deviations, and comparisons

Item	<i>M (SD)</i>	Comparison	Least Significant Difference (<i>M</i>)
Satisfaction with local retailing			
Food	3.95 (1.27)	Food versus clothing	1.25***
Clothing	2.70 (1.43)	Food versus home	1.10***
Home furnishings	2.85 (1.43)	Clothing versus home	-0.15***
Outshopping frequency			
Food	3.24 (1.27)	Food versus clothing	0.31***
Clothing	2.93 (1.43)	Food versus home	0.72***
Home furnishings	2.52 (0.99)	Clothing versus home	0.41***
Online purchase frequency			
Food	1.17 (0.55)	Food versus clothing	-0.20***
Clothing	1.37 (0.76)	Food versus home	0.02
Home furnishings	1.15 (0.46)	Clothing versus home	0.22***

*** $p < .001$

uct categories from 2000 to 2003. In addition, whereas 155 respondents purchased one of the three products in 2000, 221 had purchased at least one of them by 2003. Thus, online purchasing increased over the 3-year period.

Changes in belief scores. Part of the third research objective was to investigate possible changes in participants' belief scores over time. To do so, we conducted paired-sample *t* tests using mean belief factor scores across the 2000–2003 period. We were interested in the extent to which belief scores changed for dropouts, continuous adopters, and new adopters (see Table 8). There are no significant changes among dropouts' belief scores for food or home-furnishing products; there is, however, a significant drop for clothing but only for general beliefs about the Internet. No significant changes were found in belief scores for continuous adopters with respect to food. However, beliefs about the compatibility of online shopping did increase for continuous adopters of clothing.

In addition, and contrary to what IDT would predict, general beliefs about the Internet decreased for continuous adopters of home-furnishing products. Given the low number of dropouts and continuous adopters for food and home-furnishing products, the related results should not be relied on. Consistent significant changes were found in the category of new adopters across all three target product categories. For new adopters of food and clothing, all mean belief scores increased over the 3-year period. For new adopters of home-furnishing products, beliefs about the compatibility of online shopping and the advantages of online shopping increased over the period.

Discussion

Two characteristics of this research deserve mention. First, actual behavioral frequencies were measured (outshopping and online shopping frequencies). Many researchers of

Table 7. Online shopping in 2000 and 2003 by number and percentage of respondents

Product	Purchased (2000)	Purchased (2003)
	<i>n</i> (%)	<i>n</i> (%)
Food	69 (8.15)	81 (9.56)
Clothing	114 (13.46)	189 (22.31)
Home furnishings	47 (5.55)	92 (10.86)
Food and clothing	17 (2.00)	24 (2.83)
Clothing and home furnishings	20 (2.36)	46 (5.43)
Food and home furnishings	0 (0.00)	3 (0.35)
Food, clothing, and home furnishings	19 (2.24)	33 (3.90)
Any of the three products	155 (18.30)	221 (26.09)

Percentages are based on the 847 respondents who responded to both surveys (2000 and 2003).

online shopping measure consumers' intentions, just as some researchers of outshopping measure outshopping or inshopping intentions. Additionally, our study is important for providing a longitudinal perspective of rural consumers' online shopping adoption for food and fiber products, whereas most other studies of online shopping are cross-sectional. Longitudinal research is important because it allows for an assessment of change.

To address the first research objective, structural equation modeling was used to examine relationships among the variables identified by IDT as being important. Among the respondents, satisfaction with local shopping for food, clothing, and home-furnishing products was negatively related to outshopping frequency (Hypothesis 1). This result is consistent with previous research (Miller & Kean, 1997; Papadopoulos, 1980; Samli et al., 1983). Satisfaction with shopping for food, clothing, and home-furnishing products in rural communities is also negatively related to favorable beliefs about the Internet and online shopping (Hypothesis 2). This is consistent with IDT (Rogers, 1995), which posits

that prior conditions, such as satisfaction with local retailing, affect belief structures. Also, the more frequently that consumers outshop for food, clothing, and home-furnishing products, the more favorable their beliefs are about the Internet and online shopping (Hypothesis 3). These findings are also consistent with Rogers's work (1995). Previous practice (e.g., shopping out of the local community) affects the knowledge stage, which in turn affects belief structures.

Favorable beliefs about the Internet and online shopping are associated with more frequent online purchasing of food, clothing, and home-furnishing products in 2000 (Hypothesis 4). This result is consistent with the research of Rogers (1995), Ajzen and Fishbein (1980), and Ajzen (1985), who all noted that beliefs about a behavior affect performance of the behavior. Online purchase of clothing, food, and home-furnishing products in 2000 is positively related to online purchasing in 2003 (Hypothesis 5). This result is consistent with the work of Rogers and others (Goldsmith & Goldsmith, 2002; Shim et al., 2001; Yoh et al., 2003) who found that previous experience influences innovation adoption. However, rather than collect data over a longitudinal time frame, those researchers simply asked respondents about previous purchasing at the same time that they assessed current purchasing. No published research was found that focused on direct relationships between satisfaction with local retailing and rural consumers' current or future online shopping, between traditional outshopping and rural consumers' current or future online shopping, or between beliefs about online shopping and future online shopping behavior.

However, the nature of innovation diffusion as a process, with empirical research focusing on the intermediate links in our model, suggest that such relationships might form over time; to assess these possibilities,

Table 8. Paired sample *t* tests: Changes in belief scores (2000–2003)

	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>
New adopters in 2003 of food online shopping				
BI	-.36	0.86	-2.94**	48
COS	-.85	1.16	-5.15***	49
AOS	-.72	0.81	-6.02***	45
New adopters in 2003 of clothing online shopping				
BI	-.19	0.75	-2.34*	83
COS	-.88	1.00	-8.09***	84
AOS	-.61	0.78	-7.03***	80
New adopters in 2003 of home-furnishing products online shopping				
BI	-.14	0.65	-1.70	62
COS	-.85	1.10	-6.17***	62
AOS	-.55	0.86	-4.97***	59
Dropouts in 2003 of food online shopping				
BI	.20	0.67	1.79	36
COS	-.19	1.06	-1.09	36
AOS	.11	0.68	0.96	37
Dropouts in 2003 of clothing online shopping				
BI	.55	0.56	4.51***	20
COS	.43	0.95	2.04	19
AOS	.10	0.59	0.76	19
Dropouts in 2003 of home-furnishing products online shopping				
BI	.27	0.66	1.90	20
COS	.00	1.41	0.00	20
AOS	-.20	0.60	-1.50	20
Continuous adopters of food online shopping				
BI	.17	0.50	1.84	28
COS	-.24	1.05	-1.28	29
AOS	-.11	0.60	-1.02	29
Continuous adopters of clothing online shopping				
BI	.03	0.54	0.53	91
COS	-.23	1.07	-2.09*	93
AOS	-.10	0.73	-1.34	92
Continuous adopters of home-furnishing products online shopping				
BI	.17	0.37	2.23*	23
COS	.23	0.86	1.31	24
AOS	.04	0.53	0.33	24

Belief scores from 2003 were subtracted from belief scores from 2000 so that negative mean differences denote more positive beliefs. BI = Beliefs About the Internet; COS = Compatibility of Online Shopping; AOS = Advantages of Online Shopping. * $p < .05$; ** $p < .01$; *** $p < .0005$

we hypothesized several indirect effects and found them to be significant. Satisfaction is indirectly and negatively related to beliefs about the Internet and online shopping (Hypothesis 6). The more satisfied consumers are

with local retailing, the less favorable their beliefs are regarding the Internet and online shopping. One possible explanation is that for rural consumers, online shopping may simply be another way to shop outside the ru-

ral community. This result is consistent with Olshavsky and Spreng's evaluation process model (1996). Applying their model to our data suggests that if consumers conceptualize online shopping as a subcategory of outshopping, they may have extended their positive beliefs about outshopping to online shopping and the Internet. If that type of extended inference did occur, then the chain of events might be as follows: Dissatisfaction with local retailing drives outshopping; rural consumers associate online shopping with outshopping—just a different way to get goods outside the rural community; because consumers like outshopping, they think that they will like online shopping (and the Internet); thus, dissatisfaction with local retailing is indirectly related to beliefs about the Internet and online shopping.

Satisfaction is also indirectly and negatively related to online purchase frequency in 2000 and 2003 (Hypothesis 7). In both cases, the more satisfied that rural consumers were with local retailing in 2000, the less frequently they purchased online in 2000 and 2003. As these relationships demonstrate, dissatisfaction with local retailing is so powerful that it continued to indirectly affect online purchase frequency 3 years after it was measured. Previous researchers had related satisfaction to outshopping but not to online shopping. This result is important, and it suggests that rural consumers may be an important potential market for online merchants, particularly when considering that access to goods in rural communities has dwindled given that the number of rural retail outlets has declined (Vias, 2004). The fact that satisfaction predicts outshopping and online shopping may suggest that outshopping and online shopping are analogous responses in the rural environment. The same variables that drive outshopping could drive online shopping; researchers might extend research on online shopping by using variables found to affect outshopping.

In addition to these indirect effects, outshopping is indirectly related to purchasing in 2000 and 2003 (Hypothesis 8), and the relationships are positive. In each case, rural consumers who frequently shop out of their rural communities for food, clothing, and home-furnishing products tend to purchase the three target categories more frequently online. Previous researchers (Piron, 2001; Wayland et al., 2003) have conceptualized online shopping as a form of outshopping but had not established the relationship empirically. Thus, rural consumers may evolve from outshopping to online shopping as an extension of outshopping behavior. These results further support the application of outshopping research findings to online shopping.

Finally, there is a significant positive indirect effect for beliefs about the Internet and online shopping on online purchase frequency for food, clothing, and home-furnishing products in 2003 (Hypothesis 9). Rural consumers holding favorable beliefs about the Internet and online shopping in 2000 tended to be frequent online purchasers of food, clothing, and home-furnishing products in 2003. Thus, beliefs as measured in 2000 influenced the decision to adopt online shopping for food, clothing, and home-furnishing products in 2000, as well as the decision to continue adopting in 2003. These results are consistent with the work of Rogers (1995), who outlined how belief structures affect the initial decision to adopt an innovation, as well as the decision to continue to adopt an innovation.

In summary, the analysis of indirect effects demonstrates that satisfaction with local retailing is negatively related to beliefs about the Internet and online shopping and that satisfaction with local retailing, outshopping frequency, and beliefs about the Internet and online shopping are important predictors of online shopping adoption by rural consumers. These results provide sup-

port for the longitudinal nature of innovation diffusion.

To address the second research objective, we compared rural consumers' levels of satisfaction with local retailing, outshopping frequency, and online shopping frequency for the target products. Significant differences were found for satisfaction with shopping in home communities across the three products in 2003. Rural consumers were satisfied with shopping for food in their home communities and were neutral in their satisfaction with shopping for home-furnishing products and clothing. Respondents outshopped for food slightly more often than every few months; they outshopped for clothing slightly less often than every few months; and they outshopped for home-furnishing products slightly more often than once or twice a year. These differences may reflect the frequency with which these products are typically purchased. Why would respondents who like food purchasing in their rural communities outshop more frequently for food than other products? It may be that because food is perishable, it is simply likely to be purchased more frequently (both at home and away) than the other two products. Piron (2002) also found that when compared to other items, food is most frequently purchased out of the local area.

Of the three target products, respondents were least satisfied with clothing purchases in their home communities, and clothing was the product most frequently purchased online. In 2003, clothing was purchased online by more respondents than were food and home-furnishing products combined. In a similar pattern, respondents were most satisfied with food purchases in their home communities and less likely to purchase food online. This clearly demonstrates that rural consumers shop online for goods that they cannot find (or do not like) in their local communities. Our research models the way in

which rural consumers' satisfaction with local retailing and their outshopping behavior influence their beliefs and subsequent online shopping adoption. Rural consumers are more likely to shop out of town when dissatisfied with shopping for food, clothing, and home-furnishing products in their rural communities. This finding is consistent with that of many researchers who found a negative relationship between outshopping and satisfaction with local retailing (Miller & Kean, 1997; Piron, 2001, 2002).

To address the third research objective, we sought to describe changes in online shopping and changes in belief scores as they relate to adoption of the target products. In analyzing changes in mean belief scores, few significant differences were found across the dropouts and continuous adopters. This result is not surprising, given the small number of dropouts across the three product categories and the small number of continuous adopters for food and home-furnishing products. However, results for continuous adopters of clothing suggest that they may develop more positive beliefs about the compatibility of online shopping with experience. This interpretation is consistent with research that found that online purchasing is related to a variety of previous experiences (Bellman et al., 1999; Bhatnagar et al., 2000; Citrin et al., 2000; Goldsmith & Goldsmith, 2002; Lohse et al., 2000; Miyazaki & Fernandez, 2001; Siu & Cheng, 2001; Slyke et al., 2002). In addition, new adopters of all three products demonstrated significant increases in eight of nine belief scores across the period. As people moved through the decision-making process, changes in belief scores became evident among the new adopters, thereby driving the adoption process.

To summarize, across the 3 years of the research, some people stopped shopping online, whereas others who had not previously shopped online began to do so. There were

dropouts and new adopters in each product category. However, online shopping overall increased for respondents. First, the new adopters outweighed the dropouts for each of the three product categories. Second, the number of respondents who purchased all three products online increased over the 3-year period.

Implications

Implications of our research are primarily theoretical. Dissatisfaction with local retailing is positively related to beliefs about the Internet and online shopping, and it was found to be a powerful driver of online shopping. The indirect satisfaction–online shopping relationship supports Olshavsky and Spreng's model (1996) of how consumers evaluate innovations (considering online shopping an innovation). After assessing satisfaction with a currently used product (e.g., local retailing), consumers examine their beliefs about the innovation and form a belief about whether the innovation is better. Dissatisfaction with local retailing influences online shopping adoption indirectly via beliefs about online shopping and the Internet. IDT does not specify satisfaction with the currently used product as a predictor of beliefs about an innovation, but we did find such evidence, suggesting that satisfaction be explicitly added to IDT as a prior condition that affects beliefs in the persuasion stage of the decision-making process. Accordingly, it may be useful to consider satisfaction with currently used products in predicting adoption of a competing innovation. Based on relationships found between outshopping and online shopping, research on online shopping might be informed by an examination of factors related to outshopping.

Given that favorable beliefs about the Internet and online shopping are related to

more frequent online purchases of food, clothing, and home-furnishing products, we offer implications related to changing beliefs to encourage online shopping. Consumers with age- and health-related disabilities have been identified as an important market for e-grocery services (Heikkila, Kallio, Saarinen, & Virpi, 1998; Morganosky & Cude, 2000). In 2000, no respondent who was disabled or homebound indicated purchasing food online. By 2003, food was the product purchased online most often (although still at low levels) by disabled and homebound consumers. Because these consumers are older than average rural consumers, they may find it difficult to shop in stores. Morganosky and Cude (2000) found that these consumers typically live alone, have low incomes, and phone in orders instead of order online.

Because current retailers do not consider the needs of these consumers (Heikkila et al., 1998), selling and delivering groceries to disabled and homebound consumers is a service that local retailers may want to promote. Rural retailers could partner with local churches and social service agencies in this regard. For rural consumers who are mobile, a drive-up service allowing them to order by phone or online for later pickup might be appealing especially to those who are time-pressed. Because our disabled and homebound respondents engaged in product information search online more frequently than they purchased products and because information search predicts purchase intent (Shim et al., 2001), rural retailers might want to establish informational Web sites. In particular, grocery stores might highlight health-related products (e.g., health foods, vitamins, minerals, supplements) and community services available on-site (e.g., free flu shot clinic).

Dissatisfaction with local retailing is positively related to beliefs about the Internet

and online shopping, and respondents were slightly dissatisfied with clothing and home furnishings available in their home communities. In the analyses of changing beliefs, new adopters displayed significant positive changes. In other words, changing beliefs drove adoption. As telecommunication services continue to increase in rural areas, rural consumers will continue to change their beliefs about and move to online shopping. Rural retailers have an opportunity to tap into the power of the Internet while still maintaining hands-on personal relationships with customers that face-to-face interaction and personal history with retail associates can provide. Rural retailers might begin with a simple informational Web site, which could evolve into a commercial site. Store receipts could be printed with the Web site's URL. If products sold were listed, shoppers could be offered the opportunity to order online for in-store pickup. A store Web site could also list information about in-store events and feature promotional items. Online shoppers and information seekers would appreciate such features.

In-store shoppers could be offered special promotions to try the online store (e.g., 10% discount for online orders). Access to the retailer's Web site might be offered in the store via a computer terminal or kiosk to introduce non-Internet shoppers to the online presence. These features could change non-Internet shoppers' beliefs about the compatibility and advantages of online shopping, ultimately affecting the adoption of online shopping. This would be advantageous should the retailer decide to develop a commercial Web site, which would be the way to benefit from both in-store and online opportunities.

To appeal to rural consumers, online merchants far from rural areas might investigate and implement strategies aimed at changing their beliefs about the Internet and online shopping. Many successful online merchants

began as catalog merchants. Rural consumers have experience ordering products from catalogs, and they do trust such merchants. These merchants might include "how to order online" information in their catalogs and offer promotions for customers who order online for the first time. They could also include instructions on how to use their Web sites in every catalog order, and they could appeal to rural consumers by highlighting speedy delivery and the advantages of online ordering over driving to a distant mall (e.g., gasoline money saved, time saved). Finally, all online merchants could include information on their Web sites for consumers far from brick-and-mortar locations (e.g., free fabric swatches available by order).

Limitations and Future Research

This research has several limitations. The sample is not random, because rural residents were oversampled in some states and undersampled in others. This factor has implications for generalizability. Compared to the U.S. rural population, our sample is older, better educated, with higher household incomes. We also measured outshopping frequency for each product category using a 5-point scale (1 = *never*, 5 = *at least once a week*). Others have assessed outshopping using different measures—for example, by asking how many trips per month were made to outshop, how much money was spent out of the local community, what percentage of all shopping activities were conducted out of the local community, and so on. Thus, our results may not be comparable to other research. Finally, the way that we categorized consumers as *rural* differs somewhat from how previous research has. All these factors could be addressed in future research.

In the present study, the size of the rural community was not considered as an in-

fluence on participants' responses; that factor could be incorporated in future research. Future research with rural consumers might also investigate the degree that cost and brand influence consumers' decisions to outshop. In addition, researchers might gain insight by studying the extent to which rural and urban consumers differ in terms of relationships among satisfaction, outshopping, and online shopping. Future researchers will want to continue to follow the evolution of rural consumers' use of the Internet, including their purchasing behaviors. Finally, our research model was developed based on Rogers's theory (1995), and it tested whether variables affect others in a sequential manner. However, it is possible that direct effects exist between the variables for which we found indirect effects: between satisfaction and current and future online purchasing, between beliefs and future online purchasing, and between outshopping and current and future online purchasing. In the future, other researchers could test such a model against ours to determine which better fits the data.

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