Multichannel Shopper Segments and Their Covariates[☆]

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Abstract

The proliferation of channels has created new challenges for research, including understanding how consumers may be segmented with respect to their information search and purchase behavior in multichannel environment. This research considers shopping a dynamic process that consists of search and purchase phases, in which the total utility of shopping process is determined by the perceived consumer utility toward channel use, which is mainly driven by consumer characteristics. The authors (1) segment consumers on the basis of their attitudes toward multiple channels as search and purchase alternatives; (2) investigate the association among psychological, economic, and sociodemographic covariates and segment membership; and (3) explore how multichannel behavior might differ across different product categories. Using survey data from 364 Dutch consumers and Latent-Class Analyse, they identify three segments – multichannel enthusiasts, uninvolved shoppers, and store-focused consumers – and covariates, such as shopping enjoyment, loyalty, and innovativeness that predict segment membership. The category-specific analysis suggests that overall segment descriptions apply generally to a variety of categories, though some differences exist, including the impact of covariates, across categories. The authors discuss implications for further research and practice.
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Introduction

The recent proliferation of channels creates extensive challenges for researchers and practitioners alike. These challenges in turn prompt studies in the field of multichannel customer management – the design, deployment, coordination, and evaluation of channels through which firms and customers interact, with the goal of enhancing customer value through effective customer acquisition, retention, and development (Neslin et al. 2006). One of the core challenges in this field is understanding consumer behavior in a multichannel environment (Neslin et al. 2006).

Neslin et al. (2006) identify multichannel consumer segmentation as a key consumer behavior issue for designing effective multichannel strategies. Whether, and if so how, consumers' channel usage can serve as a basis for segmentation has cru-

cial implications for firms. At one extreme, consumers might behave homogeneously, using all channels for the same reasons. In this case a multichannel strategy is essentially mass marketing. At the other extreme, specific segments might align with specific channels. In this case, marketers must understand the characteristics or covariates of these segments to determine how to design and target their channels. For example, if there is an "Internet segment" that enjoys shopping and is highly price conscious, the firm will want to communicate price clearly on the Internet, use Internet promotions, and add features to its website that make shopping more enjoyable, Indeed, this approach views multichannel segmentation as a device for serving the current customer base or to reach new customers (Neslin and Shankar 2008).

Complicating any effort to derive multichannel customer segmentation schemes, customers use channels for various phases of their decision process, such as information search and product purchase (Balasubramanian, Raghunathan, and Mahajan 2005; Neslin et al. 2006). For example, Verhoef, Neslin, and Vroomen (2007) show that consumers' search preferences need not be the same as their purchase preferences.

Finally, consumer usage of various channels, and therefore how consumers are segmented with respect to multichannel usage, is apt to vary greatly by category (Bhatnagar and

Ghose 2004b). For example, book purchases may predominantly involve a single channel, whereas shopping for consumer electronics may engage the customer in several channels, including the Internet, catalogs, as well as the retail store.

The above suggests that multichannel customer segmentation provides a managerially relevant way to segment the market, but to be successful, must (1) identify demographic and psychographic covariates for characterizing the segments, (2) acknowledge that consumers use channels for multiple phases of their decision process, and (3) incorporate the possibility that multichannel customer segmentation differs according to product category.

Table 1 summarizes relevant research, showing whether each study investigated segmentation, and if so, whether it investigated covariates, multiple phases of the decision process, and multiple categories. This research shows there is a multichannel segment that employs multiple channels for either search or purchase (Kumar and Venkatesan 2005) and these multichannel consumers represent an increasingly large proportion of consumers (Rangaswamy and van Bruggen 2005; Verhoef et al. 2007). Multichannel shoppers also tend to transact in higher volumes (Blattberg, Kim, and Neslin 2008; Neslin et al. 2006), though this finding, as well others related to the covariates of multichannel shopping (Balasubramanian et al. 2005; Kumar and Venkatesan 2005; Kushwaha and Shankar 2008; Schoenbachler and Gordon 2002), centers on consumer purchasing rather than information search.

While the studies listed in Table 1 have contributed significantly to our understanding of channel choice, we see that no study investigates customer multichannel segmentation, incorporating demographic and psychographic covariates, multiple decision phases, and multiple categories. For example, there are few studies that segmented customers on the basis of their multichannel behavior; these attempts are limited to customer's *purchasing* behavior across multiple channels. Furthermore, Table 1 suggests there is no research so far that considers psychographics as potential covariates of multichannel behavior. Nonetheless, previous research has shown that there is a strong relationship between consumer behavior and psychographic variables (Ailawadi, Neslin, and Gedenk 2001).

In summary, we have identified the need for research that develops a segmentation scheme that incorporates covariates, multiple phases, and multiple categories, and found that existing literature does not meet this need. Accordingly, the main objectives of our research are as follows:

1. segment consumers on the basis of their channel orientation in the information search and purchase phases of their shopping process;
2. investigate the relationship between psychographic/demographic customer characteristics and segment membership; and
3. explore how multichannel segment membership might differ across different product categories.

In pursuing these objectives, we make several contributions to the marketing literature. First, our research is the first to investigate the existence of multichannel shopper segments incorporating multiple phases of the consumer decision process—especially search and purchase. We exclude postpurchase since we aim to examine multiple categories and channels comparatively. The usage of postpurchase services appears to be rare in some of the chosen channels and categories for which we could obtain data. We therefore do not include after-sales channel behavior in our segmentation, but we would submit that simply moving from a predominant emphasis on purchase in the literature to purchase and information search is a significant contribution. Second, we propose a framework for motivating the existence of segments and suggest variables that might be included in segmentation efforts. This framework relies on dynamic structural modeling literature, which is becoming more popular in marketing (Chintagunta et al. 2005). Third, we incorporate psychographic and sociodemographic factors (Ailawadi et al. 2001) and though prior research considers some covariates (Venkatesan, Kumar, and Ravishanker 2007b), findings pertaining to psychographics and sociodemographics remain scarce. Fourth, we examine multichannel behavior in multiple cate-

Table 1
Prior research overview

	Multichannel setting	Empirical/theoretical	Segmentation	Covariates[a]			Multiple phases	Multiple categories
				Sociodemographic	Psychographic	Other		
Schoenbachler and Gordon (2002)	Multichannel behavior	Conceptual	–	√	–	√	–	–
Nunes and Cespedes (2003)	Multichannel strategy	Conceptual	√	–	–	–	√	–
Keen et al. (2004)	Channel choice	Empirical	√	–	–	√	–	–
Bhatnagar and Ghose (2004a)	E-shoppers	Empirical	√	√	–	√	–	√
Knox (2005)	Channel choice	Empirical	√	–	–	√	–	–
Kumar and Venkatesan (2005)	Multichannel behavior	Empirical	–	–	–	√	–	–
Balasubramanian et al. (2005)	Channel choice	Conceptual	–	–	–	√	–	–
Verhoef et al. (2007)	Research shopping	Empirical	–	–	–	√	√	√
Kushwaha and Shankar (2007)	Multichannel strategy	Empirical	√	–	–	√	–	–
Venkatesan et al. (2007b)	Multichannel behavior	Empirical	–	√	–	√	–	–
Kushwaha and Shankar (2008)	Multichannel behavior	Empirical	–	√	–	√	–	√
This paper	Multichannel behavior	Empirical	√	√	√	–	√	√

[a] Other covariates include covariates, such as benefits sought, relational, behavioral, conditional covariates, and channel attributes.

gories, in contrast with most research that addresses a single product category and often uses company-specific data (e.g., Kumar and Venkatesan 2005; cf. Kushwaha and Shankar 2008). Considering the above-mentioned contributions, we build on previous research, add new knowledge to literature and fill an important research gap in multichannel customer management. Furthermore, our research has important managerial implications since the existence of consumer segments which are based on consumers' multichannel orientations would lead firms to different strategies in multichannel customer management.

To achieve these research goals, this article proceeds as follows: First, we present our conceptual model with our rationales based on consumer perceived utility and multiphase shopping process. Second, we discuss multichannel segmentation and its covariates in a conceptual framework. Third, we detail our sampling and methodology and elaborate on the potential variables to include in the structural framework of consumer utility, which we employ as the main theoretical underpinning of potential covariates of multichannel behavior. Fourth, after we present our model and discuss our empirical results, we end with conclusions, managerial implications, limitations, and issues for further research.

Conceptual model

In Fig. 1, we present the conceptual framework for our study. Using channels for either search or purchase depends on the utility the consumer derives from searching on or purchasing

from the multiple channels. These utilities therefore depend on the benefits and costs of search and purchase, which in turn relate to psychographic and demographic factors. We assume the customer decides on a set of channels for both search and purchase. In our model we consider customer decision making as a forward-looking process in which customers make initial decisions by considering the impact those decisions will have on the utility they might gain from future decisions. Multichannel decision making for both search and purchase coincides nicely with this point of view. That is, customers decide which channels to search, anticipating the utility they will gain when they purchase. To maximize their utility, customers must assess several costs and benefits, as we show in Fig. 1. These assessments in turn may be colored by the customer's psychographic or demographic profile.

The framework in Fig. 1 is helpful for two reasons: First, it provides the motivation that explains why we expect multichannel segments. For example, a price-conscious customer perceives a real benefit from searching on several channels, which will pay off when the time comes to purchase. In contrast, a nonprice-conscious customer recognizes little benefit to searching. Such customer differences in psychographic and demographic variables should elicit different benefits and costs from searching and purchasing, different utilities, and different channel preferences. Second, the framework provides the basis for formulating expectations about how demographics and psychographics might relate to multichannel preferences. For example, time-pressured customers exhibit low λ values,
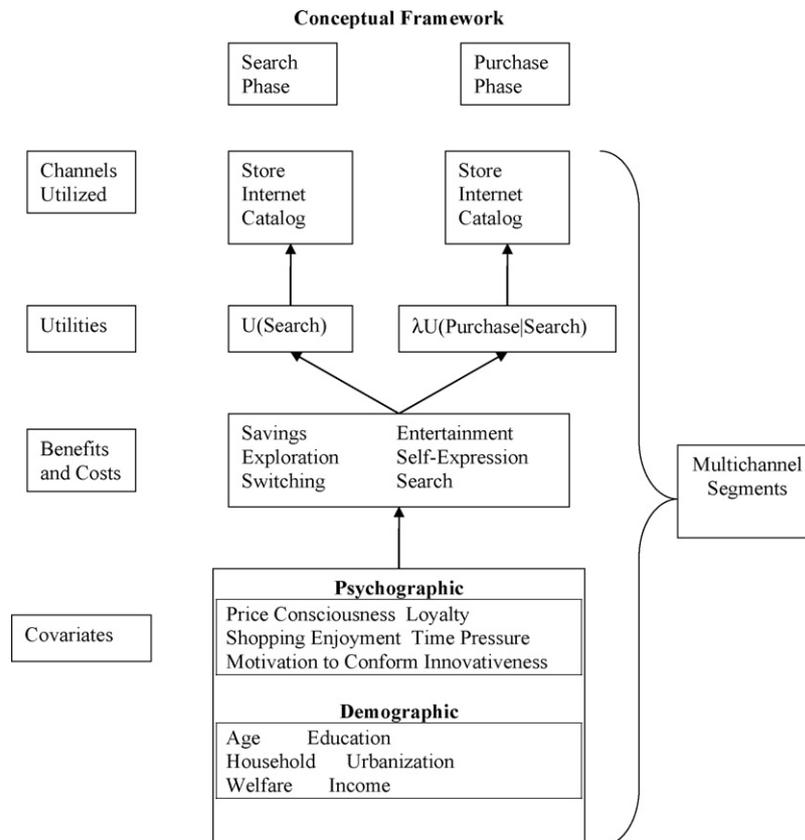

Fig. 1. Conceptual framework.

Table 2
Benefits and costs of channel choice, related psychographics, and expected effects on multichannel consumer behavior

Benefits/costs	Economic/hedonic	Psychographics	Expected effect
Savings	Economic	Price consciousness	+
Entertainment	Hedonic	Shopping enjoyment	+
Exploration	Hedonic	Innovativeness	+
Self-expression	Hedonic	Motivation to conform	+/−
Switching	Economic	Loyalty	−
Search	Economic/hedonic	Time pressure	−

because they lack the time to consider future benefits. To maximize their utility, they take the simple way, probably single-channel search and purchase.

In implementing this framework, we must resolve (1) which channels to study, (2) which benefits and costs to consider, and (3) which psychographic and demographic features to address. First, we consider bricks-and-mortar stores, Internet, and catalog channels for two main reasons: They are available to consumers for both search and purchase, and they are available in every product category that we include in our research, namely, mortgage, insurance, computers, home electronics, clothing, holidays, and books. These categories differ in terms of their complexity, purchase frequency, and tangibility (Peterson, Balasubramanian, and Bronnenberg 1997).

Second, we include savings, exploration, brand/channel switching, entertainment, self-expression, and search as benefits and costs relevant to our study, mostly drawn from Ailawadi et al. (2001), who draw from Chandon, Wansink, and Laurent (2000) and Bawa and Shoemaker (1987), among others. These benefits and costs depend on consumers' selection and usage of channels. Savings refers to the benefit of finding lower prices, whereas exploration involves finding new brands and new experiences, and brand/channel switching usually represents a cost because it means using a less preferred channel or brand. The entertainment benefit stems from an enjoyment of shopping, and self-expression is the benefit of identifying with a peer group. Finally, search refers to the cost associated with extensive searching.

Third, these benefits and costs suggest a list of possibly associated psychographics and demographics (e.g., the savings benefit suggests price consciousness). In the next section, we elaborate on these psychographics and use our proposed framework to generate expectations about how they might relate to possible channel segmentation.

Psychographic and demographic covariates of multichannel behavior

Our framework suggests that psychographic and demographic customer characteristics produce different perceptions of the costs and benefits of multichannel search and purchase strategies, which determine consumer utilities for search and purchase. To identify the relevant covariates, we start with the selected benefits and costs and use them to derive particular characteristics. Ailawadi et al. (2001) follow a similar procedure, consistent with marketing efforts to relate psychographics

and demographics to consumer behavior (Campo, Gijsbrechts, and Nisol 2001; Sproles and Sproles 1990; Steenkamp and Baumgartner 1992).

Psychographic variables

We borrow from Ailawadi et al. (2001) to present benefits and costs and the psychographic variables suggested by each in Table 2. For example, consumers select channels, for search or purchase, to attain price savings, an economic benefit that should relate to a psychographic price consciousness variable. In Table 2 we list five additional psychographics thus identified: shopping enjoyment, innovativeness, motivation to conform, brand/retailer loyalty, and time pressure. Each psychographic variable in a multichannel context may relate to consumer utility in different phases of the shopping process.[1]

Price consciousness

Price consciousness is the degree to which consumers focus on paying low prices (Lichtenstein, Netemyer, and Burton 1990), so a price-conscious consumer seeks to minimize the price paid for an item, which relates to savings. Consumers maintain particular perceptions of prices in specific channels (Verhoef et al., 2007), such that price perceptions of a channel influence channel choice (Baker et al. 2002; Montoya-Weiss, Voss, and Grewal 2003). For example, the Internet provides consumers with a wide range of information at a low acquisition cost (Hoffman and Novak 1996) and thus the greatest utilitarian value for consumers who hope to attain price comparisons (Noble, Griffith, and Weinberger 2005). As Balasubramanian et al. (2005) assert, one of the key advantages of multichannel behavior might be finding good deals by recognizing attractive offers across channels, though for research shoppers, such deals might result from negotiation (e.g., Morton, Zettelmeyer, and Silva Russo 2001; Zettelmeyer 2000).

In turn, price-conscious consumers should maximize U(Shopping) by searching across several channels, which then produces high U(Purchase | Search). Accordingly, we expect price-conscious consumers to display multichannel behavior during their search and, as a result, in their purchase process.

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[1] Because we conduct an ad hoc analysis and have no prior information about the final segments, we do not state formal hypotheses about the effect of psychographic antecedents. However, we offer rationales for the possible effects of the selected variables on multichannel shopper behavior.

Shopping enjoyment

Shopping has both entertainment and emotional benefits for many consumers (Babin, Darden, and Griffin 1994), and the shopping enjoyment psychographic variable relates closely to this hedonic utility (Ailawadi et al. 2001). The hedonic value and enjoyment gained from shopping also involve the fun and excitement people experience by trying new experiences, custom designing products, and so forth (Forsythe et al. 2006). In a channel selection research context, Nicholson, Clarke, and Blakemore (2002) find that the social setting, such as shopping with friends, significantly influences channel selection, though Verhoef and Langerak (2001) report no significant association between perceived enjoyment of in-store shopping and the perceived relative advantage of online grocery channels. Verhoef et al. (2007) report a positive effect of enjoyment on channel selection for search and purchase. Thus, shopping enjoyment may influence channel selection.

Although no research indicates how shopping enjoyment might relate to multichannel behavior, customers who derive enjoyment from shopping intrinsically tend to like shopping. They thus can maximize U(Search) and U(Purchase | Search) simply by employing several channels for both search and purchase. These consumers are not bothered by the extra time required to engage in extensive shopping (i.e., they have high λ), and we therefore expect them to be associated with a segment that both searches and purchases across many channels.

Innovativeness

Because it provides consumers with the opportunity to try new and different products, exploration offers another hedonic benefit of searching; it also suggests innovativeness as a related psychographic (Ailawadi et al. 2001; Steenkamp and Baumgartner 1992). Innovativeness refers to the degree which a person prefers to try new and different products and seek out new experiences (Midgley and Dowling 1978), which requires more extensive search. Innovative customers maximize their U(Search) by searching several channels, which then pays off in higher U(Purchase | Search), because their extensive search uncovers different products and experiences. Accordingly, if we find a multichannel segment, we expect innovativeness to be associated with membership in that segment, at least for the search phase of the shopping process.

Motivation to conform

Self-expression, an important hedonic benefit that consumers seek in their shopping decisions, includes the motivation to conform, or the degree to which consumers need approval from people around them during their shopping decisions (Ailawadi et al. 2001; Chandon et al. 2000). Some rationales consider motivation to conform a personal trait that may influence multichannel behavior. For example, Keen et al. (2004) propose social norms as important determinants of channel selection, and Verhoef et al. (2007) find that channel selection behavior may depend on whether reference groups use similar channels. Because multichannel behavior continues to grow more common (e.g., Neslin et al. 2006), the motivation to conform to this important development should be greater. In turn, conformists

should maximize both U(Search) and U(Purchase | Search) by following the crowd and employing several channels. However, a counterargument relates to the conformist's reference group; if the reference group is society as a whole, the preceding claim should hold, but if the reference group includes only particular friends and relatives, conformists may engage in single- or multichannel behavior, depending on what their friends do. In that case, we do not expect motivation to conform to correlate with the segments we uncover.

Brand/retailer loyalty

Switching brands and retailers demands costs from consumers, who must take the time to investigate all options and may suffer if they purchase a less preferred brand. Consumers therefore may tend to remain loyal (e.g., Ailawadi et al. 2001; Klemperer 1995), and loyal consumers should focus on one channel and thereby deliberately cut off other options. Furthermore, consumers of more complex services appear to be locked in to a greater extent and thus less likely to switch to another retailer in the future (Van Birgelen, de Jong, and de Ruyter 2006). We expect this tendency should also hold true for channel relationships. That is, to increase U(Search) or U(Purchase | Search), brand-/retailer-loyal customers likely remain with one channel, and we posit that loyal consumers will be more inclined to join a single-channel segment, for both search and purchase.[2]

Time pressure

Time pressure refers to a consumer's predisposition to consider time a scarce resource and plan its use carefully (Kleijnen, De Ruyter, and Wetzels 2007). Nicholson et al. (2002) indicate that temporal variables, such as time of day and urgency of the purchase, influence channel selection behavior, and direct channels, such as the Internet and catalogs, offer time-saving benefits (Darian 1987). Verhoef and Langerak (2001) demonstrate a positive relationship between time pressure and the relative advantage of an online channel, though the relationship between time pressure and multichannel behavior remains unclear. Kleijnen et al. (2007) recognize that greater perceptions of time convenience increase consumer perceived value, and time-conscious consumers seek opportunities to leverage their time. Accordingly, we expect that time-pressured shoppers have low discount factors (λ), which means they do not conduct extensive searches, whose benefits seem minor, and purchase in one channel. That is, time-pressured customers generally do not engage in multichannel behavior but display positive associations with single-channel behavior, for both search and purchase.

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[2] Prior multichannel research investigates the relationship between loyalty and multichannel usage at the firm level. For example, Wallace et al. (2004) find that multichannel usage is associated with higher perceptions of the firm's channel offerings, which enhances customer satisfaction and loyalty. Multichannel users also are more loyal (Kumar and Venkatesan 2005; Neslin et al. 2006). Ansari et al. (2006) posit three potential reasons for this increased loyalty: (1) channel effects, (2) self-selection, and (3) firms' marketing efforts; they confirm the loyalty effect is mainly due to marketing efforts. Together, these findings might imply a positive relationship between loyalty and multichannel behavior, but again, we note that we consider loyalty as a general trait.

Table 3
Impact of demographics in multichannel environment (past research)

Research	Dependent variable	Impact of consumer demographics					
		Age	Gender	Welfare/income	Education	Urbanicity	Household status
Kushwaha and Shankar (2008)	Multichannel shopping	U-Shaped	NI	(+)	(+)	NI	(+)
Ansari et al. (2006)	Channel switching	(−)	NI	(+)	NI	NI	NI
Gupta, Su, and Walter (2004)	Channel switching	NS	NS	NS	NS	NI	NI
Strebel, Erdem, and Swait (2004)	Multichannel information search	(+)	(+)	NS	(+)	NI	NI
Inman, Shankar, and Ferraro (2004)	Channel choice	(+/−)	NI	(+/−)	NI	(+/−)	(+/−)
Donthu and Garcia (1999)	Channel choice	NI	NI	(+)	(+)	NI	NI

Notes. (+): Positive, significant impact on dependent variable; NS: examined, no significant impact; (−): negative, significant impact on dependent variable; NI: research did not examine this variable; and (+/−): significant impact, neither positive nor negative, no dependent variable.

Demographic variables

We provide an overview of our findings about the relationships between demographics and channel behavior in Table 3, which reveals ample evidence of such a relationship, though the evidence is not always consistent. Perhaps the most consistent and logically sound relationships emerge between multichannel behavior and income or education, such that people who earn higher incomes possess the means to shop across a variety of channels, even more expensive ones. More educated people also possess sufficient analytical training to extract the benefits of an extensive search. Therefore, people with higher incomes and education levels should increase their U(Search), which should make these traits associated with multichannel search and, as a result, multichannel purchase behavior. However, demographics do not always relate strongly to behavior, as the inconsistent results in Table 3 confirm. Soopramanien and Robertson (2007) further reveal that demographic factors and the factors embodied in them, though significant, may be less important for segmentation than attitudes and beliefs. Thus, we do not expect a very strong overall impact of demographics on multichannel segment membership.

Research methodology

Data collection

We collect survey data about multichannel attitudes and behaviors across several product categories – namely, mortgage, health insurance, holidays, books, computers, electronics, and clothing – selected in terms of their differences in complexity, purchase frequency, and tangibility. Our data is collected in May 2004 and consists of 364 Dutch consumers, members of a research panel of a marketing research agency in the Netherlands. During the preliminary stage, we select 3,000 panel members aged between 20 and 65 years. Through a telephone survey, we determine that 2,400 panel members had purchased one or more items from the seven selected product categories during the three months prior to the telephone interview. For each category, we select 130 panel members to participate, such that we sent questionnaires to 910 total panel members (130 × 7). Of these 910 potential respondents, 460 returned the survey, for a response rate of 52 percent. Subsequently, we delete 96 responses because these respondents did not fully complete the questionnaire. This yields a final sample of 364 respondents, or a 40 percent of response rate.

Respondents evaluate three channels (brick-and-mortar store, the Internet, and catalog) in terms of their appropriateness for two transaction phases (information search and purchase) and in seven product categories, even if they had not purchased from each category. We also ask about the included psychographic variables and channel choices for the product category in which the respondent recently had purchased. To obtain data about consumer demographics, we turn to the database of panel members, owned by the marketing research agency; we present these characteristics in Table 4. Because we select respondents on the basis of their recent purchases in the product categories, the education level is relatively high, and respondents are approximately equally distributed across the seven product categories.

Model and analysis

In our model we posit that channel usage for search or purchase depends on the utility the consumer derives from searching or purchasing from the various channels. These utilities depend on the benefits and costs of search and purchase, which relate to psychographic and demographic factors. The core of this

Table 4
Sample characteristics ($N = 360$)

Gender	%	Age	%
Female	37.1	<35 years	24.2
Male	62.9	36–45 years	34.6
		46–55 years	22.8
		>55 years	18.4

Education	%	Family	%
University	41.8	1–2 person households/no children	47.3
High school (high level)	39.6	Family with children <5 years	11.5
High school (low level)	18.1	Family with children 5–14 years	25.3
Low level education	0.5	Family with children >14 years	15.9

Urbanization	%	Welfare	%
Strong urbanization	39.6	A	20.1
Average urbanization	18.7	B1	28.6
Low urbanization	41.7	B2	29.4
		C	22.0

framework is the utility function, written as

$$U(\text{Shopping}) = U(\text{Search}) + \lambda\, U(\text{Purchase}|\text{Search}), \quad (1)$$

where: $U(\text{Shopping}) = $ Total utility of the shopping experience, $U(\text{Search}) = $ Utility gained from the search experience, depending on which channels the customer uses for search, $U(\text{Purchase} | \text{Search}) = $ Utility gained from the purchase phase, contingent on the search process and on which channels the customer uses for purchase, and $\lambda = $ Time discount factor.

We assume the customer decides on a set of channels for both search and purchase that maximize Eq. (1). This model is based on dynamic structural models literature (see Sun, Neslin, and Srinivasan 2003), in which customers make initial decisions by considering the impact those decisions will have on the utility they might gain from future decisions. Accordingly, in our utility framework customers decide which channels to search, anticipating the utility they will gain when they purchase. The discount factor λ $(0 < \lambda < 1)$ reflects the extent to which the customer is forward looking, such that smaller values mean the customer does not consider purchase implications when deciding which channel(s) to search, whereas larger values mean the customer strongly anticipates the implications of his or her channel search on channel purchase. To maximize their utility, customers must assess various costs and benefits. These assessments in turn may be colored by the customer's psychographic or demographic profile.

In our model, we consider shopping behavior a dynamic process that consists of both search and purchase phases, as represented by the total utility of shopping $U(\text{Shopping})$, which equals the sum of search $U(\text{Search})$ and purchase $U(\text{Purchase} | \text{Search})$ utilities, discounted by a factor of λ. In our empirical model, we represent in reduced form search utility and purchase utility by U_{icd}, or consumer i's attitude (i.e., perceived utility) toward channel c for a transaction phase d.

We employ Latent-Class Cluster Analysis (LCA) where the latent variable (customer segments) is considered as a categorical variable taking on K possible values, corresponding to K segments, which is here a multinominal logit model. When employed with covariates, LCA indicates a segmentation structure, based on perceived channel utilities, and the impact of active or potential covariates on multichannel orientation. Specifically, in our model, we let

U_{icd}	Respondent i's perceived utility of channel c for phase d of the decision process, such that $c = 1, 2,$ or 3 signifies a retail store, Internet, or catalog, respectively, and $d = 1$ or 2 signifies search or purchase, respectively (see Eq. (1))
s_i	Indicator of respondent i's segment, equal to $1, 2, \ldots, K$, where K is the number of segments
z_i	Vector of psychographic and demographic covariates for respondent i
$f(U_{\text{icd}} \mid z_i)$	Probability distribution for respondent i's perceived utility of channel c for decision phase d, given the respondent's set of antecedent variables
$g(U_{\text{icd}} \mid z_i, s_i)$	Probability distribution for respondent i's attitude toward channel c for decision phase d, given the respondent's set of antecedent variables and given that the respondent is in segment s_i

$p(s_i = x \mid z_i)$	Probability that respondent i is in segment x, given the respondent's antecedent variables

The model therefore can be written as follows:

$$f(U_{\text{icd}}|z_i) = \sum_{x=1}^{K} \left[\prod_{d=1}^{2} \prod_{c=1}^{3} g(U_{\text{icd}}|z_i, s_i) \right] p(s_i = x|z_i). \quad (2)$$

According to Eq. (2), the probability distribution for a respondent's attitude (i.e., perceived utility) toward each channel for each decision phase, given his or her set of antecedent variables, equals the weighted average of the probability distributions for these attitudes, such that the weights refer to the probability that the respondent is in segment s_i. The LCA procedure also determines the number of segments K and estimates the function g that relates the covariates to the channel/decision phase attitudes for each segment.

Definition and measurement of variables

Segmentation basis: attitudinal variables (U_{icd})

To examine the multichannel orientation of consumers, we use their self-reported attitudes toward channels, which refer to the perceived utility of each channel and shopping phase according to each consumer. We ask consumers to assess the appropriateness of each channel for their search and purchase efforts in each of the seven product categories, indicated on a five-point scale on which $1 = $ absolutely not appropriate and $5 = $ absolutely appropriate.

To derive the overall multichannel orientation scores per channel/transaction phase, we average the channel orientation scores over categories and thus derive $6\,(3 \times 2)$ U_{icd} variables for each respondent, representing the channel orientation scores of the consumers per phase, beyond categories. This score reveals the general attitude of each consumer for a specific channel and transaction phase. Eq. (3) depicts the derivation of the y_{icd} variable. Here y_{icd} variable is the average of the appropriateness evaluations (Eva_{icd}) for all product categories (p), which is also respondent i's perceived utility of channel c for phase d of the decision process beyond categories:

$$U_{\text{icd}} = \frac{\sum_{p=1}^{7} (\text{Eva}_{\text{icd}})_p}{7}. \quad (3)$$

Covariates of multichannel shopping

We use multi-item, five-point Likert scales to measure the psychographic variables ($1 = $ fully disagree, $5 = $ fully agree), as detailed in Table 5. The coefficient alphas for our multi-item scales are all greater than .60 (see Table 4). Next, we use principal components analysis (PCA) to obtain the orthogonal factors, such that eigenvalues greater than 1 serve as the criterion to select the number of factors. The PCA results show that a six-factor solution explains 69 percent of the variation. According to Table 4, the PCA results also fall in line with the a priori defined variables.[3] An additional confirmatory fac-

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[3] For robustness checks, we remove items 1, 3, and 4 in the innovativeness measures and still obtain similar factors that consist of the remaining items from

Table 5
Results of principal components analysis: reliability analysis (psychographic variables)

	Innovativeness	Loyalty	Motivation to conform	Shopping enjoyment	Time pressure	Price con-sciousness	Reliability (C. Alpha)
I regularly purchase different variants of a product just for a change.	0.78						
I am one of those people who try a new product firstly just after the launch.	0.73						0.78
I find it boring to use the same product (or brand) repetitively.	0.72						
I like to try new and different products.	0.70						
I always have the newest gadgets.	0.57						
I generally do my shopping in the same way.		0.72					
The brand of the product is important for me in my purchase decisions.		0.72					0.72
I generally purchase the same brands.		0.72					
The place where I do my shopping is very important to me.		0.72					
Being accepted by other people is very important to me.			0.78				
I find it very boring when other people criticize my behaviors.			0.75				0.64
I like to have some problems that I can solve without much thinking.			0.67				
I like shopping.				0.93			
I take my time when I shop.				0.90			0.91
I am always busy.					0.92		
I usually find myself pressed for time.					0.90		0.83
It is important for me to have the best price for the product.						0.87	
I compare the prices of various products before I make a choice.						0.85	0.70

tor analysis confirms our six-factor solution (goodness-of-fit index [GFI] = .90; confirmatory fit index [CFI] = .90; root mean squared error of approximation [RMSEA] = .07). We employ the resulting six orthogonal factor scores from the PCA in our latent-class model as covariates (i.e., the z variables in Eq. (2)).

Estimation results across categories

Multichannel segmentation

We estimate our model for solutions with one to eight clusters and apply the Bayesian information criterion (BIC) statistic to select the best model, because BIC is more effective for detecting correct models in LCA cluster analysis than are other information criteria (e.g., Akaike) (Vermunt and Magidson 2005; Zhang 2004). We also employ classification error, which pertains to the proportion of cases we expect to be misclassified (Vermunt and Magidson 2005), as a secondary criterion to select the optimal number of segments. Finally, we verify our interpretation of the derived segments (Wedel and Kamakura 1999). That is,

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the previous set. These reduced factors yield similar results as active covariates of multichannel segmentation in subsequent analysis. In brief, reduced scales offer similar results, in support of the robustness of our innovativeness scale.

or model selection procedure relies on BIC, classification error, and interpretability criteria.

For the three-cluster model, we obtain a minimum BIC (4927); the classification error measure is also minimal (.0645) for this model. Furthermore, the three-cluster model is easier to interpret than the other models, so we choose it as our final model. In Table 7, we provide descriptive statistics of the attitudinal variables in each segment of our final model.

Our results display a clear split among the consumer segments on the basis of their multichannel orientation. One segment reveals high channel orientation scores for all channels, which is likely the multichannel segment (Cluster 2); in contrast, another segment earns the highest scores toward the store channel but

Table 6
Log-likelihood statistics for model selection

		LL	BIC(LL)	Class. Err.
Model 1	1-Cluster	−2526.89	5183.51	0
Model 2	2-Cluster	−2357.29	4985.85	0.0757
Model 3	**3-Cluster**	**−2257.48**	**4927.75**	**0.0645**
Model 4	4-Cluster	−2190.92	4936.17	0.0790
Model 5	5-Cluster	−2141.67	4979.20	0.0915
Model 6	6-Cluster	−2101.79	5040.97	0.0923
Model 7	7-Cluster	−2062.26	5103.45	0.0886
Model 8	8-Cluster	−2021.08	5162.61	0.0813

Table 7
Profile of the final segments (LCA) ($N = 360$)

	Cluster 1 40%	Cluster 2 37%	Cluster 3 23%	p value (χ^2 test)
Store (information search)	3.80	**4.52**	**4.84**	0.00
Store (purchase)	3.75	**4.67**	**4.99**	0.00
Internet (information search)	3.22	**4.37**	3.09	0.00
Internet (purchase)	2.66	**3.73**	2.38	0.00
Catalog (information search)	3.40	**4.24**	3.47	0.00
Catalog (purchase)	2.82	**3.36**	2.45	0.00

significantly lower scores for alternative channels (Cluster 3). Furthermore, we identify a segment with relatively low scores for channels in general (Cluster 1). This segment appears uninvolved in shopping channels overall; its members do not rate any channel highly and have no clear preferences relative to multichannel shopping.

Before we label these segments, we validate our results with a three-step process: To consider the effect of the covariates, we examine the differences across segments in terms of future usage intentions for each channel and phase, then examine the cross-segment differences of attribute evaluations for channels to determine their assessments by consumers with different perceived utilities of multiple channels.

Covariates of multichannel shopping

We provide the results for the psychographic and demographic covariates (g functions in Eq. (1)) in Table 8. These coefficients represent the impact of each covariate on membership in each segment. Therefore, a strong positive coefficient means that consumers who score high on that antecedent are more likely to appear in that segment, whereas a large (magnitude) negative coefficient means consumers are not likely be in the segment.

Table 8
Covariates of multichannel behavior (active covariates)

	Cluster 1	Cluster 2	Cluster 3	Wald	p value
Intercept	0.14	1.41	−1.56	5.37	0.07
Innovativeness	**0.12**	**0.18**	−0.30	8.07	**0.02***
Loyalty	−0.18	−0.10	**0.28**	7.24	**0.03***
Motivation to conform	−0.10	−0.07	0.17	2.83	0.24
Shopping enjoyment	−0.22	**0.17**	**0.06**	7.76	**0.02***
Time pressure	0.06	−0.11	0.04	1.43	0.49
Price conciousness	−0.05	**0.22**	−0.16	4.99	0.08
Gender	−0.06	0.12	−0.05	1.39	0.50
Age	0.00	−0.02	0.02	2.92	0.23
Urbanization	−0.08	0.02	0.06	1.74	0.42
Welfare	−0.04	0.00	0.03	0.12	0.94
Education	0.12	−0.09	−0.04	2.78	0.25
Income 1	−0.03	0.05	−0.03	0.14	0.93
Income 2	0.11	−0.08	−0.02	1.20	0.55
Household 3	0.09	−0.18	0.09	1.04	0.59
Household 2	−0.06	−0.24	0.30	2.86	0.24
Household 4	0.03	−0.08	0.06	0.31	0.86
Household 1	−0.15	0.19	−0.04	1.37	0.50

Significance levels: **1% and *5%.

We find significant coefficients for innovativeness, loyalty and shopping enjoyment. Price Consciousness is also found to be a significant covariate, but in .10 significance level ($p = 0.08$). Specifically, innovativeness strongly determines membership in Segment 2 and, to a lesser extent, Segment 1 but keeps consumers out of Segment 3. This finding makes sense, in that innovative consumers should explore different channels; recall that the exploration benefit motivates us to include this psychographic variable. Shopping enjoyment also reveals a strong association with Segment 2 but a negative association with Segment 1. Again, this finding makes sense, because the generally lower scores among Segment 2 in Table 8 suggest that they are less enthusiastic about store shopping.[4] Loyal consumers are more likely to be members of the Segment 3 and not of the other two segments. Our loyal measure involves brand and retailer loyalty, not channel loyalty *per se*, whereas Segment 3 seems loyal to a particular channel, namely, brick-and-mortar stores. Thus, our findings suggest that retailer, brand, and channel loyalty go together. Finally, we find a marginal evidence ($p < .10$) of price consciousness. Consumers with higher multichannel orientation tend to be relatively more price conscious than consumers in other segments. The significant differences among the segments thus apply to their psychographics, not their demographics. This result offers yet another demonstration of the value of psychographic versus demographic variables.

Future channel usage intentions

In our survey, we also ask respondents about their future usage intentions toward various channels for search and purchase, with regard to only one particular product or service category. We analyze whether the future channel choice intentions of the final segments differ and provide the results of our analysis in Table 9.

Significant differences appear among our final segments, in terms of their future channel usage intentions, which is in line with customers' channel orientations in our prior model. Segment 3 displays a relatively higher future intention to use the store channel for information search and purchase, in support of our findings that this Segment 3 has the highest orientation scores for stores but the lowest for alternative channels in our prior model. Segment 2, which displays a multichannel orientation in

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[4] We cannot assert causality. Shopping enjoyment as a psychographic trait may cause consumers to be enthusiastic about all channels, or consumers may be highly satisfied with all shopping channels and therefore enjoy shopping.

Table 9
Future channel usage intention

	Cluster 1	Cluster 2	Cluster 3	*p* value
Information search (future) – store	69.70%	70.00%	**81.20%**	0.11
Information search (future) – Internet	61.07%	**75.38%**	57.64%	**0.01**[*]
Information search (future) – catalog	43.00%	**48.50%**	41.20%	0.51
Purchase (future) – store	59.06%	56.92%	**75.29%**	0.08
Purchase (future) – Internet	**14.09%**	**15.38%**	2.35%	
Purchase (future) – catalog	4.02%	3.07%	1.17%	

Significance levels: [**](1%) and [*](5%).

our LCA segmentation, exhibits higher future usage intentions for alternative channels. This finding also confirms the multichannel attitude of Segment 2, implying a similar tendency for future channel usage. Finally, Segment 1 indicates roughly the same purchase intention scores as Segment 2 in terms of future usage intention, but lower scores for search, especially on the Internet and in catalogs. As noted, these consumers apparently manifest their dislike of shopping by choosing not to search as much, which implies a low search utility for Segment 1 in our LCA segmentation. Considering our results, consumers' future channel usage intentions are in line with their present orientations toward various channels—which are our basis for segmentation. Furthermore, we also calculate the average number of channels used to search for information and find that Segment 2

uses the most (2.0), whereas Segments 1 and 3 display somewhat lower scores (1.8 and 1.9) ($p = .10$). This confirms the multichannel orientation of Segment 2 to in comparison to Segment 1 and Segment 3. Apart from this, Segment 2 also reveals the largest percentage of research shoppers (80.6%), though the differences among segments on this factor are not significant ($p > .10$).

Attribute evaluations of channels

As a final, additional analysis, we compare channel attribute evaluations among the segments, measured on a three-point scale (1 = does not apply, 3 = applies a lot). Different segments should provide varying evaluations of channel attributes; therefore, we examine the differences using a Kruskal–Wallis test. Specifi-

Table 10
Attribute evaluations (validation of segmentation)

	KW Sig.	Cross segment variations
Internet – good prices	<0.05	C2 > C1, C2 > C3
Internet – good price/quality value	<0.05	C2 > C3
Internet – attractive offers	<0.01	C2 > C1, C2 > C3
Internet – good information	<0.01	C2 > C1, C1 > C3, C2 > C3
Internet – comprehensive information on products	<0.01	C2 > C1, C2 > C3
Internet – good product variety	<0.01	C2 > C1, C1 > C3, C2 > C3
Internet – always up-to-date products	<0.01	C2 > C1, C2 > C3
Internet – low privacy	<0.10	C2 > C3
Internet – too complex for shopping	<0.01	C1 > C3, C2 > C3
Internet – a modern way of shopping	<0.05	C2 > C1
Internet – an exciting way of shopping	NS	
Internet – reliable for shopping	<0.05	C2 > C3
Internet – good to form ideas	<0.01	C2 > C1, C2 > C3
Internet – nice for shopping	<0.01	C2 > C1, C2 > C3
Internet – a fast way of shopping	<0.01	C2 > C1, C2 > C3
Catalog – good prices	NS	
Catalog – good price/quality value	NS	
Catalog – attractive offers	NS	
Catalog – good information	NS	
Catalog – comprehensive information on products	<0.05	C1 > C3, C2 > C3
Catalog – good product variety	NS	
Catalog – always up-to-date products	NS	
Catalog – low privacy	<0.01	C1 > C3, C2 > C3
Catalog – too complex for shopping	NS	
Catalog – a modern way of shopping	NS	
Catalog – an exciting way of shopping	<0.01	C1 > C3, C2 > C3
Catalog – reliable for shopping	<0.05	C2 > C1
Catalog – good to form ideas	<0.01	C1 > C3, C2 > C3
Catalog – nice for shopping	<0.01	C1 > C3, C2 > C3
Catalog – a fast way of shopping	<0.10	C2 > C1

Notes. Kruskal–Wallis significance, significance levels: <0.01 = (1%), <0.05 = (5%), <0.10 = (10%); NS = not significant; C1 = uninvolved shoppers, C2 = multichannel enthusiasts, C3 = store focused.

cally, we consider the attribute evaluations of the Internet and catalogs, because our derived segments mainly differ on these channels. Although we compare segments with regard to store attributes, we find no significant variations, which suggest that multichannel segments do not differ according to assessments of store channels but rather only to their assessments of alternative channels. We provide the results of our analysis in Table 10.

In general, consumers in Segment 3 provide the lowest attribute evaluations for the Internet and catalogs, whereas those in Segment 2 provide the most favorable evaluations. Evaluations by Segment 1 consumers generally fall in the middle and again do not imply clear preferences. The results of our analysis thus match the overall attitude results from Table 6.

Interpretation and labeling of segments

On the basis of these analysis results, we may label our segments. Segment 2, which reveals favorable attitudes toward multiple channels for search and purchase and is characterized by high innovativeness, high shopping enjoyment and low loyalty, contains consumers who tend to use the Internet and catalogs for both information search and purchase. Accounting for 37 percent of respondents, we label this segment "multichannel enthusiasts." Segment 3, or 23 percent of respondents, reveals favorable attitudes toward brick-and-mortar stores and relatively unfavorable attitudes toward alternative channels. This segment is further characterized by high loyalty, somewhat higher shopping enjoyment and low innovativeness; we refer to it as the "store-focused" segment, as confirmed by their greater tendency to use the store for both search and purchase. Finally, Segment 1 displays slightly more favorable attitudes toward alternative channels than the store-focused segment but generally low attitudes toward all channels for all transaction phases. These consumers do not rate any channel or phase distinctively, suggesting they have no clear preferences toward multichannel shopping and are not particularly enthusiastic about the prospect. Our additional examinations of past channel usage confirm that this segment, approximately 40 percent of the respondents, does not prefer any alternative channels but exhibits low loyalty, low shopping enjoyment, relatively lower price consciousness, and slightly high innovativeness. This description implies a low-involvement attitude toward shopping (Goldsmith and Emmert 1991; Laurent and Kapferer 1985; Mittal 1995). According to literature, consumer involvement can explain consumer behavior (Goldsmith and Emmert 1991) and provides an effective tool

for segmentation (Lockshin, Spawton, and Macintosh 1997). In summary, we identify the fit among multichannel orientation, psychographics, and low-involvement consumer behavior in Segment 1 and designate it the uninvolved segment. Our final segmentation thus consists of

- Segment 1: Uninvolved shoppers
- Segment 2: Multichannel enthusiasts
- Segment 3: Store-focused consumers

Category-specific estimation results

Multichannel segmentation across categories

In the previous section, we aggregate the results across the seven product categories though these categories vary in terms of complexity, purchase frequency, and tangibility. To explore potential cross-category variations, we next apply our LCA model separately to obtain specific results for each category. Considering the BIC statistics for one to eight clusters for each product category we find that in four product categories, the three-cluster model is optimal, whereas for the other three categories the four-cluster model is best. That is, the category-specific statistics closely match our previous overall-level analysis; we again employ the three-cluster alternative as the solution for all seven categories and use the same process to interpret the clusters. The results appear in Table 11.

Several results in the category-specific findings are consistent with the aggregate results, though we also find some important differences. In terms of the consistencies that dominate our cross-category results, we find that the segmentation scheme for books, electronics, computers, and insurance is the same as that for the overall sample, though the relative percentages of customers in each segment differ.

In three categories, two of the three segments remain intact, but another and different segment(s) emerges. For example, in the mortgage category, instead of a multichannel enthusiasts segment, we discover a research shopper segment, characterized by an attitude that embraces alternative channels for information search but strictly prefers the store channel for purchase. In the holiday category the uninvolved segment tend to move into research shopping segment as well. That is, uninvolved shoppers who want to purchase a holiday but exhibit low shopping involvement overall still maintain a slightly higher attitude toward information search in alternative channels. Finally, in

Table 11
Latent class segmentation (cross category analysis) (*N* = 360)

	Latent class segments (cross category)					
Overall	Uninvolved shoppers	40.0%	Multichannel enthusiasts	37.0%	Store focused	23.0%
Books	Uninvolved shoppers	34.0%	Multichannel enthusiasts	43.0%	Store focused	23.0%
Mortgage	Uninvolved shoppers	63.0%	Research shoppers	20.0%	Store focused	17.0%
Electronics	Uninvolved shoppers	17.0%	Multichannel enthusiasts	56.0%	Store focused	27.0%
Holidays	Uninvolved + Research shopping	53.0%	Multichannel enthusiasts	28.0%	Store focused	19.0%
Clothing	Store + Catalogue search	62.0%	Multichannel enthusiasts	13.0%	Store focused	25.0%
Computers	Uninvolved shoppers	31.0%	Multichannel enthusiasts	37.0%	Store focused	32.0%
Insurance	Uninvolved shoppers	39.0%	Multichannel enthusiasts	35.0%	Store focused	26.0%

the clothing category, the uninvolved segment is replaced by a segment that searches extensively in the store and catalogs.

Category characteristics influence the formation of consumer segments, based on their multichannel orientations. One possible explanation relies on the distinction between "high touch" and "low touch" product categories (Lynch, Kent, and Srinivasan 2001). The need to inspect the product before purchasing underlies preference for brick-and-mortar shopping methods for some products, such as clothing, sporting goods, and health products. In contrast, for low touch products, such as airline tickets and software, consumers may favor online services and multichannel shopping because they place importance on shopping quickly (Lynch et al. 2001). Product categories like holidays, mortgage, and insurance require more face-to-face personal assistance, so consumers favor brick-and-mortar shopping. These explanations appear relevant, based on the larger multichannel segments in categories, such as computers, books, and electronics, compared with the smaller multichannel segments in clothing, holiday, and mortgage categories.

Covariates of multichannel shopping across categories

We display the effect of the covariates of multichannel orientation across multiple categories in Table 12. In our category-specific analysis of covariates, the aggregate results persist, though with some important differences. Consistent with aggregate analysis, we find innovativeness remain as the psychographic variable most commonly related to segment membership—though with .10 significance level in mortgage and clothing categories. However, innovativeness does not serve this function in the holidays and insurance categories. We find a significant impact of price consciousness in two of the seven categories, and loyalty has an effect in the holiday and book categories, in which contexts store-focused shoppers are more loyal. Shopping enjoyment has a significant effect only for clothing, and segments that reveal higher store scores enjoy shopping

more. Our cross-category analysis also reveals a few significant results for sociodemographics, similar to our aggregate analysis.

Overall, our category-specific analyses support our segmentation of consumers into multichannel enthusiasts, uninvolved shoppers, and store-focused shoppers. The covariates that most consistently differentiate among these segments are innovativeness and loyalty, as confirmed in the aggregate analysis. However, we recognize some category-specific effects, because not all covariates that are consistent in aggregate remain consistent across categories (e.g., shopping enjoyment).

Discussion

In this paper we attempt to expand current understanding of consumer behavior in a multichannel retailing context and contribute specifically to emerging multichannel literature by executing an in-depth segmentation study. Our segmentation addresses two phases of the shopping process, information search and purchase, and benefits from a dynamic structural utility framework that enables us to analyze shopping as a multiphase process, in which the perceived utilities of different phases determine consumers' attitudes toward multiple channels. Theoretically, we relate these utilities, depending on the benefits and costs of search and purchase, to psychographic and demographic variables. That is, we consider the impact of psychographic and sociodemographic covariates on segment membership.

Findings

To summarize the contributions of our study to multichannel research, we detail its substantive findings, which appear essential for a thorough understanding of multichannel consumer behavior and marketing strategy development.

- We provide a clear case for segmentation based on consumer attitudes toward various channels for search and purchase.

Table 12
Covariates of multichannel behavior (cross category analysis)

	Books	Mortgage	Electronics	Holiday	Clothing	Computers	Health insurance	Overall
Innovativeness	0.00**	0.07	0.00**	0.35	0.08	0.00**	0.16	0.02*
Loyalty	0.03*	0.21	0.52	0.05*	0.45	0.92	0.38	0.03*
Motivation to conform	0.16	0.44	0.07	0.62	0.75	0.66	0.39	0.24
Shopping enjoyment	0.53	0.70	0.98	0.24	0.00**	0.39	0.58	0.02*
Time pressure	0.13	0.66	0.98	0.55	0.34	0.80	0.23	0.49
Price consciousness	0.21	0.97	0.10	0.03*	0.04*	0.07	0.12	0.08
Gender	0.01*	0.09	0.00**	0.77	0.56	0.01*	0.51	0.50
Age	0.54	0.87	0.15	0.41	0.97	0.14	0.01*	0.23
Urbanization	0.12	0.41	0.85	0.41	0.04*	0.42	0.26	0.42
Welfare	0.68	0.28	0.85	0.70	0.41	0.97	0.42	0.94
Education	0.04*	0.08	0.50	0.88	0.05*	0.57	0.41	0.25
Income 1	0.55	0.65	0.66	0.01*	0.56	0.94	0.57	0.93
Income 2	0.46	0.78	0.61	0.29	0.99	0.97	0.12	0.55
Household 3	0.77	0.60	0.77	0.48	0.75	0.78	0.24	0.59
Household 2	0.19	0.38	0.83	0.74	0.35	0.48	0.64	0.24
Household 4	0.44	0.63	0.74	0.86	0.81	0.95	0.43	0.86
Household 1	0.45	0.50	0.67	0.88	0.38	0.33	0.12	0.50

Notes. Category-level LCA model, active covariates (*p* values)—significance levels: **(1%), *(5%).

- Psychographics predict multichannel segment membership.
- Multichannel-based consumer segments differ across product categories.

In our aggregate analysis, we find strong evidence of a multichannel enthusiasts segment that consists of consumers who have positive attitudes toward all channels. The store-focused segment orients toward brick-and-mortar stores instead of other channels, whereas the uninvolved-shopper segment is characterized by less preference for any channel or shopping phases in general. This is consistent with our expectations, since we use utility framework for shopping and certain consumers would be expected to have low perceived utility toward shopping process in general. Our segmentation study provides new insights on multichannel consumer behavior. Different consumer segments vary in their attitudes toward different channels in a multichannel setting.

On the contrary to our expectations, we find no research shopping segment in our aggregate analysis though there are customer segments in few categories which use different channels for information search and purchase. Furthermore, channel choice and multichannel orientation of consumer segments show similar patterns in information search and purchase phases. In other words, there are no consumer segments with varying multichannel orientation in different shopping phases. This is a surprising result since prior research provides some empirical evidence on research shopping phenomenon (Verhoef et al. 2007), and it is likely that there is a segment which is consists of research shoppers. We believe that further research is required to extend our understanding of research shopping phenomenon which could include segmentation research in different categories.

Our results reveal that segment memberships are associated with psychographics. Existing research into the determinants of consumer behavior (i.e., Ailawadi et al. 2001) suggests the impact of several hedonic and economic covariates on utility perceptions on different phases and channels. We find interesting results in this context. First, multichannel enthusiasts tend to be more innovative, and in support of prior theory that innovative consumers explore and use new alternatives (e.g., Steenkamp and Baumgartner 1992).

Second, store-focused consumers generally are more loyal than multichannel enthusiasts. The finding is very interesting since prior research also indicates that multichannel consumers (i.e., consumer purchasing through multiple channels) have higher purchase volumes and they tend to become disloyal over time (Ansari, Mela, and Neslin 2006). Our study sheds some light on the reasons for this finding, in that we find multichannel enthusiasts generally are less inclined to be loyal to brands or particular retailers.

Third, in contrast with prior literature that relates shopping enjoyment negatively to the use of alternative nonstore channels (e.g., Darian 1987; Verhoef and Langerak 2001), our results imply that multichannel enthusiasts consider shopping a pleasurable experience than do the other two segments, and uninvolved shoppers do not consider shopping a pleasurable experience at all. Considering our utility framework, uninvolved shoppers do not gain a hedonic utility from shopping, as confirmed by their channel orientations. We also find a weak evidence of price-consciousness effect ($p < .10$), with a split between multichannel enthusiasts (price conscious) and store focused (not price conscious). This result matches prior findings of differences in prices between channels (i.e., Clemons, Hann, and Hitt 2002). Regarding the relatively marginal impact of price consciousness, one should note that other factors, such as retailer characteristics and market characteristics, significantly influence online prices (Venkatesan, Kumar, and Bapna 2007a) and thus consumer perceptions. We do not find significant relationships with sociodemographics, which confirms prior findings that consumer behavior is driven more by psychographics (e.g., Ailawadi et al. 2001). Our results demonstrate that segment membership is affected by hedonic and economic variables.

Our segmentation scheme generally applies to specific product categories, though with some interesting refinements due to different multichannel adoption levels, varying shopping patterns, and perceptions toward channels. For example, the multichannel enthusiast segment remains quite small in the clothing category but accounts for a majority of consumers in the electronics category. The covariates also may differ across categories.

Management implications

Our research has several implications for managers. For example, we identify a large segment of consumers who are enthusiastic about using multiple channels during their shopping process. Therefore, managers should maintain well-coordinated channels that provide similar prices and products; otherwise, the multichannel enthusiasts segment may become confused and frustrated with the retailer. This segment also provides an argument against single-channel strategies. Research suggests additional channels enhance customer satisfaction and ultimately customer loyalty (e.g., Wallace, Giese, and Johnson 2004) and positively influence firm performance (e.g., Deleersnyder et al. 2002). The existence of the multichannel enthusiasts segment is consistent with this finding.

The different segments also suggest the need for firms to develop specific strategies for each. For example, marketers should create retail formats that provide multichannel enthusiasts with an enjoyable shopping experience in which they can be innovative. However, marketers should offer uninvolved shoppers more efficient and perhaps less frenetic channel formats to generate and enhance positive attitudes toward shopping in general. In this case, managers could direct uninvolved shoppers to specific channels but must maintain optimal channel allocation, because uninvolved shoppers remain unattached to any channel in particular. Promotions and other incentives therefore might push uninvolved shoppers to the channels the firm prefers. Finally, firms pursuing the store-focused segment should improve the store experience by enhancing shopping enjoyment.

These multichannel segments differ in their perceptions of the attributes of the different direct channels, so firms also might improve some attributes (i.e., shopping complexity) to expand their consumer base. The segments we uncover in

our overall analysis appear consistently in the specific segments but with important exceptions. Therefore, marketers must recognize the importance of category characteristics in determining multichannel-based customer segments. Because of these category-specific nuances, we encourage managers from different sectors to conduct ad hoc research, using our proposed method, to segment and manage their consumer base effectively.

Research limitations and further research

Certain limitations characterize this research. First, we lack behavioral and longitudinal data across channels. In our research we might encounter common method bias, since we have only survey data there is no way to cross-validate our findings. Although this approach limits the generalizability of our findings, studying actual behavior across seven categories in this setting entails an extensive task. Moreover, not all consumers use each purchase channel in all categories, making actual behavioral data extremely difficult to obtain. Nonetheless, the increasing use of more channels may enable additional research to focus on measuring actual channel use. Second, we do not examine after-sales as a third shopping process phase, mainly because we aim to gather full information about multiple channels and various categories, whereas the usage of after-sales remains rare among consumers in some of the chosen channels and categories. That is, consumer evaluations for the after-sales phase would be unreliable. However, we strongly encourage marketing researchers to investigate the role of the after-sales phase in a multichannel setting, because this additional focus may broaden our understanding of multichannel consumer behavior. Similarly, our research ignores relatively new channels, such as Web logs, virtual communities, and M-commerce. Again, adoption of these new channels remains rather low. Third, we include data only from the Netherlands. Researchers also should gather data in other Western countries or focus on non-Western economies, such as Turkey and India (e.g., Burgess and Steenkamp 2006).

Other potential research directions move beyond the limitations we identify. One potential research direction is a further understanding of the effects of using multiple channels on consumer loyalty. Second, further research could pursue an understanding of how firms react to the increasing presence of the multichannel consumer. Finally, though the segments we identify are similar across categories, their covariates are less consistent. Therefore, researchers should attempt to generalize and develop theories with respect to how these covariates may differ across categories.

Appendix A. Description of scale items used (psychographics)

Innovativeness (Goldsmith and Hofacker 1991)
- I regularly purchase different variants of a product just for a change.
- I am one of those people who try a new product first, just after the launch.

- I find it boring to use the same product (or brand) repetitively.
- I like to try new and different products.
- I always have the newest gadgets.

Loyalty (Sproles and Sproles 1990)
- I generally do my shopping in the same way.
- Brand of the product is important for me in my purchase decisions.
- I generally purchase the same brands.
- The place where I do my shopping is very important for me.

Motivation to conform – opinion seeking (Flynn, Goldsmith, and Eastman 1996)
- Being accepted by other people is very important for me.
- I find it very boring when other people criticize my behaviors.
- I like to have some problems which I can solve without much thinking.

Shopping enjoyment (Babin et al. 1994; Dawson, Bloch, and Ridgway 1990)
- I like shopping.
- I take my time when I do shopping.

Time pressure (Srinivasan and Ratchford 1991)
- I am always busy.
- I usually find myself pressed for time.

Price consciousness (Lichtenstein et al. 1990; Sproles and Sproles 1990)
- It is important for me to have the best price for the product.
- I compare the prices of various products before I make a choice.

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