Segmenting multichannel consumers across search, purchase and after-sales

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Segmenting multichannel consumers across search, purchase and after-sales

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ABSTRACT

While bricks-and-mortar stores and the Internet are dominant retailing channels, mobile and social media have rapidly emerged and challenge traditional retail models and consumer behavior. However, researchers have yet to account for how consumers integrate mobile and social channels throughout the various stages of the buying process. Using Latent-Class Cluster Analysis segmentation, we examine consumer behavior in store, Internet, mobile, and social media channels across the search, purchase and after-sales buying stages in the aggregate and specific to the clothing, holiday travel and consumer electronics categories. We find five multichannel consumer segments on the basis of perceived channel importance across the buying process, as well as psychographic and demographic characteristics. Interestingly, we find a polarization in perceived importance of mobile and social media channels, with two consumer segments rating mobile and social media channels as unimportant in the buying process. Furthermore, and compared to prior segmentations of multichannel consumer behavior, we do not find an aggregate store-focused segment. However, a store-focused segment exists in the context of buying clothing and represents 28.6 per cent of consumers. The findings show multichannel consumer preferences and behavior continues to evolve in line with new and emerging retailing channels. Further, this study confirms that there is no 'one-size fits all' approach to multichannel retailing.

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1. Introduction

Amongst the backdrop of a dynamic and highly competitive operating environment, the past decade has seen the variety, scope and sophistication of retailing channels grow (Dholakia et al., 2010). Consequently, consumer behavior has evolved and presents critical implications for retail business models (Sorescu et al. 2011). As Verhoef et al. (2015) note, we have moved into to a new phase of multichannel retailing, driven by challenges associated with continued digitalization in marketing and retailing (Leeflang et al., 2014). Underpinning these challenges in recent years has been growth in mobile and social media as channels[1] in their own right, as well as the integration of these channels into online and offline retailing models (Verhoef et al., 2015; Wang et al., 2015). Today, consumers are increasingly using mobile and social media channels as part of the shopping and buying process (Wang et al., 2015; Xu et al., 2014). The multichannel buying process includes three stages of consumer decision-making: (1) information search, (2) purchase, and (3) after-sales service (Neslin et al., 2006). Indeed, there has been a shift away from the traditional 'purchase funnel' to a 'consumer decision journey' (Edelman, 2010).

Multichannel retailers dominate the modern retail landscape, with a large proportion of retailers in the US and UK selling through more than one channel (Blázquez 2014). A large number of consumers are also using a variety of channels interchangeably as they shop and make purchases (Verhoef et al., 2015). For instance, many consumers' use the Internet or a mobile device to obtain information or compare prices and then subsequently purchase in a store (Balasubramanian et al., 2005). The existence of multiple channels is thus transforming consumer behavior throughout the entire buying process (van Bruggen et al., 2010). However, prior studies have not accounted for how mobile and social media are used by consumers' in the context of multichannel shopping and buying (Wang et al., 2015). Thus, there is a need to understand the role of these channels within the context of multichannel consumer behavior in order to keep up with the pace of channel developments (Verhoef et al., 2015). Especially

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[1] As per Neslin et al. (2006), we refer to *channel* as a customer contact point, or a medium through which the firm interacts. Emphasis on the term *interact* reflects that we do not include one-way communications, such as television or print advertising.

given marketing science and practice have failed to keep up with the growing number of available shopping channels (Berry et al. 2010).

Against this background, this paper extends past multichannel consumer segmentations to account for usage of mobile and social media channels throughout the buying process. This is important knowledge given consumers' rapid uptake of smartphones and social media as shopping channels, and the pressure on retailers to better understand where to make incremental channel investments (Verhoef et al., 2015; Wang et al., 2015; Xu et al., 2014). Further, a more comprehensive view of multichannel consumer behavior across the stages of search, purchase and after-sales is captured. Indeed, marketing literature increasingly acknowledges the importance of the after-sales stage and calls have been made for its inclusion in segmenting consumer behavior (Gensler et al., 2012; Van Vaerenbergh et al., 2012). Finally, our multichannel consumer segments are examined across clothing, holiday travel and consumer electronics contexts in line with past research that shows consumer channel usage can be motivated by product category (Balasubramanian et al., 2005; Konuş et al. 2008).

2. Retailing channels as multiple service outputs

Multichannel retailing comprises the set of activities involved in selling goods or services to consumers through more than one channel (Levy and Weitz, 2009) and has received considerable attention in the literature (e.g., Neslin et al., 2014; van Bruggen et al. 2010; Verhoef et al., 2015; Zhang et al., 2010). As a retailing strategy, multiple channels assist retailers to augment their core product offerings with particular service outputs (e.g., product selection, attribute information and personalized service) before, during and after purchasing (Bucklin, 1966; Wallace et al., 2004). Conceptually, service outputs are the productive outputs of the marketing channel that end-users demand (Bucklin, 1966; Nargundkar 2006), and provide important context for understanding consumers' multichannel behavior. Service outputs represent all of the aspects of the shopping experience that affect consumer channel choice, as opposed to simply what they buy (Nargundkar, 2006). A wide portfolio of complementary channels makes a greater and deeper mix of service outputs available to end consumers (Frazier and Shervani, 1992; Bucklin et al., 1996). As such, multichannel retailing is an opportunity for retailers to provide consumers with a seamless and convenient experience and enhance overall shopping value (Neslin and Shankar, 2009; Venkatesan et al., 2007).

Consumer channel-choice behavior has been previously studied in accordance with the service outputs model (i.e., Bucklin, 1972; Wallace et al., 2004), albeit primarily in relation to the store (and more recently the Internet) channel. Nonetheless, channel systems exist and remain viable by performing duties and providing end-user benefits. Fundamentally, channel systems differ in their ability to perform various service outputs (Betancourt and Gautschi, 1990; Bucklin 1966, 1972; Bucklin et al., 1996), which Bucklin (1972) summarized in terms of delivery time, lot size, spatial convenience, and assortment. Delivery time is the time consumers have to wait between ordering and receiving goods and services. Lot size is the number of similar goods or services provided at each transaction. Spatial convenience reduces consumers' transportation and search costs. Assortment is the variety of goods or services offered through a distribution channel. For example, stores provide opportunities for product trial, instant gratification and personalized attention, while the Internet provides expanded accessibility, product information and novelty (Zhang et al., 2010). Given these relative strengths, consumers may use specific channels for different purposes or at different stages in the buying process.

Stores capture upwards of 90% of total retail sales (NAB, 2015), providing the hub of the retail industry's value proposition and driving consumer perceptions of value (Kerin et al., 1992). The Internet is the next largest retailing channel, growing at a rapid pace since its commercialization in the mid to late 1990s (Razak et al., 2009). This growth has been driven by consumer demand for convenience and retailers' desire to lower transaction costs (Mulpuru et al., 2009). The growth of the Internet is expected to continue, with US online store sales forecast to grow at a compound rate of 10 per cent and reach US$370 billion in 2017 (Mulpuru et al., 2013a). Recent years have seen the rapid emergence of new retailing channels such as smartphone mobile devices and a wide range of social media platforms (Rapp et al., 2013). However, important questions remain regarding how consumers integrate mobile and social media with the well-established store and Internet channels when shopping, and what this looks like across the buying process (Verhoef et al., 2015).

Commerce via mobile devices has been cited as the new service frontier and the greatest area of retailing channel development (Wannemacher and Johnson, 2011; Wang et al., 2015). Although often characterized as an extension of the Internet, research highlights the need to consider mobile as a unique channel given its ubiquitous connectivity and location sensitivity (Lee, 2005; Shankar et al., 2010). Further, a number of different mobile channel formats exist, including text (available via all mobile devices) and micro websites (via 3G and later mobile devices) to more recent developments such as dedicated mobile websites and downloadable applications (via smartphones). The mobile channel has quickly become a popular retailing channel, offering transactional capabilities and, in turn, an enhanced remote shopping experience (Wang et al., 2015). From the consumer's perspective, a uniquely defining characteristic of the mobile channel is its ubiquity – the ability to engage in commerce anytime and anywhere. As such, the value of mobile commerce represents greater sophistication in eliminating temporal and spatial constraints to the delivery of retail services (Nysveen et al., 2005). In response, retailers are evolving from an information-push stage to a transaction stage of mobile channel development (Hickey, 2011).

Social media has also undergone a rapid rise in popularity, recording phenomenal growth as a retailing channel and more recently in terms of purchasing within social media communities and conversations (Shankar et al., 2010). Research indicates that time spent using social media is ever-increasing, with engaged consumers more likely to create and share content about products, brands and service experiences (Deloitte, 2011). A reported 47 per cent of social media users have also engaged in 'social care' services, which is the practice of offering customer service via social media platforms. In fact, 30 per cent of social media users prefer this type of customer service above telephone assistance (Nielsen, 2012). To reach consumers in this way, retailers (and consumer-facing brands more broadly) are adopting after-sales brand engagement and service strategies via social media platforms and networks.

In essence, consumers are now faced with a two-dimensional decision at each stage of their shopping path to purchase: which firm to interact with and through which channel to interact (Neslin et al., 2006). This shift in decision-making has had a major impact on consumer behavior given that shoppers increasingly desire to search multiple sources of information before making a purchase and then sharing their purchase and after-sales experiences with others (van Bruggen et al., 2010). Previous studies that segment consumers on the basis of their multichannel behavior do so based on channel usage, providing different segment profiles across several stages of the buying process. Konuş et al. (2008) proposed distinct multichannel consumer segments based on the

importance of stores, the Internet and catalogs at the search and purchase stages of buying, as well as a number of covariates. However, limited research has considered the role of the after-sales stage of the consumer buying process (De Keyser et al., 2015).

According to Konuş et al. (2008), consumers can be classified in to one of three segments: (1) *Multichannel Enthusiasts* who have positive attitudes towards all channels, high levels of innovativeness and enjoy shopping; (2) *Store-Focused* consumers who are prefer shopping in stores and have high levels of channel and brand loyalty; and (3) *Uninvolved* consumers who have little interest in any channel and a low degree of shopping involvement generally. Despite increased academic attention regarding multichannel retailing and associated consumer behavior, empirical research remains limited. Specifically, existing multichannel consumer segmentation fails to account for mobile and social media channels and the manner in which channels are used beyond the purchase stage (e.g. Konuş et al. 2008). This study aims to identify how consumers combine mobile and social media channels with stores and the Internet throughout the entire buying process and develops an updated segmentation of consumers on this basis. Based on previous research, three broad research questions guide this study:

RQ1. What role do mobile and social media channels play in consumers' multichannel shopping behavior?
RQ2. What is the relative role of multiple channels (including mobile and social media) across the search, purchase and after-sales stages of the buying process?
RQ3. How does the role of multiple channels (including mobile and social media) differ by product category?

3. Method

The research questions extend past multichannel segmentation research to include mobile and social media channels as service outputs. It is important to note that the channel configuration offer (store, Internet, mobile, and social media) is held constant across all three buying stages, however the channels may vary in functionality for consumers by stage. Nonetheless, we assume consumers perceive a bundle of available channels across the entire buying process. We define all channels examined in this study as those offered to consumers by a retail brand. The store refers to a physical brick-and-mortar retail outlet. The Internet refers to a retailer's online store accessed via a desktop or laptop device. Mobile refers to a retailer's smartphone application or mobile responsive website as accessed via a mobile medium, device or technology. Finally, social media refers a retailer's presence in a social networking platform, including but not limited to sites and applications such as Facebook, Twitter, and Pinterest. We expect segment differences based on channel preferences at each stage of the purchase journey, and based on psychographic and demographic covariates. In the model these covariates influence the probability of consumers belonging to each segment and in turn, leads to the identification of a number of multichannel consumer segments.

3.1. Definition and measurement of multichannel service outputs

Multichannel service outputs are defined as the package of distribution channels that consumers perceive as available from a retailer and differ in the service outputs they provide. As consumers become aware of and use a greater number of channels, they enhance the total package of service outputs from which they can draw. It is proposed that channel usage and importance at each buying stage is dependent on the utility the consumer

derives from the service outputs offered by each channel. It is further assumed that consumers perceive a 'bundle' of available channels at each buying stage, regardless of whether or not they use a channel. The store, Internet, mobile, and social media channels are investigated across the buying process: search, purchase, and after-sales. Further, consumer channel preferences for buying are measured across three product categories: clothing, consumer electronics, and holiday travel. These product categories were selected based on their relative differences in purchase complexity, purchase frequency and tangibility (Konuş et al. 2008; Peterson et al., 1997).

Respondents were asked a series of questions about their recent buying behavior in one of the three product categories. To make the buying process more vivid, and thereby improving the validity of responses, respondents were asked to write a brief description (3–4 sentences) of their recent product purchase experience (Kaltcheva and Weitz, 2006). Next, respondents were asked a series of questions about the specific item(s) purchased (brand, dollar value, category familiarity, and knowledge). The final set of questions presented the four channels that the respondent may have used across the buying process: to search for information, make the purchase and interact with the retailer after purchasing. Attitudinal variables were measured via self-report importance ratings of the four channels, with ratings reflecting the respondent's perceived utility of each channel's service outputs. Respondents were asked to rate how important each channel was at each stage of the buying process based on 7-point Likert scales (1=not important; 7=very important), with scores for each attitudinal variable included in the latent-class model as indicators. Importantly, these ratings are grounded in the respondent's actual channel usage as part of a recent purchase experience, which better reflects reality (e.g., Gensler et al., 2012). This is in contract to past studies, which have drawn on customers' attitudes toward using a specific channel at a specific stage (Konuş et al. 2008). This process assists in overcoming the barrier that attitudes do not necessarily predict actual behavior.

3.2. Definition and measurement of covariates

Several psychographic and demographic covariates have been shown to inform consumers' channel preferences and behavior. We borrow from Konuş et al. (2008) in selecting psychographic covariates. First is shopping enjoyment, which includes entertainment and emotional benefits (Babin et al., 1994) and has been shown to influence channel selection, particularly with regard to social media elements, such as shopping with friends (Nicholson et al., 2002). Second is innovativeness, which refers to the degree that a person trials new and different products and seeks out new experiences (Midgley and Dowling, 1978), which requires more exploratory and extensive search behavior (Konuş et al. 2008). Third is loyalty, which is a general trait shown to result in an inclination to exhibit single-channel behavior for both search and purchase (Konuş et al. 2008). Fourth is price consciousness or the degree to which consumers focus on paying low prices (Lichtenstein et al., 1990) and has shown to drive consumer perceptions of prices in specific channels and in turn make channel choices (Verhoef et al., 2007). The final psychographic variable is time pressure, or a consumer's predisposition to consider time a scarce resource and plan its use carefully (Kleijnen et al., 2007) - also shown to influence channel choice and behavior (Konuş et al. 2008; Verhoef and Langerak, 2001).

All psychographic variables were measured using multiple items with 7-point Likert scales ranging from 1 (fully disagree) to 7 (fully agree). Exploratory factor analysis was employed to determine the structure of these variables, such that item loadings of .70 or greater (Hair et al., 2010) and eigenvalues greater than 1

Table 1
Exploratory factor and reliability analysis results (psychographic variables).

	Innovativeness	Loyalty	Shopping enjoyment	Time pressure	Price consciousness	Mean (SD)	Reliability (C. Alpha)
I am one of those people who try a new product firstly just after the launch.	.89					3.11 (1.57)	.77
I always have the newest gadgets.	.88					3.20 (1.59)	
I generally do my shopping in the same way		.80				4.85 (1.30)	.70
I generally purchase the same brands.		.86				4.42 (1.27)	
I like shopping			.86			4.77 (1.72)	.70
I take my time when I shop			.84			4.66 (1.53)	
I am always busy.				.89		4.50 (1.48)	.75
I usually find myself pressed for time.				.88		4.21 (1.53)	
It is important for me to have the best price for the product.					.84	5.69 (1.20)	.70
I compare the prices of various products before I make a choice.					.86	5.68 (1.23)	

n=930

Table 2
Discriminant validity analysis results (psychographic variables).

	Innovativeness	Loyalty	Shopping enjoyment	Time pressure	Price consciousness
Innovativeness	.77 (.59)	.05	.39	.28	.09
Loyalty		.74 (.55)	.17	.11	.33
Shopping enjoyment			.73 (.53)	.08	.40
Time pressure				.74 (.55)	.21
Price consciousness					.73 (.53)

Notes. Values in the upper triangle represent variable correlations; values on the cross diagonals represent the square root of AVE and (AVE).

(Kaiser, 1960) serve as the item selection criteria. The results supported five factors (accounting for 77 per cent of the variance extracted) in line with the a priori defined psychographic variables. Scale reliability was obtained using the calculation of Cronbach's coefficient alpha, with all above the cut-off criterion of 0.7 (Garver and Mentzer, 1999). Table 1 lists the items and their corresponding factor loadings and coefficient alphas for each scale. Additional confirmatory factor analysis supported the five-factor solution (goodness-of-fit index [GFI]=.99; comparative fit index [CFI]=.98; root mean squared error of approximation [RMSEA]=.04). Composite scores for each psychographic variable were obtained from the mean scores across the items.

Applying the criteria of Kline (2005), each psychographic variable was found to have convergent validity. Specifically, individual item factor loadings were large (> .50) and significant ($p < .001$), and residuals > 2.58 with other construct items (Anderson and Gerbing, 1988; Garver and Mentzer 1999). According to Fornell and Larcker (1981), evidence for discriminant validity is present when the square root of the AVE for each construct exceeds the corresponding correlations between that and any other constructs. The results met this condition. That is, the largest correlation between any pair of constructs was .40, while the smallest square root of the AVE was .73 (see Table 2). The psychographic variables were included in the latent-class model as covariates.

Demographic covariates included gender, age, income, and education, all of which have been shown to impact shopping behavior generally (e.g., Ansari et al., 2008; Inman et al., 2004). Given our investigation of retailing channels, smartphone ownership status is also included as a demographic covariate. In line with previous segmentation research (cf. Konuş et al., 2008), we conducted a post-hoc segmentation analysis. As a result, final segments are not predetermined, meaning formal hypotheses are not developed a priori.

3.3. Data collection

Survey data was collected from a sample of Australian consumers who are members of an online research panel.[2] At the time of the survey, the panel was comprised of approximately 300,000 verified members drawn from the general public (1.2 per cent of the Australian population). These members registered (without having received any payment) with the company after recruitment via a relatively even split of both online and offline sources (primarily via television, radio, newspaper, and online advertising). A sample of consumers (aged 18+ years) was selected using a quota random sampling, whereby quotas were set to match the national population for gender, age and geographical distribution. The sample provider randomly selected a subset of members within these quotas and invited them to participate in the study via an email invitation. This group was presented with a screening question to ensure they had made a purchase in one of the three product categories within the past month. A small incentive (roughly equivalent to AU$5.00) was provided to respondents on completion of the survey.

Respondents were allocated into a product category based on having made a clothing, consumer electronics or holiday travel purchase during the past month. A final qualified sample of 930 respondents was obtained, with 407 in the clothing category, 377 in the consumer electronics category and 146 in the holiday travel category. The final sample was representative of the Australian population, with a slight skew towards females (51.7 per cent). In terms of age, more than half of respondents (58.2 per cent) were aged between 18 and 44 years old, with the largest group (22.4 per cent) aged between 35 and 44 years old. Respondents evaluated the store, Internet, mobile, and social media channels in terms of

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[2] The panel is accredited to ISO 20252 and ISO 26362 and is governed by industry bodies including the European Society for Opinion and Marketing Research (ESOMAR), the Australian Market and Social Research Society (AMSRS) and the Association of Market and Social Research Organisations (AMSRO).

their importance in conducting information search, making a purchase and seeking after-sales service for their allocated product category. Respondents also evaluated themselves on the five psychographic variables and reported their relevant demographic characteristics.

3.4. Data analysis

LCA, using Latent GOLD software (Vermunt and Magidson, 2013), was conducted to explore the extent to which the indicators and covariates differ between the resulting segments of consumers. Segmentation analysis is commonly employed in multichannel consumer behavior and choice studies (e.g. Konuş et al. 2008), and is a fundamental component of market research (Wedel and Kamakura, 2002). LCA extracts several relatively homogeneous groups of respondents from heterogeneous data – it is model-based, true to the measurement level of the data, and can yield results which are stronger in the explanation of buyer behavior (Wedel and Kamakura, 1999). An underlying premise of LCA is that the population consists of a finite and identifiable number of segments, each characterized by homogeneous preferences for buying via multiple channels. Another key feature of LCA is that segment membership is probabilistic, based on the importance of different attributes (Wedel and Kamakura, 1999). Even through a non-strategic lens, segmentation is a powerful descriptive tool (Wedel and Kamakura, 1999), particularly for investigating how groups of consumers behave. In conducting LCA, the latent variable (consumer segments) was considered categorical, taking on a range of possible values corresponding to segments and with a multinomial logit model used to express the probabilities.

4. Multichannel consumer segmentation

In performing the segmentation analysis, the convergence criterion was set at 0.000001 (Collins and Lanza, 2010) and 50 random sets of starting parameters (Masyn, 2013) to reduce the likelihood of convergence to local maxima (McCutcheon, 2002). The local independence assumption was tested using Bivariate Residuals (BVRs) (Vermunt and Magidson, 2013). The initial models displayed strong evidence of violation of this assumption through extreme BVR values. Such violations can bias LCA (Oberski et al., 2013) by affecting apparent model fit and resulting in additional clusters appearing to provide better fit to satisfy the assumption (Vermunt and Magidson, 2013). As such, a latent factor was included in the model to account for commonality among the indicator variables and direct effects were included to account for local dependence between pairs of variables where necessary (Vermunt and Magidson, 2004; Vermunt and Magidson 2013). Model fit statistics for solutions ranging from one to ten segments are displayed in Table 3.

Multiple criteria were used to select the preferred solution (Masyn, 2013). First, the Bayesian Information Criterion (BIC) was used to compare relative model fit (Collins and Lanza, 2010; Masyn 2013). Typically, the preferred solution is the one with the lowest BIC value (Collins and Lanza, 2010). However, in the case of models with a large number of variables, the BIC may continually decrease with additional clusters (Masyn, 2013). In this situation, an elbow in the BIC can be used to identify the point at which additional segments only provide small gains to model fit (Masyn, 2013). A clear elbow point was found at the 5-segment solution, as the decrease in the BIC from five to six clusters was minimal compared to the increase in model fit observed between the four and five cluster solution. The choice of the 5-cluster solution was also supported by Average Weighted Evidence (AWE). The AWE provides a single value that accounts for the combination of model fit,

Table 3
Log-likelihood statistics for model selection.

Model	LL	BIC (LL)	Npar	Class. Err.	AWE
1-Segment	−18,391.54	37,165.85	56	0.00	37,716.62
2-Segment	−14,826.76	30,343.88	101	0.00	31,342.10
3-Segment	−13,817.44	28,632.83	146	0.00	30,078.77
4-Segment	−12,923.05	27,151.62	191	0.01	29,110.14
5-Segment	**−12,506.10**	**26,618.47**	**235**	**0.03**	**29,098.04**
6-Segment	−12,292.79	26,499.43	280	0.04	29,436.29
7-Segment	−12,005.23	26,225.06	324	0.04	29,585.09
8-Segment	−11,590.74	25,703.66	369	0.03	29,497.12
9-Segment	−11,118.84	25,081.12	416	0.03	29,334.99
10-Segment	−10,866.49	24,870.33	459	0.03	29,547.81

parsimony and the anticipated classification error (Masyn, 2013). The AWE value was lowest at the 5-segment model, providing support for this the choice of this solution. Finally, the segment profiles were considered in terms of over-extraction (Masyn, 2013), class separation (Collins and Lanza, 2010) and interpretability of results (Wedel and Kamakura, 1999). The 5-segment solution displayed no evidence of over-extraction, as the smallest segment was larger than 10 per cent of the sample. The solution also led to meaningful interpretation as the clusters showed strong class separation. In contrast, solutions with additional segments resulted in smaller clusters with lower class separation. Based on the combination of these factors, the 5-segment model was deemed the final solution. Table 4 provides descriptive statistics for the attitudinal variables specific to each segment.

Table 5 details the psychographic and demographic covariate coefficients, representing the impact of each covariate on segment membership. A strong positive coefficient means that consumers who score high on the covariate are likely to appear in that segment, whereas a large (magnitude) negative coefficient means consumers are not likely to be in the segment. Significant covariate coefficients were found for innovativeness (Wald=19.91, $p < 0.01$), shopping enjoyment (Wald=16.41, $p < 0.01$), price consciousness (Wald=11.23, $p < 0.05$), gender (Wald=9.79, $p < 0.05$), and age (Wald=41.59, $p < 0.01$). The smart phone ownership coefficient was also found to be significant at the 0.1-level (Wald=9.93, $p=0.09$).

4.1. Interpretation of segments

The first three consumer segments share a common characteristic – a clear preference for the Internet for search and this preference moving to the store channel for purchase. Hence, these three consumer segments show clear *Research Online, Purchase Offline* (ROPO) multichannel buying behavior, also described as 'research shopping' (Verhoef et al., 2007). For consumers in these three segments, information made available via the Internet likely drives inspiration and their subsequent store purchase behavior (Yellavali et al., 2004). Further, characterizing the first segment (representing 35.9 per cent) is mobile and social media channel unimportance across all three buying stages. Members of this segment are less innovative, enjoy shopping less, tend to be older (over 55 years of age), and earn high-incomes (over AU$90,000). We label this segment *ROPO, anti-mobile/social media*. The second consumer segment (22.4 per cent) is characterized by neutral importance ratings for mobile and social media channels, suggesting they are open toward a variety of buying channels. This consumer segment tends to be female and vary in age, with a comparatively high proportion of 25–34 and over 65 year olds. We label this segment *ROPO, multichannel enthusiasts*. The third consumer segment (15.8 per cent) holds high channel importance ratings across the buying process. This segment places a

Table 4
Multichannel consumer segment profiles (*n*=930).

		Sample Mean	Segment 1 ROPO, anti-mobile/ social media (35.9%)	Segment 2 ROPO, multichannel enthusiasts (22.4%)	Segment 3 ROPO, social media enthusiasts (15.8%)	Segment 4 Internet-focused, anti-mobile (14.0%)	Segment 5 Internet-focused, multi-channel enthusiasts (11.9%)
Search	Mobile	2.17	1.00	2.62	3.68	1.76	3.32
	Social media	2.61	1.48	2.99	4.06	2.74	3.24
	Internet	5.14	4.73	5.18	5.39	5.43	5.63
	Store	4.64	4.38	4.94	5.23	4.26	4.55
Purchase	Mobile	1.89	1.00	2.31	3.47	1.00	2.74
	Social media	2.17	1.00	2.31	3.84	2.17	3.21
	Internet	4.29	3.65	4.27	5.09	4.58	5.05
	Store	4.95	4.71	5.23	5.49	4.42	4.87
After-sales	Mobile	1.92	1.00	2.38	3.52	1.00	2.84
	Social media	2.76	1.76	3.10	4.29	2.48	3.44
	Internet	4.19	3.57	4.35	5.10	4.03	4.77
	Store	4.53	4.29	4.77	5.32	4.08	4.28

Note: Importance rated on 7-point Likert scale, anchored from 1 (not at all important) to 7 (extremely important).

particularly high importance on mobile and social media channels compared to all other segments. This segment is less price conscious, which is somewhat counterintuitive to traditional theory, which suggests shoppers who search the Internet prior to purchase are often comparing prices (Verhoef et al., 2007). Our findings perhaps suggest that consumers use the Internet as a source of inspiration – searching for ideas, rather than optimizing the price of a purchase. Further differentiating this consumer segment is members' perception of social media as the most important after-sales channel. Indeed, these consumers may be seeking to share their purchases with others via social media. In terms of psychographics, this consumer segment tends to be innovative, loyal and enjoys shopping. Members of this segment also own a smartphone device, are male, aged 35-44 years, and earn between AU$20,000 and AU$40,000. We label this segment *ROPO, social media enthusiasts*.

The final two consumer segments share a common characteristic in displaying a clear preference for the Internet channel in search, purchase and after-sales stages of buying. Members of segment four and five are clearly *Internet-focused* in their shopping channel behavior. Members of segment four (14 per cent) can be differentiated in terms of mobile channel unimportance ratings at all buying stages, labeled *Internet-focused, anti-mobile*. This consumer segment tends to be less innovative and enjoys shopping less. The final segment (11.9 per cent) is characterized in terms of moderate to high importance ratings of most channels and buying stages. This consumer segment perceives the mobile, social media, store, and Internet channels as important and can be understood in the context of consumer channel switching behavior (Reardon and McCorkle, 2002). We label this segment the *Internet-focused, multichannel enthusiasts*.

Table 5
Multichannel consumer behavior covariate significance.

	ROPO, anti mobile/social media	ROPO, multichannel enthusiasts	ROPO, social media enthusiasts	Internet-focused, anti mobile	Internet-focused, multi-channel enthusiasts	Wald	p-value
Intercept	1.66	0.61	-1.53	-0.14	-0.60	18.05	0.00
Innovativeness	-0.15	0.05	0.18	-0.13	0.05	19.91	0.00
Loyalty	0.02	0.00	0.04	-0.10	0.05	1.84	0.76
Shopping Enjoyment	-0.13	0.06	0.19	-0.08	-0.04	16.41	0.00
Time Pressure	0.04	-0.05	0.08	-0.05	-0.02	3.75	0.44
Price Consciousness	-0.01	-0.11	-0.13	0.25	0.00	11.23	0.02
Gender (male)	-0.10	-0.12	0.21	-0.09	0.10	9.79	0.04
Age						41.59	0.00
18–24 years	-0.39	-0.12	0.01	0.03	0.48		
25–34 years	-0.30	0.09	-0.09	-0.11	0.40		
35–44 years	-0.16	-0.02	0.63	-0.64	0.19		
45–54 years	0.00	-0.15	0.03	0.04	0.09		
55–64 years	0.20	-0.04	-0.01	0.06	-0.20		
65+	0.66	0.24	-0.56	0.62	-0.95		
Income						31.47	0.14
less than $20,000	0.19	-0.08	0.19	-0.07	-0.22		
$20,000 - $40,000	-0.30	-0.20	0.62	-0.24	0.12		
$40,001 - $60,000	-0.22	-0.07	0.12	0.09	0.07		
$60,001 - $90,000	-0.06	0.18	-0.34	0.03	0.19		
$90,001 - $120,000	0.13	0.03	0.16	-0.21	-0.10		
more than $120,000	0.26	0.04	-0.31	-0.01	0.03		
Prefer not to answer/ Don't know	0.01	0.10	-0.44	0.41	-0.08		
Smartphone ownership	-0.11	-0.18	0.10	0.03	0.16	7.93	0.09

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

Table 6
Product category segmentation covariate significance.

	Clothing	Consumer electronics	Holiday travel	Aggregate
Innovativeness	0.14	**0.03**	0.06	**0.00**
Loyalty	0.65	0.84	0.83	**0.00**
Shopping Enjoyment	0.29	**0.04**	0.04	0.76
Time Pressure	0.43	0.88	0.90	**0.00**
Price Consciousness	0.63	0.39	0.19	0.44
Gender (Male)	0.18	0.36	0.33	**0.02**
Age	**0.00**	**0.05**	0.18	**0.04**
Income	**0.01**	0.33	0.69	0.14
Smartphone ownership	0.58	0.80	0.68	**0.09**

Notes: Product category LCA model, covariate (*p*-values) significance levels at 0.10 and below are bolded.

4.2. Product category segmentation results

The results presented thus far are aggregated and do not account for product category variation. We now present the product category findings, which investigate multichannel consumer segments across clothing, holiday travel and consumer electronics. To generate these results, the same LCA procedure was conducted for each product category separately. Again, the BIC statistics were considered for one to ten segments, finding a four-segment model for the clothing category, while the same five-segment model was found for the holiday travel and consumer electronics categories. This model variation demonstrates product category differences in multichannel consumer behavior, but also consistencies across some categories. The product category segmentation covariate effects are reported in Table 6 and the segmentation results by product category are presented in Table 7.

Several noteworthy differences exist across product categories. First, the number of consumer segments identified in each category differs. Five consumer segments were identified in the context of holiday travel and consumer electronics, with differences in size and profile. Similar to the aggregate model, the largest consumer segment in the consumer electronics category is the *ROPO, anti mobile/social* segment (28 per cent). Two other consumer segments (segment 2=25 per cent; segment 5=15 per cent) display clear multichannel buying preferences, with the key difference being that segment 5 prefers the store across all buying stages. For holiday travel, most consumer segments show a clear preference for the Internet across all buying stages. Across all five segments, the Internet received the highest importance rating for search, even where the segments rated the Internet and social media channels as unimportant. This finding may be explained by the different nature of the holiday travel category, particularly as online travel services become more popular. Two segments displayed a preference for store-based purchasing (segment 3=19 per cent; segment 5=15 per cent) and enjoy shopping. Four segments were identified for the clothing category. A key difference in

this category is the existence of a *Store-focused* segment (28.6 per cent), rating only the store channel as important.

A number of differences were also found based on the impact of covariates. Innovativeness was a significant covariate in the aggregate model and for the consumer electronics category only. Loyalty, gender and smartphone ownership were significant covariates in the aggregate model, however were not identified as such in any product category. Age was a significant covariate for all product categories, except holiday travel. Overall, the product category results display a number of consistent results and differences specific to each category.

5. Summary and conclusions

5.1. Theoretical contributions

At a conceptual level, our findings support the channel integration perspective in the retail literature. Friedman and Furey (2003) differentiate between channel mix and channel integration. Regarding the former, each channel functions independently of the others as a stand-alone unit, providing a 'package' of services that appeal to particular groups of consumers; consumers may visit different channels on different shopping occasions, depending on their current needs (Hansell, 2002). Channel integration, in contrast, involves a synergistic combination of channel functions (Görsch 2001). For instance, a clothing item can be tried on at a store and later purchased via the Internet, or items can be ordered on the Internet for store pickup. Our findings suggest that retailers who understand the relative importance of multiple distribution channels to consumers throughout the buying process, and develop their multichannel retailing strategies accordingly, will best align with consumers' multichannel behavior.

Further, and based on the service outputs framework (Bucklin, 1966; Nargundkar 2006), a wide portfolio of complementary channels makes a greater and deeper mix of service outputs available to consumers (Frazier and Shervani, 1992; Bucklin et al., 1996). As such, offering a multichannel portfolio of service outputs should lead to increased customer satisfaction (Shankar et al., 2003). However, our findings reveal distinct segments that differ in the importance consumers place on using different channels at different stages of buying, as well as psychographic and demographic characteristics. Consumers therefore differ in their perceptions of service outputs offered by multiple channels, with some consumer segments placing minimal value on particular channels at specific buying stages. Thus, adopting all available retail distribution channels is not a panacea for multichannel retailing success, and implies a more strategic approach to channel adoption. The existence of multiple consumer segments also highlights potential cost savings for retailers in reducing investment in unnecessary channels. Conversely, retailers can devote resources to channels that yield the greatest importance at key

Table 7
Product category segmentation results (*n*=930).

	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5
Aggregate	*ROPO, anti-mobile/social media (35.9%)*	*ROPO, multichannel enthusiasts (22.4%)*	*ROPO, social media enthusiasts (15.8%)*	*Internet-focused, anti-mobile (14.0%)*	*Internet-focused, multichannel enthusiasts (11.9%)*
Consumer electronics	ROPO, anti-mobile/social media (16.1%)	Anti-mobile/social media (27.8%)	ROPO, multichannel enthusiasts (24.9%)	Multichannel, store-focused (14.7%)	ROPO (16.5%)
Clothing	Anti-mobile/social media (18.5%)	ROPO, multichannel enthusiasts (30.2%)	Multichannel enthusiasts (22.7%)	Store-focused (28.6%)	–
Holiday travel	Internet-focused, Anti mobile/social media (25.1%)	ROPO, multichannel enthusiasts (14.9%)	ROPO, social media enthusiasts (19.5%)	Internet-focused (25.2%)	Internet-focused, after-sales indifferent (15.3%)

buying stages.

5.2. Managerial implications

We examine consumer preferences for using store, Internet, mobile, and social media channels across the buying process and have four substantive findings. First, consumers can be broadly classified into one of two groups on the basis of their multichannel buying behavior – those who exhibit ROPO, or research shopping behavior (Verhoef et al., 2007), and those who are predominantly Internet-focused. Within this broad classification, we find subtle multichannel consumer segment nuances. For ROPO consumers (74.1 per cent overall), we found three groupings; a large proportion of consumers who are anti-mobile and social media, a proportion of consumers who are multichannel enthusiasts and a smaller proportion of consumers who are social media enthusiasts. Within Internet-focused consumers, we also find subgroups who are anti-mobile and multichannel enthusiasts. The prevalence multichannel enthusiasts in both ROPO and Internet -focused orientations supports past segmentation research (Konuş et al. 2008; Tate et al., 2007) and is a segment that can be expected to grow as retailing channels emerge (Nielsen, 2012). At a strategic level, retail managers should recognize that the existence and profile of multichannel enthusiasts confirms that multichannel retailing can be a strategy for retaining high value and highly engaged consumers that value convenience and flexibility.

Second, we find a polarization in the perceived importance of mobile and social media channels. This is an important finding given the ample research that tracks the trajectory of rising traffic and growth of these channels (Mulpuru et al., 2013b; Husson et al., 2014). Thus, there remains a lack of hard evidence regarding the actual impact of mobile and social media as retailing channels (Wang et al., 2015). The prevalence of anti-mobile segments within ROPO and Internet -focused consumers (almost 50 per cent overall) supports the need for retail managers to better understand and develop mobile strategies prior to investment (StrongMail, 2012; Wang et al., 2015). Our ROPO, social media enthusiasts segment accounts for 15.8 per cent of the population and exhibits a strong preference for social media channels throughout the buying process. The importance placed on these channels for consumers is understandable given that these channels lower the cost and effort in gathering and sharing information (Huang et al., 2009). In this way, retail managers should seek ways in which mobile and social media channels can be utilized to allow consumers to easily learn about products prior to purchase and share their experiences afterwards (Lynch and Ariely, 2000).

Third, a major difference we find compared to past segmentations of multichannel behavior is the absence of an aggregate store-focused segment (Konuş et al. 2008). However, and in line with research (Blázquez 2014), we find a large (28.6 per cent) store-focused segment within the clothing category. For retail managers operating in the clothing category, it is important to pay particular attention to the store experience - an area that has received considerable attention in recent years (Pine and Gilmore, 1999; Diamond et al., 2009). Importantly, consumers have become more comfortable with the variety of channels available to them over time and, while important, the store is less often the only shopping channel and strategies should be employed to integrated digital channels with this store setting.

Finally, this research provides new insights on the often-neglected after-sales stage of the buying process. Results highlight that multichannel consumers are split between the Internet and the store as their preferred after-sales channel. This is unsurprising given that those channels are well established and have developed platforms and associated consumer expectations. The social media channel was considered important for our ROPO, social media enthusiasts segment for after-sales activity. This aligns with research finding 47 per cent of social media users seek customer service through social media (Nielsen, 2012). With social media usage still climbing, these numbers can be expected to rise. However, it is important to note that the rise of after-sales service via social media also poses distinct challenges. One is the public nature of the channel. A second challenge stems from social media's networked nature. As consumers are interconnected on social media, content can be virally spread at a very fast rate. Combined with social media's always-on nature, managers can see relatively small incidents gain significant reach very quickly. As an example, US fashion retailer, Abercrombie & Fitch experienced this in 2013 when quotes maligning plus-size customers made by their CEO in a 2006 article resurfaced in social media. The outcry prompted some consumers to boycott the brand's clothing and donate any possession to the homeless, in the hope of dulling the brand's luster. The #Fitchthehomeless campaign attracted national media attention, severely damaging Abercrombie & Fitch's brand image (Robson et al., 2013). Rather than caring about brands solely when making a purchase, consumers now are prone to engage in very extended consideration and evaluation stages, constantly collecting, contributing, and synthesizing information through their social networks. For retail managers, this points to a renewed focus on after-sales service efforts as this experience for one customer may very well influence others who observe (or hopefully do not observe) the interaction.

5.3. Limitations and future research

Our study is subject to limitations. First, the number of channels investigated limits the findings and conclusions. While we integrate the role of mobile and social media channels, there are a number of other retailing channels that exist. Further research is encouraged to investigate the role of other emerging shopping channels, especially in terms of how they guide consumers throughout the buying process. For instance, video ("v-commerce") is fast becoming an important channel, particularly for the search and purchase stages of buying (Karol, 2014). Further, the results may not be generalizable to retail categories beyond those investigated in this study.

Additional research specific to low-involvement, more frequent purchased product categories (e.g. grocery) is encouraged to determine the stability of the findings. Finally, although psychographic and demographic covariates are included in the segmentation model, other covariates may be important in segmenting multichannel consumer behavior. There is a need to further develop theories with respect to how these covariates may differ not only across product categories, but also across cultures.

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