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This study aims to understand customer patterns of channel usage to voice complaints to multichannel retailers. Data were collected from multichannel shoppers for apparel in Spain by means of an online survey. Latent Class Analysis on complaint channel (store, website, mobile app and social media) usage was performed. The analysis identifies four customer segments that use complaint channels differently. Channel dependencies emerged, particularly related to mobile app usage. The study then explores how the identified patterns are related to channel usage for information search and purchase and to the quality of the relationship with the retailer. Results provide theoretical and managerial contributions to the retailing field.

Keywords: multichannel behaviour, complaint behaviour, segmentation, latent class analysis, relationship quality

1. Introduction

The digital revolution has allowed shoppers to choose between multiple channels, such as brick and mortar stores, websites and social media, to interact with retailers across the information search, purchase and after-sales stages of the purchasing process (Lemon and Verhoef, 2016; Harris et al., 2018; Verhoef et al., 2015). Firms offer new online channels and touchpoints to serve customers after-sales, such as social media and mobile apps, which should be contemplated in multichannel customer research (Abney et al., 2017 Melancon and Dalakas, 2018).Within the literature analysing the multichannel customer journey, only few studies take into account the after-sales stage of the purchase process (e.g. De Keyser et al., 2015; Frasquet et al., 2015; Sands et al., 2016). Moreover, these studies deal with after-sales behaviours in general, not with specific behaviours such as complaining. In the current multichannel environment the occurrence of customer complaints is growing (Grégoire et al., 2015), thus, analysing the choice of complaint channel within the multichannel customer journey becomes an interesting question, particularly when mobile and social channels come into play.

Effective complaint management is crucial in order to secure customer satisfaction and loyalty, to prevent negative word-of-mouth and customer defection (Tax et al., 1998) and to maintain quality relationships with customers (Bach and Kim, 2012). Organisations are encouraged to develop multichannel complaint systems as this would increase the rate of customers that actually voice their dissatisfaction, thus giving firms the opportunity to correct the cause of the problem and retain the customer (Andreassen and Streukens, 2013; Robertson, 2012). In fact, consumers are increasingly using social media to communicate negative consumption experiences to a wide audience and expect a rapid response from the firm (Melancon and Dalacas, 2018). Firms are struggling to provide a satisfactory and timely response to temper the negative opinions that can impact on a wide audience and may damage reputation (Istanbulluoglu et al., 2017; Lemon and Verhoef, 2016).

Baron et al. (2014) stated that more research is required to understand online complaining behaviours as this would help to prevent or minimise the effects of negative opinions on the Internet. There is a growing interest in the literature to analyse the role of social media as a support channel in the after-sales stage. This has been explored in the qualitative studies of Clark (2013) and Dalla Pozza (2014), and more recently, in quantitative studies (e.g. Abney et al., 2017; Balaji et al., 2015; Gunarathne et al., 2017). Within customer complaint behaviour (CCB) literature, research on the choice of complaint channel is limited, with the early contribution of Mattila and Wirtz (2004) that considered email as a complaint channel, but neither the aforementioned authors nor subsequent researchers (e.g. Lee and Cude, 2012; Roberston, 2012) have included social media among the set of

channels available for complaining.

In order to address the outlined gaps in the literature, the aim of this paper is to identify segments of shoppers based on channel usage for direct customer complaints to multichannel retailers. This study addresses the research agendas of Lemon and Verhoef (2015) and Ailawadi and Farris (2017) related to identifying new types of customer segments by their use of specific touchpoints in the customer journey. We investigate the extent to which the aforementioned patterns of complaint channel usage are related to channel usage in previous stages of the shopping process and to the quality of the relationship with the retailer. Relationship quality constructs are useful for analysing the customer journey (Lemon and Verhoef, 2016), as the current retailing context, with multiple channels and touchpoints, offers new ways to build relationships with customers (Brynjolfsson et al., 2013). Our study also extends previous literature by including social media and the mobile app as complaint channels. Our results show that different customer segments use complaint channels differently. Social media is used by all segments in varying degrees but always combined with other channels. A particularly interesting finding that extends the literature on channel synergies (Verhoef et al., 2007) is that the use of multiple channels for complaining is affected by the choice of the mobile app in preceding shopping stages. Our findings are of interest to practitioners, as identifying and characterising customer segments by their use of complaint channels would allow firms to tailor customer service strategies to serve customers in the multichannel retail context.

The remainder of this paper is structured as follows. Firstly, it reviews previous research on multichannel complaint behaviour and channel-based segmentation. Secondly, it outlines the conceptual development of the study and research questions. Thirdly, it employs a latent class segmentation to reveal heterogeneous customer segments with reference to their usage of complaint channels and related covariates. Segments are described and profiled. The paper concludes with a discussion of the results, implications for practice, limitations and future research.

2. Theoretical framework

2.1. Complaint channels in the multichannel context

Early research in CCB literature revealed interest in conceptualising and classifying complaint behaviour. According to Singh (1988:94), CCB is "a set of multiple (behavioural and non-behavioural) responses, some or all of which are triggered by perceived dissatisfaction with a purchase episode". The first attempt to classify CCB was the two-level hierarchical classification of Day and Landon (1977); the first level differentiates behavioural and non-behavioural complaint, and the second level public and private action. Non-behavioural complaint actions are responses that are not active or visible and include change of attitude, forget or forgive (Singh, 1988). Behavioural complaint includes exit, i.e. leaving the relationship, and voice, i.e. communicating the dissatisfaction (Hirschman, 1970). As far as voice, public complaint includes seeking redress from the seller or taking legal action, while private complaint includes word-of-mouth (Singh, 1988). Building upon the previous classifications, Mattila and Wirtz (2004) incorporated an additional level into the CCB taxonomy, namely channel choice. When the customer has decided to take public action and seeks redress from the seller, several complaint channels are available that offer different degrees of interaction with the firm: face-to-face and telephone as interactive channels, and letter and email as remote channels. Digital technologies have increased the choice of complaint channels and heightened the importance of CCB (Istanbulluoglu et al., 2017).

The eruption of online channels and social media challenges the pre-existing classification of complaint channels (Istanbulluoglu et al., 2017). Online customer complaining refers to the use of email or web forms to seek redress or the use of the Internet to publicise the complaint (Grégoire et al., 2009). Online channels would encourage voicing dissatisfaction for shame prone consumers, and those seeking greater convenience in submitting complaints, thus allowing firms to keep track of customers that could otherwise silently defect (Andreassen and Streukens, 2013; Snellman and Vihtkari, 2003). Technology, consumer habits and firms' strategies have combined to consolidate

social media as a complaint channel that is used in combination with or as a substitute for other online and offline channels. Clark (2013) revisits Mattila and Wirtz's (2004) classification in regards to channel choice, and based on the results of content analysis, suggests that a new "semi-interactive" type channel should be included in the classification together with interactive and remote channels. Remote and interactive channel types could be interpreted as the two ends of a continuum representing the degree of interaction that the channel allows. In this way, face-to-face is the most interactive channel, and letter or email would be the most remote channel. Social media is a semi-interactive channel because it is remote in that a physical distance exists and the response is (or should be) rapid, albeit not in real time; moreover the interaction in not one-to-one, but one-to-many, as the complaint is voiced to the company but can also be listened to by other customers (Dalla Pozza, 2014). Istanbulluoglu et al. (2017) develop an integrated taxonomy of CCB that contemplates the new digital channels: whereas traditionally public complaining meant direct communication with the company through company-owned one-to-one communication channels, new channels such as social media extend the reach to one-to-many communication. In this way, the new digital channels allow to socialize dissatisfaction, which used to be a lonely experience (Ward and Ostrom, 2006). Our research design contemplates the new reality of complaint channels available in the multichannel context.

2.2. Channel-based segmentation

As customer journeys become more complex in the omnichannel era, segmentation analysis is an even more crucial issue for understanding the patterns of consumer channel choice throughout the purchase process (Sands et al., 2016). Different channels provide different service outputs at specific stages of shopping, but this perception is not universal, with distinct customer segments deriving different utility from each channel (Sands et al., 2016). The multichannel customer management decision framework presented by Neslin and Shankar (2009) identifies six steps, the first being the development of appropriate customer segmentation. These authors argue that customers differ in channel usage, and segments formed on the basis of channel usage meet the criteria of being measurable, accessible, differentially responsive, actionable and substantial.

Initial studies on multichannel segmentation investigated the existence of channel-based customer segments focused on channel choice for purchasing only (e.g. Keen et al., 2004). Subsequent studies took into account channel integration efforts and the synergies of combining channels, and uncovered customer segments based on channel choice for search and purchase (Konuş et al., 2008; Schröder and Zaharia, 2008). In this line, patterns of channel combination for search and purchase were identified, e.g., webrooming (search online, buy in store) (Verhoef et al., 2007), or showrooming (search in store, buy online) (Konuş et al., 2008). More recent studies have extended the analysis to include the after-sales stage (De Keyser et al., 2015, Frasquet et al., 2015; Sands et al., 2016). Table 1 summarises the empirical research on channel-based segmentation that envisages the use of channels for different shopping stages. The papers report similar findings: the growing role of the multichannel segment (particularly webroomers), despite the existence of a hard-core offline segment, and the still limited use of online channels for the after-sales stage. We extend research in this area by considering usage of the store, the website, the mobile app and social media in the specific after-sales context of complaining to identify customer segments. Thus, we formulate our first research question as follows:

RQ1: Which customer segments exist in terms of channel usage for customer complaint to firms in the after-sales stage of the purchasing process?

[INSERT TABLE 1]

2.3. Correlates of channel usage for complaining

Segmentation studies are useful when they provide information about the variables that predict

customer membership to a group and help marketers to target each specific segment (Konuş et al, 2008; Neslin et al., 2006). We suggest that two groups of variables could act as covariates of channel usage for complaining: variables referring to channel usage in preceding shopping stages, and variables referring to the relationship with the retailer.

2.3.1. Channel usage for information search and purchase

Complaint actions normally take place in the after-sales stage of shopping. The channel a customer chooses when dissatisfied with a purchase is likely to be affected by the customer experience with the channels throughout the shopping process. Although not referring specifically to complaining, nor generally to after-sales, there is some evidence that the choice of a channel in one stage has an influence on the choice of channel in the subsequent stage of shopping (Gensler et al., 2012). The multichannel literature has conceptualised webrooming and showrooming as patterns of channel combination, namely research shopping (Verhoef et al., 2007; Konuş et al, 2008). Literature has discussed the channel lock-in and spill-over effects to refer to the extent a channel is able to retain shoppers from one stage of shopping to the next. The offline channel in particular shows a strong lock-in as it is able to retain shoppers from the search to the purchase stage of shopping. On the other hand, the popularity of the webrooming phenomenon lies precisely in the absence of lock-in effect that characterizes the online channel (Verhoef et al., 2007). However, the move to omnichannel retailing and the related increase in channel integration contribute to the blurring of the barriers between offline and online channels (Brynjolfsson et al., 2013). Therefore, cross-channel synergies are more likely to spread, and more customers are able to follow patterns of channel combination across their shopping journeys. Research shows contradictory findings relating to the channel lock-in or spill-over effects for after-sales behaviours: Gensler et al. (2012) found that channel choice for after-sales is affected by the channel chosen for purchase, but the findings of De Keyser et al. (2015) and Frasquet et al. (2015) suggest that even when shoppers search and purchase online most of them tend to go to the store for after-sales service. The above-discussed papers do not specifically consider social media or the mobile app as channels for the after-sales action of complaining. However, given the scarce literature on channel dependencies affecting complaint actions, we extend their logic to analyse how complaint channel segments are informed by channel usage for search and purchase. Within CCB literature, only Lee and Cude (2012) compared the complaint channels used by offline and online shoppers, and found that online buyers were more likely to complain online. Thus, online channels would show lock-in between the purchase and after-sales stages as they do across the search and purchase stages. This may be due to the customer perception of higher value of online channels for complaining, as they offer increased convenience, reach, and cover for shame-proneness (Andreassen and Streukens, 2013; Snellman and Vihtkari, 2003).

Building on the multichannel literature and given the limited evidence on complaint channel usage, our second research question aims to investigate how channel dependencies affect complaint behaviour in the after-sales stage.

RQ2: How does channel usage for information search and purchase influence channel usage for complaining in the after-sales stage of the purchasing process?

2.3.2. Relationship quality variables

Complaining is defined as an outcome of a dissatisfactory episode (Singh, 1988); in fact there are quite a few studies that take dissatisfaction as a predictor of complaint intentions (e.g. Thøgersen et al., 2009; Wu, 2013). However, complaint behaviours are not only a direct result of a dissatisfactory episode, but could be also explained by the quality of the relationship prior to the incident. Today's shopping environment, with its multiple channels and touchpoints, impacts the customer experience as it affects the way customers' relationships with companies are built and maintained (Brynjolfsson et al., 2013; Lemon and Verhoef, 2016).

Relationship marketing literature has investigated the variables that affect the building of successful, long-term relationships (e.g., Morgan and Hunt, 1994). Relationship quality is defined as a multidimensional construct that includes satisfaction, trust and commitment (Athanasopoulou, 2009). Several studies (e.g. Eastlick et al., 2006; Shankar et al., 2003; Walsh et al., 2010) analyse whether the determinants of relationship quality hold online as well as offline. They analyse online and offline channels separately, and report some similarities as well as small differences; these findings would suggest that different patterns of channel usage would be associated with relationships of different quality (Walsh et al., 2010). Some papers have comparatively analysed the levels of satisfaction or loyalty (e.g. Kushwaha and Shankar, 2013; Larivière et al., 2011) between single-channel and multichannel shoppers. Multichannel shoppers have been found to display higher relationship quality than single-channel shoppers. Melancon and Dalacas (2018) explores how social media complaint varies in relationships of different quality. However, to the best of our knowledge, no study has analysed how relationship quality variables affect the choice of complaint channel. Building on the relationship marketing literature, we discuss next how the variables of trust, commitment and satisfaction could predict the choice of complaint channel.

Trust is a key building block of relationship quality (Morgan and Hunt, 1994). Customer trust in an organization is defined as "confidence in the quality and reliability of the services offered" (Garbarino and Johnson, 1999: 71). Trusting beliefs are required for a consumer to interact online with a firm; hence, customers with different levels of trust in the firm would use complaint channels in a different way (Eastlick et al., 2006; Wu, 2013). Trust is the underlying dimension for consumers to use the online channels of a firm as it helps to reduce the risks involved in Internet operations (Bart et al, 2005). Trust needs to be built for consumers to disclose personal information to an online vendor (Cho, 2006), so trust could be higher for shoppers that use online channels to purchase. Similarly the level of trust that characterised the relationship of the customer of the firm before the dissatisfactory incident, would affect the channel chosen to complain.

Kushwaha and Shankar (2013) found that multichannel customers were more committed to retailers than single channel customers, resulting in their higher monetary value. Moorman et al. (1992) defined commitment as an enduring desire to maintain a valued relationship. A positive relationship also exists between commitment and the willingness to exchange information (Anderson and Weitz, 1992). Consequently, committed customers who have an issue with a retailer would be more likely to use an interactive channel such as the store channel, which affords extensive information exchange. Less committed customers would not make the effort of going to the store to complain face-to-face but rather complain through more convenient channels.

We examined overall customer satisfaction with the retailer. In contrast to encounter satisfaction, which depends on the specific transaction, overall satisfaction is relationship-specific, i.e. overall satisfaction is the cumulative effect of a set of discrete service encounters or transactions both offline and online with the retailer over a period of time (Shankar et al., 2003). Lee and Cude (2012) compared the effect of satisfaction on the choice of offline versus online complaint channels. These authors confirmed that when online shoppers are very dissatisfied they tend to use online channels to complain, but they could not confirm that level of satisfaction affects use of channels among offline shoppers.

Empirical evidence on how complaint behaviour is affected by variables such as trust, commitment and satisfaction is lacking. Thus, the third research question of the study was formulated as follows:

RQ3: How does relationship quality influence channel usage for complaining in the after-sales stage of the purchasing process?

3. Methodology

3.1. Data collection and measurement

A quantitative online survey, managed by a professional market research institute, was undertaken. Participants belonged to a Spanish online panel of individuals aged 18 and over, and were selected based on the fact that they shopped for apparel products using multiple channels. Thus, shoppers that used both online and offline channels represented our population of reference: given the current widespread adoption of multiple channels in purchasing behaviour (Verhoef et al., 2015), this is a relevant and large population, as described by both Frasquet et al. (2015) and Sands et al. (2016).

Apparel retailing was chosen because multichannel shopping is more evident for hedonic products, such as apparel products (Kushwaha and Shankar 2013) and it has been already employed as a field of research by previous multichannel studies (e.g. Frasquet et al., 2015; Sands et al., 2016). After removing incomplete and invalid cases, our final sample comprised 630 respondents. They were mainly female (61%) with an average age of 40 years. The majority of respondents had university degrees (68%) or high school diplomas (30%). Respondents were asked to answer with reference to the retailer where they shopped for apparel most often and whose online and offline channels they were familiar with. Respondents had to choose their most-visited retailer from a long list of multichannel retailers operating in Spain. All the retailers considered were single-brand retailers that started as offline retailers but are now multichannel.

Relational variables such as trust, satisfaction and commitment were measured with reference to the retailer selected by each respondent. Trust was assessed by means of a scale proposed by Chaudhuri and Holbrook (2001), which measures the willingness to rely on the retailer's ability to perform its declared function. The commitment scale described by Coulter et al. (2003) was used to measure the degree of attachment to the retailer. Satisfaction was measured by means of a scale adapted from Brakus et al. (2009), which measures customer satisfaction with the decision to shop at the retailer. Channel usage intentions were measured by means of a scale adapted from Gensler et al. (2012). This scale measures the likelihood that respondents would choose a certain channel in a future purchase situation with the retailer by eliciting their response based on actual channel usage, hence mirroring reality, as in Sands et al. (2016).

Channel usage for information search and purchase was measured for the following channels: the retailer's physical store, the retailer's website, and the retailer's mobile app. As far as channel usage intention to complain was concerned, the retailer's social media page was also included in addition to the abovementioned channels. Constructs were measured by means of 7-point Likert scales, ranging from "completely unlikely" to "completely likely" for channel usage intentions and from "totally disagree" to "totally agree" for trust, commitment and satisfaction. Finally, socio-demographic information on respondents was collected in the last section of the questionnaire.

3.2. Segmentation procedure

The analytic strategy used in this study was as follows. Latent Class segmentation was employed to estimate latent classes or unobserved segments. Latent Class segmentation has advantages over traditional statistical techniques such as cluster and regression analysis as it allows the heterogeneity of a population to be detected by finding the least possible number of groups present in the data studied (Vermunt and Magidson, 2005). It is a model-based approach providing a probability-based classification through posterior probability of membership (Haughton et al., 2009). Latent class segmentation identifies subgroups of cases based on internal variables - specifically indicators - that are used to uncover latent segments within the general population. Moreover, Latent Class segmentation also allows for the simultaneous incorporation, within the model, of independent variables - specifically, covariates - that influence the estimation of the probability of belonging to a given segment, namely the "one-step approach". By employing indicators and, if present, covariates, latent class segmentation generally considers a range of solutions with a varying number of segments and provides statistical criteria to identify the most appropriate number of segments (Vermunt, 2010). In this respect, the Bayesian Information Criterion (BIC) has been deemed as one of the best

information criteria for selecting the number of clusters (Nylund et al., 2007; Haughton et al., 2009). BIC is used to compare model fit among the obtained models and to choose the best solution as the one with the minimum BIC value. Moreover, interpretability of the selected clusters and the size of the clusters can also be taken into account together with BIC to further validate the choice of the best model (Collins and Lanza 2010). When the best model has been chosen, the Wald statistic is employed: i) to evaluate the statistical significance of each indicator employed to perform segmentation; ii) to test the relationship between segment probabilities and each covariate. The profile of each cluster is evaluated by considering descriptive statistics and inference tests on indicators and covariates. Finally, pairwise comparisons with Bonferroni correction are also employed to test the differences among segments for each significant covariate.

The present study considered the four variables of channel usage intention to complain (in the physical store, on the website, on the mobile app and on the social media page of the retailer) as the four indicators. This choice was made because we aim to uncover latent profiles of complainers that differ in their likelihood to choose a given channel for complaining. Channel usage intentions to search for information, channel usage intentions to purchase, trust, commitment, satisfaction, age and sex were included in the model as covariates. We posit that the likelihood of belonging to each latent segment is influenced by covariates such as channel usage intention for information search and purchasing, relationship quality variables and demographics. The structure of the model is displayed in Figure 1.

[INSERT FIGURE 1]

To better assess the validity and reliability of trust, commitment and satisfaction, a Confirmatory Factor Analysis (CFA) was conducted using R statistical software, specifically the "Lavaan" package (Rossell, 2012). Results of the definitive measurement model are shown in Table 2. Fit indexes displayed an acceptable fit, CFI=0.98, TLI=0.97, RMSEA=0.08 (0.06–0.09), Chi Square (41) = 184.644, p<001. The CFA also shows adequate values regarding indicators of convergent validity (factorial loadings>0.6 and significant) and reliability (Cronbach's α>0.7; AVE>0.5, Composite Reliability>0.7) for all the considered measures. Factor scores from the CFA were then included in the model for trust, commitment and satisfaction. Table 2 reports a summary of the measurement scales employed in the study and of the results from the CFA.

[INSERT TABLE 2]

4. Analysis and Findings

4.1.Latent Class segmentation

Latent Class segmentation was performed using Latent Gold 5.1 software considering solutions with a number of clusters varying from one to seven. The employed procedure ran the algorithm with 300 random sets and 300 iterations for each number of clusters. This was done to avoid local minima: several iterations were required to counter the risk of identifying a local minimum instead of the global minimum of the BIC for each cluster solution (Haughton et al., 2009). The procedure retained the model yielding the minimal value of the BIC for each cluster solution. Table 3 shows the different BIC values per each cluster solution. The preferred solution was the one with the lowest BIC value (Collins and Lanza, 2010): the analysis showed that the BIC values decreased down to the four-cluster solution, while from the five-cluster solution the BIC tended to steadily increase. Moreover this choice was further confirmed by evaluating interpretability and size of the selected clusters: each cluster included a fairly substantial number of subjects (more than ten percent of the total number of individuals) and the profiles emerging from the clusters were clearly distinct and meaningful with respect to the literature of reference. Hence, the four-cluster option was retained as the best solution.

[INSERT TABLE 3]

After selecting the four-cluster solution, the significance of each model indicator was assessed by means of the Wald test (Table 4). The associated p-value was lower than 0.05, thus showing that the employed indicators could be considered as discriminating among the identified segments (Vermunt and Magidson, 2005). With reference to the covariates, the following covariates were reported to significantly influence the probability of belonging to the latent segments: satisfaction, website usage intention for information search, mobile app usage intention for information search and mobile usage intention for purchasing. Website usage intention for purchasing was significant at the 0.10 level only. The following covariates did not significantly influence segment identification: trust, commitment, store usage intention for information search, sex and age. Therefore, latent class segmentation revealed the presence of channel usage dependencies between complaining and the other phases of the customer journey and highlighted the role of satisfaction as a driver of complaint channel usage.

4.2.Profile of the segments

Each segment was profiled by looking both at significant indicators and covariates (Table 4) and at descriptive statistics (Table 5). Moreover, segments were labelled to increase the clarity of the results discussion. Group 1 was labelled as "Multichannel complainers". "Multichannel complainers" represented 42% of the total sample, making this the largest segment. "Multichannel complainers" displayed a moderate intention to use multiple channels for complaining. Compared to the sample average, they seemed to be more likely to use the mobile app and less likely to use the store to complain. They were more likely to use the mobile app for information searching and purchasing. Their satisfaction was significantly lower than the sample average.

Group 2 was labelled as "Heavy multichannel complainers" because they displayed a very high intention to use each of the four channels for complaining. They represented 22% of the total sample. They were more likely to employ the website, the mobile app and social media to complain than the sample average. They showed significantly higher commitment to the retailer than the sample average. "Heavy multichannel complainers" looked for information and purchased through all channels and were more likely to search for information and to purchase through the mobile app than the sample average.

Group 3 was labelled as "Web-focused complainers" because these shoppers were more likely to use the website and less likely to use the other channels to complain than the sample average. They represented 22% of the total sample. "Web-focused complainers" were more likely to search for information on the website and less likely to search for information and purchasing through the mobile app. They also displayed a high intention to purchase at the store and low intention on the website. They displayed average levels of trust, commitment and satisfaction with the retailer.

Group 4 was labelled as "Store-focused complainers" because these shoppers were more likely to complain at the store and less likely to complain through any of the other channels. "Store-focused complainers" represented 14% of the total sample and were therefore the smallest segment. These customers searched for information at the store and on the website, but tended to purchase largely at the store, which was also the most likely channel for complaining. "Store-focused complainers" showed higher satisfaction with the retailer than the sample average.

[INSERT TABLE 5]

After the description of segments, multiple comparison tests with Bonferroni correction were performed on parameters of significant indicators and covariates, as suggested in Vermunt and Magidson (2015). This was done to further explore differences across segments on variables that differentiated the probability of belonging to a given segment. Results on multiple comparisons are

available in Table 6.

Major findings were as follows:

- As far as channel usage intentions to complain are concerned, the four segments were significantly different as far as each and every of the four channels studied. The only exception were the "Web-focused complainers", that did not differ completely from the other segments;
- "Heavy multichannel complainers" are more likely to use the mobile app for purchasing than all the other segments;
- "Web-focused complainers" intended to use the website as an information channel significantly more and the mobile app significantly less than all the other segments;
- "Store-focused complainers" appeared to be more satisfied with the retailer than "Multichannel complainers" and "Web-focused complainers".

[INSERT TABLE 6]

5. Discussion and managerial implications

The present study aimed to identify customer segments based on channel usage for complaining to firms based on survey data obtained from more than six hundred consumers in apparel retailing. Multichannel usage patterns have been identified in previous segmentation studies (e.g., Konus et al., 2008; De Keyser et al., 2015; Frasquet et al., 2015; Sands et al., 2016). Our study contributes to this line of research by specifically investigating complaint behaviour in the after-sales stage of shopping and by including semi-interactive channels such as social media and the mobile app as complaint channels. Semi-interactive channels allow for a different level of interaction with firms as despite the physical distance they allow high level of interaction and one-to-many communication.

With reference to RQ1 - Are there different segments in terms of channel usage for customer complaints to firms in the after-sales stage of the purchasing process? -, the study found that multichannel shoppers differed in terms of complaint channel usage in the after-sales stage of the shopping process. Specifically, four different segments clearly emerged: two segments - "Multichannel complainers" and "Heavy multichannel complainers" - used all the investigated channels for complaining; "Web-focused complainers" preferred the website as a channel for complaining; finally, "Store-focused complainers" employed the store as their sole channel for complaints.

By linking complaint channel usage with channel usage for information search and purchase, the employed segmentation identified four types of shopping journeys for multichannel shoppers:

- In the first type of journey, all stages (information search, purchase and complaining) were performed through any of the four channels ("Multichannel complainers") displayed this journey). "Multichannel complainers" appeared to be similar to the multichannel segments identified in Sands et al. (2016) and Frasquet et al. (2015)
- The second type of journey involved massively each of the considered channels for information search, purchasing and complaining (this was the case for "Heavy multichannel complainers"). This journey differed from the first as it displayed a higher tendency towards multichannel behaviour. The behaviour displayed by this segment supports the increasing attention devoted from academics and practitioners to omnichannel strategies.
- The third journey was characterized by a preference to use the website, which was surpassed by the store only at the purchase stage, and by neglection of the mobile channel ("Web-focused complainers" showed this path). In this journey the store was present in each stage. It resembles the webrooming/ROPO (Research online, Purchase offline) behaviour identified by Sands et al. (2016).
- The fourth type of journey employed the store, the website and the mobile app in the first two shopping stages but complaining was done at the store only ("Store-focused complainers").

This was in line with findings reported by Frasquet et al. (2015), De Keyser et al. (2015) and Sands et al. (2016), showing that the store is preferred for the after-sales stage.

Although the segments identified can be compared to previous studies contemplating the after-sales stage, the focus on complaining makes our findings unique. Complaining in the after-sales stage is an activity that is largely done through online channels for three segments (Groups 1, 2 & 3). Possible explanations to this high usage of online channels, which was not reported in previous studies (e.g. De Keyser et al., 2015), could be reasons associated with shame-proneness, the strong impact of social media complaint, or the increased attention firms pay to emails of dissatisfied customers (Mattila & Wirtz, 2004; Yen, 2016). Notwithstanding the importance of online channels, our study found that the complaint channel with the lowest usage was the mobile app. This is in line with previous findings reported by Sands et al. (2016) with reference to the "mobile channel" in general and not specifically to complaining. Another contribution of our segmentation study is the consideration of the social media channel; social media is not employed in isolation for complaining, but it is likely to be used with other channels, at different degrees, by all the identified segments. This finding is in contrast with the study by Sands et al. (2016), which reported lower values for social media usage; the reason could be that social media is ever more pervasive and it might be perceived as a more actionable option – that in the past – to voice complaints. Finally, we extend previous findings related to the existence of a segment that favours physical stores in the purchasing process; in our case this segment shows a strong preference towards the store for complaining and not so much for searching and purchasing.

With reference to RQ2 - Does channel usage for information search and purchase influence channel usage for complaining in the after-sales stage of the purchasing process? -, our study identified several channel dependencies between the initial stages of the shopping process (i.e. information search and purchase) and the after-sales complaining activity. Specifically, we found that the mobile app is the most "influential" channel: using the mobile app for information search and purchase stages predicts the likelihood of belonging to the identified complaining segments. Mobile usage for information search is negatively related to complaining through the website and at the store, but positively related to complaining through multiple channels. Mobile usage for purchasing is also strongly related to the use of multiple channels for complaining. This finding is an important theoretical contribution to multichannel literature as it highlights the role of mobile apps across the information search, purchase and complaint stages of the shopping journey. To our knowledge, this is the first study to draw attention to the cross-channel synergies existing between the usage of mobile apps for information search and purchase and the usage of all channels for complaining. This complements previous findings on cross-channel synergies (Verhoef et al., 2007) and points out that mobile app users are true multichannel shoppers; they are not confined to this channel as other segments could be, but are likely to combine several channels throughout the shopping process.

The use of websites for information search positively influenced the likelihood of complaining through the website. This finding is in line with the lock-in effect reported in previous studies for online channels. However, in the present study, it involved the information search stage rather than the purchase stage, as reported by Lee and Cude (2012). Finally, even though previous studies (e.g. Gensler et al., 2012) have highlighted lock-in effects deriving from store usage, we did not detect any influence of store usage for information search and purchase on the channel used for complaining.

With reference to RQ3 - Does relationship quality influence channel usage for complaining in the after-sales stage of the purchasing process? -, the study showed that relationship quality is related to channel choice for complaining through the central variable of satisfaction. Customers who have a satisfactory relationship with the retailer were more likely to complain at the store (Store-focused complainers). This finding complemented results from Lee and Cude (2012) who found that dissatisfied consumers were more likely to complain online. Conversely, trust and commitment did not explain channel choice for complaining. It was interesting to note that despite common wisdom regarding younger shoppers and/or male shoppers using online channels more than older/female ones,

our study did not find any significant difference as far as complaint channel usage was concerned based on age or sex.

This study also makes several contributions at managerial level. We identified and characterised segments of customers by their use of complaint channels and this is useful for retailers to tailor customer service strategies in the current multichannel context. A first contribution of our study is that it highlights the need for retailers to develop omnichannel complaint strategies: with the majority of customers willing to use between two and four channels to complain, it is advisable to provide options that are seamlessly integrated both on the customer side and on the company side - i.e. in relation to data capture at individual customer level.

It is also essential to have an integrated view of customers across all channels in order to build a comprehensive "complaint history" of each customer and thus deal with complaints properly. "Heavy multichannel complainers" would be the first to be positively affected by retailers adopting an omnichannel approach to complaint management. Given their high levels of trust, commitment and satisfaction, managing their complaints effectively based on a comprehensive "picture" of their complaint history would help companies to secure customers who are likely to be among their best and to generate positive word of mouth.

An interesting new insight of our results is that mobile app usage for information search and purchase is likely to predict the usage of many channels for complaining. Mobile app users are on the rise and the ubiquitous access of smartphones makes particularly important to monitor mobile app users. Retailers should ensure that their shopping experience does not end in service failure, as these customers are more likely to complain through any of the other channels, thus involving many points of contact of the retailer and potentially exposing prospect or existing customers to their complaints.

Furthermore, given that more satisfied customers are more likely to complain at the store, store associates have an important role in addressing complaints and ensuring that high customer satisfaction levels are not affected by service failure. Specific training of store associates for this purpose is therefore advisable.

More specifically, the profiles of the four segments identified suggest strategies to serve each specific segment. The sheer size of multichannel complainers (Group 1, 42% of shoppers), and their intentions to use all channels to complain, suggest it is imperative for all firms to offer effective mainstream multichannel complaint systems. If retailers want to serve Group 2 ("Heavy multichannel complainers"), they should invest to recognize these customers across all the different channels and to develop seamless journeys that allows them to freely move from one channel to the other from the information search stage to the post-purchase stage. Paying attention to this segment seems of particular relevance given that the adoption of the mobile channel and social media as additional channels is increasing: the size of this segment could increase in the future. Retailers with a large base of website users should look at "Web-focused complainers" (Group 3), and focus on the effectiveness of the website for information search to improve the low values of relationship quality of this segment. Finally, firms where the offline channel is still predominant, might want to look into Group 4 ("Store-focused complainers): given that this group shows a strong webrooming behaviour, firms may want to work on channel conversion strategies to drive this segment to use the website or email for after-sales service.

6. Limitations and further research

Although this study contributes to literature on multichannel retailing and after-sales complaint behaviour, it has several limitations. A limitation of our research design is the non-inclusion of call centres or ordinary mail as complaint channels. The survey was conducted among Spanish Internet users only. Although Internet is used by the large majority of the population in Spain - 80% in 2017 according to Eurostat (2018) -, this is a limitation that should be acknowledged. Finally, our study analysed channel usage focusing on a single firm - the one where the respondents shopped the most. Although this is common practice in this research area, the inclusion of multi-company preferences is recommended to capture the heterogeneity of channel usage for complaining across different firms

(Larivière et al., 2011).

Our study focused on complaint channel usage intention: we did not collect specific information on whether each customer used multiple channels to file the same complaint more than once or to file different complaints (i.e. in relation to different failure episodes). As previous literature (Tripp and Gregoire, 2011) has reported that online complaining is higher when the same complaint has not been listened to in offline channels, further research could include the number of different complaints per channel and per customer and the sequence of channels employed. When customer identification works across channels – as one of the features of omnichannel retailing (Huré et al. 2017) – the aforementioned variables could be tracked and might enable the profiling of "serial complainers".

Finally, given the increasing attention devoted to touchpoints across the customer journey (e.g. Ieva and Ziliani 2018; Lemon and Verhoef 2016; Baxendale et al. 2015), CCB literature would benefit from research including other types of touchpoints beyond the "brand-owned" ones (Lemon and Verhoef 2016) that are the focus of this paper.

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Table 1. Empirical papers on consumer segmentation based on multiple channel usage

	Channels included	Segmentation basis	Covariates	Method	Key findings
Konuş et al. (2008)	Store, Internet, catalog	Attitudes towards channels for search and purchase.	Psychographics (price consciousness, loyalty, enjoyment, time pressure, motivation to conform, innovativeness), and demographics.	364 consumers Online panel survey Cross-category: mortgage, insurance, holidays, books, computers, electronics, clothing Latent class segmentation	Three segments: multichannel enthusiasts, uninvolved shoppers, and store-focused customers. Similar channel orientation for different shopping stages.
Schröder and Zaharia (2008)	Store, Internet, catalog	Channel used for search and for purchase	Shopping motives: recreational orientation, risk aversion, convenience orientation, independence orientation	525 customers of a retailer Telephone survey A priori segmentation and discriminant analysis	Six segments Majority of shoppers use a single channel Most common pattern of multichannel behavior is webrooming
De Keyser et al. (2015)	Store, Internet, call center	Channel used for search, purchase and after sales	Innovativeness, risk aversion, product complexity, perceived price, customer involvement	319 customers of a telecom provider Latent class segmentation	Six segments: two are webroomers, two are Internet based, one store based, and one call center based. Channel use after sales further differentiates webroomers and Internet-based segments
Frasquet et al. (2015)	Store, Internet	Channel used for search, purchase and after-sales	Ease-of-use, usefulness, enjoyment, security, time-pressure, product involvement, hedonic orientation	1,533 consumers in two countries Cross-category: clothing and consumer electronics Online panel survey Hierarchical and k-means clustering	Five segments: store-focused, internet-focused and three multichannel segments. After sales is mainly done offline
Sands et al. (2016)	Store, Internet, mobile, social media	Perceived channel importance for search, purchase and after-sales	Psychographics (enjoyment, innovativeness, loyalty, price-consciousness, time pressure), and demographics.	930 consumers Cross-category: clothing, consumer electronics, and holiday travel Online panel survey Latent class segmentation	Five segments: three are webroomers, two are Internet-focused; polarization of importance of mobile and social media channels A store-based segment in the clothing category.

Table 2. Scales employed and results of Confirmatory Factor Analysis

Construct	Items
Channel usage intention	1) How likely are you to get information at [Retailer]'s store/website/mobile app 2) How likely are you to purchase at [Retailer]'s physical store/website/mobile app 3) How likely are you to make that complaint at a [Retailer]´s store/website/mobile app/social media

Construct	Item	Std. Loadings	Z	p-value	Cronbach's alpha	AVE	CR
Trust	1) I trust [Retailer]	0.882	27.634	<.0001	0.92	0.73	0.92
	2) I rely on [Retailer]	0.850	26.069	<.0001			
	3) [Retailer] is a honest brand	0.848	25.944	<.0001			
	4) [Retailer] is safe	0.849	25.985	<.0001			
Commitment	1) I am really attached to [Retailer]	0.861	25.919	<.0001	0.87	0.70	0.88
	2) I stick with [Retailer] because I know it is best for me	0.843	25.089	<.0001			
	3) I am committed to [Retailer]	0.807	23.564	<.0001			
Satisfaction	1) I am satisfied with my decision to purchase at [Retailer]	0.932	30.631	<.0001	0.94	0.79	0.94
	2) My choice to buy at [Retailer] was a wise one	0.886	28.08	<.0001			
	3) I think that I did the right thing when I decided to shop at [Retailer].	0.884	27.977	<.0001			
	4) If I could do it again, I would shop again at [Retailer]	0.864	26.932	<.0001			

The confirmatory factor analysis was conducted on Trust, Commitment and Satisfaction because channel usage intentions were measured with single-item measures per each channel and per each stage of the customer journey.

Table 3. BIC values for model selection

Cluster solutions	BIC(LL)	Number of parameters	Degrees of freedom
1-Cluster	9122.71	24	606
2-Cluster	8758.90	40	590
3-Cluster	8660.02	56	574
4-Cluster	**8568.02**	**72**	**558**
5-Cluster	8598.67	88	542
6-Cluster	8638.99	104	526
7-Cluster	8661.71	120	510

Table 4. Parameters of the model

Variable	Group 1	Group 2	Group 3	Group 4	Wald statistic	P-value	R-square
Indicator parameters							
Store complaint intention	-0.47***	-0.01	-0.44***	0.93***	62.23	0.000	0.16
Website complaint intention	-0.20	0.92***	0.97***	-1.69***	70.53	0.000	0.55
Mobile app complaint	1.00***	3.07***	-1.72***	-2.35***	58.18	0.000	0.75
Social media complaint intention	0.03	0.62***	-0.16**	-0.50***	76.69	0.000	0.23
Covariates parameters							
Store information search intention	-0.08	0.15	-0.05	-0.02	1.57	0.67	n.a.
Website information search intention	-0.25*	-0.26	0.53***	-0.02	16.00	0.000	n.a.
Mobile app information search intention	0.21*	0.57***	-0.72***	-0.06	34.68	0.000	n.a.
Store purchasing intention	-0.13	0.17	-0.04	-0.01	2.79	0.42	n.a.
Website purchasing intention	0.01	0.00	0.19	-0.20*	6.69	0.08	n.a.
Mobile app purchasing intention	0.38***	0.96***	-0.69***	-0.65***	54.08	0.000	n.a.
Trust	0.13	-0.74	0.42	0.19	4.08	0.25	n.a.
Commitment	-0.08	0.79*	-0.40	-0.31	4.46	0.22	n.a.
Satisfaction	-0.32*	0.19	-0.35	0.48**	13.80	0.000	n.a.
Sex	-0.11	0.20	0.01	-0.10	3.32	0.35	n.a.
Age	0.01	0.00	0.00	0.00	0.50	0.92	n.a.

*Parameters are expressed in effect coding. Variables in bold are significant at the 0.05 level by means of overall testing. With reference to the individual parameters testing, significance is expressed as follows: *p<.05, **p<.01, ***p<.001.*

Table 5. Profile of the segments

Variable	Group 1	Group 2	Group 3	Group 4	Total
Labels	Multichannel complainers	Heavy multichannel complainers	Web-focused complainers	Store-focused complainers	
Cluster size	42%	22%	22%	14%	100
Number of subjects	266	136	137	91	630
Indicators - Means					
Store complaint intention	4.85	5.61	4.91	6.40	5.25
Website complaint intention	4.74	5.90	5.94	2.39	4.92
Mobile app usage complaint intention	3.40	5.39	1.55	1.34	3.14
Social media complaint intention	3.81	5.18	3.28	2.43	3.80
Covariates - Means					
Store information search intention	5.09	5.65	5.23	5.66	5.32
Website information search intention	5.29	5.83	5.81	5.36	5.53
Mobile app information search intention	4.19	5.26	2.19	3.17	3.85
Store purchasing intention	5.24	5.60	5.58	5.98	5.50
Website purchasing intention	4.84	5.17	4.99	3.94	4.82
Mobile app purchasing intention	3.69	4.73	1.83	1.91	3.26
Trust	-0.09	0.31	-0.20	0.10	0.00
Commitment	-0.05	0.45	-0.37	0.02	0.00
Satisfaction	-0.24	0.31	-0.07	0.31	0.00
Sex (% females)	61%	57%	65%	61%	61%
Age	40	41	39	39	40

Relational variables are expressed in factor scores

Table 6. Pairwise comparisons across model parameters

	Multichannel complainers vs Heavy multichannel complainers	**Multichannel complainers vs Web-focused complainers**	**Multichannel complainers vs Store-focused complainers**	**Heavy multichannel complainers vs Web-focused complainers**	**Heavy multichannel complainers vs Store-focused complainers**	**Web-focused complainers vs Store-focused complainers**
Store complaint intention	**16.11 (-)**	0.11	**52.43 (-)**	**13.50 (+)**	**21.71 (-)**	**47.53 (-)**
Website complaint intention	**33.86 (-)**	**39.13 (-)**	**26.10 (+)**	0.08	**48.42 (+)**	**59.89 (+)**
Mobile app complaint intention	**22.94 (-)**	**37.18 (+)**	**34.73 (+)**	**55.14 (+)**	**51.79 (+)**	3.010
Social media complaint intention	**34.77 (-)**	5.92	**30.63 (+)**	**47.38 (+)**	**72.85 (+)**	**11.14 (+)**
Website information search intention	0.00	**14.84 (-)**	1.51	**8.09 (-)**	0.85	**8.22 (+)**
Mobile app information search intention	5.25	**25.39 (+)**	3.36	**32.94 (+)**	**11.53 (+)**	**14.52 (-)**
Mobile app purchasing intention	**10.77 (-)**	**26.22 (+)**	**26.69 (+)**	**39.62 (+)**	**40.46 (+)**	0.03
Satisfaction	4.36	0.01	**85.37 (-)**	2.17	0.82	**7.29 (-)**

Wald test is indicated and the sign of the difference. Wald tests in bold reveals a significant difference between two parameters at the 0.05 value level corrected with the Bonferroni correction for family-wise error rate

Figure 1. Structure of the model