VICTORIA UNIVERSITY
MELBOURNE AUSTRALIA

"Inside" versus "outside" trends in consumer research

This is the Published version of the following publication

RESEARCH ARTICLE

"Inside" versus "outside" trends in consumer research

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Abstract

Given its multi-faceted nature, consumer research has evinced interest from scholars both within and outside the marketing domain, resulting in ongoing knowledge contributions from a diverse range of disciplines. We conduct a comprehensive review and comparison across both marketing ("inside") and non-marketing ("outside") disciplines to identify which topics are most and least focused on within each disciplinary domain and which are emerging as the most impactful. We also identify which of the marketing (FT50) journals are at the forefront of cutting-edge research and demonstrate their contributions to the progression of the most impactful topics in the field. Based on our findings, we identify key gaps and under-researched areas of substantive interest, highlight impactful emerging topics in non-marketing journals where marketing could offer unique perspectives, and provide concrete suggestions and directions to further progress and stimulate consumer research.

KEYWORDS
consumer research, consumer research trends, multidisciplinary research, natural language processing, topic modeling

INTRODUCTION

Consumer research focuses on the consumption of goods and services, as well as the institutions and rituals associated with consumption that are woven into everyday life (MacInnis et al., 2019; Zukin & Maguire, 2004). To this end, consumer research is relevant to a vast range of topical issues, trends, and innovations studied across multiple disciplines, including choice and decision processes, lifestyle and culture, health and wellness, and existing and emerging technologies. Consumer research (hereon referred to as "the field") is thus a thriving field of study, as evinced by the increasing number of articles published and topics examined in this area (MacInnis & Folkes, 2009).

Through the field's exposure to and assimilation of research from multiple disciplines (Malter et al., 2020; Simonson et al., 2001), it has absorbed diverse knowledge and expertise. According to Lehmann (1999), for the field to progress, researchers must identify diverse theories, methods, and under-researched areas of substantive interest. However, to the best of our knowledge, existing reviews of the field have relied exclusively on literature from the marketing discipline. Given the multidisciplinary focus of consumer research, it is important to evaluate its development across both marketing and non-marketing disciplines to gain a complete representation of the state of knowledge of the field.

To address this gap, we review 21 years of consumer research literature from both marketing and non-marketing disciplines to identify all topics covered and methods used in the field. We then determine which topics are emerging, declining, focused on consistently, and understudied, both within and outside of marketing. We also measure citations attributed to each topic to distinguish which topics are most impactful and important. By doing so, we also identify specific topics that are emerging from non-marketing disciplines that are gaining substantive interest yet remain relatively under-researched in the marketing domain. Using these findings to formulate

a roadmap for future research, we highlight the topics that are most aligned with the theoretical focus of marketing and identify specific opportunities, issues, and gaps in the literature. Insights from the current review should thus help marketing scholars in identifying and applying marketing constructs to emerging subject areas which may be beneficial to the progression of the field.

The current research makes several contributions. First, unlike prior reviews, which have focused solely on marketing journals (Cho et al., 2017; Jedidi et al., 2021; Peighambari et al., 2016; Vanhala et al., 2020; Wang et al., 2015), we review consumer research across both marketing and non-marketing disciplines. By identifying topics undiscovered in prior reviews due to the exclusion of non-marketing journals, we present a richer and more comprehensive view of the state of the field. This includes an evaluation of emerging trends to determine which topics are increasingly researched and which are on the decline, as well as identifying gaps where marketing can make significant contribution but is currently lagging.

Second, we establish the intellectual boundaries of consumer research for marketing and non-marketing disciplines by identifying the specific topics that have been exclusively researched within each disciplinary domain. For topics that are solely researched in either marketing or non-marketing disciplines, we examine trends in their citations and publication volume over time. This enables us to offer marketing scholars insights into important and impactful emerging areas of consumer research.

Third, we distinguish popular, emerging, and highly cited topics from non-marketing journals (e.g., healthcare trends, technology adoption, industry developments, and environmental concerns) on which more mature topics from the marketing domain (e.g., attitudes, perceptions, emotions, and decision processes) can offer unique perspectives. By recommending avenues for future research that combine marketing and non-marketing perspectives, we can extend the scope, application, and influence of marketing content and theory to wider disciplinary areas and audiences, in addition to giving researchers the opportunity to consider new perspectives on important, impactful areas of consumer research.

Finally, in addition to analyzing the differences in marketing and non-marketing areas of consumer research, we uncover divisions in the coverage of specific research topics and methodologies within marketing. We examine which of the top marketing (FT50) journals are at the forefront of cutting-edge research and illustrate the extent to which each journal is focused on and contributing to the emergence and development of the most prevalent and impactful consumer research topics within marketing. In doing so, we not only evaluate the performance of marketing journals on this metric but also illuminate emerging and impactful topics that specific marketing journals can focus on.

The remaining sections of this article are organized as follows. In the next section, we provide an overview of consumer research and then discuss prior studies that have reviewed the consumer research literature. Following this, we describe the methodology adopted in our research and present the results and insights from our analyses. Finally, we discuss the implications of the findings and opportunities for future research.

BACKGROUND

Consumer research

In their overview of the marketing discipline, MacInnis and Folkes (2009) position the field as being comprised of research contributions from multiple disciplines and methodologies. The field's knowledge is thus composed of insights generated by both marketing and non-marketing disciplines, using various methodologies relevant to the study of consumption. The field's openness to contributions from multiple disciplines characterizes consumer research as a multidisciplinary field of study (MacInnis & Folkes, 2009) that necessitates a broader review to accurately map its current state.

Given that changes in society, economics, environment, and technology affect consumer behavior, new topics relevant to consumer research constantly emerge (Peighambari et al., 2016). Examples include social policy, lifestyle and culture, innovation, health services, climate change, artificial intelligence, and consumption of food and energy, as well as darker issues, such as addiction, compulsion, and gambling (Hirschman, 1991; Kalina, 2018; MacInnis & Folkes, 2009; Peighambari et al., 2016; Simonson et al., 2001). Thanks to continual learning from numerous disciplines, the field has consistently developed in breadth and depth. Our findings show that across marketing and non-marketing disciplines, the theories utilized, topic areas focused on, and methodologies applied vary significantly. Hence, promising opportunities for unique perspectives and impactful research lie at the intersection of marketing and non-marketing disciplines.

Prior review studies

Multiple reviews have been undertaken to identify the topics covered in the consumer research literature. Although each of these reviews produced important insights from the application of various text analytics methods, they were focused on providing micro-level analyses (i.e., identifying topics and determining which are most popular) and were exclusively confined to literature from the marketing discipline. For instance, Peighambari et al. (2016) reviewed 1263 consumer research articles from 5 marketing journals over a

12-year period (1998–2009). The five journals included were – *Journal of Consumer Research* (*JCR*), *Journal of Marketing* (*JM*), *Journal of Marketing Research* (*JMR*), *Journal of Advertising* (*JA*), and *Journal of Advertising Research* (*JAR*). They identified 37 topics, the top 3 being *Perception*, *Attitude*, and *Brand Awareness and Loyalty*. In addition to finding experiments and surveys to be the most common research instruments, they showed that complex multivariate statistics grew tremendously over the reviewed period.

Peighambari et al.'s (2016) study leveraged content analysis for topic discovery. Although highly effective (Erlingsson & Brysiewicz, 2017), the manual nature of coding textual data becomes a labor-intensive task if applied to a large collection of documents (He & Chen, 2014). According to Sammut and Sartawi (2012), as the size and complexity of data expand, human capabilities for deciphering such information become increasingly limited (Erevelles et al., 2015), requiring more efficient methods for processing volumes of unstructured data in meaningful ways (Sivarajah et al., 2017). To overcome this challenge, researchers have employed topic modeling (Hu et al., 2019; Muller et al., 2016), a statistical algorithm that identifies abstract topics occurring in a collection of textual documents (Blei, 2012). In addition to automated topic discovery, topic modeling allows for the efficient discovery of a greater number of topics when applied to large volumes of text across multiple domains (Cho et al., 2017; Muller et al., 2016).

Recognizing the advantages of topic modeling methodologies, Wang et al. (2015) used an approach known as Latent Dirichlet Allocation (LDA) (Blei et al., 2003) to identify 16 topics from 2031 articles published in *JCR* over a 40-year period. In addition to distinguishing *Consumer Culture*, *Emotional Decision Making*, and *Social Identity & Influence* as promising topics for future research, the authors observed that from 1974 to 2014 *Consumer Culture* gained popularity as a research topic, while research focused on *Methodological Issues* and *Consumption by Children* continually declined.

Similar to Wang et al. (2015), several studies have applied topic modeling to papers collected from a single journal. To extend the breadth of such reviews and ensure that topic diversity is measured across the entire field of marketing, Cho et al. (2017) assembled a collection of 17,243 articles from 25 marketing journals. After leveraging LDA to identify 100 topics from these articles, they measured the prevalence of each topic over time. The authors observed that from 1995 to 2014 the focus of marketing research moved away from topics such as *Product Quality*, *Customer Satisfaction*, and *Channel Coordination* toward topics such as *Service Dominance*, *Brand Differentiation*, and *Customer Centricity*. The authors also recognized that topics related to customer service and consumer psychology had recently become prevalent as key areas of research.

Similar to Cho et al. (2017), Jedidi et al. (2021) also applied topic modeling to the academic literature from multiple marketing journals. The authors identified 40 topics from 4229 research articles published in 4 marketing journals: the *Journal of Marketing*, *Marketing Science* (*MS*), the *Journal of Marketing Research*, and the *Journal of Consumer Research*. To determine how relevant the topics covered by each journal are to marketing practitioner interests, the authors then estimated the prevalence of the 40 topics among 51,646 marketing articles published in 15 practitioner outlets, including *Forbes*, *Fortune*, *Financial Times*, and *Harvard Business Review*. The authors found that the topics covered by *JM* were most relevant to marketing practitioner content, followed by *MS*, *JMR*, and *JCR*.

Outside of the aforementioned reviews, the application of topic modeling to the marketing literature has been limited to studies focused on a specific subject area. For example, Vanhala et al. (2020) identified 14 topics through the application of topic modeling to 495 marketing articles focused on the usage of large datasets (e.g., big data) for the study of online consumer behavior. Similarly, Amado et al. (2018) identified 18 topics from 1560 articles that address marketing in the context of big data technologies.

It is noteworthy that in addition to identifying topics studied in the academic literature, researchers have applied the methodology of topic models to a diverse range of data sources for consumer research, including online product search terms (Li & Ma, 2020) and social media content (Zhong & Schweidel, 2020). With the digitization of information making a wealth of consumer textual data available for consumer research, such as online customer reviews, open-ended responses, and customer communications (Berger et al., 2020), topic models are relevant to a wide range of consumer research interests and applications. For a detailed overview of automated textual analytics methodologies and how they can be used to generate marketing insights, see Berger et al. (2020).

While insightful, the existing reviews have certain key limitations. First, given their focus on marketing journals, they have not accounted for the emerging trends and perspectives in consumer research in other disciplines. This has led to incomplete knowledge of the state of the field. As a result, there have been limited insights about the substantive issues and impactful topics that might be missing in marketing journals, as well as the extent to which dominant topics within marketing are prevalent in non-marketing journals. This knowledge is critical to ascertaining whether new topics emerging within marketing are exclusive to the field or are also being addressed in non-marketing disciplines.

Second, previous reviews have not measured how the overall field is evolving at a macro level in terms of (a) topic diversity, (b) the broadening or narrowing of the scope of its topics, and (c) whether the topics covered by marketing and non-marketing journals are converging

or diverging over time. Gaining such insights would provide a comprehensive view of how the field is developing, which in turn may determine the direction in which it should progress and thus influence how scholars review and select topics for future research.

Third, previous studies have measured citations for journals, articles, or authors, but not the citation impact for specific topics. This information would highlight the topics that are most (or least) impactful. A more holistic approach that examines topic prevalence and impact simultaneously is thus crucial to glean forward-looking insights and provide guidance for future research. The current research review addresses these limitations.

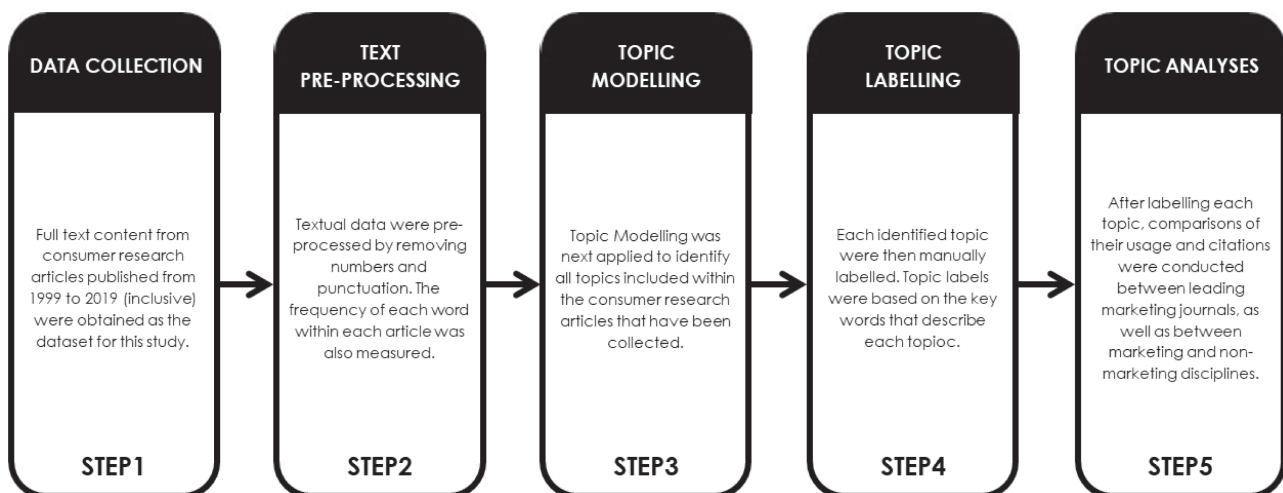# METHODOLOGY

Methodological overview

In this section, we outline the methodological process used. We first discuss the data collection of articles for the review and then the procedure implemented to identify and evaluate all topics within these articles. The step-by-step procedure that we followed is illustrated in Figure 1 and discussed across the sub-sections that follow.

Data collection

To identify consumer research articles for the current review, we performed a search on Scopus. The search targeted research articles from all academic disciplines that include the terms *consumer* (or *customer*, *shopper*, *buyer*, *purchaser*, or *client*) and *behavior* or *attitude* within their title, keywords, or abstract. The term *attitude* was included as the concept of attitude has a significant influence on behavior (Cherry, 2019) and hence occupies a central position in consumer research (Foxall, 1980). Additional terms, such as *guest*, *member*, *patron*, *user*, and *end-user*, were also considered for inclusion in the search. However, through an iterative process of trial-and-error, we observed that broadening the search terms led to the retrieval of numerous articles unrelated to consumer research. In contrast, although all articles retrieved by the current search query were relevant to consumer research, several relevant consumer research articles were noticeably omitted, predominantly from the *Journal of Consumer Research* and the *Journal of Consumer Psychology*. Given that both these journals focus on consumer research, we included *all* research articles published in these two journals in our sample by default. Details for how we obtained the full body of articles in our sample are provided in Appendix S1: A.

Following this process (also see Web Appendix S1: A), we retrieved 30,085 research articles published between January 1, 1999, and December 31, 2019. To ensure the collection of articles (hereon referred to as a "corpus") consisted of research that has been influential in the field, we discarded journals with a SCImago Journal Rank (SJR) below 1.5. This resulted in a corpus of 10,838 articles from 376 journals. We exclusively assigned the journals represented within the corpus to either a marketing or non-marketing category. We then subdivided marketing journals based on their inclusion in the Financial Times 50 (FT50) list, to ensure that we can understand the focus of the relatively more influential marketing journals. Three journal categories were thereby established: Marketing-FT50, Marketing Non-FT50, and Non-Marketing. Web Appendix S1: B, lists the included journals across these categories. Given that the *Journal of Consumer Research* (JCR) and the *Journal of Consumer Psychology* (JCP) account for a large portion of marketing FT50 articles compared to other FT50

DATA COLLECTION	TEXT PRE-PROCESSING	TOPIC MODELLING	TOPIC LABELLING	TOPIC ANALYSES
Full text content from consumer research articles published from 1999 to 2019 (inclusive) were obtained as the dataset for this study.	Textual data were pre-processed by removing numbers and punctuation. The frequency of each word within each article was also measured.	Topic Modelling was next applied to identify all topics included within the consumer research articles that have been collected.	Each identified topic were then manually labelled. Topic labels were based on the key words that describe each topioc.	After labelling each topic, comparisons of their usage and citations were conducted between leading marketing journals, as well as between marketing and non-marketing disciplines.
STEP 1	STEP 2	STEP 3	STEP 4	STEP 5

FIGURE 1 Analytical Methodological Process. This figure describes each step of the methodological process applied in this research. Full-textual data are first collected and then pre-processed. This enables textual data to be represented in a structured tabular format required for topic modeling. Once the topic modeling algorithm is applied, all topics are labeled and then analyzed.

marketing journals (see Web Appendix S1: B), we normalized all trends and results when making comparisons among the marketing FT50 journals. This ensures that our results are not influenced by sample size differences and that like-for-like contrasts are made (see *Consumer psychology: High inside and low outside prevalence*).

Within marketing, a consistent number of journals were found to publish a larger number of articles (that address consumer research) over time. In our data, the average number of consumer research articles published per journal each year is consistently greater in marketing than in the non-Marketing domain (Marketing FT50: $M = 22.9$, SD = 6.7; Marketing Non-FT50: $M = 11.1$, SD = 4.9; Non-Marketing: $M = 2.7$, SD = 1.0). Nevertheless, the overall volume of articles published by non-marketing journals is notably higher than marketing journals, largely driven by the increasing number of non-marketing journals entering the field over time. As Figure 2 shows, the number of non-marketing journals focusing on consumer research is growing significantly over time, and likely competing with marketing in the coverage of high-growth topics. We identify and examine the specific topics that have emerged in marketing and non-marketing disciplines in *Micro-level analyses*.

Text pre-processing

For the purposes of topic modeling, we applied pre-processing to the complete body of text from each article within the corpus. First, we tokenized full-textual content into lower-case terms, with numbers, punctuation, and whitespace excluded. We also removed terms with minimal relevance – *stop words* (Abbasi et al., 2018; Gong et al., 2018; Sidorova et al., 2008). We then lemmatized the remaining terms to replace different forms of the same word with a single instance (Callaghan et al., 2020). For example, terms such as *study*, *studying*, *studied*, and *studies* are represented by the term *study*. This resulted in a corpus vocabulary of 15,795 unique words across 10,838 documents.

Topic discovery

To identify all topics present among the 10,838 articles within our corpus, we used topic modeling, an unsupervised process for finding abstract topics from unstructured text. Topic modeling is in many ways comparable with exploratory factor analysis. In this case, the frequency of each word for every document in a corpus is equivalent to scale items for every record in a dataset, and topics reflect factors associated with specific words that consistently co-occur within the same documents. The topics are thereby associated with words in a similar way that factors with oblique rotations are correlated with scale items.

The output of topic modeling is two-fold: (1) a fixed number of topics that each varies in their association with each word from a corpus, and (2) mixtures of topics for every article. The interpretation of each topic is therefore based on the words with which they are most associated (O'Callaghan et al., 2015), and each article is characterized by the most prevalent topics they embody (Roberts et al., 2019). For example, an article addressing *Service Satisfaction* in the *Tourism* industry can be considered as a mixture of both topics, each weighted based on their prevalence within the given article. For the *Service Satisfaction* topic, word associations will likely be skewed toward terms such as *Service*, *Satisfaction*, *Quality*, and *Delivery*, while the words *Tourist*, *Hotel*, *Travel*, and *Destination* will be associated with the *Tourism* topic.

A diverse range of techniques has been developed for topic modeling (Roberts et al., 2013). Examples include Latent Semantic Analysis (LSA), Latent Dirichlet Allocation (LDA), and the Correlated Topic Model (CTM) (Blei et al., 2003; Blei & Lafferty, 2007; Roberts et al., 2013). In this research, we leverage the Structural Topic Model (Roberts et al., 2013), a recent topic modeling method that overcomes various limitations of other topic modeling approaches, such as LSI, LDA, and the CTM. This is achieved by incorporating document meta-data (e.g., publication year, journal source) as covariates in the topic modeling process, resulting in a better fit to textual data than common topic modeling approaches (Roberts et al., 2013). We provide a detailed explanation of the Structural Topic Modeling methodology (henceforth, STM) in Web Appendix S1: C, and the process followed for its application in this study in Web Appendix S1: D, Section WD1.

After applying STM to the consumer research literature, two coders independently labeled the identified topics. The coders then compared the topic labels that they produced, and mutually resolved any inconsistencies in their topic labels through discussion. To guide the interpretation and labeling of each topic, each coder reviewed examples of documents with a high prevalence for each topic, assessed the specific terms most associated with each topic, and considered the terms with the largest FREX value. The FREX metric weights each term by its overall frequency and exclusivity in its association with each topic and allocates higher weights to terms that appear less frequently in other topics (Bischof & Airoldi, 2012; Airoldi & Bischof, 2016, cited in Roberts et al., 2019).
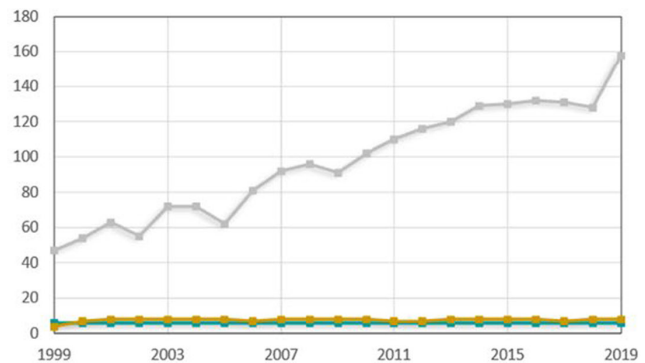
Macro-level analyses

After labeling all the topics identified from the consumer research literature, we next confirm if the range of topics covered by marketing journals differs from that covered in the journals outside of marketing. Once confirmed, we
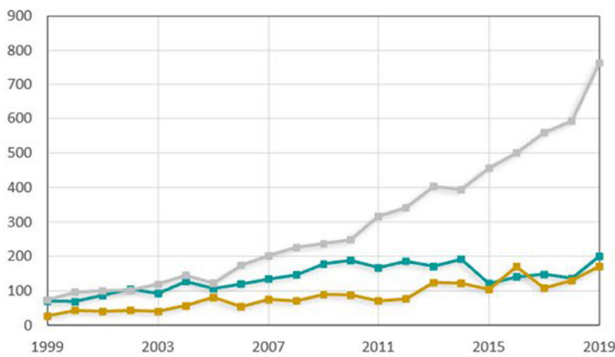
FIGURE 2 Number of Articles and Journals Publishing Consumer Research. This figure presents the total number of consumer research articles published in marketing and non-marketing journals over a 21-year time series. The total number of journals that published these articles is also illustrated. As shown, the number of marketing journals publishing consumer research is relatively consistent across the 21-year period. In contrast, the number of non-marketing journals focusing on consumer research has continually increased. As such, the total volume of articles published in non-marketing journals has significantly grown from 2005 onward.

then identify which specific topics receive the most and least attention from researchers across marketing and non-marketing disciplines. The range of topics covered by marketing and non-marketing disciplines is compared using the Jenson-Shannon Divergence (JSD), a statistical metric that measures the similarity of two distributions (Lin, 1991). A JSD result of zero will be returned when two distributions are aligned to be maximally similar (e.g., when marketing and non-marketing disciplines have an identical mixture of consumer research topics) and will approach infinity as they increasingly differ (Hall et al., 2008) (for a description of the JSD, see Web Appendix S1: D, Section WD2).

If the range of topics covered within and outside of marketing becomes similar over time (e.g., as depicted by the convergence of their JSD values), this could be a result of either (or both) disciplinary areas expanding or reducing their scope of research toward the same range of topics. We therefore supplement the JSD measure with topic entropy (Hall et al., 2008), a statistical metric that describes the breadth of topics covered in a given group (i.e., marketing and non-marketing journals). Higher entropy values demonstrate that a broader range of topics is being covered, whereas lower entropy values reflect a narrower scope with a reduced set of topics (Hall et al., 2008).

Micro-level analyses

We next focus on the main analyses of interest, namely identifying and comparing the specific topics researched as well as research trends, in each disciplinary area. Two key metrics are of particular interest: *topic prevalence* and

topic impact. As described in *Topic discovery*, the proportion of an article accounted for by each topic is provided by the STM. We therefore aggregate the proportion of all articles accounted for by each topic to represent its topic prevalence. Using this metric, the prevalence of a topic can be measured for articles published within a specific disciplinary area, by a specific journal, and/or for specific time periods. Topic prevalence is therefore a normalized metric that ensures that the comparisons across various dimensions (e.g., journals, disciplines, time periods) are not influenced by the differences in the volume of articles within any of the respective groups. Using this metric, we create time series plots to identify which topics are emerging, increasing, and decreasing in prevalence, within and outside marketing.

For topic impact, the number of citations obtained by each article is allocated across all of its underlying topics in accordance with the proportion of an article accounted for by each topic. For example, if a topic concerned with *Service Satisfaction* explains 80% of an article's full-text content, that topic is allocated 80% of the article's citations. For each topic, we measured its citation-based impact across the 21-year time period to establish if its influence in the field increased, declined, or remained constant over time. Given that recently emerging topics will have less time to accrue citations, we normalize citations by each specific year when measured across a time series. In addition, we rank topics based on their citation-based impact not only across the 21-year period combined but also for the last 3 years (i.e., 2017–2019). This ensures that we additionally get a relative comparison of how impactful each topic is compared to others, both recently and across the 21-year period.

RESEARCH FINDINGS

Identification of consumer research topics

Through the application of the STM, we identified 90 topics from the 10,838 research articles collected. Details of the model fitting process are reported in Web Appendix S1: C. Once identified, each of the 90 topics was independently labeled by two coders. The two coders demonstrated 81% agreement in their interpretation of the 90 topics. The coders discussed the remaining 17 topics to reach a mutual agreement. Next, each topic was categorized as either a research topic or a methods-based topic. We list the 90 topics in a topic dictionary along with the most characteristic terms (see Table WE1, Web Appendix S1: E), prevalence, and impact for each topic (see Table WF1, Web Appendix S1: F).

As shown in the topic dictionary, we identified a diverse range of methodologies and research topics. We characterized the methodologies into four main categories: *Experimental Research*, *Empirical Modeling* (i.e., *Agent-based Models*, *Data Mining*, *Latent Variable Modeling*, and *Statistical Estimation*), *Survey Research*, and *Qualitative Research*. We categorized research topics as either substantive or theoretical areas of study; 74% substantive and 26% theoretical topics emerged in our data.

To visualize the topics identified from the literature, we produced a hierarchical clustering tree (i.e., dendrogram) of topics. Hierarchical clustering first treats each observation (i.e., a topic) from a set of observations as an individual cluster and then repeatedly identifies and merges pairs of clusters that are most similar until all clusters are consolidated in a single group (Chauhan, 2019). Thus, the consumer research topics presented in Figure 3 are linked based on the similarity of the words with which they are most associated. As Figure 3 shows, several topics are focused on understanding individual consumers (e.g., *Consumer Attitudes*, *Emotions*, *Judgment*, *Decision Making*, and *Sensory Processes*), whereas others revolve around specific consumer markets. Examples include *Airline Services*, *Power Supply*, and *Automotive Vehicles*. Several consumer research topics that are important to business were also uncovered. These topics predominantly focus on marketing channels, B2B relationships, and strategic decision making. Examples include *Supply Chain*, *Business Strategy*, *Supplier Relationship Management*, and *Market Segmentation and Strategy*.

Given that we applied topic modeling to consumer research from marketing and non-marketing disciplines, both the breadth and diversity of topics uncovered in this research are more comprehensive than in previous studies (see Figure 3). Consequently, the insights our research offer are also novel, as they tap into interdisciplinary knowledge. We discuss these findings next.

Macro-level analyses

Before determining which topics are over- and under-researched in marketing ("inside") and non-marketing ("outside") disciplines, we confirmed whether the range of topics covered by the two disciplinary areas differ. As described in *Data collection*, we focused on examining mainstream consumer research from the relatively more impactful marketing journals, and therefore used the journals on the FT50 list as the "inside" group. We measured the Jenson-Shannon Divergence (JSD) between inside and outside journals (see *Macro-level analyses*) and observed that throughout the first decade of the 21-year period, the range of topics covered by non-marketing disciplines became increasingly similar to those covered in the marketing domain. However, there has since been an absence of a downward trend in the JSD, such that the topics covered by marketing and non-marketing are no longer converging. This indicates that in the past decade, marketing and non-marketing disciplines have consistently focused on different areas of consumer research.

Given that non-marketing disciplines include a diverse range of journals from several disciplinary fields, the range of topics they cover (i.e., topic entropy) is expectedly broader than those from the marketing domain. In contrast, while topic coverage is narrower in scope for marketing journals, the range of topics they cover continues to expand over time. We find that topic entropy has persistently increased for marketing journals over the past 21 years, demonstrating that marketing scholars are continually addressing new issues and topics to further knowledge and understanding of consumer behavior.

Although the range of topics (i.e., entropy) in marketing journals continues to expand, their dissimilarity from those covered in non-marketing journals has remained stationary over the past decade (i.e., no increasing or decreasing trend in JSD). This demonstrates that new topics emerging from each disciplinary area are not covered by the other. For example, topics such as *Decision Making Processes* and *Personality Traits* are more researched in marketing, whereas others such as *Food Waste* and *Automotive Vehicles* have recently emerged as more popular in non-marketing disciplines. In the next section, we discuss the specific topics that differ between marketing and non-marketing disciplines, and also distinguish which of these are emerging as the most popular and impactful in the field.

Micro-level analyses

Trends in consumer research topics: An inside versus outside comparison

We begin this section by identifying topics that vary in their prevalence between FT50 marketing ("inside") and non-marketing ("outside") journals. We then discuss the
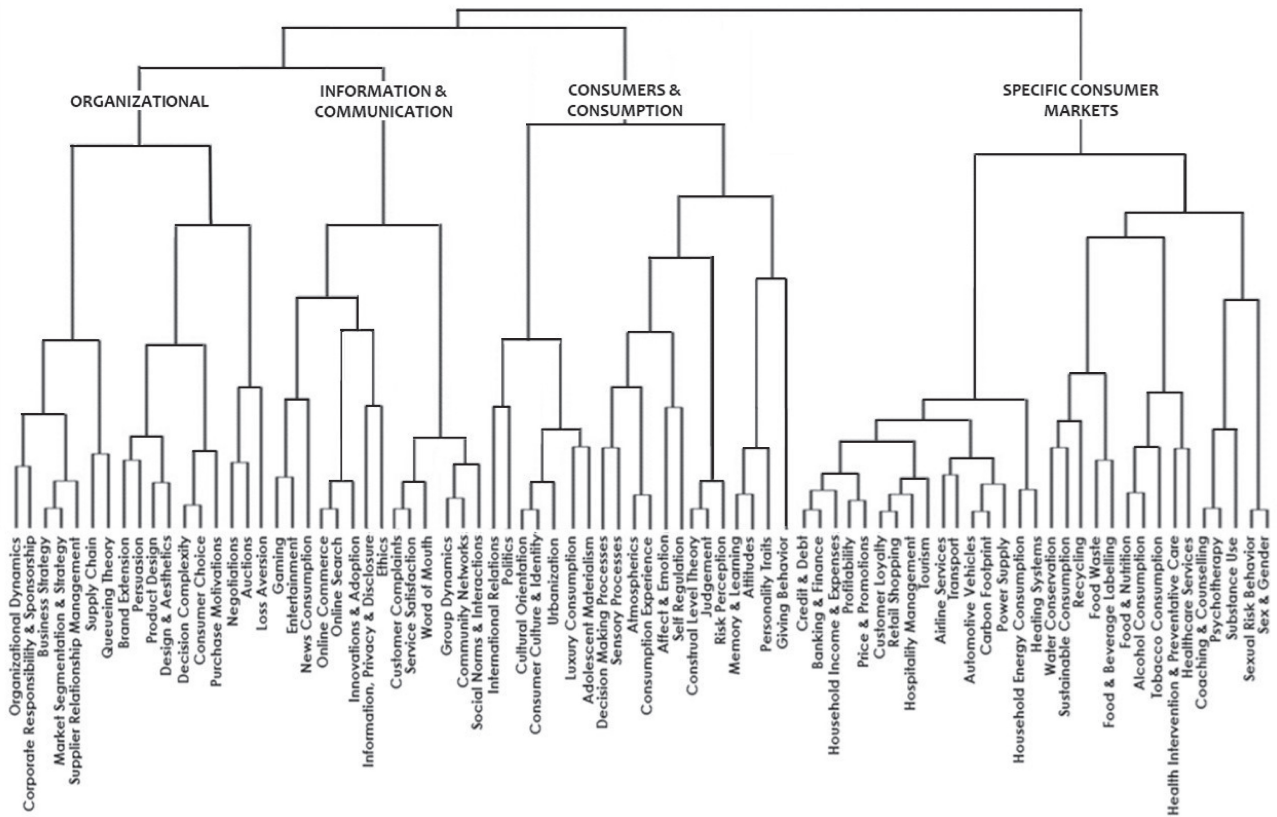
FIGURE 3 Hierarchical Clustering Tree of Consumer Research Topics. This figure presents a hierarchical tree of consumer research topics. This diagram, commonly referred to as a dendrogram, is produced through the application of hierarchical clustering. This method begins by treating each topic as a singleton cluster. Then, based on the words most associated with each topic, the most similar pairs of clusters are successively merged until all clusters are combined into a single group. The result is the tree-based representation of topics presented in this figure. As this figure shows there are four distinct topic clusters – *Organizational*; *Information & Communication*; *Consumers & Consumption*; *Specific Consumer Markets*. Each cluster also consists of micro and macro topics. Micro topics generally appear to be positioned to the left side of the figure, and macro topics to the right.

extent to which the impact and coverage of these topics are increasing or decreasing over time. To distinguish topics based on their prevalence across marketing and non-marketing disciplines, we deemed those ranked above the 60th percentile to be above average and those beneath the 40th percentile as below average. Hence, at the intersection of these groupings, four combinations or topic quadrant groups were determined: *Outside-Dominant*: high prevalence (outside) and low prevalence (inside); *Globally Prominent*: high prevalence (inside) and high prevalence (outside); *Sparse*: low prevalence (inside) and low prevalence (outside); and *Consumer Psychology* (*inside dominant*): low prevalence (outside) and high prevalence (inside). We also assigned topics that are comparatively prevalent in marketing and non-marketing disciplines (i.e., between the 40th and 60th percentiles for either journal category) to a *Staples* group, resulting in a total of five prevalence-based topic groupings.

To ensure each quadrant is reflective of the current state of the field, all topics were assigned to a quadrant based on their prevalence among marketing and non-marketing disciplines in the past 3 years (see Figure 4). For each quadrant, we then measured the prevalence and impact of each topic over a 21-year time series to identify

the specific topics that are emerging, developing, maturing, and declining in marketing and non-marketing disciplines. Our findings and insights are discussed over the sub-sections that follow.

Outside-Dominant: Low inside and high outside prevalence

Quadrant overview

This quadrant consists of 26 consumer research topics, each of which is highly prominent among outside journals but received limited coverage in the marketing domain. The *Outside-Dominant* quadrant is predominantly comprised of substantive topics, which were seven times more prevalent in the quadrant than theoretical topics, in the early 2000s. Since then, the prevalence of substantive topics (in the *Outside-Dominant* quadrant) increased by 69%, while that for theoretical topics declined by 39%. The majority of topics within *Outside-Dominant* quadrant (77%) are from the "*Specific Consumer Markets*" cluster (see Figure 3), with no topic representation from the "*Consumers & Consumption*" cluster. Examples of *Outside-Dominant* topics include *Online Commerce*,
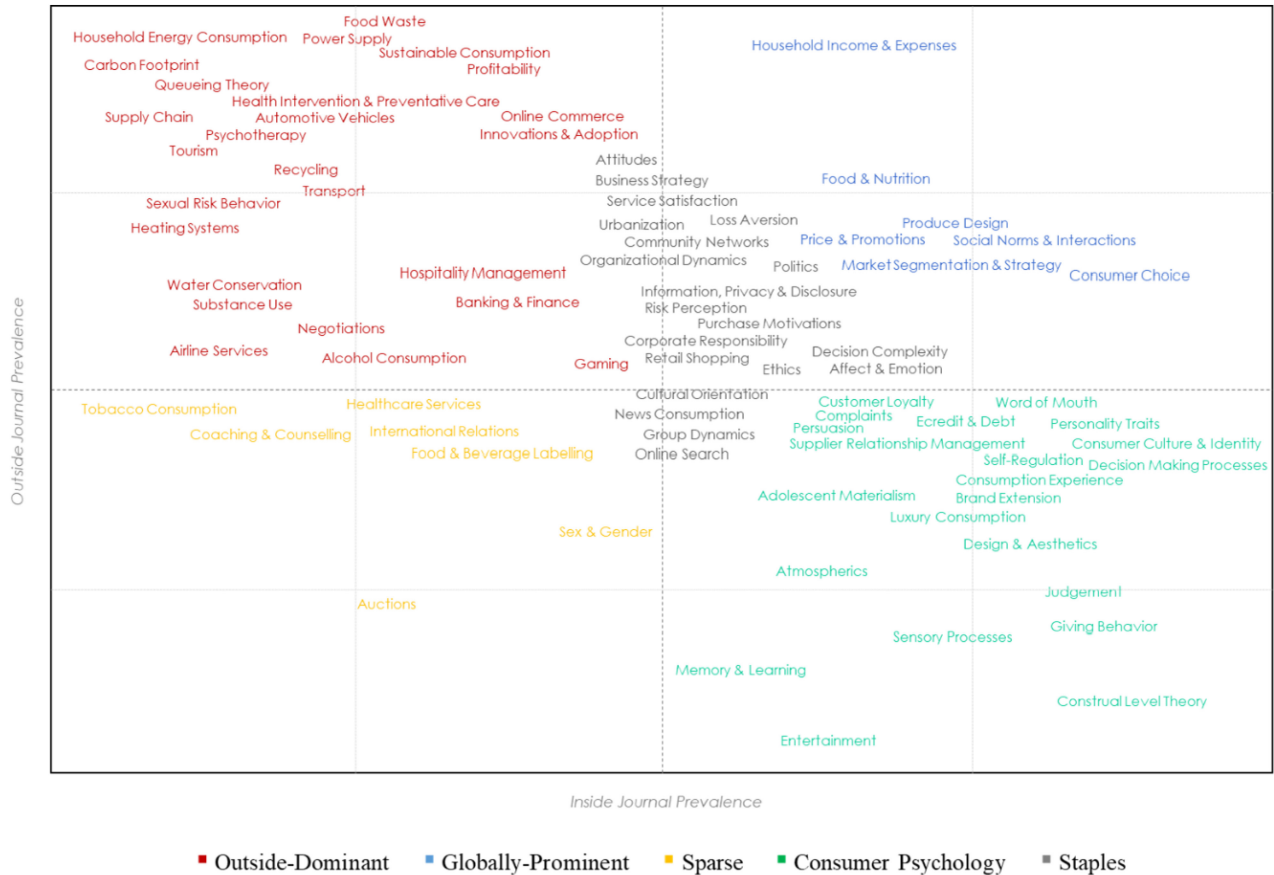
FIGURE 4 Research Topic Prevalence Between Inside and Outside Journals. In this figure, topic label positions are based on their prevalence within "inside" (*x*-axis) and "outside" (*y*-axis) journals. Each axis is presented on a log-transformed scale, and labels are colored by topic quadrant groups. To ensure clear visibility in label presentation, jittering was applied to remove the overlap of text. As described in *Data collection*, "inside" journals (and therefore the Consumer Psychology quadrant) are largely accounted for by articles published by JCR and JCP. Thus, inside journal comparisons are provided in further detail (see *Consumer psychology: high inside and low outside prevalence*).

Alcohol Consumption, *Supply Chain*, *Banking*, *Gaming*, *Preventative Healthcare*, *Transport*, and *Sustainability*.

Although currently popular in non-marketing disciplines, the prevalence of several *Outside-Dominant* topics varied over the past 21 years. For example, while some topics such as *Supply Chain* and *Tourism* maintained a consistent level of coverage throughout the 21-year period (e.g., have always been positioned within the *Outside-Dominant* quadrant), others such as *Automotive Vehicles* transitioned to the *Outside-Dominant* quadrant from the *Sparse* quadrant (low inside and low outside prevalence) as their prevalence in outside journals increased over time. The prevalence of each *Outside-Dominant* topic over the past 21 years is presented in Figures WG1 to WG3 (see Web Appendix S1: G).

While still popular among non-marketing disciplines, healthcare topics (e.g., *Health Intervention & Preventative Care*, *Psychotherapy*, *Counseling Services*, etc.) are declining in prevalence over time and are likely to later transition from the *Outside-Dominant* quadrant to the *Sparse* quadrant (see Figure WG2, Web Appendix S1: G). This is particularly the case for *Substance Use*, which was most prominent at the start of the twenty-first century.

However, in light of the COVID-19 pandemic, healthcare topics might change their trajectory and see a revival of research interest. We discuss this in more detail later in this section. As healthcare research continually declined over the past 21 years, researchers diverted interest toward other areas of study, particularly those related to sustainability.

Although most topics related to sustainability steadily gained coverage over the 21-year period, new ones have recently emerged. *Food Waste* has emerged as one of the most prevalent and impactful topics in the field, as its relevance to environmental, social, and economic issues is currently among the most challenging worldwide concerns (Garcia-Garcia et al., 2017). Similarly, as technological advances support the emergence of autonomous driving, vehicle electrification, connectivity (e.g., mobility services, location-based automotive services, in-vehicle content, and remote analytics), and diverse mobility (e.g., specialized vehicles and services designed for specific consumer needs), *Automotive Vehicle* research has also emerged as an important topic (Bajpai, 2016; Springer India-New Delhi, 2016) (see Figure WG1, Web Appendix S1: G). In contrast to the emerging topics in

non-marketing disciplines, some topics in this quadrant were consistently focused on over the 21-year period. Examples include *Online Commerce*, which emerged in 2004, and *Tourism*, which emerged in 2006. As the circumstances, trends, and issues are constantly evolving for both topics, research in these areas has sustained (Bowen & Whalen, 2017; Yrjola, 2017).

Insights for future research

Although several topics are gaining substantive interest outside of the marketing discipline, it is noteworthy that not all of these topics are theoretically and/or substantively relevant to marketing scholars. For example, adopting automotive and supply chain research in the same way as non-marketing disciplines may not be directly related to marketing concepts, practices, and theories, and thus potentially inconsistent with the content and focus of marketing research. We instead encourage marketing scholars to focus on broader theoretical constructs in the context of such topics, such as inclusive design with mobility services and consumer preference, attitudes, and behavior in the context of supply chain disruption. From this perspective, while it might not be advisable for marketing scholars to research all prevalent and high impact topics in this quadrant, they might be appropriately positioned to reconsider, develop, and implement current marketing theories and concepts in the context of these emerging high-growth areas.

For *Outside-Dominant* topics that are emerging as the most popular and impactful in the field, we thus draw attention to those that might be more relevant to research in marketing. For instance, given the pivotal role that consumers play in relation to food waste, this topic is considered an important area for future research. Approximately 40–50% of food waste occurs at the household level (Aschemann-Witzel et al., 2015; FAO, 2013), resulting in significant financial and environmental costs (Garcia-Garcia et al., 2017). According to Russell et al. (2017), consumer intent, emotions, and habits are important determinants of food waste behavior. Thus, examining the factors that influence consumer perceptions and behavior related to food waste (Aschemann-Witzel et al., 2015) and designing strategies to reduce consumer-related food waste are of vital importance.

Given the increasing interest that consumer research on *Sustainability* is gaining in recent years, this topic is also an important area for future research. *Sustainability* plays an important role in consumer attitudes and behavior, and is among the key considerations for consumers when making purchasing decisions (Szegedi, 2022). Examples include avoidance of single-use plastic products and packaging, as well as preference and selection of brands that are ethical as well as both animal and environmentally friendly. Consumer awareness of carbon emissions also continuous to grow, which has seen consumers increasingly factoring carbon information into their spending decisions, and also taking note and

evaluating business' carbon credentials (Blakkarly, 2022). In a recent survey of more than ten thousand US adults (Tyson et al., 2022), 69% of respondents prioritized renewable energy sources over expanding the production of oil, coal, and gas. Increasing consumer awareness and subsequent behavior in this domain makes *Carbon Footprint* a highly prevalent and impactful topic in the field, and a key area for future consumer research.

We further highlight some additional topics for future research based on their emergence, prevalence, and impact in the field. These include *Online Commerce* and *Innovations & Adoption* (e.g., mobile applications and digital services). Marketplace behavior, online consumption, and digital adoption continue to change as a result of the COVID-19 pandemic (Malter et al., 2020). This also entails how consumers view, adopt, and engage with healthcare innovations. As a result of consumer mental and physical healthcare needs significantly changing in the wake of the pandemic, consumer engagement and adoption of virtual health and remote monitoring technologies has matured, and willingness to share personal health data for the use of each of these innovations continues to grow (Betts et al., 2020; Cordina et al., 2021). Thus, although healthcare topics have recently declined, marketing scholars expect that future consumer research will focus on a variety of topics in this domain, given the context of the COVID-19 pandemic (Malter et al., 2020).

Recent research developments in marketing

As described in *Data collection*, the current review utilized consumer research articles that were published from 1999 to 2019. We therefore reviewed the marketing literature for consumer research articles published after 2019, to determine if the non-marketing topics that we highlighted as emerging areas of consumer research that might be relevant to the marketing discipline have been picked up by marketing scholars. Interestingly, we observed that *Food Waste* was emerging as a nascent topic in the marketing discipline around 2016, with research focusing on the effect of plate material on food consumption and waste (Williamson et al., 2016), as well as how food waste occurs from consumer behaviors at the pre-acquisition, acquisition, consumption, and disposition stages (Block et al., 2016). In this particular article, the authors recognized *Food Waste* as a substantive issue and encouraged future research to focus on the psychological underpinnings of consumer-level food waste. More recently, additional marketing articles have examined *Food Waste*, each approaching this topic from varying perspectives. Examples include the impact of product labeling on the likelihood of purchasing unattractive produce (Mookerjee et al., 2021), political influences on food waste and overconsumption (Mas et al., 2022), and the influence of consumer movements on mitigating excessive production of food waste (Gollnhofer et al., 2019). A *recent Journal of Consumer Psychology* article also

developed a 6-item scale to measure attitudes toward food waste aversion and its relationship with BMI as well as refrigeration of food leftovers (Raghunathan & Chandrasekaran, 2020). It is clear that *Food Waste* is being adopted in the marketing discipline, and likely to sustain attention in future research.

Similar to *Food Waste*, *Sustainability* is also of increasing interest to marketing scholars. A recent article published in the *Journal of Consumer Psychology* (Bublitz et al., 2023) proposed a framework for understanding how consumer values, including environmental sustainability, ethics, equity, and health, influence consumer food choices. Chernev and Blair (2021) also addressed consumer choices in the context of *Sustainability*, by focusing on consumer beliefs and perceived performance of products made from sustainable and environmentally friendly technologies. Meanwhile, Salnikova et al. (2022) showed that consumers' global–local identities can affect how they engage with global brands, based on the brands' environmental sustainability initiatives (e.g., Colgate's *#EveryDropCounts* initiative for consumers to share their hashtag as a pledge to save water).

Given that the post-2019 period coincided with a unique global event, several recent consumer research articles have covered a breadth of issues relevant to the COVID-19 pandemic and health decision making. For example, a study focused on consumer choice and emotion found that cues of contagious disease increase fear, which in turn influence consumer preference for more familiar products (Galoni et al., 2020). Boyle et al. (2020) focused on grocery-shopping behavior during the pandemic and found that with increased awareness of health and wellbeing, shoppers broadened the range of groceries that they typically purchase by including more fruits, vegetables, and meats in their purchases. The *Journal of the Association of Consumer Research* (JACR) recently devoted an issue to COVID-19. This issue covered a range of topics in the context of the pandemic, including consumer selection and preference for supplier products (Kwon et al., 2022), news consumption, and information sharing (Jun & Johar, 2022), and consumers' fairness perceptions in response to pricing changes (Friedman & Toubia, 2022). Overall, given the lasting impact of the pandemic, a variety of consumer research topics under the umbrella of health and decision making are emerging in marketing and might see continued interest.

Globally Prominent: High inside and high outside prevalence

Quadrant overview

This quadrant consists of a total of seven topics, five substantive and four theoretical in nature, and includes a mixture from the "*Organizational*" and "*Specific Consumer Markets*" topic clusters (see Figure 3). Each topic is highly prevalent among both inside and outside journals, including *Consumer Choice*, *Food and Nutrition*, *Household Income and Expenses*, *Market Segmentation and Strategy*, *Pricing and Promotions*, *Product Design*, and *Social Norms and Interactions*.

Although popular in both inside and outside journals, marketing and/or non-marketing disciplines have focused on some *Globally Prominent* topics more than others (see Figure WG4, Web Appendix S1: G). This is particularly the case for *Household Income & Expenses*, which is emphasized more in outside than in inside journals, and the *Consumer Choice* and *Product Design* topics, which are more focused on within the marketing discipline. For other topics in this quadrant, prevalence is similar among both inside and outside journals.

Most *Globally Prominent* topics do not appear to be trending in any given direction (i.e., are not increasing or decreasing in prevalence) and have thus remained stationary over the past 21 years, with the exception of *Consumer Choice*, which has become increasingly prevalent since 2016, and *Food and Nutrition*, which emerged in 2006. For all topics in this quadrant, the observed trends indicate that they should remain prevalent in the coming years in both inside and outside journals. This is particularly the case for *Social Norms & Interactions*, which Bavel et al. (2020) acknowledge has significantly changed because of the COVID-19 pandemic. Examples include public adherence to social distancing and public hygiene policies, and increased adoption of digital technologies (Bavel et al., 2020; Budd et al., 2020). Since social norms are closely related to consumer behavior (Yang et al., 2020) and has also been one of the most impactful topics within this quadrant in recent years (see Figure WH2, Web Appendix S1: H), we expect it to remain an important area for future research.

Sparse: Low inside and low outside prevalence

Quadrant overview

The *Sparse* quadrant is comprised of seven topics, each currently the least researched and least impactful across both inside and outside journals. Following the trend of healthcare topics in the *Outside-Dominant* quadrant, *Coaching & Counseling* and *Healthcare Services* research are also decreasing in their prevalence over time. Hence, we see their transition from the *Outside-Dominant* quadrant to the *Sparse* quadrant in the 2017–2018 time period. Apart from these, other topics, such as *International Relations*, were consistently less prevalent throughout the 21-year period. Overall, *Sparse* topics appear to be niche research areas; given the trends observed in our review, they do not appear to be poised to change in status in the coming years.

Consumer psychology: High inside and low outside prevalence

Quadrant overview

Contrary to the *Outside-Dominant* quadrant (low inside and high outside prevalence), topics within the *Consumer Psychology* quadrant currently receive less coverage from outside journals but remain highly prevalent in the marketing discipline (i.e., *inside dominant*). This quadrant has 22 topics (12 substantive and 10 theoretical topics), which are predominantly focused on understanding individual consumers (e.g., as opposed to businesses or the environment). Sixty-five percent of the topics from the "*Consumers & Consumption*" topic cluster (see Figure 3) are part of this quadrant. Examples of topics include *Personality Traits*, *Persuasion*, *Sensory Processes*, *Atmospherics*, and *Memory and Learning.*

Several topics from the *Consumer Psychology* quadrant are progressively diminishing in prevalence over time. This is most notable for research addressing *Judgment* and *Memory & Learning*, which was popular in the early 2000s. As research interest in these topics declined, a range of other topics progressively gained marketing scholars' attention, including *Construal Level Theory*, *Consumption Experience*, *Design & Aesthetics*, *Giving Behavior*, *Personality Traits*, *Self-Regulation*, and *Word of Mouth*. Consumer Psychology topics that are increasing, declining, and remaining relatively consistent in their prevalence over the past 21-years are illustrated in Figure 5.

Understanding what drives consumer behavior is of considerable interest in marketing, as evinced by the topics increasingly prevalent within the *Consumer Psychology* quadrant. Nevertheless, while each topic offers unique perspectives on consumers, they are not among those that are most recently impactful in the field (see Figure 6). In contrast, seven of the 10 most recently impactful topics in the field have emerged from outside journals (see Figure 6). As also discussed in *Outside-dominant: Low inside and high outside prevalence*, therein lies potential opportunity for marketing scholars to consider and apply marketing constructs and theories to emerging high-growth domains. For example, given the recent interest in *Food Waste* and *Sustainability*, marketing theories such as *self-regulation* and *construal level theory* may offer unique insights and understanding of consumer behavior in the context of these topics (Reczek et al., 2018; Russell et al., 2017).

Considering that marketing scholars have also recently shown interest in understanding consumer preference and choice that support environmental sustainability (Salnikova et al., 2022), continued research in this area is envisaged. According to Viciunaite and Alfnes (2020), consumers are willing to reward firms that incorporate information about the sustainability of their business models into their value proposition.

This not only drives commercial benefits for sustainable firms but also reinforces sustainable consumption (Viciunaite & Alfnes, 2020). Since consumer demand for greener products is on the rise (Reints, 2019), we further suggest that topics related to *Sustainability* and *Carbon Footprint* be considered in the context of *Product Design*, *Branding*, and *Persuasion*.

Impactful marketing topics

Although some *Consumer Psychology* topics have not been among the most impactful in the field overall, they have been gaining citations in recent years. *Decision Making Processes*, for example, has been increasingly impactful in recent years (see Figure WH6, Web Appendix S1: H) and has become the second-most impactful topic within the quadrant (since 2017) (see Figure WH4, Web Appendix S1: H). Interestingly, *Word of Mouth* is cited as often as *Decision Making Processes* and has also recently emerged as a highly impactful topic, despite being less prevalent than several topics within this quadrant.

Illustrative exemplars

Recognizing that the recent increase in citations for *Decision Making Processes* and *Word of Mouth* is greater than other topics in the *Consumer Psychology* quadrant (see Figure WH4, Web Appendix S1: H), we focused on the articles that address these specific topics to gain a better understanding of how they are researched. We produced word clouds to identify the most prominent terms within these articles, and also identified the topics most frequently addressed in *Word of Mouth* and *Decision Making Processes* research. We find that *Decision Making Processes* is largely used to deepen understanding of *Consumer Judgment* and *Choice*, as each of these topics are among that most commonly co-occur with the *Decision Making Processes* topic. Within these articles, the terms *Choice*, *Preference*, and *Brand* are frequently used, demonstrating that brand selection is largely focused on in the study of consumer decisions.

In contrast to *Decision Making Processes*, we find that *Word of Mouth* is associated with a more diverse range of topics. Examples include *Personality Traits*, *Consumer Judgment*, *Persuasion*, and *Entertainment*. *Word of Mouth* has a profound impact on how consumers make choices about brands, products, and services, recently through social media channels (Glover, 2022). Hence, we found that the terms *Brand*, *Product*, *Reviews*, *Social*, *Media*, and *Tweets* are heavily emphasized in *Word of Mouth* studies. According to Huete-Alcocer (2017), consumers are increasingly using social media to share their opinions, reviews, and experiences about the products and services they have consumed and to research the brands that sell them. Given that *Word of Mouth* is among the most valuable form of consumer-to-consumer communication, this

FIGURE 5 Topic prevalence – consumer psychology quadrant topics. (a) Consumer psychology topics increasing in popularity. (b) Consumer psychology topics declining in popularity. (c) Consumer psychology non-trending topics.

topic is increasingly gaining the interest and attention of researchers in the field (Huete-Alcocer, 2017; Whitler, 2014).

FT50 journal analyses

Within the *Consumer Psychology* quadrant, the topics that are becoming increasingly popular are also most
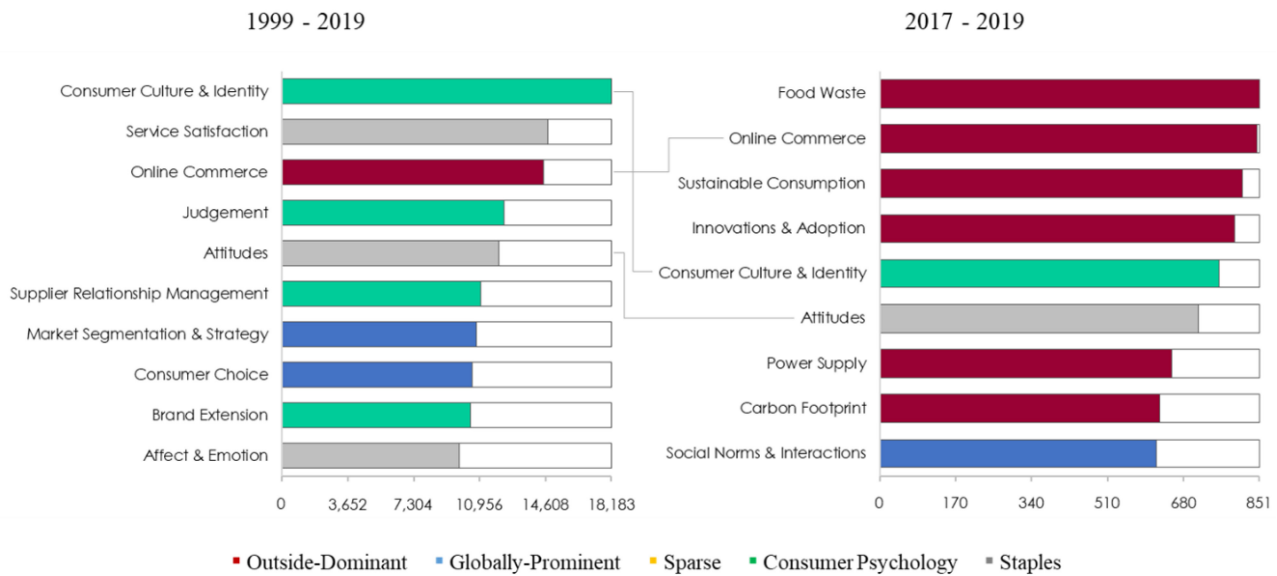
FIGURE 6 Top 10 Topics – Ranked by Citation Impact. This figure presents the topics that have the highest citation impact in the field. Most of the topics with the highest impact since 2017 are not among those in the past 21 years combined, as they more recently emerged as popular topics. Seven of the top 10 recently impactful topics have emerged from outside journals (i.e., the *Outside Dominant* quadrant).

TABLE 1 Marketing FT50 journal comparisons for *Emerging Consumer Psychology* topics.

Marketing FT50 journal	Prevalence	z-score (prevalence)	Trend (prevalence)
Journal of Consumer Psychology	0.207	1.431	0.0108
Journal of Consumer Research	0.166	0.802	0.0088
Journal of Marketing Research	0.126	0.189	0.0074
Journal of Marketing	0.076	−0.577	0.0042
Journal of the Academy of Marketing Science	0.076	−0.577	0.0025
Marketing Science	0.031	−1.267	0.0017

Note: It is applicable to *Consumer Psychology* (inside dominant) topics that are emerging as important areas of research. These topics include *Construal Level Theory*, *Consumption Experience*, *Design & Aesthetics*, *Giving Behavior*, *Decision Making Processes*, *Personality Traits*, *Self-Regulation*, and *Word of Mouth*. To determine which FT50 Marketing journals are most focused on these topics, their combined prevalence within each journal is listed. Given that the number of consumer research articles included in our sample vary between journals, topic prevalence is normalized to each journal to ensure like-for-like comparisons are drawn. We also illustrate the extent to which each journal is increasingly focusing on these topics by applying a trendline to their combined prevalence over a 21-year time series. The slope for each journal's trendline is also presented in this table.

impactful, as their topic impact scores are 35% higher than other topics within this quadrant. We therefore combined the prevalence of the topics that are becoming increasingly popular and compared it across the marketing FT50 journals, to determine which marketing journals are at the forefront of the growth in topics that are emerging as most popular and impactful in the discipline. We observed that the combined prevalence for such topics is consistently the highest within *JCP*, followed by *JCR* and then *JMR*. We also measured the slope for their trendlines over the past 21 years, to establish which journals are increasingly focusing on these topics over time. Our results showed that this is highest for *JCP*, followed by the *JCR* (see Table 1).

In addition to measuring and comparing the *combined* prevalence of all topics that are emerging within the *Consumer Psychology* quadrant as a group, we also compare the prevalence of each individual topic across each of the marketing FT50 journals. This enables us to distinguish which journals are most focused on each topic and driving their emergence and popularity in the field. As shown in Table 2, *JCP* has the highest prevalence for most of these topics, including *Design & Aesthetics*, *Giving Behavior*, *Decision Making Processes*, and *Personality Traits*. Further, while *Construal Level Theory* and *Consumption Experience* are most prevalent within *JCR*, *Self-Regulation* is equally prevalent in *JCR* and *JCP* (see Table 2).

We also measured how similar the range of topics covered by each journal is. As shown in Figure 7b, *JCR* and *JCP* have consistently remained in the same competitive space throughout the 21-year period. In contrast, during this time, other marketing journals extended their scope into *JCR* and *JCP's* traditional research domains. In particular, prior to 2011, the *Journal of Marketing Research* and *Journal of the Academy of Marketing Science* (*JAMS*)

TABLE 2 Marketing FT50 journal comparisons for *Emerging Consumer Psychology* topics.

Consumer Psychology Research Topics	JAMS	JCP	JCR	JM	JMR	MS
Construal Level Theory	0.004	0.024	0.032	0.006	0.015	0.002
Consumption Experience	0.011	0.019	0.027	0.007	0.014	0.008
Design & Aesthetics	0.008	0.020	0.018	0.008	0.010	0.002
Giving Behavior	0.006	0.019	0.016	0.014	0.009	0.004
Decision Making Processes	0.004	0.058	0.014	0.006	0.025	0.002
Personality Traits	0.016	0.032	0.023	0.012	0.018	0.001
Self Regulation	0.016	0.025	0.025	0.017	0.022	0.003
Word of Mouth	0.010	0.010	0.011	0.007	0.012	0.010
Methodological Topic						
Data Mining	0.006	0.004	0.002	0.004	0.008	0.012
Experimental Research	0.031	0.073	0.130	0.040	0.081	0.042
Latent Variable Modelling	0.058	0.016	0.007	0.034	0.007	0.010
Qualitative Research	0.009	0.017	0.016	0.011	0.005	0.008
Statistical Estimation	0.025	0.012	0.010	0.044	0.091	0.182
Survey Research	0.061	0.032	0.027	0.042	0.031	0.018

Legend: Low / Moderate / High
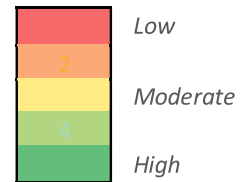
Note: For the Consumer Psychology topics that are emerging as important areas of research, as well as each methods-based topic, their prevalence among each FT50 Marketing journal is listed in this table. Given that the number of consumer research articles included in our sample vary between journals, topic prevalence is normalized to each journal to ensure like-for-like comparisons are drawn. Each cell is highlighted from red to green to illustrate which journals have lower to higher prevalence for each topic, in comparison to other journals. As described in *Identification of consumer research topics*, the *Data Mining*, *Latent Variable Modeling*, *Statistical Estimation*, and *Agent-based Models* topics were consolidated as *Empirical Modeling*. The *Empirical Modeling* topic group has been collapsed to show how each of its underlying topics vary between journals. The *Agent-based Models* has been omitted from FT50 Marketing journal comparisons, as this method is predominantly used in non-marketing journals for optimization and computerized simulation related studies.
Abbreviations: JAMS, *Journal of the Academy of Marketing Science*; JCP, *Journal of Consumer Psychology*; JCR, *Journal of Consumer Research*; JM, *Journal of Marketing*; JMR, *Journal of Marketing Research*; MS, *Marketing Science*.

continually extended the breadth of consumer research topics that they covered. As a result, the range of topics covered by *JMR* and *JAMS* became increasingly similar to those covered by *JCR* and *JCP* (see Figure 7) in the field.

Consistently researched Consumer Psychology topics
While various areas of research (within the marketing domain) emerged as others declined, it is noteworthy that several topics have been consistently researched over the past two decades. For instance, aside from some sporadic peaks, *Atmospherics*, *Entertainment*, and *Sensory Processes* have maintained a relatively consistent level of coverage among inside journals (see Figure 5c). Coverage of *Consumer Culture & Identity* has also remained consistent since 2006 (i.e., no increasing or decreasing trend) and is the most-cited topic in the field over the past 21 years (See Figure 6). It is thus likely to remain a popular research topic in marketing.

Staples: Non-quadrant topics

Unlike the topics assigned to each quadrant, which are either similarly low, similarly high, or distinct in their level of coverage between inside and outside journals,

Staples are topics that are moderately prevalent (i.e., topics whose prevalence is ranked between the 40th and 60th percentile among either journal category). For most of these topics, their prevalence among inside and outside journals was consistently similar throughout the 21-year period. As such, these topics are best characterized as ongoing areas of research, both within and outside the marketing domain. Overall, 30% of the topics within this quadrant are from the "*Consumers & Consumption*" topic cluster (see Figure 3), 30% from the "*Organizational*" cluster, 35% from the "*Information & Communication*" cluster, and 5% from the "*Specific Consumer Markets*" cluster.

While most of the topics in *Staples* quadrant are similarly prevalent among marketing and non-marketing disciplines, a subset was found to differ (see Figure WG6, Web Appendix S1: G). *Decision Complexity* and *Affect & Emotion* are relatively more prevalent within inside journals, whereas *Loss Aversion* and *Urbanization* are emphasized more in outside journals (see Figure WG6, Web Appendix S1: G). Further, the prevalence of *Attitudes* research has diverged between the two journal categories, trending in opposite directions (declining in inside and increasing in outside journals). Regardless, *Attitudes* has remained among the most impactful topics in the field, both overall and in recent years (see Figure 6).
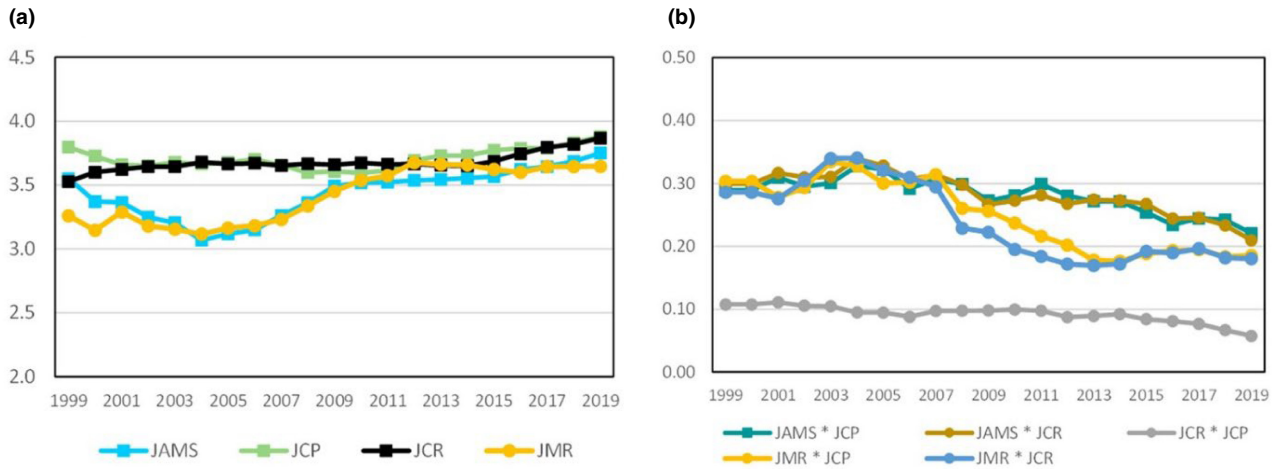
FIGURE 7 Marketing FT50 Journal Comparisons: Topic Entropy and Dissimilarity. To visualize the breadth of topics covered by each journal and their (dis)similarity to each other, (a, b) plots topic entropy and JSD over a 21-year time series, respectively. As shown, the range of topics covered by JCR and JCP remained relatively similar over time. For JAMS, the breadth of consumer research topics continues to expand and is thus becoming similar to JCR and JCP. For JMR, the breadth of topics continued to expand up to 2011 and became more similar to JCR and JCP during this period. From 2012, the extent of JMR's similarity to JCR and JCP remained relatively stationary, as JMR's breadth of topics remained constant (no increase or decrease in entropy).
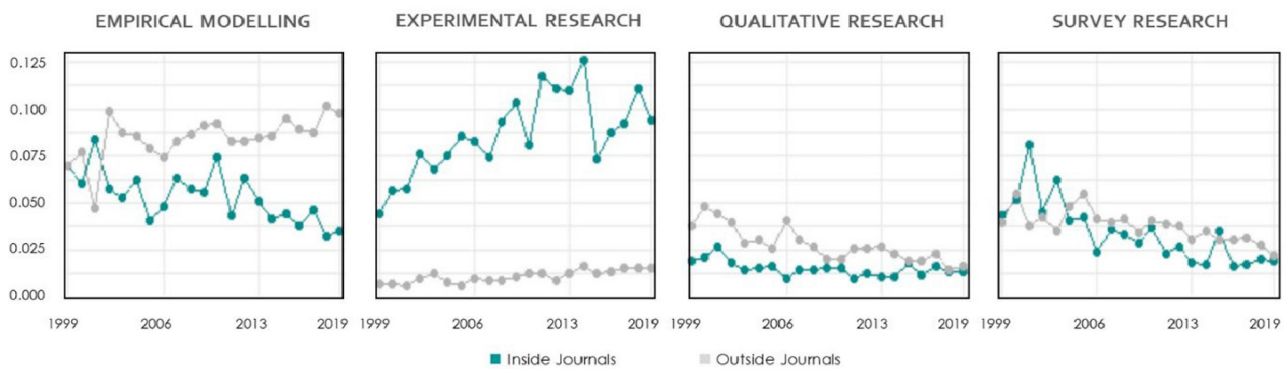
FIGURE 8 Trends in Research Methods. This figure plots the prevalence for each methods-based topic within each year of the 21-year time series. Both the prevalence and overall trend for Qualitative Research and Survey Research are similar between inside and outside journals. In comparison, Empirical Modeling is increasingly prevalent among inside journals, whereas Experimental Research is clearly more popular within the marketing discipline.

Trends in consumer research methodologies: An inside versus outside comparison

As described in *Identification of consumer research topics*, we identified several methodological approaches as topics via the topic modeling process, each varying in the extent to which they are used by inside and outside journals. Our findings demonstrate that inside journals are becoming increasingly isolated in terms of the methods used for consumer research. As Figure 8 shows, inside journals are increasingly focusing on *Experimental Research*, which is rarely used by outside journals. Meanwhile, although *Empirical Modeling* is progressively growing among outside journals, its application to consumer research continues to decline in the marketing domain. For both inside and outside journals, *Survey Research* is declining over time, and *Qualitative Research* is consistently less prevalent (see Figure 8).

When comparing the prevalence of each method between inside and outside journals, we also observed divisions in their usage within the marketing domain. Unsurprisingly, as compared to other FT50 marketing journals, *JCR* and *JCP* have the highest prevalence for *Qualitative Research* and *Experimental Research*, and the lowest prevalence for *Statistical Estimation* and *Data Mining*. As Table 2 shows, while the application of *Latent Variable Modeling* is highest in *JAMS*, *Statistical Estimation* and *Data Mining* are utilized most in *MS*, followed by *JMR*. Both of these methods have been applied to various data sources across a range of studies. Examples include the use of Bayesian profiling to infer consumer attributes from aggregated datasets (Bryun & Otter, 2022), leveraging stochastic variational inference to evaluate consumer preferences from online recommender systems (Ansari et al., 2018), applying convolutional neural networks to online images to measure how

TABLE 3 Common topics examined by research method.

Research method	Popular topics	Topic quadrant group
Experimental Research	Judgment	Consumer Psychology
	Consumer Choice	Globally Prominent
	Construal Level Theory	Consumer Psychology
	Affect & Emotion	Staples
	Self-Regulation	Consumer Psychology
Statistical Estimation	Household Income & Expenses	Globally Prominent
	Loss Aversion	Staples
	Consumer Choice	Globally Prominent
	Transport	Outside Dominant
	Customer Loyalty	Consumer Psychology
Survey Research	Organizational Dynamics	Staples
	Supplier Relationship Management	Consumer Psychology
	Psychotherapy	Outside Dominant
	Health Intervention & Preventative Care	Outside Dominant
	Ethics	Staples
Latent Variable Modeling	Online Commerce	Outside Dominant
	Organizational Dynamics	Staples
	Innovations & Adoption	Outside Dominant
	Supplier Relationship Management	Consumer Psychology
	Service Satisfaction	Staples
Qualitative Research	Consumer Culture & Identity	Consumer Psychology
	Health Intervention & Preventative Care	Outside Dominant
	Sexual Risk Behavior	Outside Dominant
	Healthcare Services	Sparse
	Supplier Relationship Management	Consumer Psychology
Data Mining	Power Supply	Outside Dominant
	Queueing Theory	Outside Dominant
	Market Segmentation & Strategy	Staples
	Word of Mouth	Consumer Psychology
	Online Commerce	Outside Dominant
Agent-based Models	Power Supply	Outside Dominant
	Supply Chain	Outside Dominant
	Queueing Theory	Outside Dominant
	Business Strategy	Staples
	Household Energy Consumption	Outside Dominant

Note: This table lists the most prevalent topics among the research articles to which each method has been applied. By referencing the methods listed in this table against those underused by each journal (see Table 2), the specific topics that each journal can extend their scope toward (through increased adoption of such methods) can be determined. As described in *Identification of consumer research topics*, the *Data Mining*, *Latent Variable Modeling*, *Statistical Estimation*, and *Agent-based Models* topics were consolidated as *Empirical Modeling*. We have thus collapsed the *Empirical Modeling* topic group to illustrate the specific topics that are most related to each of its underlying methods. The methods listed in this table are arranged in terms of their prevalence among Consumer Psychology quadrant.

brands are portrayed on social media (Liu et al., 2020), and using cluster analysis for market segmentation (Liu et al., 2010).

While it is important to identify new research topics to prioritize in future research, for the field to grow, it is also necessary to adopt new research methods (Lehmann, 1999; Malter et al., 2020). In addition to enabling the collection and analysis of different sources of consumer data, such as unstructured text, images, media, and sound (Malter et al., 2020), the adoption of new methodologies might provide opportunities to grow into the research areas that each method is typically applied to and suited for. For example, Table 2 shows that although *Statistical Estimation* and *Data Mining* are underrepresented in *JCR* and *JCP*, other journals commonly apply them to examine *Loss Aversion*, *Customer Loyalty*, *Market Segmentation*, and *Word of Mouth* (see

Table 3). Hence, through increased adoption of methodologies that are popular in other FT50 journals, such as *Statistical Estimation* and *Data Mining*, both *JCR* and *JCP* have an opportunity to broaden their scope to related topics of study. Table 3 lists the research topics most closely associated with each method.

FURTHER INSIGHTS AND DISCUSSION

Impactful areas for future research

According to Lehmann (1999), for consumer research to progress, it must focus on under-researched topics and include new theories, methods, and areas of substantive interest. We applied topic modeling to 21 years of

consumer research literature to conduct a comprehensive review of the field aimed at identifying topics that are emerging, declining, and impactful among marketing and non-marketing disciplines. In doing so, we have gained insights into fruitful avenues for future research that can potentially help broaden the scope and increase the impact of consumer research in the marketing discipline.

Emerging topics

Several topics that have emerged from non-marketing disciplines are showing significant growth in coverage and citations. These topics reflect emerging contemporary issues pertinent to consumers, such as food waste, technology, and sustainability. Recently, marketing scholars have taken interest in these topics, and are applying various marketing concepts and theories to these emerging areas of interest. We see marketing theories and constructs related to consumer choice, perception, and preference applied in the context of food waste and sustainability. Marketing scholars are also considering a range of consumer relevant issues in the wake of the pandemic. In addition to stimulating new perspectives,

applications, and ways of thinking about marketing constructs and theories, the aforementioned research demonstrates the potential to extend the impact of marketing to wider disciplinary areas. That being said, there are several research topics from the *Consumer Psychology* quadrant that are relevant but have not yet been considered in relation to the topics that are gaining significant interest outside marketing. Examples include *Self-Regulation* and *Construal Level Theory* in the context of *Food Waste* and *Sustainable Consumption*, respectively. We thereby consider these topics, especially those that are emerging in marketing currently, as promising directions for future research (see Table 4).

The areas for future research listed in Table 4 address a range of important topics, significant issues, and emerging phenomenon, through the integration of knowledge from various subject areas. There are, for example, a range of issues related to the impact of the pandemic on consumer adoption of technology, for which knowledge from various domains is required. Examples of recent research in this area have focused on consumer pro-sociality in response to the adoption of robotics innovations for disaster response such as in the event of a pandemic (Chen & Huang, 2022), as well as the influence of consumer privacy and security perceptions on the adoption of mobile payment services

TABLE 4 Suggested areas for future focus.

Under-researched topic (marketing)	Citation impact rank	Description
Food Waste	1	Given that consumer attitudes, perceptions, habits, emotions, and self-regulation are important determinants of food waste (Russell et al., 2017), several marketing topics (e.g., self-regulation, personality traits) can be considered in the context of this impactful topic.
Online Commerce	2	Given the rise in online commerce as a result of the COVID-19 pandemic, various marketing topics may offer unique perspectives on this topic. Examples include consumer experience (Vakulenko et al., 2018), word of mouth (Moore & Lafreniere, 2019), and design and aesthetics (Deng & Poole, 2012).
Sustainable Consumption	3	Popular marketing topics like construal level theory (Reczek et al., 2018) and consumer culture (Sassatelli, 2015) can provide unique research perspectives on sustainable consumption. Further, in addition to considering marketing theories and concepts to understand consumer attitude, perception, and selection of sustainable brands, research on pro-environmental messaging strategies that increase sustainable behavior is also encouraged (Catlin et al., 2020).
Innovations & Adoption	4	As a result of the COVID-19 pandemic accelerating consumer adoption of online applications and services, innovations capitalizing on the rise of digital technologies are expected to grow (Akpan et al., 2020; Brem et al., 2021). Given the significant impact that technology has on consumer behavior (Malter et al., 2020), this topic merits ongoing focus in future research.
Carbon Footprint	8	Similar to sustainable consumption, unique perspectives on carbon footprint can be produced from popular marketing topics, particularly those related to behavior, lifestyle, attitudes, and culture (Schanes et al., 2016).

Note: This table presents the topics that have emerged in non-marketing disciplines but remain under-researched in marketing. Their impact is based on citations from 2017 to 2019 and is ranked on their position among all research topics.

(Khanra et al., 2021). Consumer acceptance of healthcare innovations is also an area of substantive interest, which has resulted in greater adoption of technologies such as virtual healthcare and remote monitoring services, in the wake of the pandemic (Betts et al., 2020; Cordina et al., 2021). Given that consumers are more willing to share personal data for the usage of these services than ever before (Betts et al., 2020), ongoing adoption of healthcare technologies and innovations is envisaged, and likely to remain an important area for consumer research.

Although the adoption of healthcare technologies improves consumer accessibility to healthcare services, their acceptance and adoption also advances the capability to collect and analyze big data for knowing, predicting, and influencing consumer behavior (Acquisti et al., 2020; Sigala, 2020). Ethical and privacy considerations are therefore required for the purpose and application of such technologies (Herschel & Miori, 2017; Krishna, 2020). Hence, in addition to conducting consumer research in the context of healthcare and technology, consideration of ethics and privacy issues is also recommended.

Of course, ethical issues related to consumption span beyond the healthcare domain. According to Malter et al. (2020), digital innovations significantly influence the nature of consumption and are continually integrated into consumers' lifestyles. With consumers becoming acclimated to digital lifestyles that are further accelerated by the pandemic (Pandenonics, 2020), an expanding list of research questions that do not currently exist will be presented to the field, including the impact of digital technologies on concepts of the self and identity (Malter et al., 2020).

Methodological considerations

In addition to changing the nature of consumption, technology also influences the methods available for consumer research through the addition of new sources of data (e.g., text, voice, images, multimedia, transactions, and online events) and improved capability to process and analyze them (Erevelles et al., 2015; Malter et al., 2020). Such advances enable researchers to tap into a wealth of big data sources to deepen understanding of consumers' thoughts, attitudes, feelings, and behavior. However, when adopting new methodologies to collect and analyze emerging data sources, researchers will need to take a critical approach to ensure validity, statistical power, and significance in their work (Malter et al., 2020).

Concluding remarks

Overall, our review finds that the range of consumer research topics covered by marketing journals is expanding over time, as researchers continually address new issues and topics to deepen our knowledge and understanding. While additional ideas, concepts, and theories will advance the study of consumer behavior (Lehmann, 1999), could further broadening of the range of topics lead to a reduction in deeper, more focused research? Or will the field see more clustered subsets of specialized research areas? These questions should be considered when planning for future research.

Over the past 21 years, consumer research has developed significantly and is thriving, thanks to knowledge contributed from both marketing and non-marketing disciplines. This review provides greater understanding of how the field is evolving as well as the direction it is progressing toward. It also highlights the potential benefits of including more cross-disciplinary topics and combining multi-topic perspectives in research. By identifying relevant and impactful topics for researchers to consider in future studies, we hope that our suggestions can contribute to the ongoing development, direction, and progression of the field.

Limitations

Due to our focus on identifying emerging and impactful topics, we excluded research articles from journals with an SJR below 1.5. This reduced the corpus from 30,085 articles to 10,838. While this ensured that we retained articles from more impactful journals, excluded journals may have covered other topics and could be evolving in a different way. Research comparing how consumer research topics differ between less and more impactful journals may produce new insights and further understanding of the field.

We also decided to focus on the relatively more mainstream and high impact consumer research, by using marketing FT50 journals as the "inside" group. While this enabled us to measure the presence and/or absence of consumer research topics from these journals, it is possible that topics and methods may emerge in specialized journals before or after they become mainstream. Future reviews which include a broader subset of marketing journals may generate further insights into how the field is evolving over time.

Finally, our decision to conduct a comprehensive review of the field by reviewing literature from both marketing and non-marketing disciplines potentially precludes emerging trends and pertinent consumer issues not captured in either literature (e.g., those identified in non-academic literature). A similar study that includes consumer- and marketer-generated content (e.g., online media, product reviews, service feedback, and blogging content) could uncover substantive consumer issues currently unaccounted for in academic literature.

ACKNOWLEDGMENT

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

How to cite this article: Camilleri, E., Garg, N., & Miah, S. J. (2023). "Inside" versus "outside" trends in consumer research. *Journal of Consumer Psychology*, *00*, 1–22. https://doi.org/10.1002/jcpy.1349